



The strategic use of public procurement for innovation in the digital economy

Final Report

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**THE STRATEGIC USE OF PUBLIC PROCUREMENT
FOR INNOVATION IN THE DIGITAL ECONOMY
SMART 2016/0040**

FINAL REPORT

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Abstract - EN

The strategic use of innovation procurement can help tackle operational, societal and global challenges that the public sector faces around Europe. Innovation procurement is of strategic importance for economic recovery, being a tool to modernise the public sector and simultaneously speed up the time-to-market for businesses to bring innovations to the market. However, its potential is not fully exploited yet in Europe. In particular, underinvestment in innovation procurement of ICT-based solutions is holding back economic growth in Europe. One particular obstacle that policy makers in Europe face to mainstream innovation procurement, is the lack of comparable data about the current situation and the strengths and weaknesses across different countries in Europe. Therefore, this study developed an approach for systematic measuring and monitoring the progress on innovation procurement and on innovation procurement of ICT-based solutions that has been made so far in 30 countries around Europe: the 27 EU Member States, the UK, Norway and Switzerland. This benchmarking is the first ever exercise to evaluate in a comparable way the maturity of the national policy frameworks for innovation procurement and the amount of public procurement of innovative solutions - including the part invested in ICT - that is taking place across all domains of public sector activity in each of those countries. The aim of the exercise is that this information helps European countries and the European Commission strengthen the public demand for innovative solutions across the whole of Europe. The study is divided in two parts: the first part maps the progress on implementing a comprehensive mix of policy measures to mainstream innovation procurement, the second part estimates the amount of investment in public procurement of innovative solutions that took place in 2018 in the analysed countries. The key output of this benchmarking is a set of 30 country profiles (available in Annex I) providing information on national policy frameworks and investments in innovation procurement in each country and an in-depth comparative analysis of results presenting the main differences and commonalities between countries and clusters of countries.

Executive summary

Introduction to the study

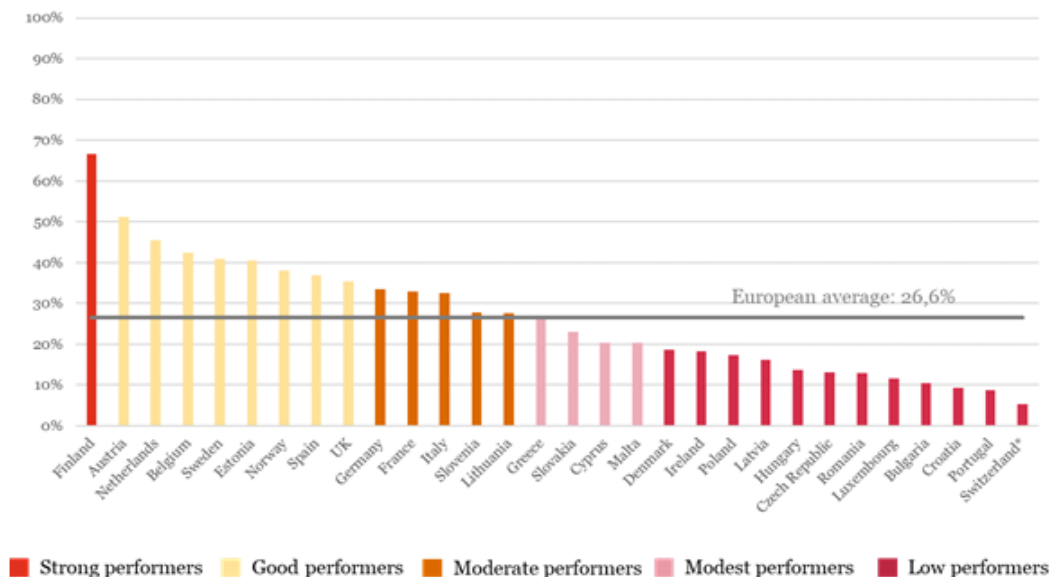
Since 2008, the European Council and the Parliament have been requesting both the European Commission and EU Member States to step up their efforts on innovation procurement to enhance European competitiveness.¹ As reported in a number of studies, **European countries are not fulfilling their potential to foster innovation through public procurement.** The barriers encountered to mainstream innovation procurement were analysed in 2015 by the European Research Area and Innovation Committee (ERAC), which recommended to develop a systematic measurement framework for innovation procurement in order to track the progress made in this field across Europe.

This study was implemented to fill this gap, by developing a methodology that enables to **benchmark national policy frameworks for innovation procurement and national investments in public procurement of innovative solutions across 30 countries (EU 27, UK, Norway and Switzerland) in 2018.** It includes an analysis of investments across different domains of public sector activity (health, transport etc.) and strategic expenditure categories, in particular ICT, that fuel public sector modernisation.

While the benchmarking of policy frameworks covered all forms of innovation procurement – both R&D procurements and public procurements of innovative solutions - the analysis of investment levels in this study focused only on quantifying the amount of public procurement of innovative solutions (PPI). A separate analysis by the European Commission estimated the amount of R&D procurement that took place in 2018. The results of these two analyses are combined in a separate EC report that provides a **full picture on the amount of innovation procurement that takes place across Europe**².

Benchmarking of national policy frameworks - Key findings

Figure 1. Ranking - Benchmarking of national innovation procurement policy frameworks



Source: Author's elaboration

The **benchmarking of national policy frameworks for innovation procurement is based on a compound indicator** composed by a set of 10 multidimensional indicators. The indicators assess to what extent policy measures implemented in different countries build a comprehensive

¹ See in particular: COMP Council Conclusions (30 May 2008, 26 May 2010, 21 February 2014, 27 May 2016), EU Council Conclusions (4 February 2011, 26 April 2012 and 25 October 2013) and EP resolution on PCP (3 Feb 2009).

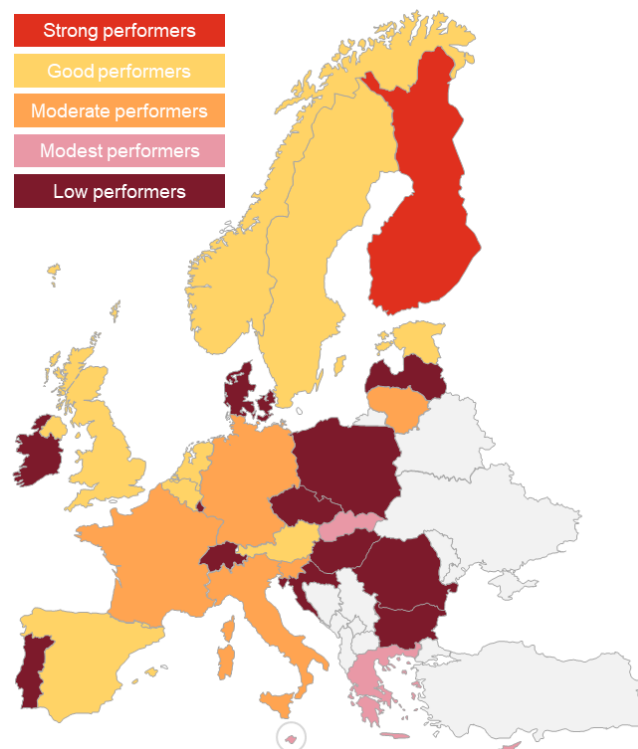
² ' Benchmarking of R&D procurement and total innovation procurement investments in countries around Europe', DG CNECT, https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=69920

innovation procurement policy framework that can mainstream innovation procurement across the country. This ranges from the existence of clear official definitions and legal framework for innovation procurement, the innovation friendliness of the country's procurement market, the extent to which innovation procurement is embedded as strategic priority in horizontal, sectorial and ICT policies, up to the development of action plans, spending targets, incentive mechanisms, monitoring and capacity building measures on innovation procurement. All indicators are multi-dimensional, meaning that they are composed of a set of sub-indicators. Evidence was collected in each country, allowing to analyse the strengths and weaknesses of all countries and compare them according to a common methodology. Figure 1 shows the result of the benchmarking of national policy frameworks across Europe. **Overall, innovation procurement policy frameworks across Europe are working at just above one fourth of their full potential (26,6%).** A large number of countries still lack several pillars of a comprehensive policy framework and score below 20% of their full potential. Even strong and good performers still have significant room for improvement to develop a policy framework operating at its full capacity.

Finland is the only strong performer, scoring consistently above European average on different policy measures. The strong points are that Finland has paired strong political commitment with country-wide coordinated practical implementation of actions to foster innovation procurement. In particular, it has adopted the most ambitious Action Plan with the clearest commitments to mainstream innovation procurement in the country. This enabled to roll out a comprehensive policy framework that has activated most elements of a structured innovation policy framework. However, also for Finland, full capacity is not reached yet. Some policy measures (e.g. to encourage R&D procurement) are not fully developed while others are not fully scaled up yet. Thus, the country still exploits only two-thirds of its full potential. Innovation procurement could be embedded more strategically also in a number of sectoral strategies and the monitoring system could be further structured and reinforced.

Finland is followed by a group of **good performers** (Austria, Netherlands, Belgium, Sweden, Estonia, Norway, Spain, UK) in which the innovation procurement policy framework is operating between one third and half of its full potential. These countries are characterised by a policy framework that usually covers many of the policy measures taken into consideration by the indicators of the study, but typically still not at large capacity. General areas for improvement in this group of countries include the adoption of an ambitious spending target and the development of structured monitoring systems. The cluster of **moderate performers** (Germany, France, Italy, Slovenia, Lithuania) have only activated one quarter to one third of the measures to create a comprehensive innovation procurement policy framework. Countries included in this cluster have rolled out some of innovation procurement policy measures (e.g. in ICT), but tend to lack a comprehensive framework to mainstream innovation procurement widely.

Figure 2. Geographical distribution - Benchmarking of national innovation procurement policy frameworks

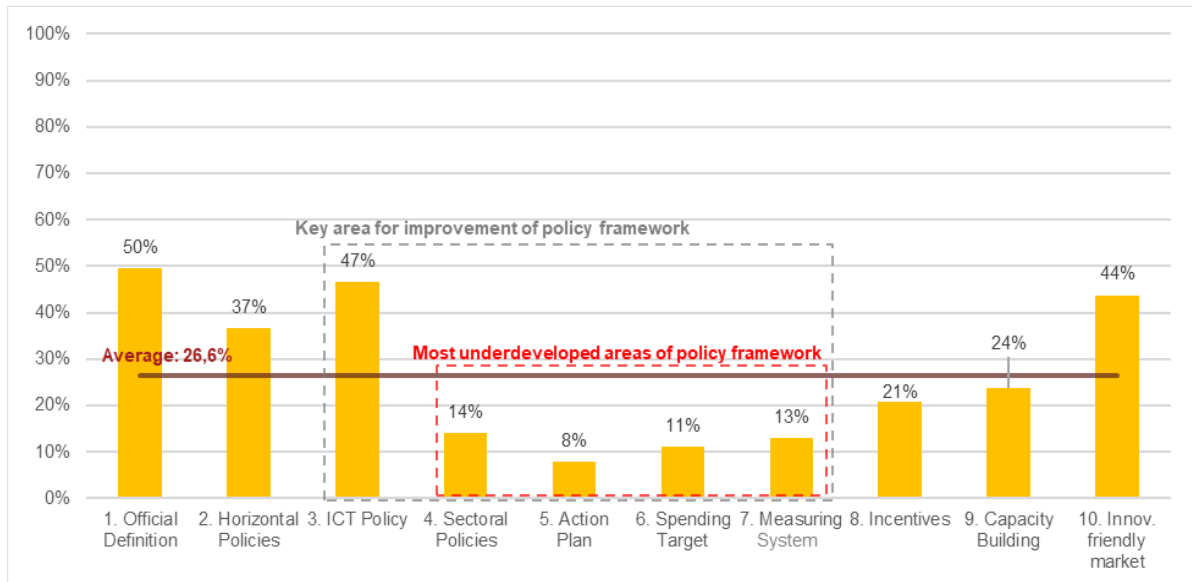


Source: Author's elaboration

The rest of the countries score below the European average. **Modest performers** (Greece, Slovakia, Cyprus and Malta) include countries where the innovation procurement policy framework is operating between one fifth and one quarter of the full potential. In these countries the policy framework is fragmented and is typically missing crucial factors such as clear political ambition and coordinated implementation (e.g. lack of national competence centre). As a result, under multiple indicators, the

policy framework does not provide the necessary policy impetus or practical support to procurers to direct more investments to innovation procurement. **Low performers** (mostly Central-Eastern European countries, with some relevant exceptions) are countries in which the innovation procurement policy framework is operating at very low level, between one twentieth and one fifth of its potential. These countries have a very fragmented policy framework for innovation procurement that is still missing even basic pillars (such as capacity building) with ample areas for improvement under multiple indicators.

Figure 3. European average performance per indicator of the policy framework benchmarking



Source: Author's elaboration

From the analysis of the European average scores per indicator – illustrated in Figure 3 – **the most underdeveloped areas of national policy frameworks for innovation procurement** and the **key areas for improvement** emerge.

- The main factor hampering Europe to make a leap forward is the lack of **political commitment** on innovation procurement across Europe. The majority of countries have not yet set up an action plan for innovation procurement (8%), spending targets (11%), systems to measure progress (13%) and have still not embedded innovation procurement as a strategic priority in several of the sectoral policies in which the public sector is active (e.g. public transport, health, etc.) (14%).
- In that context it is particularly insufficient that only less than half of the countries' ICT policies fully endorse the strategic importance of innovation procurement. The investment benchmarking shows that ICT based solutions are a major driver of public procurement of innovative solutions across all domains of public sector activity (38% of PPI investments across Europe are driven by ICT-based solutions). As ICTs have a crucial impact on public sector modernisation and economic growth, **it is particularly important to embed innovation procurement as strategic priority in all ICT policies in all EU countries** in order to enable Europe to capitalise on the potential of ICTs to boost economic recovery at full speed.
- In parallel, **coordinated practical implementation and support instruments** should also be reinforced across Europe, as it would help public procurers to direct more investments to innovation procurements. So far, only some countries have deployed incentives (21%) and capacity building measures aimed at supporting public procurers at all levels to implement innovation procurement are still insufficient (24%).

Overall, while there is large margin for improvement at both political and implementation level and on all indicators, **at national level** the most urgent effort is needed in terms of political commitment to increase investments in innovation procurement ambitiously and to create a more favourable environment for innovation procurement. In particular, the widespread lack of action plans with ambitious targets as well as weak anchoring of innovation procurement across all sectorial and ICT

policies in which procurement has a large effect on economic growth seem to be the areas that most urgently require action by policymakers.

At European level, more ambitious coordinated action should focus therefore on encouraging more political commitment to support the mainstreaming of innovation procurement across Europe and remove identified EU-wide barriers. These include: the lack of an EU wide action plan for innovation procurement and EU wide targets for public procurement of innovative solutions and for R&D procurement; lack of innovation procurement being endorsed as strategic priority in all sectorial EU and ICT policies; lack of a transparency and competition on the EU public procurement market as well as innovation friendly procurement policies (e.g. need to ensure wide-scale implementation of the new EU wide IPR policy that encourages Member States to leave IPR ownership with suppliers in public procurement³, lack of EU wide policy to reduce the VAT rate for R&D procurement to zero %). Continued regular EU wide benchmarking of national innovation procurement policies and innovation procurement expenditure across Europe is important to track progress and develop coordinated and effective EU actions. The EU should also increase its financial support to innovation procurement through the Recovery and Resilience Facility (RRF) and the programs under the new MFF (Multi-Annual Financial Framework for 2021-2027), in particular to encourage buyers groups from different countries to undertake together pre-commercial procurements and public procurements of innovative solutions. The EU should increase year by year the budget for innovation procurement support under the Horizon Europe program in order to achieve by the end of the program a clear ambition level, ensuring that by 2027, for example 5% of R&I funding across all pillars of Horizon Europe is allocated through innovation procurement actions.

There is evidence that **increased EU wide action can have a major impact**. The study findings show that **innovation procurement occurs more in areas where there is a stronger EU policy** (action plans, targets etc.) that encourage innovation in public procurement (e.g. green procurement policy that has action plans, targets and encourages eco-innovation). Thus, rolling out an EU wide innovation procurement action plan and targets across all areas of public sector activity could have major impact on the total amount of innovative solutions purchased by public procurers. This can give a major boost to EU economic recovery, resilience and EU competitiveness on a global scale.

Benchmarking of national PPI investments - Key findings

In 2018 the **total amount of PPI investment in the 30 analysed countries reached €255 billion excluding defence and €288 billion including defence**. This includes all procurements of innovative solutions carried out by public procurers in the classical⁴, utilities⁵ and defence sector⁶.

The defence sector shows a clearly higher investment intensity in innovative solutions (PPI equals 29% of public procurement) than the classical (PPI equals 10% of public procurement) and the utilities sector (PPI equals 7% of public procurement). The classical sector is the most risk averse in explicitly requesting the delivery of innovative solutions but is more open than the utilities sector to receive unexpected innovative offers from suppliers.

In absolute values, the three largest European economies – Germany, United Kingdom and France – cumulatively account for over half of the total amount of PPI investment across Europe. However, when the amount of PPI investment is compared with the total volume of public procurement in every country (PPI expenditure as a percentage of total public procurement expenditure) it clearly emerges which countries around Europe are leading on modernising their public sector and creating economic growth from public procurement of innovative solutions:

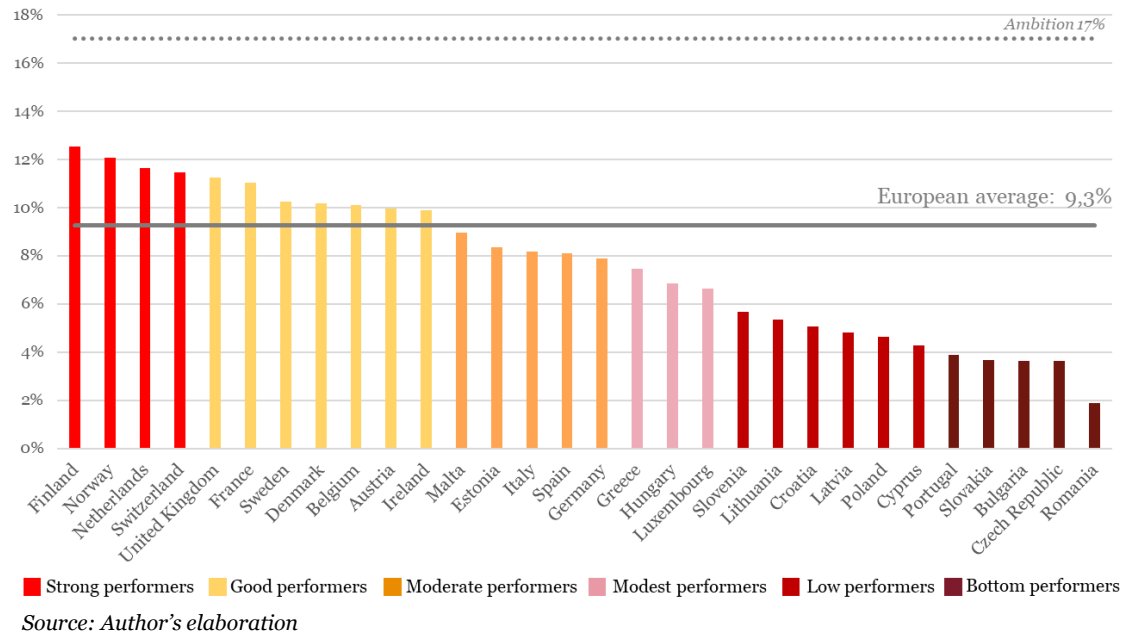
³ COM/2020/760, The new EU IPR action plan to support economic recovery and resilience, adopted on 25/11/2020. More info here: <https://ec.europa.eu/digital-single-market/en/news/eu-recommends-member-states-leave-ipr-ownership-public-procurements-contractors>

⁴ Directive 2014/24/EU on public procurement by public authorities

⁵ Directive 2014/25/EU on procurement by utilities entities operating in the water, energy, transport and postal services sectors

⁶ As defined in Directives 2014/24/EU and Directive 2009/81/EC on defence and security

Figure 4. Ranking – Benchmarking of national PPI investments out of total public procurement (excluding defence)



A healthy economy needs approximately 17% of its public procurement expenditure to be devoted to PPI investments in order to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards.⁷ In 2018, **the 30 countries around Europe devoted only 9,3% of their total public procurement expenditure (10% when including defence) to the purchase of innovative solutions, which is only just above half of the ambition level.** The analysis shows that national innovation procurement targets in several countries were not ambitious enough, as their actual PPI expenditure already exceeded the target. More than half of the countries did not even reach 50% of the ambition level while those countries that achieved this level, show nonetheless significant room for improvement. As a result, a considerable increase of PPI investments is still needed across Europe to reach the level of public procurement devoted to purchasing innovative solutions of a healthy economy.

The geographical distribution of small versus large countries across clusters is quite heterogeneous. There is however a **link between the overall innovation performance of a country and its performance on PPI investment.** More innovative countries (North-West of Europe) generally invest also more in PPI than less innovative countries (South-East of Europe).

Only four countries (Finland, Norway, the Netherlands and Switzerland) are **strong performers.** The overall share of PPI investment out of total procurement in these countries is well above the European average and they are on the good path for reaching the ambition level (they are over 65%). Leading countries buy a higher share of innovative solutions that are of a transformative nature (i.e. new to the market or significantly improved solutions), show a higher adoption of innovations across all domains of public sector activity and are less risk averse than the European average in explicitly requesting the delivery of innovations while remaining also open to unsolicited innovative proposals presented by contractors. However, still a 50% increase in PPI investments is needed to reach full speed public sector modernisation and economic growth.

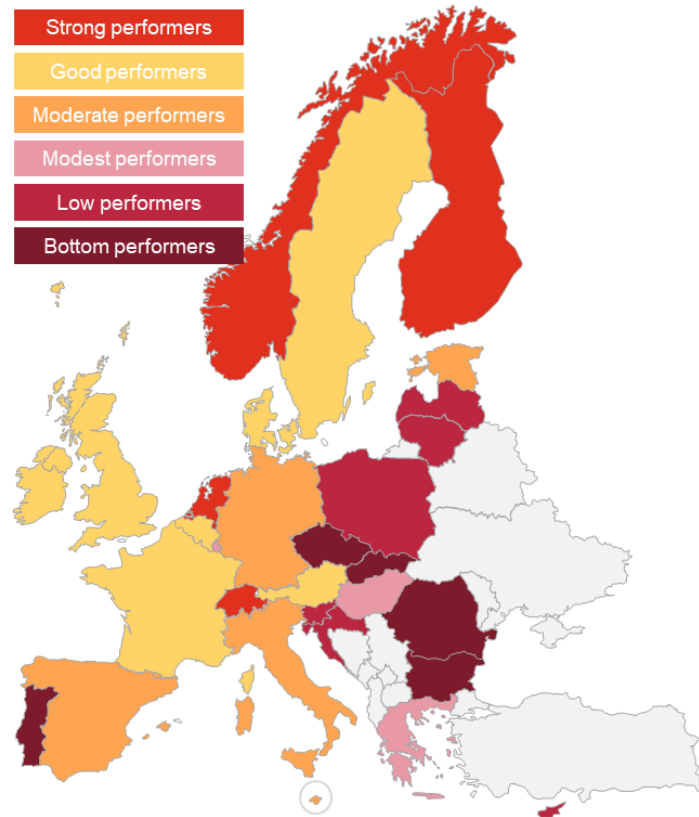
⁷ See Commission notice on innovation procurement C(2018)3051, based on the Bell innovation curve for conservative sectors

The cluster of **good performers** (Austria, Belgium, Denmark, France, Ireland, Sweden and the UK) reaches between 55% and 65% of the ambition level. Circling around the European average, these countries underinvest in PPI by a factor 2. Despite showing some progress, significant additional efforts are still needed to tackle underinvestment in some domains of public sector activity and at sub-national level.

Moderate and **modest performers** invest in PPI with lower intensity than the European average and thus well below the ambition level. These countries underinvest in PPI by a factor ranging between 2 and 3. These two clusters usually report lower levels of transformative innovations, low investment readiness of several domains of public sector activity and of sub-national level procurers.

Low and **bottom performers** are a mix of countries from Southern, Eastern and Central Europe that underinvest in PPI by a factor ranging between 3 and 8. They typically perform below average on all factors that influence PPI investment intensity.

Figure 5. Geographical distribution - Benchmarking of national investments on public procurement of innovative solutions (PPI)



Source: Author's elaboration

Overall, a number of factors help explaining the underinvestment in public procurement of innovative solutions across Europe as a whole. The key conclusions are the following:

- In Europe, on average 84% of the PPI is spent on purchasing **transformative innovations**, however only one quarter of all adopted innovative solutions are new to the market. Leading countries tend to invest more in transformative innovations, especially in innovations that are new to the market compared to lagging countries. Conversely, countries lagging behind still rely to a large extent on the adoption of **incremental innovations**, such as existing solutions used in a new way or sector and innovative combinations of existing solutions. To achieve more profound public sector modernisation and economic growth, these countries should increase their investments in the purchase of transformative innovations.
- Across Europe, **PPI investments are concentrated in a few domains of public sector activity**: general public services (35%), healthcare (21%), public transport (10%) and public order, safety and security (8%). Investments in transport focused mainly on 'greening' mobility services. Evidence shows that domains of public sector activity that are under higher level of competition from the private market (e.g. transport and health) or under a higher pressure to innovate (security) or where there are clear political ambitions to innovate (e.g. green), show higher levels of PPI expenditure. Still PPI investments in healthcare seem to be still below its weight in public spending. Other sectors of public sector activity generally lack incentives to modernise their public services with innovative solutions. Policy makers should increase political goals and incentives for procurers across all areas to innovate (e.g. by setting targets and quality/efficiency improvement KPIs for buyers).
- There is a general risk aversion across Europe to **explicitly request innovative solutions in procurements**. Only in a limited percentage of cases (29%) innovative solutions were explicitly requested by public procurers, whereas in more than two out of three cases the purchase of innovation was the result of an unsolicited proposal by the suppliers. Leading

countries in each cluster show less risk aversion in explicitly requesting innovations. Other countries therefore need to step up their ambitions to drive innovation from the demand side.

- The **publication rate of PPI business opportunities towards suppliers** at European level is low (22%). The majority of PPI investments is purchased via procurements with only very limited or no form of publication. By not publishing PPI calls for tenders widely, **public procurers are missing out on a great potential of innovative solutions that could speed up public sector modernisation**, both from national suppliers and suppliers from other European countries that are not duly informed about these business opportunities. The majority of leading countries in each cluster shows above average PPI publication rates. Policy makers should take specific measures to increase the transparency and publication rate of PPI procurements.
- Across Europe, the share of PPI investments carried out by sub-national procurers (i.e. regional and local) is considerable (53%) and usually implemented through traditional procedures. However, the share of PPI investments by sub-national procurers is lower compared to their weight in overall public procurement spending, suggesting a lack of awareness and a **lower investment readiness at sub-national levels of public sector activity**. Policy makers should take more action to professionalise key sub-national level procurers on the procurement of innovative solutions and stimulate the formation of buyer groups with larger, more experienced procurers from which smaller buyers can learn.

Underinvestment in public procurement of innovative solutions should therefore be tackled through the definition of clear political ambitions, reforms and investment plans such as the definition of action plans and spending targets in a way that considers the above conclusions from this study.

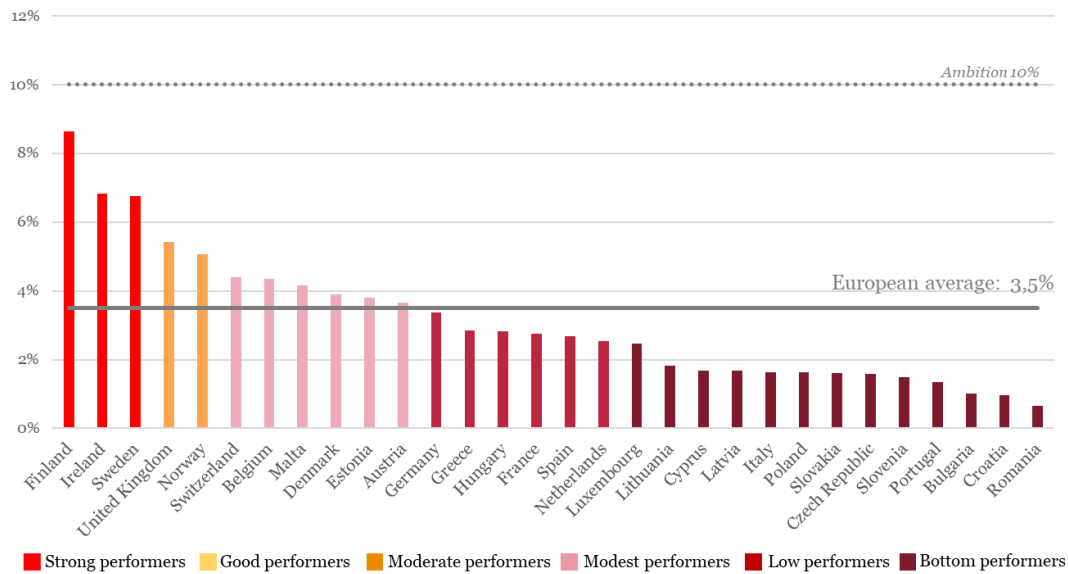
Benchmarking national investments in PPI of ICT solutions - Key findings

ICTs are responsible for 60% of productivity growth in leading economies globally and for 40% of productivity growth on average across Europe. ICT investment levels are directly correlated with the level efficiency and effectiveness of the public sector. Europe's sluggish economic growth compared to other world economies has been directly linked to lower adoption of ICTs, including in the public sector. Therefore, the study also measured national investments on public procurement of innovative solutions that are based on ICTs (ICT-based PPI investments) across the 30 countries (EU 27, UK, Norway and Switzerland).

In 2018, the **total amount of public procurement devoted to the purchase of innovative ICT-based solutions across the 30 countries reached €96 bn (i.e. 38% of PPI investment) excluding defence and €115,2 bn (i.e. 40% of PPI investment) including defence.**

The defence sector shows a clearly higher investment intensity in ICT-based innovations (ICT-based PPI equals 58,3% of PPI procurement and 16,6% of public procurement) than the classical (ICT-based PPI equals 41,6% of PPI procurement and 4% of public procurement) and the utilities sectors (ICT-based PPI equals 14,5 of PPI procurement and 1% of public procurement).

In absolute values, the three largest European economies – Germany, United Kingdom and France – cumulatively account for over half of the total amount of ICT-based PPI investment across Europe. However, when the amount of ICT-based PPI investment is compared with the total volume of public procurement in every country (ICT-based PPI expenditure as a percentage of total public procurement expenditure) it clearly emerges which countries around Europe are leading on capitalising on the transformative power of ICTs to speed up public sector modernisation and economic growth.

Figure 6. Ranking - Benchmarking of national ICT-based PPI investments out of total public procurement (excluding defence)

Source: Author's elaboration

A healthy economy needs approximately 10% of its public procurement expenditure to be devoted to ICT-based PPI investments in order to reach full speed public sector modernisation, economic growth and competitiveness.⁸ In 2018, the 30 analysed countries devoted only **3,5% of their total expenditure on public procurement to purchase ICT-based innovative solutions, which is almost three times lower than the ambition level (the percentage increases to 4% when including the defence sector).**

The analysis shows a lack of ambition in several countries concerning the adoption of innovative ICTs, with 90% of the countries not reaching the 50% of the ambition level, while those countries that achieved this level, still show room for improvement. A considerable increase of PPI investments is still needed across Europe to reach the level of 10% of public procurement going to ICT-based innovations that would enable a full-speed public sector modernisation, which is key on the road to economic recovery.

The geographical distribution of small versus large countries across clusters is quite heterogeneous. In addition to an overall North-West Europe versus South-East Europe division between leading and lagging countries, there is a **link between the performance of a country on ICT-based PPI investment and the impact of ICT on economic growth in its economy.** Countries that are leaders in terms of contribution of ICTs to total factor productivity / economic growth are also leading on the adoption of innovative ICTs in the public sector. Given the weight of public procurement in the EU economy (19% of GDP), this is in line with what was expected.

The overall underinvestment in ICT-based PPI investment is also highlighted by the fact that only three countries are included under the cluster of strong performers (that reach 65% of the ambition level), and no countries fall in the cluster of good performers (that are between 55%-65% of the ambition level).

The **strong performers** (Finland, Ireland, Sweden) invest well above European average in the adoption of ICT-based innovations and are well positioned to benefit from the effects of ICT to speed up their public sector modernisation and to reach the ambition level. Leading countries buy a higher share of ICT-based innovations that are of a transformative nature and in particular a higher share of new to the market ICTs, show a higher adoption of ICT innovations across all domains of public sector activity, are less risk averse than the European average in explicitly requesting the delivery of ICT-based innovations while remaining also open to unsolicited innovative proposals presented by contractors. However, still a 15% to 50% increase in PPI investments is needed to reach full speed public sector modernisation and economic growth.

⁸ Source: ICTs generate over 60% of total factor productivity in leading economies that fully capitalise on the adoption of ICTs to generate economic growth, based EU KLEMS and JRC PREDICT

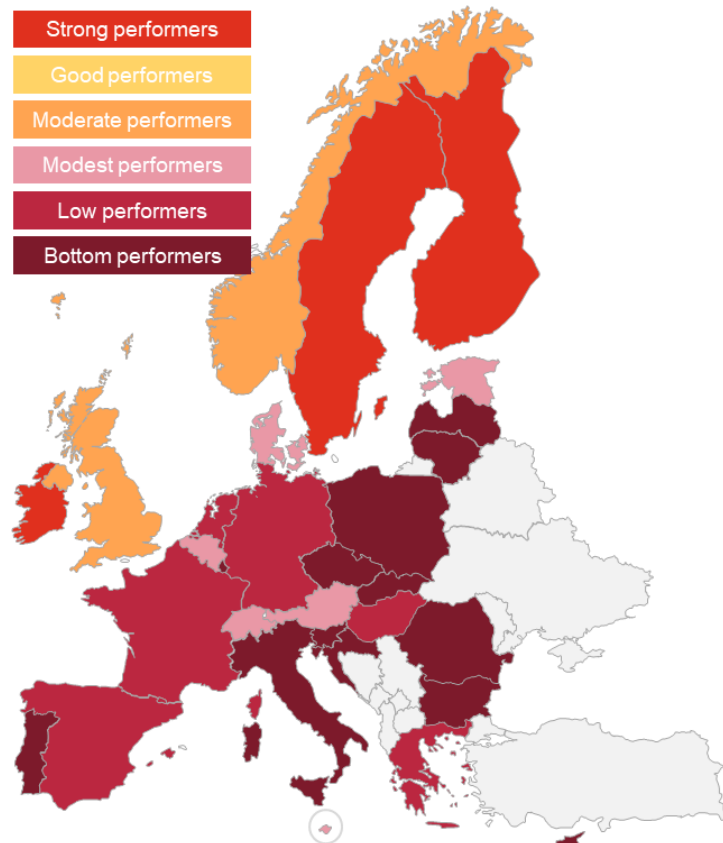
Strong performers are followed by a small group of **moderate performers** (Norway and the UK) that underinvests with a factor 2 in ICT innovations.

The **modest performers** (Austria, Belgium, Denmark, Estonia, Malta and Switzerland) underinvest with a factor between 3 to 2.

The group of **low performers** (France, Germany, Greece, Hungary, Netherlands and Spain) underinvests with a factor between 4 and 3.

The largest group of countries (13) fall under the cluster of **bottom performers**, where underinvestment reaches a factor between 10 to 4. In all these countries, ICT-based PPI investment is seriously below the 10% ambition level. In addition, investments in all modest, low and bottom performers are below the European average share (3,5%). As a result, modernisation of public sector requires a significant increase of investments in the purchase of innovative ICT-based solutions.

Figure 7. Geographical distribution - Benchmarking of national PPI investments in ICT-based solutions



Source: Author's elaboration

Overall, a number of factors help explaining the underinvestment in public procurement of innovative ICT-based solutions across Europe. Key conclusions are the following:

- Across Europe, less is invested on **transformative ICT-based innovations** (79%) than on innovations in general (84%). This suggests that Europe needs to step up its game in the early adoption of transformative ICTs. Strong performers tend to invest more in transformative innovations and in particular also more in **new-to-the market ICTs**, while countries that are lagging behind still rely more on incremental innovations. To achieve more profound public sector modernisation and economic growth, these countries should increase their investments in the purchase of transformative ICT innovations.
- Across Europe, public procurers were most keen on buying **Core ICT innovations**⁹ (54%). The **ICT Plus sub-sector** received also a significant share of ICT-based PPI investments (44%) while investments in innovations from the **Content & Media sub-sector** were small (1%). In general, investments across all sub-sectors should be increased.
- Across Europe, **ICT-based PPI investments are concentrated in a few domains of public sector activity**. The share of investments in ICT-based innovations made by procurers in healthcare sector is higher for ICT-based innovations (30%) than for innovations in general, but still below its weight in total public expenditure. The public order, safety and security domain invests a 11% higher share in ICT-based innovations (19%) than in innovations in general (8%). The share of ICT-based investments made by procurers in general public services in ICT-based innovations (16%) is 19% lower than the share invested in innovations in general

⁹ The three ICT sub-sectors are: (i) Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes; (ii) Content and Media: includes printed and audiovisual hardware and software; (iii) ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

(35%). Policy makers should increase political goals and incentives for procurers across all areas to innovate (e.g. by setting targets and quality/efficiency improvement KPIs for buyers).

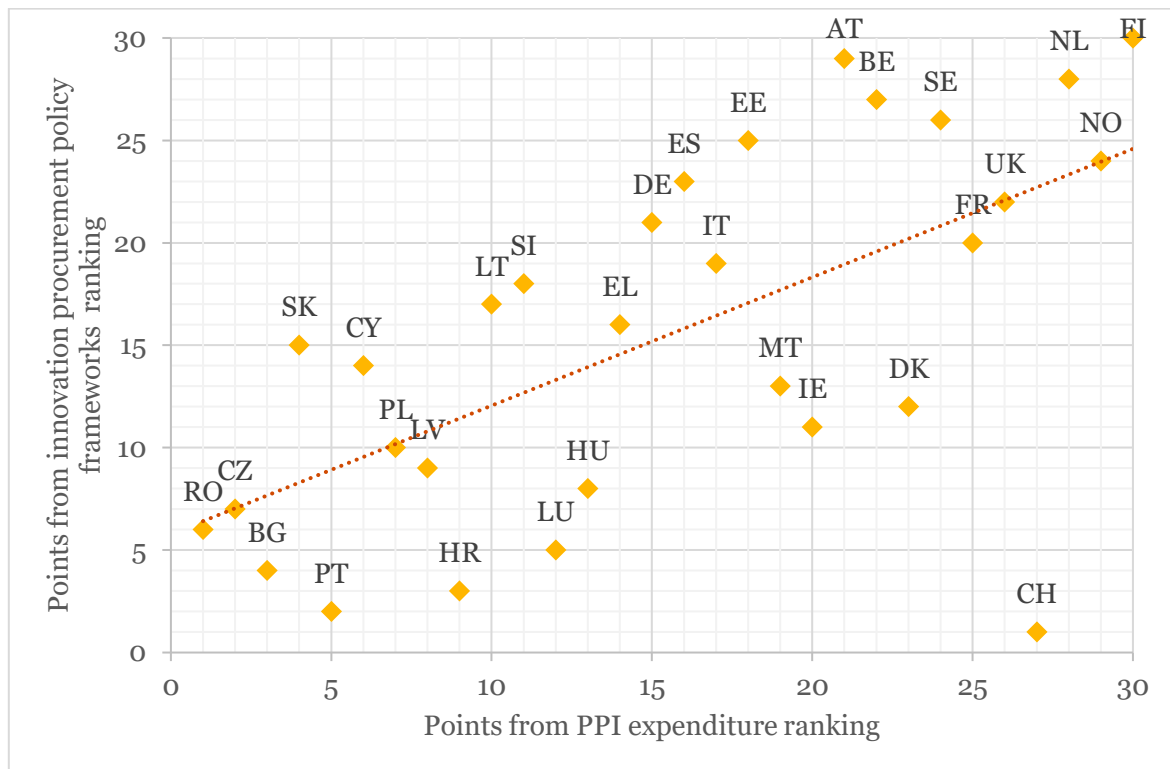
- Across Europe, the implementation of ICT-based PPI investments is even more concentrated at national level (69%) than for PPI investments in general (53%). The share of ICT-based PPI investments by sub-national procurers is significantly lower than their weight in overall public procurement spending, suggesting a lack of awareness and a **lower investment readiness at sub-national levels of public sector activity**. This difference could also be partly explained by a lack of awareness and engagement of sub-national public procurers on ICT-based PPI procurement. Therefore, similar as for the overall PPI investments, policy makers should take more action to professionalise key sub-national level procurers on the procurement of innovative ICTs and stimulate the formation of buyer groups with larger, more experienced procurers from which smaller buyers can learn.
- On average, countries that have embedded public procurement of innovative solutions more **prominently in national strategies and action / investment plans for digital** reach also higher investment levels in procuring ICT-based innovations. Policy makers should therefore ensure that innovation procurement is embedded across all strategies and action plans for all ICT-sub sectors (e.g. national plans for digital in general and national plans for broadband connectivity, AI, big data, blockchain, robotics, advanced computing, cybersecurity, creative content etc).

Similar as for the overall PPI investments, underinvestment in ICT-based PPI should be tackled through the definition of clear political ambitions, reforms and investment plans, taking into account the above conclusions from this study.

Conclusions and recommendations

The chart below compares each country's ranking in the policy framework benchmarking of the study with its ranking in the PPI investment benchmarking (1st place in the ranking = 30 points; 2nd place in the ranking = 29 points, etc.). It is possible to note a **positive relationship between the comprehensiveness of the national policy frameworks for innovation procurement and the share of PPI investment out of public procurement expenditure in the different countries**. Countries with the most advanced innovation procurement policy frameworks are also the forerunners in terms of PPI expenditure, while, on the other hand, countries with scarcely comprehensive policy frameworks tend to have a limited PPI expenditure.

Figure 8. Relationship between policy framework ranking and PPI investment ranking



Source: Author's elaboration

This evidence suggests that, in order to increase the amount of PPI investment, countries should consider improving the comprehensiveness of innovation procurement policy frameworks. The study has analysed for each country the underlying factors that explain its performance and the points for improvement, both for the benchmarking of the country's policy framework and the benchmarking of the country's PPI and ICT-based investments.¹⁰ **Some points for improvement are country specific** and depend on the level of maturity of the national policy framework. At the same time, recurring factors that all countries could work on and that can deliver a significant impact have also been identified. These **recurring points for improvement for all countries that can achieve quick impact** should be regarded as potential *quick wins* that can deliver a big impact for all countries.

¹⁰ See dedicated country profiles available on the study webpage.

The following box presents a **list of possible quick wins for national level policy makers**.

Recommendations for national level policy makers

Policy makers should foresee concrete reforms and investments for innovation procurement in the country's recovery plan that can receive EU funding under the Recovery and Resilience Fund (RRF). This can include several types of action, for instance:

- Identify / launch flagship innovation procurement investment projects that are key to the digital-green twin economic recovery.
- Create (or reinforce) national action plans for innovation procurement with ambitious targets for PPI and R&D procurement and commitment from key procurers (appoint a responsible person for launching / implementing flagship projects within key procurers).
- Make innovation procurement a strategic priority in all domains of public sector activity and in national ICT investment plans and strategies in the country (agree quality, efficiency improvement KPIs / targets with key procurers in each sector that require the modernisation of public services with innovative solutions, with particular attention to increase investment in ICT based solutions).
- Assist procurers in achieving these objectives by reinforcing capacity building measures for procurers (e.g. create a national competence centre for innovation procurement, capacity building measures in regional digital innovation hubs, make available model procurement documents for PCP procurements that reinforce EU strategic autonomy and resilience).
- Setup / reinforce national programs that provide financial support for procurers to start more innovation procurements, in particular R&D/PCP procurements (key to create first mover advantage / strategic autonomy, but has the highest risk for buyers).
- Unlock innovation in public procurement, by mainstreaming a national policy that allocates IPR ownership to contractors in public procurement (see new EU IPR action plan COM/2020/760 and EC guidance C(2018)3051).
- Reduce the national VAT rate for R&D procurements to 0% (see EC recommendation on this in C(2018)3051).

In this context, Europe could play an important role in coordinating and promoting actions to support the mainstreaming of innovation procurement through **the development of dedicated EU-wide innovation procurement action plan with ambitious targets**.

Recommendations to continue EU-wide benchmarking version 2.0

The regular benchmarking of both innovation procurement policy frameworks and expenditure levels across Europe would lay the necessary groundwork to develop coordinated and effective EU actions.

The present study was a first attempt to systematically collect and measure innovation procurement progress in a comparable way across Europe. In this regard, the box below presents the most relevant recommendations included in the study to ensure systematic and reliable monitoring in the future.

Recommendations for the benchmarking of innovation procurement policy frameworks

- **Capacity building.** In order to facilitate data collection activities, the following actions could be implemented:
 - (i) develop a network of national contact points for data collection (potentially also at regional level or within competence centres);
 - (ii) organise capacity-building workshops and trainings for public procurers aimed at building a common understanding of innovation procurement;
 - (iii) strengthen knowledge of indicators and sub-indicators, to improve innovation procurement assessment and the identification of specific areas for improvement.
- **Set-up of an IT tool to streamline data collection.** The use of a dedicated IT tool would allow to centralise data collection efforts, possibly through the adoption of a smart crowdsourcing approach, where qualitative and quantitative information is uploaded directly on the website/platform by selected contributors.
- **Timing of data collection and analysis.** Definition of a regular timeline for data gathering and analysis would help setting up a cyclical replication of the exercise, allowing to monitor developments over time.

Recommendations for the benchmarking of PPI expenditure

- **Creation of a robust database for below threshold procurements.** While calls for tenders above EU-threshold for all 30 countries are already published in the TED portal, the creation of one single database for below EU-thresholds calls for competition for all the analysed countries would seriously improve data robustness, including:
 - (i) mapping of providers of calls for tenders (building upon the study mapping);
 - (ii) gaining direct access to national e-procurement study portals;
 - (iii) exploiting synergies with similar projects, such as the Opentender Portal of the DIGIWHIST project.
- **Wide-scale implementation of an innovation flagging system.** The adoption of a flagging system, pre-labelling innovative calls for tender would make PPI identification considerably easier. Member States should also on their own national procurement portals for below threshold procurements follow the EC' plans to make available on TED:
 - (i) a box in standard forms for public procurement notices where procurers can put an '*innovation flag*';
 - (ii) an *innovation checklist* to standardise the understanding of the definition of innovation;
 - (iii) a specific prior information notice for preliminary market consultations.
- **Timing of data collection and analysis.** Adopt a clear timeline to pace the annual update of results.

Recommendation to integrate benchmarking results into EU scoreboards

Finally, it is recommended to integrate the results of the policy and investment benchmarking exercises into other EU scoreboards, as presented in the following box.

Recommendations for the integration of results into existing scoreboards

- **Integration in the EU innovation and R&D scoreboards.** Countries ranking high in the innovation procurement benchmarking also score high on their overall innovation performance. This evidence shows the impact of public procurement on innovation at national level. Hence, it is recommended to incorporate the benchmarking results in other European scoreboards focusing on R&I, such as the EU innovation and ERA scoreboards.
- **Integration in ICT scoreboards.** Study results confirm the role of ICT as a key driver for innovation procurement and public sector modernisation. Ambitious plans for innovation procurement in the ICT sector have a positive impact on PPI investments. To track progress of ICT-based PPI investments, it is recommended to integrate this indicator in the Digital Economy and Society Index (DESI) indicator 5 on "Digital public services".
- **Other scoreboards.** Further integration should be considered with the following scoreboards:
 - (i) EU Public Sector Innovation Scoreboard;
 - (ii) EU Single Market Scoreboard (section on public procurement);
 - (iii) EU Economic Semester Scoreboard (section on European competitiveness);
 - (iv) Other sectorial scoreboards

1 Introduction

This study used a mixed-method approach:

National policy frameworks for innovation procurement across the 30 countries (EU 27, UK, Norway and Switzerland) were benchmarked based on inputs from two surveys with targeted stakeholders, desk research activities and interviews national experts. The assessment was based on the scores reached by each country for 10 indicators (*Definitions, Horizontal policies, ICT policy, Sectoral policies, Action plan, Spending target, Monitoring system, Incentives, Capacity-building and assistance measures and Innovation procurement-friendly procurement market*), resulting in one compound indicator which allows to establish a ranking. The report analyses also key disparities, commonalities and trends in the innovation policy frameworks across Europe arising from the data gathered from the 30 different countries.

National investments in public procurement of innovative solutions (PPI) across the 30 countries (EU 27, UK, Norway and Switzerland) were detected using a search engine based on Artificial Intelligence and human verification of the results obtained by the AI tool. **National investments in public procurements of innovative ICT-based solutions (ICT-based PPI investments)** were filtered out using CPV codes that are assigned to three categories of ICTs: ICT goods and services, ICT plus and content and media. For the defence sector, data were estimated using a mix of interviews and desk research activities. The report analyses also key disparities, commonalities and trends in the investment levels across Europe arising from the data gathered from the 30 different countries analysed. This covers in particular a comparison across countries, across different domains of public sector activity, across different types of purchases (supplies, services, works), and across procurements that are covered or not by EU public procurement Directives. National level information for the above three different benchmarking exercises is also available in 30 **country profiles** (See Annex I). The study includes also **a collection of PPI case examples** (see Annex II), one for each country. This report is divided in three main parts:

- **The first part** focuses on the comparison of **national policy frameworks on innovation procurement**. Chapter 2 presents the methodology adopted to benchmark progress on mainstreaming innovation procurement in a comparable way across different countries. Chapter 3 presents and discusses the key findings, while Chapter 4 is devoted to a more detailed indicator by indicator analysis of commonalities and disparities across countries.
- **The second part** estimates the **national investments in public procurement of innovative solutions (PPI), and the portion dedicated to ICT-based solutions**. Consistently with the structure of the previous part, the initial chapter (i.e. Chapter 5) illustrates the methodology adopted, presenting the data sources used and the approach adopted to overcome the different challenges emerged during the study. This is followed by Chapter 6, which provides an overview of the main findings, and Chapter 7, which offers a detailed comparative analysis of the main disparities and commonalities across Europe.
- **The third part** – which consists of the final Chapter 8 – provides **guidelines and recommendations for decision-makers** to improve the collection of country-level data in order to implement the three benchmarking exercises in a regular, systematic way in the future and to integrate the results into the relevant European statistics and scoreboards.

This study developed for the first time a European wide benchmarking of innovation procurement policy frameworks and investment levels. Throughout the implementation of the various phases of the study, a number of limitations have been encountered and consequently addressed, especially in connection with the second part on quantifying the amount of PPI investments. For this reason, the study findings should be considered as reasonable estimations, and should be treated with caution, with due consideration of the methodological assumptions adopted. Indeed, in a view to shed light on the issues encountered and the corresponding approaches to overcome them, the chapters devoted to the methodology also includes dedicated sections on its limitations.

2 Methodology for benchmarking national policy frameworks for innovation procurement

2.1 Objectives and outputs

The objective of benchmarking national policy frameworks for innovation procurement is to map the progress made in the 27 EU Member States, Norway, Switzerland and the UK on the implementation of policy measures to mainstream innovation procurement across all sectors of public interest. In order to conduct this analysis, the Study team has developed a methodological approach based on a set of indicators that enable an **evidence-based comparison of the innovation procurement policy frameworks of all 30 countries**. The methodological approach was developed together with the European Commission and in consultation with innovation procurement experts from the countries involved. The key findings of this benchmarking exercise, and the commonalities, disparities, trends of different indicators are available in Chapters 3 and 4.

2.2 Data collection approach

The following methods were adopted to collect information for the different indicators:

- **A first survey**, addressed to the key national experts on innovation procurement, to collect preliminary pieces of information on all indicators. The full survey questionnaire is provided in Annex III.
- **Follow-up interviews** aimed at checking and validating the survey replies and gather further insights to be added in the country profiles.
- **Desk research** allowed to gather additional materials to fill information gaps and develop the good practice case examples.¹¹
- **A second survey** of national experts, aimed at collecting feedback on the country profiles (see Annex I) and additional evidence on PPI good practice case examples (see Annex II).

The combination of all this information formed the base for scoring and ranking the countries performance on the different indicators. The use of different data collection methods was considered to be particularly beneficial, as it allowed to **triangulate data** and address the methodological challenges emerged during the study. The key obstacles faced by the Study team consisted of missing, partial and incomplete replies, significant delays in the completion of the surveys and difficulties in identifying the right contact point to whom to address the requests, especially in those countries where there is no dedicated policy framework for innovation procurement yet. These challenges were mitigated through a long process of **stakeholder engagement**. National contact points have been regularly contacted through follow-up interviews to collect missing information and to check its accuracy. The information collected through this approach has been used to inform the 30 country profiles (see Annex I).

2.3 Analysis and benchmarking approach

The approach for benchmarking countries policy frameworks for innovation procurement was based on an **integrated analysis** and a **compound indicator**. This was inspired by the approach used by EU scoreboards like the DESI, the EDPR, the Innovation scoreboard or the start-up nation scoreboard.¹²

A set of **ten indicators** was developed to cover all the relevant aspects of a mature and structured policy framework for innovation procurement. The current state of the innovation procurement policy framework in each country was then mapped according to this common approach, which allows to

¹¹ As far as Switzerland is concerned, all information was collected solely through desk research. It was not provided or validated by Swiss institutions, which chose not to participate in the study, citing previous involvements in similar initiatives at international rather than European level.

¹² <http://www.lisboncouncil.net/publication/publication/132-the-2016-startup-nation-scoreboard.html>

analyse in detail strengths and weaknesses of all countries and to **compare them according to common criteria**. The output of the analysis allows to distinguish different maturity levels in the development of the national innovation procurement policy frameworks across countries.

2.4 Overview of the policy indicators

In order to track progress of each country, ten multi-dimensional indicators were developed. The following table provides an overview of all indicators with their respective sub-indicators. A detailed explanation and breakdown of each indicator and sub-indicator is presented from Sections 2.7 to 2.16.

Table 1. Overview of policy indicators and sub-indicators

	Indicators	Sub-indicators
1	Definitions	Innovation procurement
		R&D procurement
		PCP
		PPI
2	Horizontal policies	R&D policy
		Innovation policy
		Public procurement policy
		Competition policy
		Economic and financial policy
		Entrepreneurship policy
		Regional/urban policy
3	ICT policy	-
4	Sectoral policies	Healthcare and social services
		Public transport
		General public services
		Construction sector
		Energy sector
		Environment sector
		Water sector
		Public order, safety, security and defence
		Postal sector
		Education, recreation, culture and religion
5	Action plan	Coverage
		Commitment to concrete actions
		Dedicated resources
		Definition of results
		Clear timeline
		Commitment of procurers
		Definition of actors
		Decision-making structure
		Measures to pool demand
6	Spending target	Presence

	Indicators	Sub-indicators
		Coverage
		For all types of innovation procurement
		Separated targets
		Commitment
7	Monitoring system	Measurement
		Evaluation
8	Incentives	Financial incentives
		Personal incentives
9	Capacity-building and assistance measures	Central website
		Good practices
		Trainings and workshops
		Handbooks and guidelines
		Assistance to procurers
		Template tender document
		Coordination/pre-approval
		Networking
		One-stop-shop/competence centre
10	Innovation procurement-friendly procurement market	Specific techniques to foster innovation in public procurement
		Openness of the national public procurement market to innovations from across the EU single market

Source: Author's elaboration

2.5 Innovation procurement policy index

For each country, the score of the various indicators is calculated as the unweighted mathematical average of the score for all their sub-indicators. After that, the overall score is calculated as the **unweighted mathematical average of all ten indicators**. The equation to calculate the overall indicator is the following:

$$\text{Index score} = \frac{\text{Ind1} + \text{Ind2} + \text{Ind3} + \text{Ind4} + \text{Ind5} + \text{Ind6} + \text{Ind7} + \text{Ind8} + \text{Ind9} + \text{Ind10}}{10}$$

where “Ind x” is the total score for indicator x.

Therefore, the overall score summarises the results achieved by each country for all the dimensions taken into account in the benchmarking and allows to rank their respective performances. The higher the score, the higher the performance of the country.

Since it is an unweighted average, similar scores in different countries may point to similarly comprehensive innovation procurement policy frameworks, but this could be the result of a completely different mix of policy approaches. When looking at innovation procurement policy index it is therefore important to also observe results at a more granular level.

2.6 Performance clustering

The overall ranking is used to cluster countries into 5 groups according to the comprehensiveness of their innovation procurement policy framework.

In order to better understand the different scores achieved by countries, and compare their performance, the Study team has calculated a so-called s-score. The s-score is relative to the score of other countries – not compared to an absolute standard – and shown in the metric of **standard deviations**. Standard deviation is used to explain how measurements for a group are spread out from the average. The higher the standard deviation number, the more the numbers of the distribution are spread out.

A positive s-score indicates a value higher than the average of other European countries. For example, if a country has an S-score for an indicator of +1.2, the country is 1.2 points of standard deviation above the European average for that indicator.

Following this standardisation procedure, we obtain a distribution of **s-score** for each country:

$$s\text{-score} = \frac{(\text{country } x \text{ index score}) - (\text{European avg. index score})}{(\text{Standard Deviation})}$$

The standard deviation is calculated as follows:

$$\text{Standard deviation} = \sqrt{\frac{\sum(\text{country } x \text{ index score} - \text{European avg. index score})^2}{\text{Number of Countries}}}$$

The values obtained have been used to cluster the countries into **5 groups**, which correspond to different **degrees of comprehensiveness of the innovation procurement policy framework**. A description of the groups is provided in the following table.

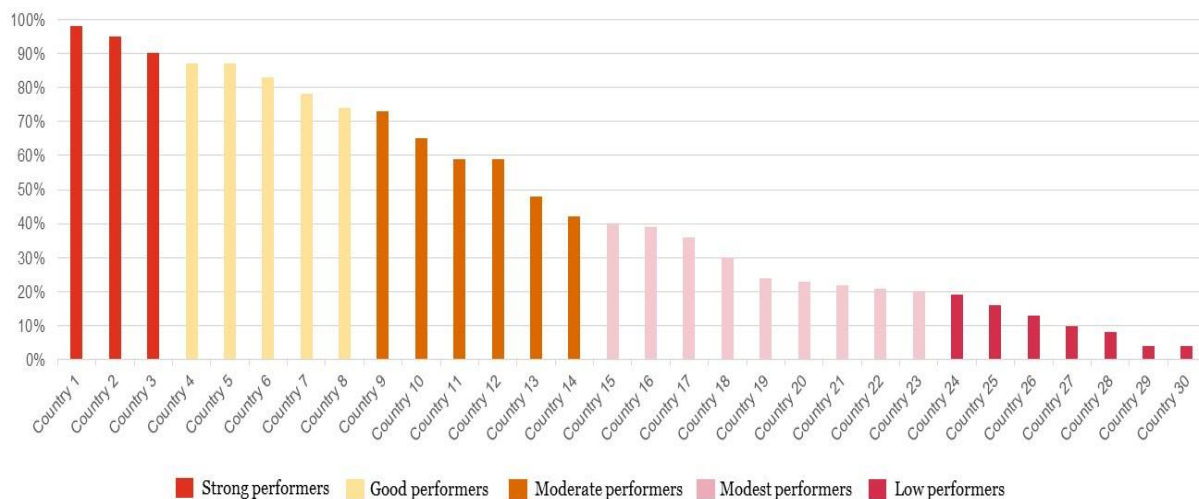
Table 2. Performance clusters

s-score	Cluster	Description
$x < -0,5$	Low performers	The policy framework for innovation procurement in the country is at an embryonic or even still conceptual stage. There is an acute lack of encouragement of innovation procurement in the country.
$-0,5 \leq x < 0$	Modest performers	The policy framework in the country is at an early development stage. It only modestly encourages the use of innovation procurement across the country.
$0 \leq x < 0,5$	Moderate performers	There is a structured policy framework for innovation procurement in the country but only a few dimensions of the policy framework are well-developed. There is relatively good but still only partial encouragement for innovation procurement across the country.
$2 > x \geq 0,5$	Good performers	There is a mature and structured policy framework with several well-developed dimensions that encourage in a rather consistent way the use of innovation procurement across the country.
$x \geq 2$	Strong performers	There is a mature and structured policy framework, in which most dimensions are well developed and interconnected, so that the policy framework encourages in a holistic way the use of innovation procurement across the country.

Source: Author's elaboration

The overall scores of the countries clustered into the 5 performance groups according to their s-score is then listed and graphically represented. An example is shown in the figure below.

Figure 1. Overall ranking and clustering mock example



Source: Author's elaboration

The following sections illustrate, **for each indicator**:

- What it tracks and how it is conceived from a methodological point of view;
- The sub-indicators (and, in certain cases, their sub-sub-indicators) it consists of, and how their scores are calculated.

2.7 Indicator 1 – Official definition

A common understanding of what is meant by innovation procurement is an essential prerequisite to encourage the use of innovation procurement across a country. Therefore, this indicator reflects to what extent there is a clear official definition for Innovation Procurement, R&D procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solution (PPI) in the country. In addition, the indicator takes into account the level of clarity, completeness and compliance of the national definitions with the EC definition.

2.7.1 Indicator 1: Methodology

This section describes the steps undertaken to construct this multidimensional indicator. Indicator 1 is composed of **four sub-indicators**:

- I. Innovation procurement
- II. R&D procurement
- III. Pre-Commercial Procurement (PCP)
- IV. Public Procurement of Innovative solutions (PPI)

Each sub-indicator receives a score based on three assessment criteria: (i) existence of an official definition, (ii) coverage, and (iii) coherence with the EU official definition.

I. Innovation procurement

The total score for this sub-indicator is calculated as a result of a three-step approach.

STEP 1: Existence of official definition

The first step requires determining whether there is an official national definition for innovation procurement. This involves determining whether **the national legislation provides an official legal basis and/or full definition** for innovation procurement or whether the definition of innovation procurement is found **only in other official national documents outside of national legislation**. With regard to national legislation, only legal acts, such as laws, decrees, resolutions etc, are considered. Additional national official guidance (e.g. circulars, guidance documents) are not considered as national legislation, but can still provide an official, generally accepted - although not legally binding - definition.

If **no legal basis** is available, the country automatically scores **0%**. Thus, allocating scores above 0% in this step requires an understanding of what type of definitions have been introduced in the national legislation and in other official national documents (e.g. circulars, guidance documents). Some countries only provide a **definition of “innovation” in the context of public procurement** as defined in the EU public procurement directives (legal basis to implement innovation procurement), while other countries also include a **specific definition for “innovation procurement”**. Countries included in the latter case receive a higher score compared to countries having included only the definition of innovation. Countries having included a definition **in national legislation** receive a higher score than countries having a definition **only in national guidance material**.

STEP 2: Coverage

This step takes into account the **coverage**: i.e. Is the definition applied in the whole country or not (e.g. only in a certain region)? Is it applicable to all types of public procurers or not (e.g. only to procurers covered by one of the public procurement directives)? Is it applicable to all types of public procurement procedures or not (e.g. some countries do not define innovation in the general definitions section that enables procurers to call for innovation under any procurement procedure but only define this under the innovation partnership procedure)? Countries with a definition that applies in the whole country receive a higher score than countries with a definition that does not apply in the whole country (e.g. only in a certain region). Countries with a definition that applies to all types of public procurers receive a higher score than countries with a definition that applies to only certain types of procurers. Countries with a definition that applies to all types of public procurement procedures receive a higher score than countries with a definition that applies to only certain types of procurement procedures.

STEP 3: Compliance with EU official definition

Finally, the score takes into account the compliance with the definitions provided by the EU (i.e. is the national definition **in line with the EU definition?**). This includes the definitions in the EU public procurement Directives (definition of innovation) and in the EU guidance on innovation procurement¹³ (definition of innovation procurement). Countries with an official definition that is in line with the EU definition receive a higher score than countries with an official definition that is not in line with the EU definition. The table below presents the EU definitions of innovation and innovation procurement:

Table 3. Definition of innovation procurement

Innovation procurement
<p><i>Innovation procurement is a public procurement in which a public procurer buys 'innovation'. As defined by the 2014 EU public procurement directives, 'innovation' means the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.</i></p> <p><i>Innovation covers thus both the research and development and the commercialisation / deployment of innovative solutions (products, services or works). Innovation procurement covers thus both R&D procurements, public procurements of innovative solutions and public procurements that purchase a combination of both R&D and the resulting innovative solutions.</i></p> <p><i>Indeed, according to the C(2018)3051 Commission guidance "Innovation procurement" refers to any procurement that has one or both of the following aspects:</i></p> <ul style="list-style-type: none"> • <i>buying the process of innovation – research and development services – with (partial) outcomes;</i> • <i>buying the outcomes of innovation created by others.</i> <p><i>In the first instance, the public buyer buys the research and development services of products, services or processes, which do not exist yet. The public buyer describes its need, prompting businesses and researchers to develop innovative products, services or processes to meet the need.</i></p> <p><i>In the second instance, the public buyer, instead of buying off-the-shelf, acts as an early adopter and buys a product, service or process that is new to the market and contains substantially novel characteristics. Early adopters refer to the first 20% customers on the market that are buying a new or significantly improved product, service or process. This includes procurements of products, services or processes that have already been demonstrated on a small scale and may be nearly or already in small quantity on the market, but that have not been widely adopted by the market yet. This also includes existing solutions that are to be utilised in a new and innovative way.</i></p>

II. R&D procurement

The total score for this sub-indicator is calculated as a result of a three-step approach.

STEP 1: Existence of official definition

The first step requires determining whether there is an official national definition for R&D procurement. This involves determining whether **the national legislation provides an official legal basis and/or full definition** for R&D procurement or whether the definition of R&D procurement is found **only in other official national documents outside of national legislation**. With regard to national legislation, only legal acts, such as laws, decrees, resolutions etc, are considered. Additional national official guidance (e.g. circulars, guidance documents) are not considered as national legislation, but can still provide an official, generally accepted - although not legally binding - definition.

If **no legal basis** is available, the country automatically scores **0%**. Thus, allocating scores above 0% in this step requires an understanding of what type of definitions have been introduced in the national legislation and in other official national documents (e.g. circulars, guidance documents). Some countries only provide a **reference to the CPV codes for "R&D"** as defined in the EU public procurement directives (legal basis to implement R&D procurement), while other countries also include a **specific definition for "R&D" in the context of public procurement**. Countries included in the latter case receive a higher score compared to countries having included only the CPV codes. Countries having included a definition **in national legislation** receive a higher score than countries having a definition **only in national guidance material**.

¹³ C(2018) 3051 final, Commission Notice: Guidance on innovation procurement <https://ec.europa.eu/docsroom/documents/29261>

STEP 2: Coverage

This step takes into account the **coverage**: i.e. Is the definition applied in the whole country or not (e.g. only in a certain region)? Is it applicable to all types of public procurers or not (e.g. only to procurers covered by one of the public procurement directives)? Countries with a definition that applies in the whole country receive a higher score than countries with a definition that does not apply in the whole country (e.g. only in a certain region). Countries with a definition that applies to all types of public procurers receive a higher score than countries with a definition that applies to only certain types of procurers.

STEP 3: Compliance with EU official definition

Finally, the score takes into account the compliance with the R&D definition provided by the European Union (i.e. is the national definition **in line with the EU definition?**). R&D is defined in the EU public procurement directives as covering fundamental research, industrial research and experimental development in line with the EU R&D&I State aid rules which defines each of those three R&D categories in more detail. Countries with an official definition that is in line with the EU definition receive a higher score than countries with an official definition that is not in line with the EU definition. The table below presents the EU definition of R&D procurement:

Table 4. Definition of R&D procurement

R&D procurement
<i>An R&D procurement is a public procurement of Research and Development (R&D). According to the EU public procurement directives, research and development covers fundamental research, applied research and experimental development. Experimental development may according to the WTO Government Procurement Agreement continue up to original development of a first product or service and this may include limited production or supply in order to incorporate the results of field testing and to demonstrate that the product or service is suitable for production or supply in quantity to acceptable quality standards. However, it does not extend to quantity production or supply to establish commercial viability or to recover research and development costs.</i>

III. Pre-Commercial Procurement (PCP)

The total score for this sub-indicator is calculated as a result of a three-step approach.

STEP 1: Existence of official definition

The first step requires determining whether there is an official national definition for PCP procurement. This involves determining whether the national legislation **provides an official legal basis and/or full definition** for PCP or whether the definition of PCP is found **only in other official national documents outside of national legislation**. With regard to national legislation, only legal acts, such as laws, decrees, resolutions etc, are considered. Additional national official guidance (e.g. circulars, guidance documents) are not considered as national legislation, but can still provide an official, generally accepted - although not legally binding - definition.

If no legal basis is available, the country automatically scores 0%. Thus, allocating scores above 0% in this step requires an understanding of what type of definitions have been introduced in the national legislation and in other official national documents (e.g. circulars, guidance documents). Some countries only provide **the legal basis to implement PCP (exemption from public procurement legislation for R&D services where the procurer does not reserve all the benefits of the R&D for himself)** as defined in the EU public procurement directives, while other countries also include a **specific definition for PCP**. Countries included in the latter case receive a higher score compared to countries having included only the legal basis/R&D exemption. Countries having included a definition **in national legislation** receive a higher score than countries having a definition **only in national guidance material**.

STEP 2: Coverage

This step takes into account the **coverage**: i.e. Is the definition applied in the whole country or not (e.g. only in a certain region)? Is it applicable to all types of public procurers or not (e.g. only to procurers covered by one of the public procurement directives)? Countries with a definition that applies in the whole country receive a higher score than countries with a definition that does not apply in the whole country (e.g. only in a certain region). Countries with a definition that applies to all types of public

procurers receive a higher score than countries with a definition that applies to only certain types of procurers.

STEP 3: Compliance with EU official definition

Finally, the score takes also take into account the **compliance with the PCP definition** provided by the European Union (i.e. is the national definition in line with the EU definition?). PCP was originally defined in the PCP communication and since 2014 also in the EU R&D&I State aid rules. Countries with an official definition that is in line with the EU definition receive a higher score than countries with an official definition that is not in line with the EU definition. The table below presents the EU definition of pre-commercial procurement:

Table 5. Definition of PCP

PCP
<p><i>Pre-Commercial Procurement (PCP) is a specific approach to implement a public procurement of R&D services that follows three principles defined in the European Commission's PCP communication (COM/799/2007) and the associated staff working document (SEC/2007/1668). The three principles are: competitive development in phases, sharing of IPR risks and benefits (IPR ownership is allocated to the contractors and the procurer obtains usage and licensing rights) at market conditions and separating the PCP from the subsequent purchase of commercial volumes of solutions. PCPs are exempted from the EU public procurement directives and WTO GPA.</i></p> <p><i>The 2014 R&D&I State aid framework defines PCP as the public procurement of research and development services where the contracting authority or contracting entity does not reserve all the results and benefits of the contract exclusively for itself for use in the conduct of its own affairs, but shares them with the providers under market conditions. The contract, the object of which falls within one or several categories of research and development defined in this framework (i.e. fundamental research, industrial research and experimental development), must be of limited duration and may include the development of prototypes or limited volumes of first products or services in the form of a test series. The purchase of commercial volumes of products or services must not be an object of the same contract;</i></p>

IV. Public Procurement of Innovative solutions (PPI)

The total score for this sub-indicator is calculated as a result of a three-step approach.

STEP 1: Existence of official definition

The first step requires determining whether there is an official national definition for PPI. This involves determining whether the national legislation **provides an official legal basis and/or full definition** for PPI or whether the definition of PPI is found **only in other official national documents outside of national legislation**. Under national legislation is only considered legal acts such as laws, decrees, resolutions etc. Additional national official guidance (e.g. circulars, guidance documents) are not considered legislation but can still provide an official, generally accepted - although not legally binding - definition.

If no legal basis is available, the country automatically scores 0%. Allocating above 0% scores in this step thus requires an understanding of what type of definitions have been introduced in the national legislation and in other official national documents (e.g. circulars, guidance documents). Some countries only provide **the legal basis to implement PPI (allowing procurers to award contracts and monitor contract performance not only based on price but also based on quality criteria that include innovative characteristics of a solution)** as defined in the EU public procurement directives, while other countries also include a **specific definition for PPI**. Countries included in the latter case receive a higher score compared to countries having included only the legal basis. Countries having included a definition **in national legislation** receive a higher score than countries having a definition **only in national guidance material**.

STEP 2: Coverage

This step takes into account the **coverage**: i.e. Is the definition applied in the whole country or not (e.g. only in a certain region)? Is it applicable to all types of public procurers or not (e.g. only to procurers covered by one of the public procurement directives)? Countries with a definition that applies in the whole country receive a higher score than countries with a definition that does not apply in the whole country (e.g. only in a certain region). Countries with a definition that applies to all types of public

procurers receive a higher score than countries with a definition that applies to only certain types of procurers.

STEP 3: Compliance with EU official definition

Finally, the score takes into account the **compliance with the PPI definition provided by the European Union** (i.e. is the national definition in line with the EU definition?). Countries with an official definition that is in line with the EU definition receive a higher score than countries with an official definition that is not in line with the EU definition. The table below presents the EU definition of procurement of innovative solutions:

Table 6. Definition of PPI

PPI
<i>Public procurement of innovative solutions happens when existing public procurement procedures (e.g. open, negotiated, competitive dialogue) are used to buy innovative solutions which are not yet available on large scale commercial basis (new to the market). In public procurements of innovative solutions, the public procurer is an early adopter of innovative solutions. Early adopters are typically referred to as the first 20% of customers on the market that buy an innovative solution (i.e. a new or significantly improved product, service or process). This includes procurements of products, services or processes that have already been demonstrated on a small scale and may be nearly or already in small quantity on the market, but that have not been widely adopted by the market yet. This also includes existing solutions that are to be utilised in a new and innovative way. Early adopters can trigger wider deployment of innovative solutions, because their purchase signals to mass markets that there is a sufficient level of customer acceptance for the solutions.</i>

The table below provides an overview of the possible **scores** for each of the four sub-indicators (official definition for innovation procurement, R&D, PCP and PPI) depending on whether there is only a legal basis for the definition in the country, or also an official definition in guidance documents or in the legislation, and whether the available definition applies across the whole country and is in line with the EU definition or not.

Table 7. Possible scores for each sub-indicator of indicator 1

Sub-indicators	0%	15%	25%	35%	45%	50%	55%	70%	80%	85%	90%	100%
Legal basis	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Definition in guidance documents	N	N	N	N	Y	Y	Y	Y	/	/	/	/
Definition in legislation	N	N	N	N	N	N	N	N	Y	Y	Y	Y
Full coverage	N	N	Y	Y	N	Y	N	Y	N	Y	N	Y
Compliant with EU definition	N	N	N	Y	N	N	Y	Y	N	N	Y	Y

Notes: Y = "Yes"; N="No"

Source: Author's elaboration

The overall score of the indicator is calculated as the average of the score of each of the four sub-indicators (definition for innovation procurement, R&D procurement, PCP, PPI). Hence, the core equation of the "Official Definition Indicator" takes the following form:

$$Ind1\ score = \frac{subInd\ 1 + subInd\ 2 + subInd\ 3 + subInd\ 4}{4}$$

where *subInd* x indicates the score of the sub-indicator x.

2.8 Indicator 2 – Horizontal policies

Innovation procurement does not happen in isolation but at the intersection with other policies and thus it flourishes more when it is actively supported by those policies. This indicator therefore reflects for each country to which extent innovation procurement has been incorporated as a strategic tool or objective with strategic importance in seven horizontal policy areas that define the surrounding ecosystem for innovation procurement.

2.8.1 Indicator 2: Methodology

Indicator 2 is composed by **seven sub-indicators** that take into account the extent to which the strategic importance of innovation procurement is endorsed by specific horizontal policy areas in the country:

- I. **Public procurement policy:** Does the public procurement policy explicitly recognise the strategic importance of innovation procurement to improve the quality and efficiency of public services, and actively encourage public procurers to implement R&D procurements (including PCP) and public procurement of innovative solutions?
- II. **Entrepreneurship policy:** Does the entrepreneurship policy explicitly recognise the strategic importance of innovation procurement to create business opportunities for entrepreneurs and boost the scaling-up of small companies, and does it actively support entrepreneurs that target public sector customers (e.g. provide training to entrepreneurs/start-ups/SMEs on how to successfully apply for innovation procurements, encourage financial investors to invest in entrepreneurs/start-ups/SMEs involved in innovation procurements)?
- III. **Economic and financial policy:** Does the economic and or financial policy explicitly recognise the strategic importance of innovation procurement for economic growth and optimising financial sustainability of public services (to reinforce industrial competitiveness, public sector efficiency, job creation), and actively encourage innovation procurement (e.g. in economic reforms, in export / trade strategy, in tax incentive strategy, in financial policy with financial structures for public procurers that facilitate innovation procurement (e.g. enabling multi-annual financial planning of procurement budgets, cross-departmental financing and distributing the returns on investment of innovation procurements, crowdfunding for innovation procurement budgets etc.)?
- IV. **Competition policy:** Is there a specific strategy for innovation procurement defined in the competition policy to ensure a transparent, non-discriminatory level playing field for all economic operators on the market?
- V. **Regional/urban policy:** Does the regional/urban policy recognise the strategic importance of innovation procurement for regional/urban development, and does it foresee strategic measures to increase the use of R&D procurement (including PCP) and public procurement of innovative solutions?
- VI. **R&D policy:** Is there a R&D policy that embeds with strategic importance - in addition to the classical supply side R&D policy - also a demand side R&D policy, which actively encourages public procurement of R&D, including PCP?
- VII. **Innovation policy:** Is public procurement of innovative solutions (i.e. the public sector acting as early adopter for innovative solutions) embedded as a goal of strategic importance in the innovation policy?

The scoring system is based on the extent to which each horizontal policy explicitly recognises the strategic importance of innovation procurement in the achievement of the overall policy objectives.

If innovation procurement is not recognised as important in the horizontal policy's strategy or action plan, the country automatically scores 0%. Allocating more than 0% requires that the horizontal policy's strategy or action plan explicitly endorses innovation procurement. If innovation procurement is only included in a horizontal policy's strategy or action plan which is not applicable countrywide, the country scores 50%. Conversely, if it is recognised in a horizontal policy's strategy or action plan that is applicable in the whole country, the country scores 100%.

If one country includes two or more policy areas under the same strategy, the score is provided to both sub-indicators. For example, if one country includes innovation and R&D under the same strategy, the score is provided to both policy areas. The table below provides an overview of the possible scores for the "horizontal enabling policy" sub-indicators

Table 8. Possible scores for each sub-indicator of indicator 2

Sub-indicators	No	Yes, but not applicable countrywide	Yes, applicable countrywide
Public procurement policy	0%	50%	100%
Entrepreneurship policy	0%	50%	100%
Economic and Financial policy	0%	50%	100%
Competition policy	0%	50%	100%
Regional / Urban policy	0%	50%	100%
R&D policy	0%	50%	100%
Innovation policy	0%	50%	100%

Source: Author's elaboration

The overall score of the indicator is calculated as the average score of each horizontal policies sub-indicator. Hence, the core equation of the "Horizontal Policies Indicator" takes the following form:

$$Ind2\ score = \frac{subInd\ 1 + subInd\ 2 + subInd\ 3 + subInd\ 4 + subInd\ 5 + subInd\ 6 + subInd\ 7}{7}$$

where *subInd* x indicates the score of the sub-indicator x.

2.9 Indicator 3 – ICT policy

As ICTs are catalysers for innovation and public sector modernisation, embedding innovation procurement as a strategic tool or objective in the digital/ICT policy in the country can be a particularly effective approach towards a widely-spread adoption of innovation procurement. Therefore this indicator reflects to which extent national ICT policies foster the use of innovation procurement.

2.9.1 Indicator 3: Methodology

This indicator takes into account the extent to which innovation is embedded as a strategic priority in the ICT policy in the country. The indicator does not have sub-indicators.

The score for the indicator depends on whether the:

- I. ICT policy in the country does not recognise innovation procurement among its strategic tools and priorities.
- II. ICT policy in the country partially or indirectly endorses innovation procurement among its strategic tools or objectives.
- III. ICT policy in the country fully and directly endorses innovation procurement among its strategic tools or objectives.

The table below shows the scores assigned to these three different situations:

Table 9. Possible scores for indicator 3

Indicator 3 possible scores	No	Yes, but only partially endorsed	Yes, fully endorsed
ICT policy	0%	50%	100%

Source: Author's elaboration

2.10 Indicator 4 – Sectoral policies

Public procurers in a specific sector (e.g. public transport) are more encouraged to undertake innovation procurement when innovation procurement is embedded as a strategic objective in the national policy frameworks and action plans that set the priorities for their specific sector (e.g. national strategy/action plan on transport/mobility).

Therefore this indicator reflects to what extent innovation procurement is embedded as a strategic priority in sectoral policy frameworks and action plan across the 10 sectors of public sector activity that are identified in the EU public procurement directives.¹⁴

2.10.1 Indicator 4: Methodology

Indicator 4 is composed of **ten sub-indicators** which cover the sectors identified by the EU public procurement directives:

- I. Healthcare and social services sector
- II. Public transport sector
- III. General public services, public administration, economic and financial affairs sector
- IV. Construction sector
- V. Energy sector
- VI. Environment sector
- VII. Water sector
- VIII. Postal sector
- IX. Public order, safety, security and defense sector
- X. Education, recreation, culture and religion sector

If innovation procurement is not recognised as strategic in the sectoral strategy or action plan, the country automatically scores 0%. Conversely, if innovation procurement is recognised as strategic, the country receives a score which depends on two other variables: (i) the country coverage and (ii) whether it is for all types of innovation procurement. Countries where innovation procurement is recognised as strategic countrywide receive a higher score compared to those where this is not the case (e.g. only in one region). Similarly, countries considering as strategic all types of innovation procurement (i.e. both R&D procurement and public procurement of innovative solutions) score higher compared to countries encouraging only one type of innovation procurement. This results in the following possible scores:

- The sectoral policy endorses the strategic importance of innovation procurement but not across the whole country (e.g. only at regional level) and only for some innovation procurement types. In this case the score allocated to the sub-indicator of that sectoral policy is 25%.
- The sectoral policy endorses the strategic importance of innovation procurement across the whole country at national level but not for all types of innovation procurement. In this case the score allocated to the sub-indicator of that sectoral policy is 50%.
- The sectoral policy endorses the strategic importance of innovation procurement but not across whole country (e.g. at regional level) and for all types of innovation procurement. In this case the score allocated to this sub-indicator of that sectoral policy is 75%.
- The sectoral policy endorses the strategic importance of innovation procurement at national level and for all types of innovation procurement. In this case the score allocated to this sub-indicator of that sectoral policy is 100%.

If one country includes two or more sector policies under the same strategy or action plan, the score is given to both sub-indicators for all sectoral policies included. This case might happen in small countries which tend to implement umbrella strategies covering different sectors.

The table below provides the details of possible scores for each sub-indicator:

¹⁴ The following 10 sectors are defined in the EU public procurement directives: (I) healthcare and social services; (II) public transport (such as railway, urban railway, tramway, trolleybus, bus services, airport and port related activities); (III) general public services, public administration (covering e-government), economic and financial affairs; (IV) construction, housing and community amenities; (V) energy (covering exploration, extraction, production, transport and distribution of energy such as electricity, gas, heat, oil, coal and other solid fuels); (VI) environment; (VII) water; (VIII) postal services; (IX) public order, safety, security and defence; (X) education, recreation, culture and religion

Table 10. Possible scores for each sub-indicator of indicator 4

Indicator 4 - Sub-indicators possible scores	0%	25%	50%	75%	100%
Recognised in the sector strategy/action plan	N	Y	Y	Y	Y
Coverage – recognised at national level	N	N	N	Y	Y
For all types of innovation procurement	N	N	Y	N	Y

Notes: Y = “Yes”; N=“No”

Source: Author’s elaboration

The total score of the “sectoral policies” sub-indicator is then calculated as the average of the scores of each sub-indicator. Hence, the equation to calculate the score of the indicator takes the following form:

$$\text{Ind4 score} = \frac{\text{subInd 1} + \text{subInd 2} + \text{subInd 3} + \text{subInd 4} + \text{subInd 5} + \text{subInd 6} + \text{subInd 7} + \text{subInd 8} + \text{subInd 9} + \text{subInd 10}}{10}$$

where *subInd x* indicates the score of the sub-indicator x for sectoral policy x.

2.11 Indicator 5 – Action plan

This indicator assesses to what extent policy ambitions for innovation procurement have been operationalised by each country through a dedicated action plan for innovation procurement. A dedicated action plan mobilises resources to implement specific measures that are not covered by other horizontal enabling policies (see indicator 2) or sectoral policies (see indicator 3 and 4) and to coordinate measures covered by different policies so that innovation procurement is implemented in a coordinated way across the country.

2.11.1 Indicator 5: Methodology

The list of **sub-indicators** used for indicator 5 is presented below:

- I. Is there a specific action plan for innovation procurement? If yes,
- II. Does the action plan commit to concrete actions to be implemented?
- III. Does the action plan define which specific resources (material and budgets) will be used to implement each action?
- IV. Does the action plan clearly define expected results (possibly broken down in final results and intermediate milestones) for each action?
- V. Does the action plan define a clear timeline for implementation of the different actions?
- VI. Does the action plan define concrete actors to implement each action?
- VII. Have the relevant key procurement organisations in the country committed and been mobilised to implement the action plan?
- VIII. Does the action plan define clear, lightweight decision-making structures for innovation procurements that require approval from procurers and/or policy makers from different levels of government (local, regional, national) and/or different sectors (e.g. health, energy, environment)?
- IX. Does the action plan define concrete measures to pool demand among public (and possibly also private) procurers in the country (e.g. by creating fast/lightweight mechanisms for approving ad-hoc joint innovation procurements, by mandating specific entities such as associations of cities, central purchasing bodies to carry out regularly joint innovation procurements on behalf of a group)?

The score of each sub-indicator depends on three variables, namely (i) whether it is for all types of innovation procurement (ii) the coverage of the country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some regions/cities) and (iii) whether it is used to mainstream innovation procurement at large scale. If the country has not developed an action plan to support and develop innovation procurement, the country automatically scores 0%. The same score is given to countries that have not developed a dedicated action plan for innovation procurement but refer to innovation procurement into other sectoral or horizontal action plans. Conversely, if a dedicated action plan has been developed, a score is given depending the three variables above. The table below illustrates the scores that each sub-indicator can achieve.

Table 11. Possible scores for each sub-indicator of indicator 5

Indicator 5: sub-indicators' possible scores	Scores
Action plan covers only a subset of the different types of innovation procurement, is not applicable across the whole country and is not implemented for mainstreaming innovation procurement at large scale.	25%
Action plan is for all types of innovation procurement but is not applicable across the whole country and is not yet implemented for mainstreaming innovation procurement at large scale.	50%
Action plan is for all types of innovation procurement, is applied across the whole country but is not yet implemented for mainstreaming innovation procurement at large scale.	75%
Action plan is for all types of innovation procurement, is applied across the whole country and is implemented for mainstreaming innovation procurement at large scale.	100%

Source: Author's elaboration

The total score on the indicator “dedicated action plan” is calculated as the average of the scores of each sub-indicator. Hence, the equation to calculate the score of the indicator takes the following form:

$$Ind5 = \frac{subInd\ 1 + subInd\ 2 + subInd\ 3 + subInd\ 4 + subInd\ 5 + subInd\ 6 + subInd\ 7 + subInd\ 8 + subInd\ 9}{9}$$

where *subInd* x indicates the score of the sub-indicator x.

2.12 Indicator 6 – Spending target

In the field of R&D and innovation, setting spending targets is a widely used approach to encourage investments (e.g. the 3% Lisbon target for R&D expenditure in Europe). Over the past few years, several countries around Europe have set a specific spending target for innovation procurement as a percentage of the annual country public procurement expenditure that should go to innovation procurements. To arrive at an equally innovation friendly public sector as in other regions of the world, there should be 2,5% of R&D procurements and 15-20% of PPI. This indicator reflects to what extent each country has defined and set a specific quantitative spending targets for innovation procurement.

2.12.1 Indicator 6: Methodology

Indicator 6 is composed of a set of **five sub-indicators**:

- I. Presence of a target definition: Has a spending target for innovation procurement been set in the country (as percentage of total public procurement spending)?
- II. Coverage: Is this spending target applicable in the whole country?
- III. Applicability to all types of innovation procurement: Is the spending target applicable to all types of innovation procurement (both R&D incl. PCP, and PPI)?
- IV. Separated target: Is there a separate target for R&D procurement and for public procurement of innovative solutions (PPI) respectively?
- V. Commitment of key procurers: Is the spending target backed by operational commitments from key procurers to invest in innovation procurements?

A country without a specific spending target automatically scores 0%. Having a spending target leads to a score, which depends on the extent to which the target is developed.

The table below provides an overview of the possible scores for each sub-indicator:

Table 12. Possible scores for each sub-indicator of indicator 6

Sub-indicators for indicator 6 / possible scores	0%	10%	20%
I. Presence of spending target	N	/	Y
II. Country coverage: national level	/	Y - Regional	Y - National
III. For all types of innovation procurement	N	/	Y
IV. Separated target	N	/	Y
V. Commitment of key procurers	N	/	Y

Notes: Y="Yes"; N="No"

Source: Author's elaboration

The total score on the indicator “dedicated action plan” is calculated as the sum of the scores of each of the 5 sub-indicators. Hence, the equation to calculate the score of the indicator takes the following form:

$$Ind6 \text{ score} = subInd1 + subInd2 + subInd3 + subInd4 + subInd5$$

2.13 Indicator 7 – Monitoring System

Without evidence about the progress on innovation procurement made so far, policy makers cannot make informed decisions for the future on how to design policy actions to catch up in areas that are lagging behind. The lack of a systematic monitoring of progress on innovation procurement across Europe tends to limit policy makers to set more ambitious targets for innovation procurement spending. Therefore, a number of countries around Europe are setting up a national monitoring systems for innovation procurement.

2.13.1 Indicator 7: Methodology

This indicator is composed of **two sub-indicators**. The first sub-indicator “Expenditure measurement” reflects to which extent the country has developed an approach for measuring the amount of total public procurement expenditure that is spent on innovation procurements. Similarly, the second sub-indicator “Impact evaluation” reflects to which extent each country has developed an approach for evaluating the impacts of completed innovation procurements.

If the country does not have a measurement nor an evaluation system, it automatically scores 0%. For each sub-indicator, if the country has a measurement or evaluation system, the country scores at least 25%. Additional 25% scores are obtained depending on the three additional factors presented in the table below that reflect to which extent the measurement or evaluation system is developed: (1) whether the system is applicable to all types of innovation procurement, (2) whether it is implemented across the whole country and (3) whether it is based on a structured approach (meaning an approach that is regularly and systematically applied according to a sound methodology, not a one-off pilot exercise). The table below provides an overview of the possible scores for this indicator.

Table 13. Possible scores for each sub-indicator of indicator 7

Sub-indicators for Indicator 7	Scores
Existence of a system	25%
Applicable for all types of innovation procurement	25%
Implemented widely across the country	25%
Based on a structured approach	25%
Total	100%

Source: Author's elaboration

The score of the indicator “monitoring system” is based on the average of sub-indicator I (measurement system) and II (impact evaluation system). Hence, the total score is based on the following calculation:

$$Ind7 \text{ score} = \frac{subInd1 + subInd2}{2}$$

where *subInd x* indicates the score of sub-indicator x.

2.14 Indicator 8 – Incentives

Risk aversion of public procurers is a major barrier for innovation procurement. Some countries in Europe have therefore created financial or other types of demand-side incentives to encourage public procurers to undertake more innovation procurements. This indicator tracks progress on this incentive structure across different countries.

2.14.1 Indicator 8: Methodology

The indicator entitled “incentives” is composed by **two sub-indicators**:

- I. Financial incentives that reduce the financial risk for procurers to undertake more innovation procurements (e.g. via grants, loans, tax incentives, crowd funding etc.)
- II. Personal incentives that provide extra personal motivation to the procurer itself to undertake more innovation procurements (e.g. KPIs/targets to improve the quality and/or efficiency of public services that need to be reached by procurers, career promotion opportunities or bonuses, prizes/awards for best practices etc.)

The scoring system of sub-indicator I “financial incentives” is as follows. A country without financial incentives for innovation procurement scores automatically 0%. If the country provides financial incentives to public procurers to undertake more innovation procurements, it scores at least 14,28%. Additional 14,28% scores are obtained depending on six additional factors that reflect to which extent the financial incentives are developed: (1) whether there are only national financial incentives (top-up funding) available for cases that can receive financial support from EU programs, (2) or whether there are also national financial incentives available for cases that cannot receive financial support from EU programs, (3) whether dedicated ESIF funds have been mobilised for innovation procurement, (4) whether the above type financial incentives are available for all types of innovation procurement, (5) whether they are available across the whole country and (6) whether they are designed to foster large scale implementation of innovation procurement.

The table below provides an overview of the possible scores for the sub-indicator I “financial incentives”.

Table 14. Possible scores for the first sub-indicator of indicator 8

Sub-indicator “financial incentives” composition	Scores
Existence of financial incentives	14,28%
Availability of national financial incentives for cases that can get financial support from the EU (top-up funding on top of EU funding) ¹⁵	14,28%
Availability of national financial incentives for cases that cannot get financial support from the EU	14,28%
Dedicated ESI funds mobilised for innovation procurement	14,28%
Directed to all types of innovation procurement	14,28%
Applicable countrywide	14,28%
Designed to foster large scale implementation of innovation procurement	14,28%
Total	100%

Source: Author’s elaboration

The sub-indicator II “personal incentives” is calculated based on the:

- Existence of personal incentives - yes or no
- Coverage: applicable countrywide – yes or no

The table below provides an overview of the possible scores for sub-indicator II:

Table 15. Possible scores for second sub-indicator of indicator 8

Sub-indicator “personal incentives” possible scores	0%	50%	100%
Existence	N	Y	Y
Coverage – applicable country wide	N	N	Y

Note: Y = Yes, N = No

Source: Author’s elaboration

¹⁵ EU financial incentives for innovation procurement include for example H2020 or ESIF co-financing, EIB loans to procurers, RRF funding etc.

The total score on the Indicator 8 “incentives” is calculated as the average of the total scores of the sub-indicator I “financial incentives” and the sub-indicator II “personal incentives”. The corresponding calculation takes the following form:

$$Ind8 \text{ score} = \frac{subInd I + subInd II}{2}$$

where *subInd x* indicates the score of the sub-indicator x.

2.15 Indicator 9 – Capacity building and assistance measures

Lack of know-how and experience among public procurers is also a significant barrier to innovation procurement. Several countries around Europe have therefore set up measures to build up the know-how of public procurers on innovation procurement and/or to provide tailored case-by-case assistance to public procurers to implement specific innovation procurement projects. To make these measures easily accessible to public procurers in a one-stop-shop, these activities are typically coordinated by a competence centre on innovation procurement. This indicator measures to what extent different capacity building activities and assistance measures for innovation procurement have been implemented in each country.

2.15.1 Indicator 9: Methodology

The indicator is composed by **9 sub-indicators**, each reflecting different capacity-building activities:

- I. Central website: a central website in the country that explains why the country encourages public procurers to undertake innovation procurement and that gives an overview of existing and upcoming policy initiatives to mainstream innovation procurement
- II. Good practices: publication by the country of good practices / case examples on innovation procurement
- III. Trainings and workshops: organisation by the country of trainings and workshops for public procurers on innovation procurement
- IV. Handbook or guidelines: publication by the country of an official handbook or guidelines on how to implement innovation procurement
- V. Assistance to public procurers: case specific implementation assistance offered by the country to public procurers to prepare and implement innovation procurements. This includes practical and legal assistance as well as assistance to public procurers to obtain hierarchical approval and financial support for implementing innovation procurements
- VI. Template tender documents: publication by the country of template tender documents for public procurers for implementing innovation procurements
- VII. Coordination of procurements: availability of government pre-approval or coordination for the implementation of innovation procurements in the country
- VIII. Networking activities between procurers: networking activities organised by the country to facilitate experience sharing and networking between procurers in other cities/regions, sectors, countries (e.g. online via a forum, or via physical meetings)
- IX. One-stop-shop for public procurers: existence of one single officially appointed entity in the country (typically a national competence centre on innovation procurement) through which public procurers can access all the above type capacity building and/or assistance measures.

The scoring for each sub-indicator is based on the level of development of the specific capacity building activity. If the activity is not implemented in the country, the country scores 0% on the sub-indicator. If the activity is implemented in the country, its score depends on the following additional five factors:

- If the activity interconnects to EU initiatives supporting innovation procurement
- If the activity is offered free of charge
- If it covers all aspects of information procurement
- If it is applicable to all public procurers in the country
- If it promotes innovation procurement at a large scale

The total score of each sub-indicator depends on how many of the six factors shown in the table below are incorporated in the specific capacity building activity. For each factor that is incorporated an additional 16.66% score is given. For example, if the capacity building activity incorporates all six factors, the total score is 6 times 16,66% or 100%.

The table below provides an overview of the possible scores for each sub-indicator.

Table 16. Possible scores for each sub-indicator of indicator 9

Indicator 9: sub-indicators' composition	Score
Existence of the activity	16,66%
The activity interconnects to EU initiatives supporting innovation procurement	16,66%
The activity is offered free of charge	16,66%
The activity covers all aspects of innovation procurement	16,66%
The activity is applicable to all public procurers in the country	16,66%
The activity promotes innovation procurement at a large scale	16,66%
Total	100%

Source: Author's elaboration

The overall score of the indicator is calculated as the average score of each sub-indicator. Hence, the core equation of the "capacity building and assistance measure" indicator takes the following form:

$$Ind9 \text{ score} = \frac{subInd 1 + subInd 2 + subInd 3 + subInd 4 + subInd 5 + subInd 6 + subInd 7 + subInd 8 + subInd 9}{9}$$

where *subInd x* indicates the score of the sub-indicator x.

2.16 Indicator 10 – Innovation friendly public procurement market

This indicator reflects to what extent the national public procurement market in each country is innovation friendly and is therefore conducive to encourage the wide scale implementation of Innovation Procurement.

2.16.1 Indicator 10: Methodology

Indicator 10 is composed by **two multi-dimensional sub-indicators**:

- I. The use of specific techniques to foster innovation in public procurement
- II. The openness of the national procurement market to innovations from across the EU single market.

Sub-indicator I reflects to which extent the following specific techniques are used that foster innovation in public procurement:

- a. The use of an IPR regime that leaves IPR ownership by default to the suppliers
- b. The frequency of the use of value for money instead of lowest price award criteria
- c. The frequency of allowing the submission of variant offers
- d. The frequency of the use of preliminary market consultations

The score for sub-indicator I is calculated as the unweighted average of the scores for the four sub-sub-indicators "a. IPR regime", "b. value for money", "c. use of variants" and "d. open market consultations".

The EC¹⁶ recommends Member States that, in public procurements, as a default rule supplier keep the ownership of their IPR and procurers retain the required usage and licensing related rights needed to fulfil their public tasks, unless in exceptional duly justified cases (where there are overriding public interests not to do so). This is because evidence shows that leaving IPR ownership with suppliers fosters innovation, company growth and reduces the costs of government contracts. Therefore, sub-indicator (a) indicates to which extent each country has implemented such a default IPR regime.

¹⁶ Commission notice C2018(3051) "Guidance on innovation procurement", <https://ec.europa.eu/docsroom/documents/29261>

The sub-sub-indicator "a. default IPR regime" reflects whether in the country the IPR ownership is normally left to the suppliers (contractors/subcontractors) in public procurement or not (it focuses on leaving IPR ownership, not at all IPR related rights, with suppliers). The possible scores for (a) are:

- If the default regime defined for public procurement in the country is to leave IPR ownership with the public procurer, the score is 0%;
- If no default regime is defined for IPR allocation in public procurement in the country and the responsibility is entirely left to the procurer to decide whether to leave IPR ownership to the contractor or not, the score is 25%;
- If the default regime defined for public procurement in the country is to leave IPR ownership with the contractors, but this is only recommended through guideline documents, the score is 50%;
- If the default regime defined for public procurement in the country is to leave IPR ownership with the contractors, and this is the approach used in the general terms and conditions for government contracts, the score is 75%;
- If the default regime defined for public procurement in the country is to leave IPR ownership with the contractors, and this is the approach defined in public procurement law, the score is 100%.

The score for the sub-sub-indicator "b. the frequency of the use of value for money instead of lowest price award criteria" is calculated using the "Indicator 5: Award criteria" of the EU Single Market Scoreboard published by the European Commission¹⁷. The EU Single Market Scoreboard indicator measures the proportion of procedures, which were awarded only on the basis of lowest price. As a result, the score for "b. frequency of use of value for money award criteria" is calculated as follows:

$$\text{Frequency of use of value for money} = 100\% - \text{proportion of procedures awarded only on the basis of lowest price}$$

Another sub-sub-indicator used to determine to what extent specific techniques are used to foster innovation in public procurement is "c. frequency of allowing the submission of variant offers". It is based on the assumption that in countries where bidders are allowed to propose variants to meet public procurers' needs, the likelihood of proposing – and consequently purchasing – innovative solutions increases. This sub-sub-indicator takes into account the proportion of calls for tenders (CfTs) allowing for variants out of the total number of CfTs.¹⁸ As this information is not available for all countries for procurements that are not published in the TED database, the sub-sub indicator score is calculated only for procurements that are published in the TED database, as follows:

$$\text{Frequency of allowing the submission of variants} = \frac{\text{Number of CfTs in TED allowing variants}}{\text{Total \# of CfTs in TED}}$$

Finally, the fourth sub-sub-indicator contributing to the score of sub-indicator I consists of "d. frequency of the use of preliminary market consultations". The underlying assumption is that procurement procedures that envisage a preliminary market consultation are more likely to result in the purchase of an innovative solution. This is due to the fact that public procurers usually resort to preliminary market consultations when they have a specific need to address, but do not know a pre-defined solution. For this reason, public procurers are willing to interact with the market.

This sub-sub-indicator is calculated as the proportion of prior information notices (and periodic indicative notices in the field of utilities)¹⁹ that envisage an open preliminary market consultation, out of the total number of prior information notices and periodic indicative notices. Since prior information notices and periodic indicative notices are not available for all countries for procurements that are not

¹⁷ http://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm

¹⁸ The calculation of the sub-sub indicator was based on the database of 2018 contract notices available through the EU Open Data Portal, and took into consideration all notices with ID_TYPE equal to 1 (Prior information notice), 2 (Contract notice), 4 (Periodic indicative notice utilities), 5 (Contract notice utilities), 7 (Qualification system utilities), 16 (Prior information notice defence and security), 17 (Contract notice defence security), 21 (Social and other specific services – public contracts), 22 (Social and other specific services – utilities), 24 (Concession notice).

¹⁹ The calculation of the sub-sub-indicator was based on the database of 2018 contract notices available through the EU Open Data Portal, and took into consideration all notices with ID_TYPE equal to 1 (Prior information notice), 4 (Periodic indicative notice utilities), 16 (Prior information notice defence and security).

published in the TED database, the sub-sub indicator score is calculated only for procurements that are published in the TED database, as follows:

$$\text{Frequency of preliminary market consultations} = \frac{\text{Number of prior information notice and periodic indicative notices in TED envisaging a preliminary market consultation}}{\text{Total number of prior information notices and periodic indicative notices in TED}}$$

To determine whether a prior information notice or a periodic indicative notice announced a preliminary market consultation, the Study team carried out a keyword search within all available textual variables of the following expressions that are usually used to refer to a preliminary market consultation:²⁰

- Preliminary market consultation
- Open market consultation
- Market dialogue/event/workshop/meeting/roundtable
- Industry/contractors'/suppliers'/information day
- Meet the buyers/procurers/clients/customers

In order to ensure a complete coverage of all different expressions to refer to preliminary market consultations, in addition to the entire strings (e.g. “preliminary” AND “market” AND “consultation”), also parts of the strings were searched (e.g. “preliminary” OR “market” OR “consultation”) and manually checked.

Sub-indicator II, i.e. the openness of the national procurement market to innovations from across the EU single market, reflects to which extent all potential providers of innovative solutions (including new, non-established providers from other countries across the EU single market) are able to find interesting procurement opportunities in the respective country (level of transparency of public procurements in the country on the EU single market) and are able to compete for those opportunities (level of competition in public procurements in the country on the EU single market):

- a. The level of competition on the EU single market
- b. The level of transparency on the EU single market

Sub-sub-indicator "a. level of competition" takes into account the following two indicators:

1. Proportion of contracts awarded where there was more than one bidder
2. Proportion of procurement procedures that are negotiated with a company with a call for bids

The EU Single Market Scoreboard provides information on the proportion of contracts published on TED where there was just a single bidder (Indicator 1 “Single bidder”) and on the proportion of procurement procedures that were, according to the contract award notice on TED, negotiated with a company without a call for bids (Indicator 2 “No calls for bids”). These two indicators are used to estimate (1) and (2). The total score for "a. level of competition" is calculated as the unweighted average of (1) and (2).

Similarly, sub-sub-indicator "b. level of transparency" takes into account the following aspects:

1. Publication rate, i.e. the value of procurement advertised on TED as a proportion of GDP
2. No missing calls for bids information, i.e. the percentage of calls for bids with a clear name of the call and clear information about the call conditions on TED
3. No missing registration numbers of the buyer, i.e. percentage of cases where the registration number of the buyer is included in the call notices on TED

The scores for these three factors are calculated using the indicators "Publication rate", "Missing calls for bids" information and "Missing buyer registration numbers" provided by the EU Single Market Scoreboard. Hence, the total score for "b. level of transparency" is calculated as the unweighted average of the scores for (1) to (3).

The **score for sub-indicator II** is calculated as the unweighted average of the scores for the two sub-sub-indicators "a. level of competition" and "b. level of transparency".

²⁰ Whenever available, official translations from the EU Public Procurement Directives were retrieved (e.g. Article 40 of Directive 2014/24/EU for “Preliminary market consultation”). The data fields that were searched included: “Title”, “Short description”, “Description of the procurement”, “Additional information” (section II), and “Additional information” (section IV).

Overall, the total score for the indicator "innovation friendly public procurement market" is calculated as the unweighted average of the total scores for the two sub-indicators I and II, namely:

$$Ind\ 10 = \frac{subInd\ I + subInd\ II}{2}$$

Box – Methodological note: calculation in case of missing values.

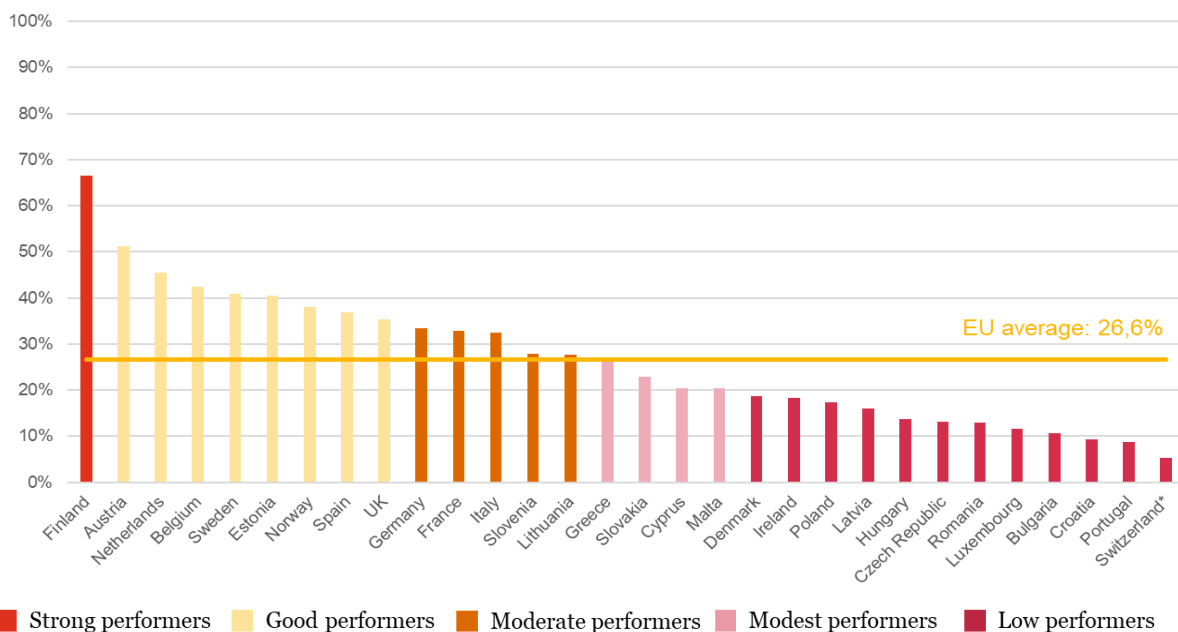
When the latest values from the EU Single Market Scoreboard were not available, the most recent values were retrieved. In case of values missing not only for the latest year, but also for the entire time series, the score of the sub-indicator was considered as “not available”. As for indicators consisting of multiple sub-indicators – in case some of them were not available – the missing values were replaced by the European average for the purpose of calculating the indicator average.

3 Benchmarking of innovation procurement policy frameworks: key findings

3.1 Overall ranking and key figures

The following graph presents the ranking of the 30 countries falling within the scope of the study in terms of the comprehensiveness of their innovation procurement policy framework. The score of each country is assigned on the basis of the 10 indicators presented in the above methodology, which are compounded into one total score.

Figure 2. Ranking and clustering of countries based on policy frameworks



Source: Author's elaboration

All countries are clustered into 5 groups according to their standard deviation (s-score) from the European average. This indicates their **degree of advancement on rolling out an innovation procurement policy framework in their country**. The table below lists the total scores of the countries clustered into the 5 groups.

Table 17. Total scores, s-scores and clusters of countries based on policy frameworks

Country	Total score	S-score	Cluster
Finland	66,6%	2,8	Strong performer
Austria	51,2%	1,7	Good performer
Netherlands	45,5%	1,3	Good performer
Belgium	42,4%	1,1	Good performer
Sweden	40,9%	1,0	Good performer
Estonia	40,5%	1,0	Good performer
Norway	38,1%	0,8	Good performer
Spain	36,8%	0,7	Good performer

Country	Total score	S-score	Cluster
UK	35,4%	0,6	Good performer
Germany	33,5%	0,5	Moderate performer
France	32,9%	0,4	Moderate performer
Italy	32,5%	0,4	Moderate performer
Slovenia	27,8%	0,1	Moderate performer
Lithuania	27,6%	0,1	Moderate performer
Greece	26,5%	0,0	Modest performer
Slovakia	23,0%	-0,3	Modest performer
Cyprus	20,4%	-0,4	Modest performer
Malta	20,4%	-0,4	Modest performer
Denmark	18,6%	-0,6	Low performer
Ireland	18,2%	-0,6	Low performer
Poland	17,4%	-0,6	Low performer
Latvia	16,1%	-0,7	Low performer
Hungary	13,7%	-0,9	Low performer
Czech Republic	13,0%	-0,9	Low performer
Romania	12,9%	-1,0	Low performer
Luxembourg	11,7%	-1,0	Low performer
Bulgaria	10,5%	-1,1	Low performer
Croatia	9,3%	-1,2	Low performer
Portugal	8,8%	-1,2	Low performer
Switzerland*	5,3%	-1,5	Low performer
<i>European average</i>	<i>26,6%</i>	<i>0,0</i>	<i>-</i>

*The total score for Switzerland was calculated taking into account all the indicators except for Innovation friendly public procurement market. This is due to the lack of data from the EU Single Market Scoreboard.

Source: Author's elaboration

The **European average** of the 30 countries considered (EU27, Norway, Switzerland and the UK) is **26,6%**, highlighting that **innovation procurement policy frameworks across Europe are working at just above one fourth of their potential power**. More than one third of the countries (12) do not reach a 20% overall score. In addition, even strong and good performers appear to have significant room for improvement in order to develop a policy framework operating at full capacity. Therefore, strengthening the investments in rolling out a more comprehensive policy framework for innovation procurement across Europe can significantly increase the positive impact that innovation procurement can bring to the European economy.

Finland ranks 1st and is the only strong performer, scoring consistently above European average (66,6%). It has adopted a comprehensive set of policies measures and actions that has activated all the elements of a structured innovation policy framework. In particular, Finland was one of the few countries implementing an Action Plan to encourage the use of innovation procurement in the country and envisaging a national spending target for innovation procurement. Finland is thus characterised by having paired political commitment (Indicators from 1 to 7) with the practical implementation of tools to foster innovation procurement (Indicators from 8 to 10). At the same time, there is still room for improvement under various indicators – such as for instance Indicator 4 on Sectorial policies or Indicator 7 on the Measuring system – which could be further structured and reinforced.

Finland is followed by a group of **good performers**, mostly consisting of countries from the higher latitudes of Europe, in which the innovation procurement policy framework is operating between 35,4%

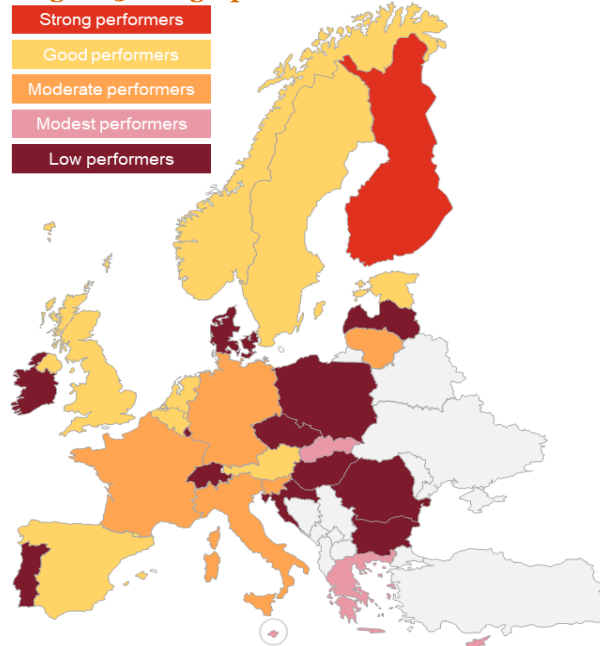
and 51,2% of its full potential, with an s-score between 0,5 and 2 points above the European average (Austria, Netherlands, Belgium, Sweden, Estonia, Norway, Spain, UK). These countries are characterised by an innovation procurement policy framework that usually covers most of the indicators taken into consideration by the study, but typically not yet at full capacity and still lacking structured implementation of some key indicators (e.g. Indicator 6 on Spending targets or Indicator 7 on the Monitoring system).

After them, **moderate performers** consist of a group of 5 countries – including most notably the three biggest economies of the EU: Germany France and Italy – in which the innovation procurement policy framework is operating between 27,6% and 33,5% of its full potential. In terms of s-score, moderate performers are between 0 and 0,5 points above the European average. These countries can count on a relatively consolidated political commitment towards innovation procurement, as they tend to score above average on the first policy-related indicators (i.e. Indicator 1 on Definitions, Indicator 2 on Horizontal policies, Indicator 3 on ICT policy). On the other hand, however, their performance tends to be lacklustre in those indicators that denote a more mature and advanced political commitment (e.g. Indicator 4 on Sectorial policies, Indicator 5 on the Action plan, Indicator 7 on the Monitoring system).

Below the European average are the **modestly performing countries** (Greece, Slovakia, Cyprus and Malta) in which the innovation procurement policy framework is operating between 20,4% and 26,5% of its full potential (with an s-score below 0 and above -0,5 points), and the **low performers** (mostly Eastern European countries, with a few notable exceptions such as Denmark, Ireland, Luxembourg, Portugal and Switzerland²¹) in which the innovation procurement policy framework is operating between 5,3% and 18,6% of its full potential (with an s-score of -0,5 below the European average). These countries usually have a fragmented policy framework for innovation procurement, characterised by low political commitment coupled with a scarce development of tools to mainstream innovation procurement. For this reason, significant efforts are required to address ample areas for improvement under multiple indicators.

In terms of geographical distribution of performance clusters of countries, as presented in the following figure, it emerges that generally speaking North-Western countries tend to fall within well-performing clusters, together with others such as Austria and Spain. To the contrary, South-Eastern countries tend to fall within the groups of modest or low performers. Finally, as mentioned above, the three biggest economies of the EU – namely France, Germany and Italy – are part of the moderate performers, together with Slovenia and Lithuania.

Figure 3. Geographical distribution of clusters



Source: Author's elaboration

²¹ It should be noted, however that the Swiss final score is only limitedly comparable with other countries, due to the fact that not all sub-indicators were available and that contributions by national counterparts to the study were extremely limited. As a result, while frequently reported as a one of the most innovative countries in the world, in the present policy benchmarking it did not go above the bottom run.

3.2 Key considerations and conclusions

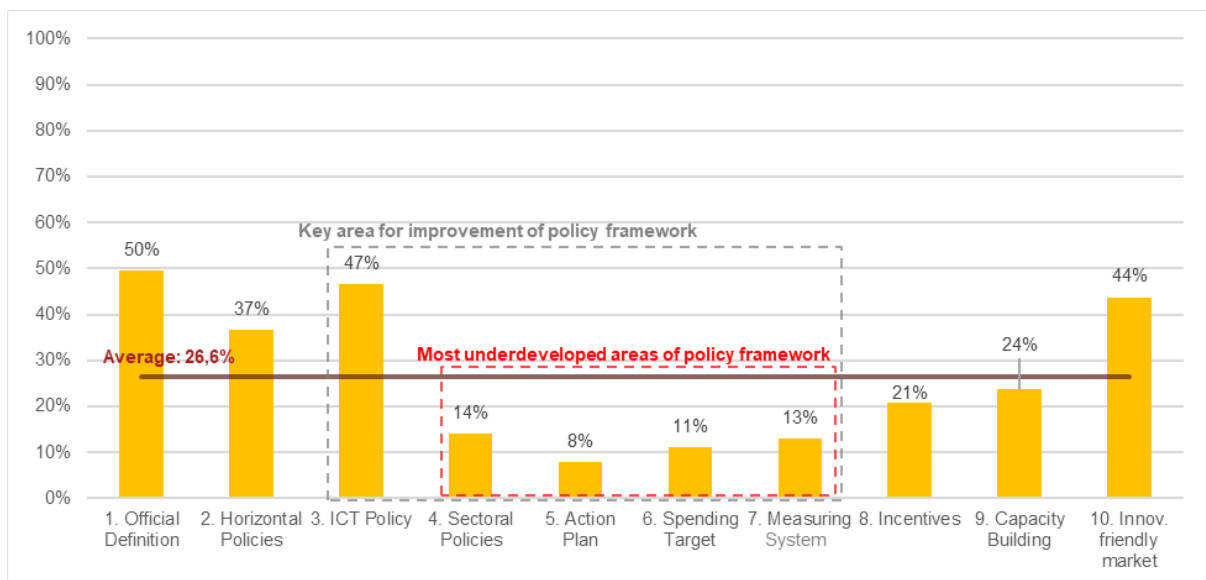
3.2.1 Areas for improvement and EU action

From the analysis of the European average scores per indicator – as shown in the following figure – it emerges that the **most underdeveloped elements of national policy frameworks** for innovation procurement across Europe are the those covered by Indicators from 4 to 9. In particular, the majority of countries:

- have not yet set up an action plan for innovation procurement (indicator 5, with an average score of 8%);
- have not yet envisaged innovation procurement spending targets (indicator 6, with an average score of 11%);
- have not yet set up a monitoring system for innovation procurement (indicator 7, with an average score of 13%);
- have not yet included innovation procurement as a strategic priority in several of the sectoral policies in which the public sector is active (e.g. public transport, health, etc.) (indicator 4, with an average score of 14%);
- do not provide sufficient incentives (indicator 8, with an average score of 21%) and capacity building measures (indicator 9, with an average score of 24%) to motivate public procurers to implement innovation procurement.

In addition, it also appears that in several countries innovation procurement has not been fully embedded as strategic priority in their ICT policies (indicator 3, with an average score of 47%). This is **another key area for improvement** as ICT is recognised as the major driver behind the efficiency of the public sector and economic growth in general in Europe.

Figure 4. European average performance per indicator of the policy framework benchmarking



Source: Author's elaboration

In order to improve national policy frameworks on innovation procurement, a more ambitious EU action is needed, both in terms of encouraging stronger political commitment (Indicators 1 to 7) and also in terms of catalysing the development of support instruments to help public procurers conduct innovation procurements (Indicators 8 to 10). In particular, the following indicators emerge as those where the EU is expected to have a greater potential to drive Member States and other European countries to strengthen their policy frameworks:

- **Political commitment**

- Indicator 1 (Definitions): the EU has set official definitions of innovation procurement, R&D procurement, pre-commercial procurement (PCP) and public procurement of innovative solutions (PPI), and it can play a major role to drive European countries to correctly adopt definitions and correct any deviations from them;
- Indicator 4 (Sectorial policies): by embedding innovation procurement as strategic priority within EU sectorial policies/strategies and pieces of legislation, the EU can have a significant impact on encouraging countries to do the same within their own national sectorial policies/legislations;
- Indicators 5 and 6 (Action plan and Spending target): in addition to encouraging the use of innovation procurement, EU sectorial policies and action plans (e.g. in energy, environmental, health etc.) could also include actions and spending targets for innovation procurement in those sectors. For instance, the EU green public procurement policy includes an action plan and dedicated targets to encourage eco-innovation. Defining action plans and spending targets across all EU sectorial policies – even though non-binding for Member States – would undoubtedly provide guidance and a common direction;
- Indicator 7 (Monitoring system): by setting up a systematic regular benchmarking of innovation procurement policy frameworks and investment levels across Europe, the EU can inspire European countries to structure their own systems for the measurement of innovation procurement and evaluation of its impacts;

- **Instruments**

- Indicator 10 (innovation-friendly public procurement market): by ensuring wide implementation of the new EU policy to leave IPR ownership with suppliers by default, countries could encourage innovation procurement and fuel economic recovery.

3.2.2 Key considerations from case examples of PPI

Although the comprehensiveness of the innovation procurement policy frameworks varies widely across the 30 countries taken into consideration, the study has identified public procurements of innovative solutions in each country. As fully presented in the following Chapter 5, 6 and 7, a total of 12.844 calls for tenders requesting innovative solutions were identified in 2018, with an average of 428 per country. Annex II of this report with the “**PPI Case examples**” presents 30 different calls for tenders that requested innovative solutions, one for each country. Although these examples did not all take place in 2018 – since many of them were collected from earlier years so to have a clearer understanding of their long-term impacts – they further highlight that European public procurers are purchasing innovative solutions even in those countries with policy frameworks in their infancy. The following table lists the case examples collected. Annex II includes a more detailed analysis of each PPI case example, describing the background context, the need that the public procurer sought to address, the procurement procedure followed, and the key results and impacts produced.

Table 18. List of PPI case examples, per country

Country	Case example	Country	Case example
Austria	Wastewater recycling system for the Austrian Mint	Latvia	Steam Explosion Pilot Plant of the Institute of Wood Chemistry
Belgium	Application of Artificial Intelligence to job-matching system in the Flemish Public Employment Service	Lithuania	Construction of a combined heat and power plant
Bulgaria	Specialized vehicle, surveillance drone and personal protective equipment for forest fire fighting	Luxembourg	SATMED – a worldwide e-health platform

Country	Case example	Country	Case example
Croatia	Lighting solution for the Municipality of Župa Dubrovnik	Malta	Catering Services to Inpatients at Mater Dei Hospital
Cyprus	Creation of the Department of Lands and Surveys Web Portal	Netherlands	Procuring textiles made from recycled fibres
Czech Republic	Virtual autopsy table	Norway	Chatbot with artificial intelligence
Denmark	Intelligent Street Lighting	Poland	Delivery of ultrasound machines for the Provincial Specialist Healthcare Team in Wrocław
Estonia	X-Road project	Portugal	Unmanned aerial systems and ancillary equipment
Finland	Purchase of lightweight, full electric buses in Helsinki	Romania	Implementation of a Big Data platform and information analysis capabilities
France	HAPPI Project	Slovakia	Deep renovation and modernization of an apartment building on Pavla Horova Street 17-19 in Bratislava (part of the <i>EU-GUGLE Project</i>)
Germany	Magnetic-card system	Slovenia	Upgrade of the Ljubljana Regional Waste Management Centre
Greece	Smart Policing Systems	Spain	Treatment of patients with automated implantable cardioverter defibrillator (AICD)
Hungary	Helicopter Crew Tactical Training Simulator	Sweden	Disposable bio-based aprons for Skåne's healthcare sector
Ireland	Procurement of solar powered, compacting litter bins	Switzerland	Recycled concrete and asphalt for building and road construction
Italy	Servizio Luce 4 (Lighting Services 4 th) - National framework contract for sustainable and innovative lighting	UK	Innovative lighting procurement for London's Underground network

Source: Author's elaboration

Based on a qualitative analysis of both the 30 PPI examples and the entire study database, it emerges that innovative solutions are often purchased through traditional procurement procedures – rather than more complex ones (e.g. competitive dialogue, innovation partnership, etc.) – sometimes combined with simple techniques that tend to encourage innovation, such as the adoption of value for money award criteria.

The analysis of the 30 PPI examples also showed that the majority of calls for tenders were launched by public procurers at national level (16), such as for instance ministries and national utilities entities. However, a significant number of PPIs also took place at regional (7) and local (7) levels. The degree of engagement in PPI procurement across different levels of public activity is taken into consideration in greater detail in the following Part 2 on the benchmarking of the amount of PPI investments across Europe, which further highlights the importance of the regional and local levels of public sector activity to foster innovation, even with calls for competition falling below the EU-thresholds.

In addition, it also emerges that the majority of case examples awarded the PPI contract to national contractors (22), while in seven cases the PPI contract was awarded to a non-national contractor or to a consortium of both national and non-national contractors.²² This proportion of cross-border contract awards is significantly higher than in public procurement in general across Europe. This suggests that innovation procurement encourages cross-border competition and dissemination of innovations.

²² The cases of award to non-national contractors also include the case example of Portugal, with the winning contractor being based in the USA, a non-European country. The total does not add up to 30 because at the time of writing the Romanian PPI had not been awarded yet.

4 Benchmarking of innovation procurement policy frameworks: analysis of results per indicator. Commonalities and disparities between countries

This section presents the results of the benchmarking (ranking of country scores per indicator) and a summary of the evidence collected to justify these scores (for more detailed evidence by country, see country profiles in Annex I **by each indicator**). This section also presents an analysis of commonalities, disparities and trends per indicator.

4.1 Indicator 1 – Official definition

The table shows the results obtained by each country on the “official definition” indicator. The total score is calculated as the average of 4 sub-indicators, namely "official definition for innovation procurement", "official definition for R&D procurement", "official definition for PCP", "official definition for PPI".

Table 19. Indicator 1: scores

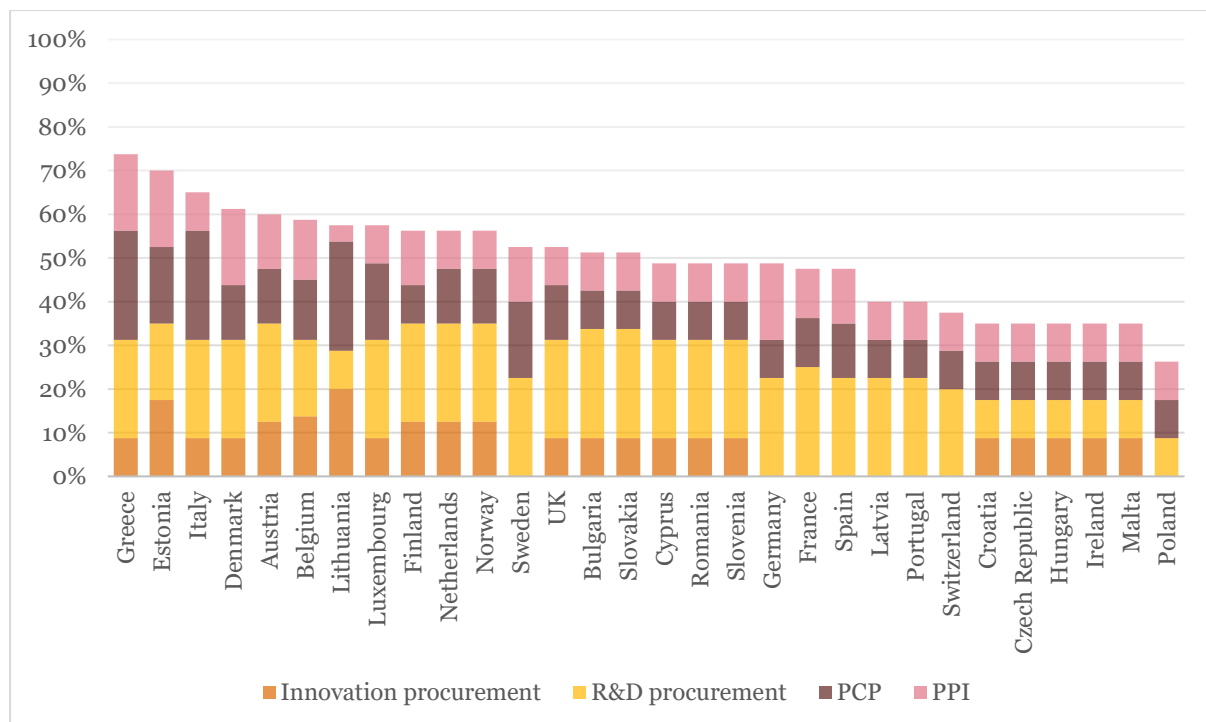
Country	Innovation procurement	R&D	PCP	PPI	Total
<i>Austria</i>	50%	90%	50%	50%	60,0%
<i>Belgium</i>	55%	70%	55%	55%	58,8%
<i>Bulgaria</i>	35%	100%	35%	35%	51,3%
<i>Croatia</i>	35%	35%	35%	35%	35,0%
<i>Cyprus</i>	35%	90%	35%	35%	48,8%
<i>Czech Republic</i>	35%	35%	35%	35%	35,0%
<i>Denmark</i>	35%	90%	50%	70%	61,3%
<i>Estonia</i>	70%	70%	70%	70%	70,0%
<i>Finland</i>	50%	90%	35%	50%	56,3%
<i>France</i>	0%	100%	45%	45%	47,5%
<i>Germany</i>	0%	90%	35%	70%	48,8%
<i>Greece</i>	35%	90%	100%	70%	73,8%
<i>Hungary</i>	35%	35%	35%	35%	35,0%
<i>Ireland</i>	35%	35%	35%	35%	35,0%
<i>Italy</i>	35%	90%	100%	35%	65,0%
<i>Latvia</i>	0%	90%	35%	35%	40,0%
<i>Lithuania</i>	80%	35%	100%	15%	57,5%
<i>Luxembourg</i>	35%	90%	70%	35%	57,5%
<i>Malta</i>	35%	35%	35%	35%	35,0%
<i>Netherlands</i>	50%	90%	50%	35%	56,3%
<i>Norway</i>	50%	90%	50%	35%	56,3%
<i>Poland</i>	0%	35%	35%	35%	26,3%

Country	Innovation procurement	R&D	PCP	PPI	Total
Portugal	0%	90%	35%	35%	40,0%
Romania	35%	90%	35%	35%	48,8%
Slovakia	35%	100%	35%	35%	51,3%
Slovenia	35%	90%	35%	35%	48,8%
Spain	0%	90%	50%	50%	47,5%
Sweden	0%	90%	70%	50%	52,5%
Switzerland	0%	80%	35%	35%	37,5%
UK	35%	90%	50%	35%	52,5%
European average	32%	77%	49%	42%	49,6%

Source: Author's elaboration

The European average for indicator "official definition" is 49,6%. The best performing countries are Greece, Estonia, Italy, Denmark, and Austria, which have recorded an overall score of 60% or above. The ranking is provided in the figure below.

Figure 5. Indicator "Official Definition" overall ranking



Source: Author's elaboration

The table and figure show that the national official definitions for R&D procurement are the clearest and most accurately spelled out, and the closest in line with the official EU definition (reaching an average score of 77% across Europe). PCP and PPI are also defined relatively clearly and accurately, but not always in line with the EU definition, reporting average scores of 49% and 42% respectively. All the countries analysed have at least reported a legal basis for the development of R&D procurement, PCP and PPI, meaning that they are ready to develop an R&D procurement, PCP and PPI strategy.

To the contrary, national official definitions for innovation procurement are the least clear and accurate, with an average score of 32% across Europe. Only one country has a definition for innovation procurement in its national legal framework and 8 countries do not have any form of official definition for innovation in the context of public procurement. Moreover, 11 countries have a definition that is not in line with the EU definition. This may be largely due to a commonly observed misinterpretation that innovation procurement encompasses only the innovation partnership procedure. In order to

encourage more procurers to undertake innovation procurements, it is important that this is clarified in the future.

For each of the 4 definitions of indicator 1, the analysis distinguishes 4 categories of countries:

- Countries where the definition has been included in national legislation
- Countries where the definition is included in “non-legal documents”, e.g. policy documents or guidelines for public procurers
- Countries where the definition is not included in national legislation or official guidance documents, but national legislation provides a “legal basis” for implementing the type of innovation procurement analysed
- Countries which have not foreseen an official definition and do not provide a legal basis for implementing the analysed type of procurement.

For each of the 4 categories of countries, the table indicates whether the definition reaches full coverage (definition is applicable to all types of public procurers across the whole country) or not (e.g. only in a certain region, or only for a specific type of public procurers) and whether the definition is in line with the EU definition.

The following paragraphs provide a detailed breakdown of the evidence collected per sub-indicator.

4.1.1 Official definition for Innovation Procurement

The table below illustrates to which extent an official definition for innovation procurement has been introduced in each country.

Table 20. Level of introduction of official definition for innovation procurement in each country

	Definition in legislation	Definition in non-legal document (guidelines...)	Only legal basis No definition	None of the previous (legal basis not transposed)
Full coverage and in line with EU definition		EE (1)	BG, CY, CZ, DK, EL, HR, HU, IE, IT, LU, MT, RO, SI, SK, UK (15)	
No full coverage but in line with EU definition		BE (1)		
Full coverage but not fully in line with EU definition		AT, FI, NL, NO (4)		
No full coverage and not in line with EU definition	LT(1)			
None of the previous				CH, DE, ES, FR, LV, PL, PT, SE (8)

Source: Author's elaboration

One country has introduced a legal definition of innovation procurement in the national legislation (LT). However, this definition is only partially in line with the EU definition.

In 6 countries (AT, BE, EE, FI, NL, NO) a definition of innovation procurement is available in official guidance documents:

- In Estonia the definition in guidance documents is applicable to all procurers across the whole country and is in line with the EU definition.
- In Belgium, there are guidelines that provide a definition which is in line with the EU definition, but they are only applicable to Flemish procurers.
- In 4 countries (AT, FI, NL, NO), the definition in the guidance is applicable countrywide but is not in line with the EU definition. For example, the guidance note published by the Norwegian Agency for Public Management and e-Government (Difi) includes procurements that use new

innovative approaches in the procurement process itself but do not necessarily result in the procurement of any type of innovation.

In 15 countries (BG, CY, CZ, DK, EL, HR, HU, IT, IE, LU, MT, RO, SI, SK, UK) there is no official definition of innovation procurement in legislation or guidance documents but there is a definition of innovation in the context of public procurement in the national legislation in line with the EU definition, providing a legal basis for the development of innovation procurement in the country.

Finally, in 8 countries (CH, DE, ES, FR, LV, PL, PT, SE) there are no definitions for innovation procurement and for innovation, neither in national legislation nor in national guidance documents. In addition, the definition of innovation in the context of public procurement from the EU public procurement directives has not been transposed in national public procurement legislation.

4.1.2 Official definition for R&D procurement

The table below illustrates to which extent an official definition of R&D procurement has been introduced in each country.

Table 21. Level of introduction of official definition for R&D procurement in each country

	Definition in legislation	Definition in non-legal document (guidelines...)	Only legal basis No definition	None of the previous (legal basis not transposed)
Full coverage and in line with EU definition	BG, FR, SK (3)	BE, EE (2)	CZ, HR, HU, IE, LT, MT, PL (7)	
No full coverage but in line with EU definition	AT, CY, DE, DK, EL, ES, FI, IT, LV, LU, NL, NO, PT, RO, SE, SI, UK (17)			
Full coverage but not fully in line with EU definition				
No full coverage and not in line with EU definition	CH (1)			
None of the previous				

Source: Author's elaboration

Over two thirds of the countries (21) have included a definition of R&D in the context of procurement in national legislation:

- 3 countries (BG, FR and SK) included the definition of R&D in the context of public procurement in national public procurement legislation. The definition is applicable to all types of public procurers in a way that is in line with the EU definition.
- In 17 countries (AT, CY, DE, DK, EL, ES, FI, IT, LV, LU, NL, NO, PT, RO, SI, SE, UK) the definition of R&D in the context of public procurement is available only in the national public procurement legislation for the defence sector. Despite being coherent with the EU legislation, in these countries the definition is only available within one sector.
- In Switzerland, there is a definition of R&D in the context of public procurement in national legislation that is applicable only to the federal government. However, it is not in line with the EU definition and not applicable to all types of public procurers.

2 countries (BE and EE) have not provided a definition of R&D procurement in national legislation but have foreseen one in official guidelines.

7 countries (CZ, HR, HU, IE, LT, MT, PL) do not have a definition of R&D procurement in national legislation nor in non-legal documents. However, they have identified in national procurement legislation what is considered R&D in the context of public procurement via CPV codes which are

applicable to all public procurers in the country and in line with the EU definition of the R&D CPV codes. These CPV codes provide a legal basis for developing R&D procurement in the country. There are no countries where the definition or the legal basis for R&D procurement have not been transposed, i.e. the category "nothing" is empty.

4.1.3 Official definition for Pre-Commercial Procurement (PCP)

The table below illustrates to which extent an official definition for PCP has been introduced in different countries.

Table 22. Level of introduction of official definition for PCP in each country

	Definition in legislation	Definition in non-legal document (guidelines...)	Only legal basis No definition	None of the previous (legal basis not transposed)
Full coverage and in line with EU definition	EL, IT, LT (3)	EE, LU, SE (3)	BG, CH, CY, CZ, DE, FI, HR, HU, IE, LV, MT, PL, PT, RO, SK, SI (16)	
No full coverage but in line with EU definition		BE (1)		
Full coverage but not fully in line with EU definition		AT, DK, NL, NO, ES, UK (6)		
No full coverage and not in line with EU definition		FR (1)		
None of the previous				

Source: Author's elaboration

A first group of 11 countries (AT, BE, DK, EE, ES, FR, LU, NL, NO, SE, UK) have included a definition of PCP in non-legal official documents:

- 3 countries (EE, LU, SE) define PCP in guidance documents which provide a countrywide applicable definition in line with the EU definition.
- In Belgium, the guidance document defined PCP only for the Flanders region.
- In 6 countries (AT, DK, NL, NO, ES, UK) guidance documents are applicable across the country but the definition is not coherent with the EU definition.
- In France the definition of PCP is not applicable to all procurers in the country (only to those in the national innovation procurement road mapping exercise) and not in line with the EU definition. According to this definition, PCP cannot include the sale of resulting innovative product. However, it includes the sale of the resulting innovative solutions (the limited set of products or services resulting from the R&D), but does not include commercial volumes of the innovative solution (as this would require the suppliers to undertake quantity production which cannot be part of R&D).

The second group of countries (BG, CH, CY, CZ, DE, FI, HR, HU, IE, LV, MT, PL, PT, RO, SK, SI) do not have an official definition for PCP, neither in national legislation nor in official guidance documents, but provide the legal basis to implement PCP (R&D services exemption in their national public procurement law), which is applicable to all public procurers in the country and in line with the EU procurement directives provisions.

Finally, a limited number of countries (EL, IT, LT) have introduced the definition of PCP in national legislation which is applicable in the whole country and is in line with the EU definition.

There are no countries where the definition or the legal basis for PCP procurement have not been transposed, i.e. the category "nothing" is empty.

4.1.4 Official definition for Public Procurement of Innovative solutions (PPI)

The table below illustrates to which extent an official definition for PPI has been introduced in each country.

Table 23. Level of introduction of official definition for PPI in each country

	Definition in legislation	Definition in non-legal document (guidelines...)	Only legal basis No definition	None of the previous (legal basis not transposed)
Full coverage and in line with EU definition		DE, DK, EE, EL (4)	BG, CH, CY, CZ, HR, HU, IE, IT, LU, LV, MT, NL, NO, PL, PT, RO, SI, SK, LT, UK (20)	
No full coverage but in line with EU definition		BE (1)		
Full coverage but not fully in line with EU definition		AT, ES, FI, SE (4)		
No full coverage and not in line with EU definition		FR (1)		
None of the previous				

Source: Author's elaboration

With regard to this sub-indicator, the analysed countries can be divided in two groups. The first group includes 10 countries (AT, BE, DE, DK, EE, ES, FI, FR, SE, EL), which have defined PPI in non-legal documents:

- 4 countries (DE, DK, EE, EL) have introduced a definition of PPI fully in line with the EU definition and applicable to all public procurers.
- In Belgium, the definition of PPI is in line with the EU definition but only applicable to the Flanders region.
- 4 countries (AT, ES, FI, SE) have a PPI definition in non-legislative documents applicable to all public procurers but not in line with the EU definition. For instance, in Spain, the PPI definition included in the guidelines published by the Ministry of Economy only covers products that still need to be developed while existing products not widely commercialised are not covered (PPI is confused with innovation partnerships).
- France provides a PPI definition in national guidance, but it is not applicable to all public procurers (i.e. only to the procurers included in the national innovation procurement road mapping exercise) and it is linked only to solutions that have been released to the market since less than 2 years (no link to the 20% early adopters on the market is done).

The second and bigger group includes the remaining 20 countries (BG, CH, CY, CZ, HR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SI, SK, UK). They have not introduced a definition of PPI neither in national legislation nor in official guidance documents. However, in these countries the legislation still provides a legal basis for procurers to implement PPI, in particular by allowing contract award and performance monitoring based on innovative solution characteristics. No country has included a definition of PPI in its national legal framework. There are no countries where the definition or the legal basis for PPI have not been transposed, i.e. the category "nothing" is empty.

4.2 Indicator 2 – Horizontal policies

This indicator reflects the extent to which innovation procurement has been incorporated as a strategic tool or objective in 7 horizontal policy areas. The table below provides the score of Indicator 2 for each country. The total score is calculated as the average result of 7 sub-indicators, namely "R&D policy",

“innovation policy”, “public procurement policy”, “competition policy”, “economic and financial policy”, “entrepreneurship policy”, “regional/urban policy”.

Table 24. Indicator 2: scores

Country	R&D policy	Innovation policy	Public procurement	Competition policy	Economic & financial policy	Entrepreneurship policy	Regional/urban policy	Total
Austria	100%	100%	100%	0%	0%	0%	50%	50,0%
Belgium	50%	50%	0%	0%	50%	0%	50%	28,6%
Bulgaria	0%	0%	0%	0%	0%	0%	100%	14,3%
Croatia	0%	0%	100%	0%	0%	0%	0%	14,3%
Cyprus	0%	0%	100%	0%	0%	100%	0%	28,6%
Czech Republic	100%	100%	0%	0%	0%	0%	100%	42,9%
Denmark	0%	100%	100%	0%	0%	0%	50%	35,7%
Estonia	100%	100%	100%	0%	100%	100%	100%	85,7%
Finland	100%	100%	100%	0%	100%	0%	100%	71,4%
France	0%	50%	100%	0%	50%	0%	50%	35,7%
Germany	100%	100%	100%	0%	0%	0%	50%	50,0%
Greece	100%	100%	100%	0%	0%	0%	100%	57,1%
Hungary	100%	100%	0%	0%	0%	0%	100%	42,9%
Ireland	0%	100%	100%	0%	0%	100%	0%	42,9%
Italy	50%	0%	0%	0%	0%	0%	50%	14,3%
Latvia	0%	100%	0%	0%	0%	100%	0%	28,6%
Lithuania	100%	100%	0%	0%	100%	0%	100%	57,1%
Luxembourg	0%	0%	0%	0%	0%	0%	0%	0,0%
Malta	100%	100%	0%	0%	0%	0%	0%	28,6%
Netherlands	100%	100%	100%	0%	0%	100%	0%	57,1%
Norway	100%	0%	100%	0%	0%	0%	0%	28,6%
Poland	100%	100%	100%	0%	100%	0%	100%	71,4%
Portugal	0%	0%	0%	0%	0%	0%	100%	14,3%
Romania	0%	0%	0%	0%	0%	0%	100%	14,3%
Slovakia	0%	0%	0%	0%	0%	0%	100%	14,3%
Slovenia	100%	0%	0%	0%	0%	0%	100%	28,6%
Spain	100%	100%	0%	0%	0%	0%	100%	42,9%
Sweden	100%	100%	100%	0%	0%	100%	0%	57,1%
Switzerland	0%	0%	0%	0%	0%	0%	0%	0,0%
UK	0%	0%	100%	0%	0%	100%	100%	42,9%
European average	53,3%	56,7%	50%	0%	16,7%	23,3%	56,7%	36,7%

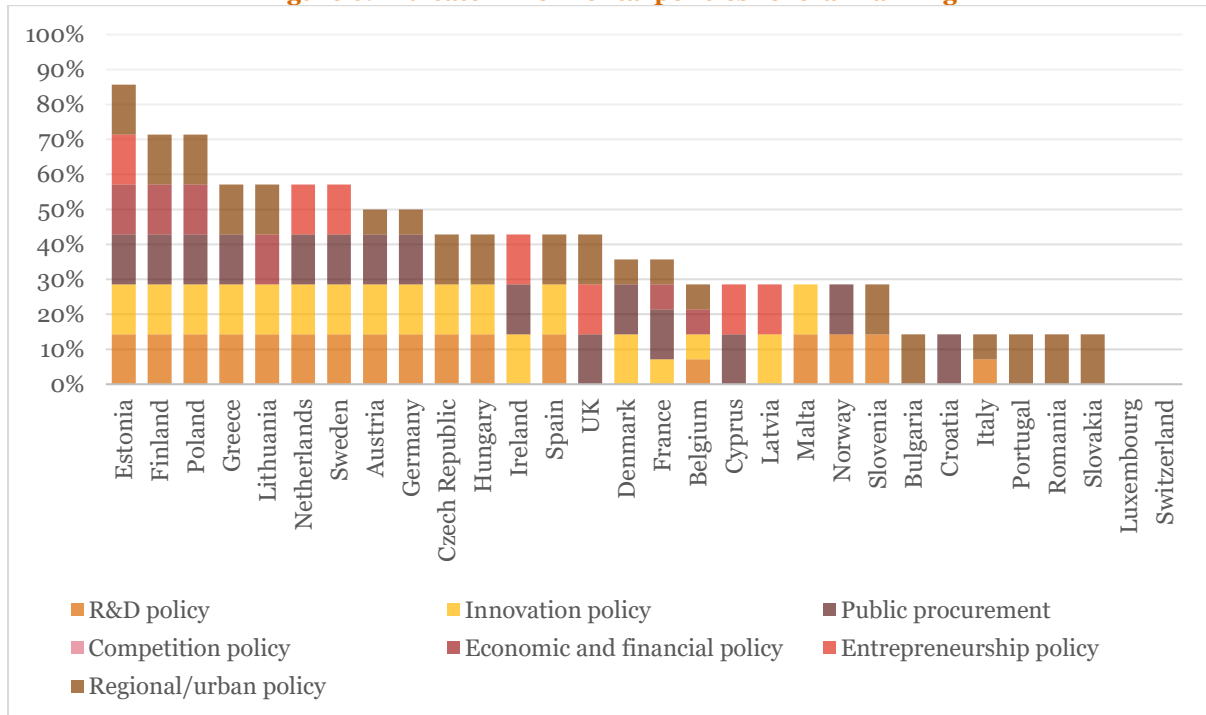
Source: Author's elaboration

The best performing country is Estonia (where innovation procurement is recognised in all horizontal policies except for competition policy), whereas Luxembourg and Switzerland are at the bottom of the ranking because innovation procurement is not recognised in any horizontal policy. A number of countries that use ESIF funds to a large extent (Bulgaria, Portugal, Romania, Slovakia) recognise innovation procurement only in their ESIF supported regional/urban policy. However, these countries do not have any other national horizontal policy or strategy for supporting innovation procurement at

national level in areas that are not supported by ESIF funds. The European average of this indicator is 36,7%. 16 countries score below the European average.

In terms of horizontal policy support to innovation procurement, across all countries and among all the horizontal policies observed, “Regional/Urban policy” and “R&D and Innovation policy” are the policy fields that score the highest on endorsing and promoting the strategic importance of innovation procurement. This is mainly due to the fact that innovation procurement is inextricably tied with R&D&I activities. They are followed by “public procurement policies”. Endorsement of innovation procurement in “entrepreneurship, economic / financial policy” (as a mechanism for enabling structural reforms and public sector modernisation) and in “competition policy” are still points to be improved across all countries.

Figure 6. Indicator "Horizontal policies" overall ranking



Source: Author's elaboration

The next paragraphs provide a detailed breakdown of each horizontal policy considered.

4.2.1 Public Procurement Policy

Table 25. Level of recognition of public procurement policy in each country

	Applicable to all procurers country wide	Not applicable to all procurers country wide	No recognition
Public Procurement Policy	AT, CY, DE, DK, EE, EL, FI, FR, HR, IE, NL, NO, SE, UK, PL (15)		BE, BG, CH, CZ, ES, HU, IT, LT, LU, LV, MT, PT, RO, SI, SK (15)

Source: Author's elaboration

15 countries (AT, CY, DE, DK, EE, EL, FI, FR, HR, IE, NL, NO, SE, UK, PL) recognise the strategic importance of innovation procurement in modernising public services in their public procurement policy that is applicable to all procurers in the country:

- In some countries innovation procurement is well structured in the national public procurement strategy and concrete actions are foreseen to realise it. For example in Denmark, the national strategy on public procurement clearly describes the tools to be used to develop innovation procurement and the actions implemented to support the different forms of innovation procurement, e.g. PCP, PPI. Similarly, Greece foresees actions to promote and

disseminate innovation procurement in the country, including sectorial studies and awareness raising activities.

- In other countries, such as Austria and the Netherlands, innovation is anchored in the public procurement policy. However, innovation is encouraged via dedicated national action plans rather than via public procurement legislation, where innovation is a secondary objective.
- In Cyprus, the promotion of innovation in public procurement is mentioned as one of the objectives set out in the public procurement strategy.

In 15 countries (BE, BG, CH, CZ, ES, HU, IT, LT, LU, LV, MT, PT, RO, SI, SK) public procurement policy have not explicitly recognised the strategic importance of innovation procurement yet.

4.2.2 Entrepreneurship policy

Table 26. Level of recognition of entrepreneurship policy in each country

	Country wide	Not country wide	No recognition
Entrepreneurship policy	CY, EE, IE, NL, LV, SE, UK (7)		AT, BE, BG, CH, CZ, DE, DK, EL, ES, FI, FR, HR, HU, IT, LT, LU, MT, NO, PL, PT, RO, SI, SK (23)

Source: Author's elaboration

7 countries (CY, EE, IE, NL, LV, SE, UK) recognise the importance of innovation procurement in creating business opportunities for entrepreneurs and boosting the scaling up of small companies in their entrepreneurship policy that is applicable across the whole country:

- In Cyprus, Ireland and the Netherlands, the use of innovation procurement in this policy area is focused on the creation of more competitive enterprises in the country. The Netherlands explicitly targets SMEs and start-ups, whereas in Ireland innovation procurement is used as a tool to foster the participation of SMEs to public tender procedures.
- In Estonia, innovation procurement is embedded in a strategy addressing different sectors including entrepreneurship. The “Estonian Entrepreneurship Growth Strategy 2014-2020” covers a variety of sectors with the aim to create a market for innovative solutions through the use of innovation procurement.

In the remaining 23 countries (AT, BE, BG, CH, CZ, DE, DK, EL, ES, FI, FR, HR, HU, IT, LT, LU, MT, NO, PL, PT, RO, SI, SK) entrepreneurship policy does not recognise the strategic importance of innovation procurement for entrepreneurs and small company growth.

4.2.3 Economic and financial policy

Table 27. Level of recognition of economic and financial policy in each country

	Country wide	Not country wide	No recognition
Economic and financial policies	EE, FI, LT, PL (4)	BE, FR (2)	AT, BG, CH, CY, CZ, DE, DK, EL, ES, HR, HU, IE, IT, LU, LV, MT, NL, NO, PT, RO, SE, SI, SK UK (24)

Source: Author's elaboration

Only 6 countries (BE, EE, FI, FR, LT, PL) recognise the strategic importance of innovation procurement for economic growth and for optimising financial sustainability of public services in their economic and financial policy:

- In 4 countries (EE, FI, LT, PL) innovation procurement is included as a strategic tool within economic and/or financial strategies that support the overall growth and competitiveness of the whole country. To achieve this objective, these strategies are usually interconnected with

sectoral strategies. For example, in Poland the “Strategy for Responsible Development 2020” has a horizontal impact across several policy sectors, including transport, environment, energy and ICT. In Finland, innovation procurement is often used to channel investments and procurement budgets towards the development of new services and products and urban regions.

- In France and Belgium the strategic role of innovation procurement for economic and financial policy is also recognised, but not in a way that is applicable to all procurement areas in the country. In France, it applies only to public procurers that are involved in the national innovation procurement road mapping exercise: a number of national central public bodies, i.e. the State (e.g. the Ministries), its “operators” (*établissements publics*) and hospitals. In Belgium it applies only to the region of Flanders.

The vast majority of the EU countries (24) have not recognised the strategic importance of innovation procurement in their economic and financial policies yet.

4.2.4 Competition Policy

Table 28. Level of recognition of competition policy in each country

	Country wide	Not country wide	No recognition
Competition policy			AT, BE, BG, CY, CH, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IT, IE, LV, LT, LU, MT, NL, NO, PL, PT, RO, SI, SE, SK, UK (30)

Source: Author's elaboration

No country has so far included provisions on innovation procurement in its competition policy to ensure a transparent, non-discriminatory level playing field for all economic operators on its procurement market.

4.2.5 Regional/urban policy

Table 29. Level of recognition of regional/urban policy in each country

	Country wide	Not country wide	No recognition
Regional/Urban policy	BG, CZ, EE, EL, ES, FI, HU, LT, PL, PT, RO, SI, SK, UK (14)	AT, BE, DE, DK, FR, IT, (6)	CY, CH, HR, IE, LV, LU, MT, NL, NO, SE (10)

Source: Author's elaboration

In 14 countries (BG, CZ, EE, EL, ES, FI, HU, LT, PL, PT, RO, SI, SK, UK) the strategic importance of innovation procurement for regional/urban development is recognised in the national regional and urban policy framework for the whole country. In these national strategies, in most cases the regional actions in the innovation procurement field are foreseen in the context of the ESIF smart specialisation strategies that are implemented by regional authorities.

6 countries (AT, BE, DE, DK, FR, IT) do not recognise the strategic importance of innovation procurement for regional/urban development for the whole country, but only in certain regions:

- In Italy, several Italian Regions explicitly indicate PCP and PPI in their 2014-2020 Operational Plans. The sectors where they are applied have been identified by each Region in accordance with the smart specialisation strategy documents (S3).
- In Austria even without a national strategic framework for regional and urban policies, there are regions that have developed their own policy dedicated to innovation procurement. In particular, the Vienna's RTI strategy “Innovative Vienna 2020” recognises innovation procurement among its instruments to foster the innovative development of the region.

- Germany has a strategic framework for regional and urban policies, but innovation procurement is included as a specific objective. However, innovation procurement is envisaged at regional level in the context of Green Public Procurement, e.g. North-Rhine Westphalia.

In 10 countries (CY, CH, HR, IE, LV, LU, MT, NL, NO, SE) there is no recognition of the strategic importance of innovation procurement in regional/urban policies at national or regional level.

4.2.6 R&D&I policy

Table 30. Level of recognition of R&D&I policy in each country

	Country wide	Not country wide	No recognition
R&D policy	AT, CZ, DE, EE, EL, ES, FI, HU, LT, MT, NL, NO, PL, SE, SI (15)	BE, IT (2)	BG, CH, CY, DK, FR, HR, IE, LU, LV, PT, RO, SK, UK (13)
Innovation policy	AT, CZ, DE, DK, EE, EL, ES, FI, HU, IE, LV, LT, MT, NL, PL, SE (16)	BE, FR (2)	BG, CH, CY, HR, IT, LU, NO, PT, RO, SI, SK, UK (12)

Source: Author's elaboration

R&D and innovation policies have been grouped together because most countries develop a combined R&D and innovation strategy. In a limited number of countries (DK, FR, IE, IT, LV, NO, SI) only one of these two horizontal policies recognises the strategic importance of innovation procurement.

- In 15 countries (AT, CZ, DE, EE, EL, ES, FI, HU, LT, MT, NL, NO, PL, SE, SI) innovation procurement is included as a strategic tool within a horizontal R&D strategy at national level.
- In 16 countries (AT, CZ, DE, DK, EE, EL, ES, FI, HU, IE, LV, MT, NL, NO, PL, SE) innovation procurement is included as a strategic tool within a horizontal innovation strategy at national level.
- In France, Belgium and Italy, the strategic relevance of innovation procurement is recognised in R&D or innovation policies not applicable to all entities in the country. In the Italian case the National Research Plan (2015-2020), focusing on R&D, foresees among its objectives the promotion of public demand for innovative solutions. Under this framework the competent Ministry has put in place a "Pre-Commercial Procurement Program" only for the former "cohesion objective regions". In Belgium, only the R&D&I policy of the region of Flanders recognises the strategic importance of innovation procurement.

In 9 countries (BG, CH, CY, HR, LU, PT, RO, SK, UK) both the R&D policy and the innovation policy do not recognise the strategic importance of innovation procurement.

4.3 Indicator 3 – ICT policy

As ICTs are catalysers for innovation and public sector modernisation, embedding innovation procurement as a strategic tool or objective in the digital/ICT policy of the country can be a particularly effective approach towards a widely-spread adoption of innovation procurement. Whilst improving the quality and efficiency of public services with innovative ICT solutions, innovation procurement can also foster company growth in the ICT sector itself. Therefore this indicator reflects to which extent innovation is embedded as a strategic priority in the ICT policy.

The table below provides an overview of the overall scores (0%, 50% of 100%) obtained by different countries for this indicator.

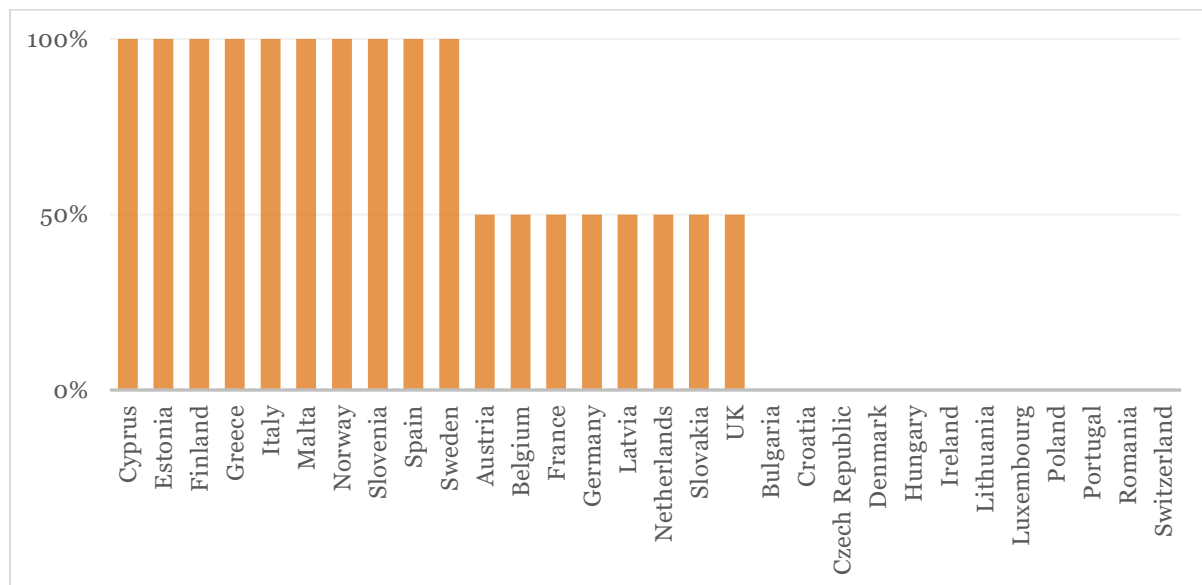
Table 31. Indicator 3: scores

	Direct and full recognition (100%)	Indirect or Partial recognition (50%)	No recognition (0%)
ICT policy	CY, EE, EL, ES, FI, IT, MT, NO, SE, SI (10)	AT, BE, DE, FR, LV, NL, SK, UK (8)	BG, CH, CZ, DK, HR, HU, IE, LT, LU, PL, PT, RO (12)

Source: Author's elaboration

The majority (two thirds) of the countries do not recognise or recognise only partially/indirectly the role of innovation procurement as a strategic tool in ICT policies. This highlights the room for improvement to anchor innovation procurement more strategically in national ICT policies across Europe. As ICTs are key catalysers for economic growth and public sector modernisation, it is important that countries invest time and effort in this. Indeed, most of the countries that are lagging behind on anchoring innovation procurement into their national ICT policy tend to be those that are lagging behind on innovation procurement / public sector modernisation in general. The average score for this indicator is 47%.

Figure 7. Indicator 3 overall ranking



Source: Author's elaboration

Overall, 18 countries include innovation procurement as part of their national digital/ICT policies.

- In 10 countries (CY, EE, EL, ES, FI, IT, MT, NO, SI, SE) the use of innovation procurement is directly linked to a specific objective identified in the national digital/ICT strategy.
- In 8 countries (AT, BE, DE, FR, LV, NL, SK, UK) there is an indirect or partial reference in the national digital/ICT strategy to the strategic importance of innovation procurement.

In the remaining 12 countries (BG, CH, CZ, DK, HR, HU, IE, LT, LU, PL, PT, RO) the national digital/ICT strategy does not recognise the strategic importance of innovation procurement.

The table below presents the evidence collected for the first 18 countries.

Table 32. Indicator 3: country evidence

Country	Evidence
Countries where innovation procurement is directly linked to a specific national digital/ICT strategy objective	
Cyprus	The Digital Cyprus Strategy ²³ foresees under the Objective Entrepreneurship, Measure entrepreneurship a concrete action on Pre-Commercial Procurement. In particular it foresees a new funding Programme to support Pre-Commercial Procurements in the ICT sector launched by public organisations where innovative companies or research organisations could participate.
Estonia	In the area of ICT, the “ Digital Agenda 2020 for Estonia ” lists innovation procurement among the fundamental principles for the development of Estonian information society through “ <i>the public sector’s active role in the uptake and procurement of innovative solutions and shaping the overall conditions for development</i> ”. In particular, it states that “ <i>Public sector will be a smart customer, ensuring that in public procurements as much</i> ”

²³ [http://www.mcw.gov.cy/mcw/dec/digital_cyprus/ict.nsf/3700071379D1C658C2257A6F00376A80/\\$file/Main%20document%20digital%20strategy.pdf](http://www.mcw.gov.cy/mcw/dec/digital_cyprus/ict.nsf/3700071379D1C658C2257A6F00376A80/$file/Main%20document%20digital%20strategy.pdf)

Country	Evidence
	<i>freedom as possible is left for offering innovative solutions, thereby contributing to the development of the ICT sector</i> ". ²⁴
Finland	<p>The Handi program, the "Digitalisation of state procurement" program by the Ministry of Finance in Finland, has as one of the goals to enable more innovations in the field of public procurement. The program contains for example an obligation for the state contracting authorities to publish the procurement plans well in time before the actual procurement notice to allow the economic operators more time to innovate.</p> <p>"Digital Finland Framework" (2018) refers to public procurement (only in a picture though, not in the text) as a demand-side tool able to support the strategic priority of investing in innovative digital technologies. Emphasis on using the demand-driven mode is put especially in the area of digital platforms for deploying and further developing new enabling technologies and applications, including those based on artificial intelligence IoT, 5G and cyber security. "<i>Digital platforms are an outstanding means to deploy and further develop new enabling technologies and applications, including those based on artificial intelligence IoT, 5G and cyber security. Platforms should primarily be developed industry-lead, but there are many domains and purposes where public sector driven or mixed public-private mode is most appropriate. (public procurement is then shown in a picture as a possible resource that can be used)</i>"</p>
Greece	Actions to develop a framework for innovation procurement and PCP in the digital policy area are also envisaged in the National Digital Strategy 2016-2021 . The strategy, prepared by General Secretariat for Digital Policy of the Ministry of Digital Policy, Telecommunications and Information, reports in its Priority 4.1 a "Support for research and development Research and Technological Development (ETA) includes among its objectives: " <i>a framework for the procurement of innovative services and pre-commercial procurement (Priority 4.1)</i> ". ²⁵
Italy	In the ICT field, the document " Strategy for digital growth 2014-2020 " ²⁶ identifies as " <i>a priority objective: the use of PCP and PPI in order to stimulate the demand for innovative goods and services based on digital technologies in compliance with the European Digital Agenda</i> " and sets a KPI target to increase by 40% the value spent on innovation procurements. The three-year plan for IT in the Public Administration 2017-2020 ²⁷ encourages all public administrations that are responsible for IT purchases to encourage innovation procurement, including PCP and PPI, and gives recommendations to public procurers to encourage innovation in public procurement " <i>by specifying the problem to be solved instead of the solution to be procured, by considering to organise preliminary market consultations with industry before procuring and by using appropriate innovation procurement procedures</i> ".
Malta	The Digital Malta strategy ²⁸ has set an explicit objective (nr 30) to encourage ICT innovation in public procurement: " <i>Government will use its position as a major procurer to stimulate demand for innovative ICT. It will encourage collaboration between local players and, as an early adopter, it will act as a showcase for locally-produced technology. Innovative policies will improve procurement cycles and deliver better value</i> ".
Norway	Under ICT policy, Norwegian digital agenda considers innovation procurement among its strategic tools. ²⁹ " <i>A conservative estimate of ICT procurements in the public sector in Norway in 2014 is put at NOK 16.6 billion. It is important to secure the best possible returns on these investments. Creating more professionalised digitisation projects in the public sector is a key element to this end. Such professionalisation will also help stimulate innovation within industry... Action under Part III ICT policy for value creation and inclusion: The Government will strengthen innovation and business development inside welfare technology through the use of open standards and wider use of innovative procurements</i> ".

²⁴ https://www.mkm.ee/sites/default/files/digital_agenda_2020_estonia_engf.pdf

²⁵ http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2016/11/digital_strategy.pdf

²⁶ <https://www.agid.gov.it/it/agenzia/strategia-quadro-normativo/crescita-digitale-banda-ultra-larga>

²⁷ https://pianotriennale-ict.italia.it/assets/pdf/Piano_Triennale_per_l_informatica_nella_Pubblica_Ammministrazione.pdf

²⁸ <https://digitalmalta.org.mt/en/Pages/Strategy/Digital-Government.aspx>

²⁹ https://www.regjeringen.no/contentassets/07b212c03fee4d0a94234b101c5b8efo/en-gb/pdfs/digital_agenda_for_norway_in_brief.pdf

Country	Evidence
Slovenia	<p>In the ICT field, the Agenda Digital Slovenia 2020 - The strategy for the development of the information society by 2020 defines innovation procurement as a strategic priority to achieve its objectives.³⁰ In the strategy, pre-commercial public procurement for the development of innovative solutions is encouraged through the use of open public and research data, open platforms and cloud computing for faster transfer of solutions to the market. <i>"By means of PCP in cloud computing, the future internet and big data, and by financial incentives to RDI projects for making open standardised platforms and development of new technologies, products and services, Slovenia will encourage the private sector to develop innovative products and services and make a prompt transition of results of data technologies to the market"</i>. €4 M is foreseen (from ESIF) for supporting PCP projects in ICT.</p>
Spain	<p>The Spanish Digital Agenda, managed by the Ministry of Energy, Tourism and Digital agenda, confers to innovation procurement a role to boost the development of the ICT sector. <i>"Goal 5: Boost R&D&I in Information and Communications Technologies. It is a basic principle that public investment in R&D&I in ICT would lead to a greater amount of investment by the private sector. This is why the proposal here is to use public procurement and public - private collaboration strategically..."</i></p> <p>The national Spanish plan for encouraging the development of natural language processing, machine translation and conversational systems in Spanish official and co-official languages, the Plan de Impulso a la Tecnología del lenguaje, also refers to innovation procurement <i>"with the aim to bring Spanish industry to the innovation frontier to make it competitive on a global scale, while taking advantage of these innovative capabilities to substantially improve public service. For this we must (using innovation procurement) overcome the paradox by which the supplier does not invest in innovative products, which previously require an investment in R & D, for lack of clear demand, and the buyer does not demand innovative products because there is no available offer, adequate and economical for the pending challenges."</i></p>
Sweden	<p>In the field of ICT, the Digital Strategy for sustainable digital transformation in Sweden³¹ refers to innovation procurement as one of the tools that public authorities should use to drive the sustainable digital transformation of the country. <i>"Public procurement should be used to a greater extent as a proactive tool for promoting the development, use and implementation of digitally driven innovations."</i></p> <p><i>Innovation procurement and innovation partnerships are important tools as well as the conscious use of open source solutions, standards and test beds. Even project competitions can be an important tool for stimulating increased development of digitally driven innovations"</i>.</p>
Countries with an indirect or partial reference to the strategic importance of innovation procurement in the national digital/ICT strategy	
Austria	<p>In the field of ICT, not the overall country's Digital Roadmap strategy³² but two parts of it, namely the Internetoffensive Österreich³³ and the creative industries strategy (Kreativwirtschafts-strategie)³⁴, recognise the importance of public procurement as a strategic tool to foster the competitiveness of national industries, especially also for SMEs and Start Ups. <i>"The Commitment of the public sector to the nationwide implementation of "innovation oriented public procurement" can contribute to the spread of innovative business models and the creation of new startups"</i>.</p>

³⁰ http://www.mju.gov.si/fileadmin/mju.gov.si/pageuploads/DID/Informacijska_druzba/pdf/DSI_2020_3-2016_pic1.pdf

³¹ https://www.regeringen.se/49adea/contentassets/5429e024be6847fc907b786ab954228f/digitaliseringsstrategin_slutlig_170518-2.pdf

³² <https://www.digitalroadmap.gv.at/en/>

³³ <https://www.internetoffensive.at/aboutus/eckpunkte-fuer-eine-ikt-strategie-fuer-oesterreich/>

³⁴ https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/Creative%20Industries%20Strategy%20for%20Austria.pdf

Country	Evidence
Belgium	At national/federal level, the 2015-2020 Digital Belgium strategy ³⁵ does not specifically encourage innovation procurement but recognises it indirectly through the importance of procuring new technologies to improve government efficiency. Under priority 3 "digital government", action 4 "operational efficiency" of the strategy states that <i>"government management will be encouraged to carefully follow up ICT government contracts and to create efficiencies by further digitizing services and processes. The government will also utilise new technologies, such as social media and big data, and shall do so with a clear objective: providing better services at lower cost"</i> .
France	The 2015 French national digital strategy "Digital Republic in Action" ³⁶ has an action <i>"Action publique 2020: pour une transformation du service public"</i> , but this action does not mention innovation procurement, or the role of government to boost digital innovation/deployment of innovative solutions through public procurement. Only one part of the French ICT policy, on cybersecurity, recognises the role of innovation procurement. The "French national digital security strategy" ³⁷ , indeed, states that <i>"By supporting investment, innovation and exports, also via public procurement, the State will develop a favourable environment for French companies in the digital sector offering secure products and services"</i> .
Germany	In the area of ICT, the Digital Agenda 2014-2017 ³⁸ identified 7 main areas where action is needed to achieve its overall objectives. One of these areas is public administration, where there is an indirect recognition of innovation procurement because giving public procurement a more innovative focus is seen as a key principle to implement the digital transformation of the sector, in particular <i>"to reduce the reliance of government IT on closed global IT and cloud computing ecosystems and to support innovative companies and boost competition in the IT sector"</i> . The Digital Strategy 2025 (adopted in 2016) does not refer to innovation procurement.
Latvia	The Information Society development guidelines 2014-2020, which is the Latvian strategy for digitisation ³⁹ , does not specifically mention innovation procurement foresees some activities that indirectly recognise the importance of innovation procurement: it sets as objectives <i>"to involve experts in public administration who know how to convert needs into clearly defined functional demands"</i> and <i>"to support the purchase of SME research services in order to increase demand for innovative solutions and the innovation performance of innovative companies"</i> .
Netherlands	The 2016 Dutch digital agenda for the Netherlands does not explicitly mention innovation procurement but recognises its importance indirectly by recognising the key role of the public sector to drive forward digitisation through its role as buyer for innovative solutions. <i>"Given the broad impact of digitisation, the role of the government extends further than the simple reinforcement of preconditions and safeguarding public interests. The government is also an actor in this transition, for example, as a buyer of innovative ICT products and services and as a digital service provider for citizens and businesses."</i> A broad analysis across different sectors aims to implement innovative solutions through public procurement across all top sectors where the government is a key customer. In addition, the ministry of interior, responsible for digitalisation, designed a specific action plan for innovation & innovation procurement in the field of ICT . This action plan (<i>innovatiepact</i>) is based on a report of a committee of the ministries of interior affairs and economic affairs on future digitalisation ⁴⁰ . The national government will spend €200 M on realising a digital infrastructure per year ⁴¹ . According to the RIO Report 2015, a multiple sector action agenda has been set also in the field of nano-technology and bio-based economy.
Slovakia	Slovakia's digital growth and Next Generate Access infrastructure strategic document 2014-2020 ⁴² does not explicitly mention innovation procurement but

³⁵ <http://digitalbelgium.be/en/5-priorities/digital-government/>

³⁶ <http://www.gouvernement.fr/la-republique-numerique-en-actes>

³⁷ https://www.enisa.europa.eu/topics/national-cyber-security-strategies/ncss-map/France_Cyber_Security_Strategy.pdf

³⁸ <http://www.bmwi.de/EN/Topics/Technology/digital-agenda.html>

³⁹ http://www.varam.gov.lv/in_site/tools/download.php?file=files/text/Darb_jomas/elietas//Information_Society_Development_Guidelines_2014_2020.docx

⁴⁰ <https://www.rijksoverheid.nl/documenten/rapporten/2017/04/18/rapport-van-de-studiegroep-informatiesamenleving-en-overheid-maak-waar>

⁴¹ https://www.digicommissaris.nl/image/2016/12/22/digiprogramma_2017-989810276.pdf

⁴² http://www.informatizacia.sk/ext_dok-strategicky_dokument_2014_2020_en/16622c

Country	Evidence
	recognises its importance indirectly by identifying that "increasing the openness of ICT public procurements towards technology innovation and approaches is desirable, which would lead to simpler and less expensive solution variants than originally planned. The modalities of electronic public procurement will be updated in order to easily implement demand-driven projects in public administration in the form of innovative solutions and to encourage effective participation of small and medium-sized businesses in such areas as open data, mobile applications for eGovernment services, green information and telecommunication technologies and applications for social networks".
UK	In the field of ICT, the UK Government's Digital strategy ⁴³ does not explicitly mention innovation procurement but recognises its importance indirectly by stating that the government "will use public procurement more effectively to encourage better pre-market engagement, shaping specifications to take advantage where appropriate of the market's latest offerings and innovations, will make available a forward looking pipeline of digital work, updated quarterly to enable businesses to invest in capability and resources appropriately; and will encourage suppliers who are new to government (in particular SMEs) to undertake bidder training to lower the effective barrier to entry to the procurement market".

Source: Author's elaboration

4.4 Indicator 4 – Sectoral policies

This indicator reflects to what extent innovation procurement is endorsed as a strategic priority in a policy framework or action plan in each of the 10 sectors of public sector activity identified in the EU public procurement directives.⁴⁴

The indicator "sectoral policies" is a multi-dimensional indicator with 10 sub-indicators corresponding to the 10 areas of public sector activity. The table below provides the overall scores obtained by each country per sub-indicator.

Table 33. Indicator 4: scores

Country	Healthcare and social services	Public transport	General public services	Construction sector	Energy sector	Environment sector	Water sector	Public order, safety, security and defence sector	Postal sector	Education, recreation, culture and religion	Total
Austria	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	60%
Belgium	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	10%
Bulgaria	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Croatia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cyprus	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Czech Republic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Denmark	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	10%
Estonia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Finland	100%	100%	0%	100%	100%	100%	0%	0%	0%	0%	50%
France	50%	50%	50%	50%	50%	0%	0%	50%	0%	50%	35%
Germany	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Greece	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

⁴³ <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy>

⁴⁴ The following 10 sectors are defined in the EU public procurement directives: (I) healthcare and social services; (II) public transport (such as railway, urban railway, tramway, trolleybus, bus services, airport and port related activities); (III) general public services, public administration (covering e-government), economic and financial affairs; (IV) construction, housing and community amenities; (V) energy (covering exploration, extraction, production, transport and distribution of energy such as electricity, gas, heat, oil, coal and other solid fuels); (VI) environment; (VII) water; (VIII) postal services; (IX) public order, safety, security and defence; (X) education, recreation, culture and religion.

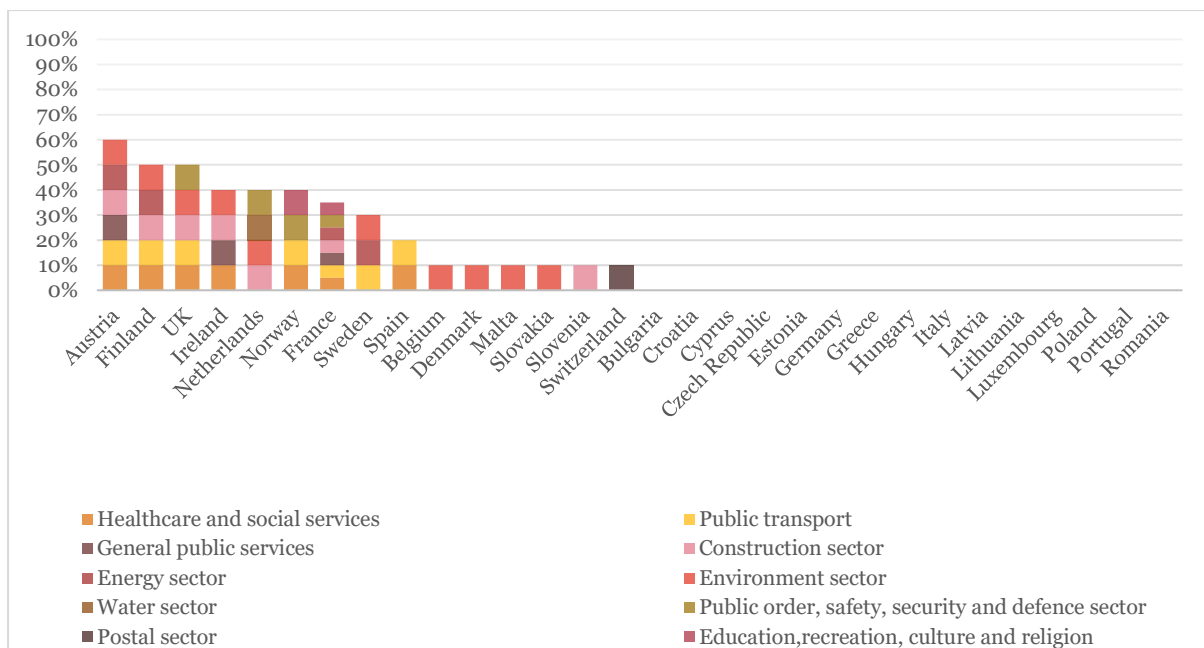
Country	Healthcare and social services	Public transport	General public services	Construction sector	Energy sector	Environment sector	Water sector	Public order, safety, security and defence sector	Postal sector	Education, recreation, culture and religion	Total
Hungary	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ireland	100%	0%	100%	100%	0%	100%	0%	0%	0%	0%	40%
Italy	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Latvia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lithuania	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Luxembourg	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Malta	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	10%
Netherlands	0%	0%	0%	100%	0%	100%	100%	100%	0%	0%	40%
Norway	100%	100%	0%	0%	0%	0%	0%	100%	0%	100%	40%
Poland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Portugal	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Romania	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Slovakia	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	10%
Slovenia	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	10%
Spain	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	20%
Sweden	0%	100%	0%	0%	100%	100%	0%	0%	0%	0%	30%
Switzerland	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	10%
UK	100%	100%	0%	100%	0%	100%	0%	100%	0%	0%	50%
European average	21,7%	21,7%	8,3%	21,7%	11,7%	33,3%	3,3%	11,7%	3,3%	5,0%	14,2%

Source: Author's elaboration

The best performers in this field are Austria (60% score, meaning innovation procurement is recognised in 6 out of 10 areas of public sector activity) and the UK and Finland (50% score), followed by Ireland, the Netherlands and Norway (with 40% score). The European average of this indicator is 14,2%. This rather low European average is due to the fact that 15 out of 30 countries have not incorporated innovation procurement in the strategy for any area of public sector activity yet. No country has incorporated innovation procurement in national strategies for all 10 areas of public sector activity yet.

Considering separately each sub-indicator, innovation procurement is most frequently embedded as a strategic priority in policy frameworks and action plans of the environmental sector (in approx. 33% of countries), followed by the health and social services, public transport and construction sectors (in approx. 22% of countries). Sectors where innovation procurement is usually not embedded as a strategic priority in policy frameworks include the energy and the security and defence sectors (in approx. 12% of countries), general public services (in approx. 8% of countries), education/cultural sector (in approx. 5% of countries) and finally in water, and postal sectors (in approx. 3% of countries).

Figure 8. Indicator "Sectoral policies" overall ranking



Source: Author's elaboration

4.4.1 Healthcare and social services

Table 34. Level of availability of innovation procurement in each country in the healthcare and social services sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	AT, ES, FI, IE, NO, UK (6)	FR (1)	
Not for all types of innovation procurement			
Not available			BE, BG, CH, CY, CZ, DE, DK, EE, EL, HR, HU, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK (23)

Source: Author's elaboration

7 countries encourage the use of innovation procurement in the health and social care sector:

- 6 countries (AT, ES, FI, IE, NO, UK) have included innovation procurement as strategic priority in national policy frameworks and action plans applicable to the whole country and for all types of innovation procurements.
- France implements actions that are not applicable countrywide. The country has developed a roadmap to adapt the work programme of the public sector according to the spending target of the National Pact for Growth, Competitiveness and Employment. The roadmap is not addressed to all public procurers in the country, but only to those affected by the National Pact (i.e. the State - e.g. Ministries, the central authorities - *établissements publics*, and the hospitals). Conversely, non-hospital type health or social care procurers at regional and local level are not concerned.

In 23 countries (BE, BG, CH, CY, CZ, DE, DK, EE, EL, HR, HU, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK) the national strategies for health care and social services do not recognise the strategic importance of innovation procurement for modernising public health and social services.

4.4.2 Public transport

Table 35. Level of availability of innovation procurement in each country in the public transport sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	AT, ES, FI, NO, SE, UK (6)	FR (1)	
Not for all types of innovation procurement			
Not available			BE, BG, CH, CY, CZ, DE, DK, EE, EL, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SI, SK, (23)

Source: Author's elaboration

7 countries encourage the use of innovation procurement in the public transport sector:

- Innovation procurement is embedded as strategic priority in the whole country and for all types of innovation procurement in 6 countries (AT, ES, FI, NO, SE, UK). One of the most structured strategies in this field the Austrian *Strategy for clean energy in transport* which concedes a pioneering role to the public sector and to innovation procurement in the reconstruction and modernisation of the transport system. In Sweden, sectoral policies are built on continuous consensus of stakeholder groups that work and collaborate in ad-hoc forums. In this context, the group that deals with transportation of the future has recognised innovation procurement as one of the key priorities for the development and modernisation of the public transport sector in the country.
- In one country (FR) the roadmap in the context of transport sector is not addressed to all public procurers in the country, but only to those which are affected by the spending target of the National Pact for Growth, Competitiveness and Employment (i.e. the State - e.g. Ministries, the central authorities - *établissements publics*, and the hospitals). Conversely, regional and local procurers are not concerned.

In 23 countries (BE, BG, CY, CH, CZ, DE, DK, EE, EL, HR, HU, IE, IT, LV, LT, LU, MT, NL, PL, PT, RO, SK, SI) the national strategies for the public transport sector do not recognise the strategic importance of innovation procurement for modernising the transport sector.

4.4.3 General public services

Table 36. Level of availability of innovation procurement in each country in the general public services sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	AT, IE (2)	FR (1)	
Not for all types of innovation procurement			
Not available			BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, FI, HR, HU, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, UK (27)

Source: Author's elaboration

Overall, in this sector the use of innovation procurement is envisaged in 3 countries.

- 2 countries (AT and IE) have included innovation procurement as strategic priority in policy frameworks and action plans applicable in the whole country and to all public procurers. For example, in Ireland, the Government Public Service Reform Programme includes innovation

procurement as the most important instrument to reach 2 objectives: maximising value for money and delivering sustainable public services for taxpayers.

- In France, the roadmap published in the context of this sector is not addressed to all public procurers in the country, but only to those which are affected by the spending target of the National Pact for Growth, Competitiveness and Employment (i.e. the State - e.g. Ministries, the central authorities - établissements publics, and the hospitals). Conversely, regional and local procurers are not concerned.

In 27 countries (BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, FI, HR, HU, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, UK) the national strategies do not recognise the strategic importance of innovation procurement.

4.4.4 Construction sector

Table 37. Level of availability of innovation procurement in each country in the construction sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	AT, FI, IE, NL, SI, UK (6)	FR (1)	
Not for all types of innovation procurement			
Not available			BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, HR, HU, IT, LT, LU, LV, MT, NO, PL, PT, RO, SE, SK (23)

Source: Author's elaboration

Innovation procurement is embedded as strategic priority in the construction sector in 7 countries (AT, FI, FR, IE, NL, SI, UK):

- 3 countries (IE, NL, UK) have a more systematic and detailed approach to support public procurers to undertake more innovation procurement in the sector. The Irish “Capital Works Management Framework” and the “Construction agenda” adopted by Dutch Ministries of infrastructure and housing represent a sector specific framework for public procurer in the construction sector. In UK the Government Construction strategy embeds innovation procurement as a strategic tool to be used by the public sector to drive changes in the sector. In these 3 countries innovation procurement is applicable countrywide and to all types of innovation procurement.
- In Austria the support to innovation procurement is embedded in national guidelines entitled Austrian federal Guidelines for Building culture and stimulus Program.
- In the Finnish Government Programme 2015-2019 innovation procurement is applicable to all public sector procurers and to all types of innovation procurements.
- The Slovenian Smart Specialisation Strategy (S4) sets specific objectives in the field of “Smart buildings and homes, including wood chain” to be achieved also through the smart use of PCPs and PPIs.
- In France, the roadmap published in the context of this sector is not addressed to all public procurers in the country, but only to those which are affected by the spending target of the National Pact for Growth, Competitiveness and Employment (i.e. the State - e.g. Ministries, the central authorities - établissements publics, and the hospitals). Conversely, regional and local procurers are not concerned.

In 23 countries (BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, HR, HU, IT, LT, LU, LV, MT, NO, PL, PT, RO, SE, SK) the national strategy for the construction sector does not recognise the strategic importance of innovation procurement yet.

4.4.5 Energy sector

Table 38. Level of availability of innovation procurement in each country in the energy sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	AT, FI, SE (3)	FR (1)	
Not for all types of innovation procurement			
Not available			BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, HR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SI, SK, UK (26)

Source: Author's elaboration

4 countries included innovation procurement as strategic priority in policy frameworks and action plans in the energy sector.

- In three countries (AT, FI, SE), innovation procurement is recognised in the energy sector in a way that is applicable to all public procurers and for all types of innovation procurement.
- In France, the roadmap published in the context of the energy sector is not applicable countrywide as it is not addressed to all public procurers in the country, but only to those affected by the spending target of the National Pact for Growth, Competitiveness and Employment (namely, the State - e.g. Ministries, the central authorities - établissements publics, and the hospitals). Regional and local procurers are not concerned.

26 countries (BE, BG, CH, CY, CZ, DE, DK, EE, EL, ES, HR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SI, SK, UK) do not specifically recognise the strategic importance of innovation procurement for the energy sector. Some of those countries have an action plan or strategic framework in the energy sector which only foresees the use of Green Public Procurement or Sustainable Procurement. However, there are no clear references to innovation procurement, PCP and PPI.

4.4.6 Environmental Sector

Table 39. Level of availability of innovation procurement in each country in the environmental sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	AT, BE, DK, FI, IE, MT, NL, SE, SK, UK (10)		
Not for all types of innovation procurement			
Not available			BG, CH, CY, CZ, DE, EE, EL, ES, FR, HR, HU, IT, LT, LU, LV, NO, PL, PT, RO, SI (20)

Source: Author's elaboration

In 10 countries (AT, BE, DK, FI, IE, MT, NL, SE, SK, UK) innovation procurement is recognised as a strategic tool available for all public procurers and applicable for all types of innovation procurement.

Also in this case the actions and objectives are embedded in a specific environmental sector strategy or in high level horizontal policies. The support to innovation procurement is often facilitated by the existence of Green Public Procurement frameworks, which are directly or indirectly linked to innovation procurement practices (e.g. BE, DK, MT, SK). In 20 countries (BG, CH, CY, CZ, DE, EE, EL, ES, FR, HR, HU, IT, LT, LU, LV, NO, PL, PT, RO, SI) the energy policy does not explicitly recognise the strategic importance of innovation procurement to modernise public service provisioning.

4.4.7 Water Sector

Table 40. Level of availability of innovation procurement in each country in the water sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	NL (1)		
Not for all types of innovation procurement			
Not available			AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, FI, HR, HU, IE, IT, LT, LU, LV, MT, NO, PL, PT, RO, SE, SK, SI, UK (29)

Source: Author's elaboration

The Netherlands is the only country which has embedded innovation procurement in its water policy. In particular, the Union of Dutch Waterboards has positioned innovation procurement clearly as an objective in their procurement strategy since 2014.⁴⁵ Innovation procurement by water sector procurers is also explicitly encouraged in the Ministry of infrastructure and environment's High Water Protection Programme. In the remaining 29 countries (AT, BE, BG, CH, CY, CZ, DE, DK, EE, EL, FI, HR, HU, IE, IT, LT, LU, LV, MT, NO, PL, PT, RO, SE, SK, SI, UK) have not included innovation procurement as strategic priority in policy frameworks and action plans of the water sector.

4.4.8 Public order, safety, security and defence sector

Table 41. Level of availability of innovation procurement in each country in the Public order, safety, security and defence sector

	Applicable countrywide	Not applicable countrywide	Not available
For all types of innovation procurement	NL, NO, UK (3)	FR (1)	
Not for all types of innovation procurement			
Not available			AT, BE, BG, CH, CY, CZ, DK, FI, DE, EE, EL, ES, HR, HU, IE, IT, LT, LU, LV, MT, PL, PT, RO, SK, SE, SI (26)

Source: Author's elaboration

4 countries (FR, NL, NO and UK) have included innovation procurement as strategic priority in policy frameworks and action plans of the public order, safety, security and defence sector.

⁴⁵ <https://www.uvw.nl/wp-content/uploads/2018/01/De-waterschapmarkt-van-de-toekomst-visiedocument.pdf>

- In 3 countries (NL, NO, UK) innovation procurement is endorsed by national policy frameworks that are applicable country wide and for all types of innovation procurement. In the Netherlands, the Ministry of justice and security has adopted in 2018 its step-by-step plan for innovation procurement⁴⁶ while the Ministry of defence has adopted a strategy both for PCP and PPI.⁴⁷ In the UK, the National Security Strategy and Strategic Defence and Security Review 2015⁴⁸ committed to increase the budget to support the procurement of innovative solutions to the challenges facing the Armed Forces. In Norway, the Strategy for the Norwegian Armed Forces states that the public sector will explicitly focus on innovative SMEs in their procurement procedures in the coming years.
- In France, the innovation procurement roadmap published in the context of this sector is not applicable countrywide as it is not addressed to all public procurers in the country, but only to those affected by the spending target of the National Pact for Growth, Competitiveness and Employment (namely, the State - e.g. Ministries, the central authorities - établissements publics, and the hospitals). Regional and local procurers are not concerned.

26 countries (AT, BE, BG, CH, CY, CZ, DK, FI, DE, EE, EL, ES, HR, HU, IE, IT, LT, LU, LV, MT, PL, PT, RO, SE, SI, SK) have not included innovation procurement as strategic priority in policy frameworks and action plans of the public order, safety, security and defence sector.

4.4.9 Postal Sector

Table 42. Level of availability of innovation procurement in each country in the postal sector

	Applicable countrywide	Not applicable countrywide	Not applicable
For all types of innovation procurement	CH (1)		
Not for all types of innovation procurement			
Not applicable			AT, BE, BG, CY, CZ, DE, DK, EE, ES, EL, FI, FR, HR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SK, SI, SE, UK (29)

Source: Author's elaboration

Only Switzerland has included innovation procurement a strategic priority in its policy framework of the postal sector. In particular, the procurement strategy 2017-2020 of the Swiss Post⁴⁹ aims at making the organisation a “discoverer of innovations”. It encourages the evaluation of potential suppliers according to a wide range of criteria which include quality, price, product/performance, risks, potential for innovation and performance, ecological aspects and opportunities for electronic communication.

The remaining 29 countries (AT, BE, BG, CY, CZ, DE, DK, EE, ES, EL, FI, FR, HR, HU, IE, IT, LV, LT, LU, MT, NL, NO, PL, PT, RO, SE, SI, SK, UK) have not included innovation procurement as strategic priority in policy framework of the postal sector.

⁴⁶ <https://www.pianoo.nl/document/15181/stappenplan-innovatiegericht-inkopen-ministerie-van-veiligheid-justitie>

⁴⁷ <https://www.defensie.nl/onderwerpen/innovatie/front> and <https://www.defensie.nl/onderwerpen/innovatie>

⁴⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/555607/2015_Strategic_Defence_and_Security_Review.pdf

⁴⁹ Swiss Post, a public Company owned by the Swiss Confederation, is the national postal service of the country.

4.4.10 Education, recreation, culture and religion

Table 43. Level of availability of innovation procurement in each country in the Education, recreation, culture and religion sector

	Applicable countrywide	Not applicable countrywide	Not applicable
For all types of innovation procurement	NO (1)	FR (1)	
Not for all types of innovation procurement			
Not applicable			AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, EL, FI, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, UK (28)

Source: Author's elaboration

Overall, only 2 countries (FR and NO) have included innovation procurement as strategic priority in policy frameworks and action plans in this sector.

- In Norway the “Long-term Plan for Research in Higher Education” recognises the role of innovation procurement as a tool to increase demand of innovation in the sector. The plan is applicable in the whole country.
- In France, the innovation procurement roadmap published in the education sector is only addressed to public procurers included in the spending target of the National Pact for Growth, Competitiveness and Employment (i.e. the State - e.g. Ministries, the central authorities - *établissements* publics, and the hospitals). Regional and local procurers are therefore not concerned.

In 28 countries (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, EL, FI, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, UK) innovation procurement is not included as strategic priority in policy frameworks or action plans in the education, cultural, recreation or religion sector.

4.5 Indicator 5 – Action plan

This indicator reflects to what extent each country has developed a dedicated action plan that foresees specific measures that are not covered by other horizontal policies (see indicator 2) or sectoral policies (see indicators 3 and 4) to encourage innovation procurement in a coordinated way across the country.

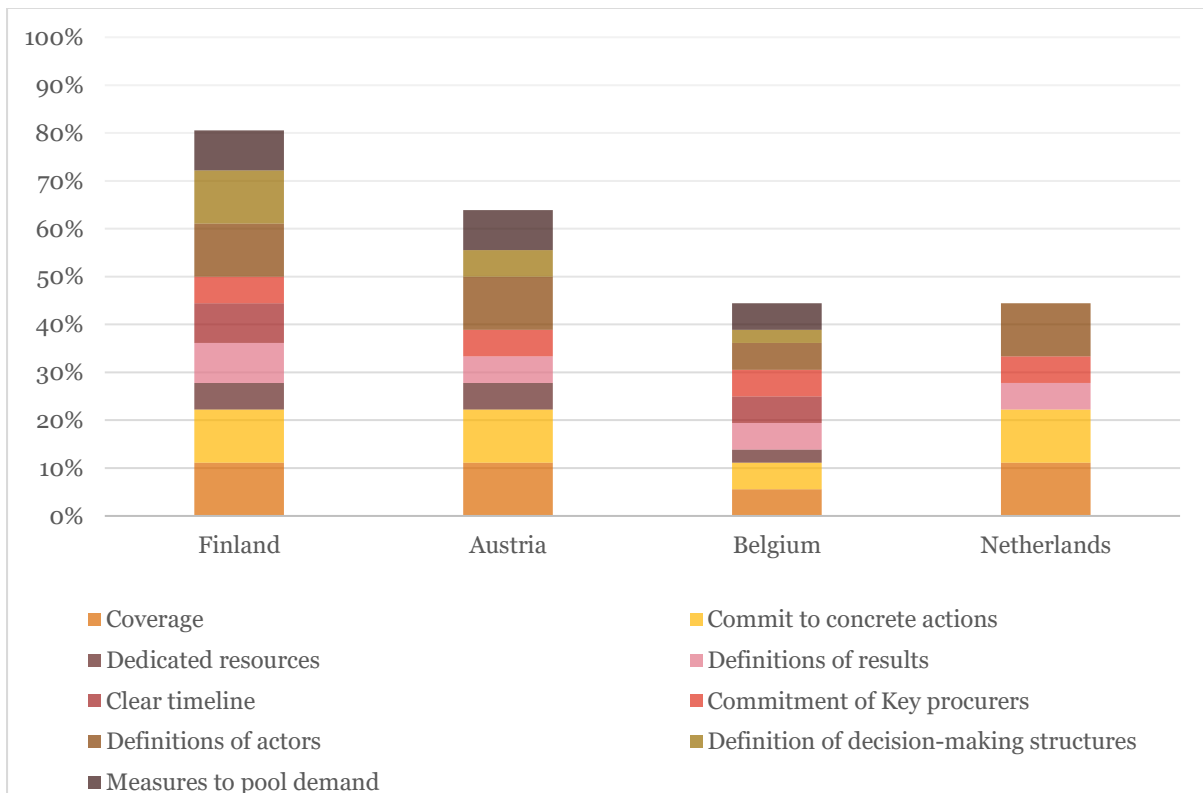
The table below provides the overall scores reached by each country that has adopted an action plan. The overall score is calculated as the average result of 9 sub-indicators shown in the columns of the table below.

Table 44. Indicator 5: scores

Country	Coverage	Concrete actions	Resources	Def. of results	Timeline	Commitment of key procurers	Definition of actors	Definition of decision-making structures	Measures to pool demand	Total
Austria	100%	100%	50%	50%	0%	50%	100%	50%	75%	64%
Belgium	50%	50%	25%	50%	50%	50%	50%	25%	50%	44%
Finland	100%	100%	50%	75%	75%	50%	100%	100%	75%	81%
Netherlands	100%	100%	0%	50%	0%	50%	100%	0%	0%	44%
All other 26 countries	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
European average	12%	12%	4%	8%	4%	7%	12%	6%	7%	8%

Source: Author's elaboration

Figure 9. Indicator "Action plan" overall ranking



Source: Author's elaboration

Only in 4 countries (AT, BE, FI, NL), governments have adopted a dedicated action plan for innovation procurement. The most comprehensive, well-structured and up-to-date action plan has been developed in Finland. More information on each of these 4 countries' action plans is provided in Section 4.5.1.

It is worth stressing that 5 countries (DK, EE, EL, FR, SE) have not adopted a stand-alone action plan for innovation procurement for their country but have included specific objectives and concrete measures on innovation procurement in wider national strategies or programmes, often with a dedicated budget and with a clear commitment of key actors. More information on each of these 5 countries action plans is provided in Section 4.5.2.

The European average for the indicator "Action plan" is 8%. This is mainly due to the fact that in the majority of the countries (21 countries: BG, CY, CH, CZ, DE, ES, HR, HU, IE, IT, LV, LT, LU, MT, PL, PT, RO, SK, SI, UK, NO) there is no dedicated action plan for innovation procurement, nor a set of coordinated policy objectives and concrete measures for innovation procurement in other global national strategies to mainstream innovation procurement across the whole country. Despite the fact that there may be individual sectoral or horizontal policy initiatives in those countries, they are not part of an overall umbrella strategy to foster innovation procurement more widely across the whole country.

4.5.1 Countries with dedicated innovation procurement action plan

The following table elaborates on the dedicated innovation procurement action plans in AT, BE, FI, and NL.

Table 45. Innovation procurement action plans in AT, BE, FI, and NL.

Country	Action plan – evidence
Austria	<p>The Action Plan on Public Procurement Promoting Innovation (PPPI) was adopted in 2012 by the Austrian Federal Government as a follow up of the “Austrian Strategy for Research, Technology and Innovation” (2011). It aims at making PPPI an element of demand side innovation policy, complementing supply side measures, and increasing the share of public procurement volume used for innovation. The action plan covers all types of innovation procurement, is applicable across the country and to all public procurers in all sectors and administrative levels and aims at mainstreaming innovation at a large scale.</p> <p>The action plan identifies concrete actions (e.g. the management of a PPPI platform) and defined a clear timeline to implement these actions in the time period 2012-2013. However the timeline in the action plan is not up-to-date anymore (there are no actions defined with target completion date beyond 2013). Therefore the score for sub-indicator timeline is 0%. The defined actions and activities are linked to a set of specific objectives which translate the overall strategic objectives and the mission of the action plan. The specific objectives include (i) raising awareness on innovation through public procurement; (ii) fostering dialogue between demand and supply; (iii) qualifying decision makers and procurers for PPPI; (iv) introducing and fostering new approaches for PPPI; (v) establishing a monitoring and benchmarking system; (vi) integrating PPPI actions in sectorial strategies and in different administrative levels.</p> <p>The action plan is financed by the Ministry for Digital and Economic Affairs (BMDW) and the Ministry for Transport, Innovation and Technology (BMVIT). Actions, objectives and dedicated resources are implemented for all types of innovation procurement, but not for all key actors in the country (committed resources to achieve the objectives are clear for the competence centre but not for other ministries and key procurers in the country, the expected results from other actors besides the competence centre are defined less clearly) and do not enable to achieve mainstreaming of innovation procurement at a large scale.</p> <p>In terms of governance, the action plan defines actors to achieve different objectives. For example, the key procurement organisation involved in the implementation of the action plan is the PPPI Service Centre.⁵⁰ Its services cover three main objectives: raising awareness for PPPI, matching public procurers and potential suppliers of innovative solutions, and increasing the overall share of procurement budgets used for PPPI.</p> <p>The Service Centre operates under the roof of the Austrian Federal Procurement Agency and on behalf of the two ministries responsible for the implementation of the action plan (i.e. the BMWD and the BMVIT). While covering all types of innovation procurement widely across the</p>

⁵⁰ <http://www.ioeb.at/>

Country	Action plan – evidence
	<p>country, the activities implemented by the Service Centre have not reached yet the stage of being able to mainstream innovation at large scale. As suggested in the evaluation of the PPPI action plan “the necessary political backing exists, it is expressed in several strategic documents but has not reached a sufficient level”.⁵¹ It is recognised that a number of “preparatory actions” took place on how to implement PPI in different public sector organisations (including ministries), but they have not been defined in a strategic plan yet. Consequently, a systematic dedication of procurement budgets for the purpose of PPPI activities is only observable in the context of PPPI “pilot projects”.</p> <p>With regard to decision-making structures, again the interaction between the competence centre and its funding ministries BMWD and BMVIT are clear but the action plan does not define a clear decision-making structure with other ministries and key procurers to ensure implementation of the objectives. The PPPI Service Centre participates in regular joint meetings with the two ministries including meetings of the so-called PPI steering group that includes representatives of the higher levels of the ministerial hierarchy. Amongst others, during these meetings the plans of the Service Centre activities for the coming year are discussed and defined. The evaluation of the PPI Action Plan implementation raised some concerns related to the governance structure, including the absence of a clear distribution of tasks and roles among ministries (based on non-binding agreements) and the challenges faced by actively managing the Action Plan especially with regard to other ministries.</p> <p>Finally, through the involvement of the national central purchasing body BBG the action plan defines concrete measures to pool demand among public and private procurers across the whole country and for all types of innovation procurement, however not at a scale to scale up innovation procurement widely yet.</p>
Belgium	<p>At national level there is no dedicated action plan for innovation procurement, while there is one at regional level, in the Flemish region. The total score for most of the sub-indicators is 50%, as the action plan does not cover the whole country. The score for definition of results and definition of resources is 25% because these aspects are clear for the Flemish government and the PIO programme but are not clearly defined for other key actors/public procurers in the Flemish region covered by the action plan.</p> <p>Flanders has an action plan⁵² for innovation procurement and innovative procurement that aims to promote innovation in public procurements of all public procurers in all sectors across the region. In this context innovation procurement covers all types of innovation procurement (both R&D procurement, incl. PCP, and PPI).</p> <p>The Flemish government has adopted the Innovative Public Procurement Program (PIO)⁵³ to promote innovation procurement in the Flemish region. The first round of PIO has been running from 2009 to 2015, the second from 2016 to 2019. Thanks to this program, all Flemish government and public sector organisations that fall under the Belgian Public Procurement Act can contact PIO for information, advice, guidance and co-financing for innovative purchasing projects. PIO has well-defined action plan with expected results, clear timeline and budget (€5 M per year from the Flemish government).</p> <p>PIO is supported by the Flemish Ministry of Economy, Science and Innovation, which is also its manager.</p> <p>PIO has a number of strategic goals:</p> <ol style="list-style-type: none"> 1) To establish a knowledge centre on innovation procurement; 2) To reach 3% of the Flemish Government’s budget for public procurement for innovation procurement; 3) To draft a portfolio of projects and good practices as examples in order to raise awareness about innovation procurement; 4) To stimulate public organisations to participate in EU opportunities of innovation procurement (such as Horizon2020). <p>In Flanders, there are also some examples of action plans at local level, like the Municipality of Ghent, which has its own innovation procurement strategy since 2014⁵⁴.</p>

⁵¹ https://repository.fteval.at/331/1/I%C3%96B-Evaluierung_Kurzfassung%20EN_barrierefrei.pdf

⁵² <http://www.innovatieveoverheidsopdrachten.be/over-pio/plan-van-aanpak>

⁵³ <http://www.innovatieveoverheidsopdrachten.be/gids-voor-innovatieve-overheidsopdrachten>

⁵⁴ http://www.ecoprocura.eu/fileadmin/editor_files/images/Ghent_sustainable_procurement_strategy_and_innovation_charter.pdf

Country	Action plan – evidence
Finland	<p>In December 2017 Finland has adopted a dedicated Action Plan on innovation procurement, which is was initiated by the Ministry of Economic Affairs and Employment. The overall purpose of the action plan is to promote a more strategic approach to innovation procurement at the Government level and enhance management and preparation of procurements in administrative branches. The action plan covers all types of innovation procurement, is applicable across the country and to all public procurers in all sectors and administrative levels and aims at mainstreaming innovation at a large scale.</p> <p>The action plan defines concrete actions. The Action Plan contains 14 different measures divided in four main categories: management, information sharing, skills development, and concrete tools (e.g. risk management tools). The action plan also defines concrete responsible actors for each action to be implemented. For each of the 14 measures, tasks are divided among the responsible actors which range from the competence centre KEINO to all ministries in the central government, the central purchasing body HANSEL, the funding entities Sitra and Business Finland, the training entity HAUS etc.</p> <p>The action plan defines for each action concrete expected results. For example, according to the Action Plan, innovation procurement should be included in the performance management (KPIs) of each public sector organisation to ensure a systematic approach. Furthermore, public organisations should assign a person in charge of achieving the objectives on innovation procurements (so called "change agents") and provide training activities tailored to innovation procurement.</p> <p>The action plan defines a clear timeline to implement all the objectives in two phases.</p> <p>The specific objectives of the Action Plan are:</p> <ul style="list-style-type: none"> • Promoting a more strategic approach to innovation procurement; • Promoting a better management and preparation of procurements in administrative branches; • Creating a systematic development process for cooperation across central government sectors and administrative branches; • Support to the Government objective to raise the share of innovation procurement of all public procurement to 5% (cf. Indicator "Target"). <p>The second phase of the plan consisted in defining supporting activities for each administrative branch. Support and coaching, tailored to the needs of each administrative branch, were provided to promote the implementation of the measures. The second phase is in the form of coaching meetings for each administrative branch. These meetings continued until January 2019. As the timeline does not cover long term actions to sustain wide scale implementation yet, the score for the sub-indicator timeline is therefore 75%. Finally, dedicated resources have been allocated by the ministry of economics for the activities in the action plan to be implemented by the national Finnish competence centre on innovation procurement KEINO. However it is not clear which resources are exactly committed by the other key actors listed in the action plan to achieve their objectives in the action plan.</p> <p>The fact that innovation procurement is now addressed in the whole country is also proved by the existence of local initiatives. For example, the cities of Turku and Tampere have their own actions to promote innovation procurement.</p> <p>Finally, through the involvement of the national central purchasing body Hansel and the creation of purchasing groups the action plan defines concrete measures to pool demand among public and private procurers across the whole country and for all types of innovation procurement, however this is not implemented yet at a scale to mainstream innovation procurement widely yet.</p>

Country	Action plan – evidence
Netherlands	<p>The Netherlands has a national Action Plan for innovation procurement since 2013⁵⁵. The action plan commits to concrete actions and objectives. This includes setting up new innovation procurement projects, increasing the use of innovation procurement instruments, activating also local and regional authorities, water and health procurers to use more innovation procurement, developing financial incentives and a monitoring system to report back on innovation procurement implementation progress to the Dutch parliament. The development of the action plan is supported by the formal engagement of some key public procurers to the action plan (national government, regional and local authorities, water and health care procurers, other public procurers e.g. energy utilities are not involved) but only one procurer (Rijkswaterstaat) formally committed to achieve the 2,5% target. The key actor for the implementation of the Action Plan is PIANOo⁵⁶, the Competence Centre for Public Procurement, including innovation procurement. In this context, PIANOo sets once a year an agenda which plans detailed objectives and initiatives.</p> <p>The action plan does not have specific measures to pool demand, does not defined a specific decision-making structure does not have a clear timeline (milestones defined in the action plan do not go beyond 2015) nor dedicated resources. There is an overall definition of expected results, but this is not clearly broken down per actor and there is formal commitment from some key procurers but not from public procurers in all sectors, both of them therefore not fully enabling mainstreaming innovation procurement widely across the country.</p>

Source: Author's elaboration

Overall, the action plans of the 4 countries include most of the elements analysed in this study. The most comprehensive action plan has been developed in Finland. The paragraphs below provide the most relevant evidence collected under this indicator.

- All the action plans analysed have clearly defined the **coverage** and specified **concrete actions**. Actions are usually defined as a result of the definition of operative goals. For example, in Austria the Action Plan on Public Procurement Promoting Innovation (PPPI) envisages awareness raising activities, established ways to introduce new approaches to PPPI and the integration of PPPI in sectoral strategies and at different administrative levels. In Finland, the Action Plan contains 14 different measures divided in 4 main categories: management, information sharing, skills development and concrete tools (e.g. risk management tools). In the Netherlands, the Action plan for innovation procurement includes activities to develop projects focused on innovation procurement, activities to enhance the usage of innovation procurement instruments at general and sector level, e.g. water and health.
- 3 countries have allocated dedicated **resources** to the action plan (AT, BE, FI). However, the budget allocated in all 3 countries – while allowing to develop pilot projects and organise a number of activities – is not sufficient to mainstream innovation procurement on a large scale.
- In addition, Belgium and Finland defined a specific **timeline** for the implementation of the activities. Also Austria had defined a clear timeline to in the time period 2012-2013. However, the timeline in the action plan is not up-to-date anymore (there are no actions defined with target completion date beyond 2013).
- **Commitment of key procurers** was identified in all 4 countries.
- In terms of governance, in AT, BE and FI the action plan includes a **definition of both actors and decision-making structures**, while in NL only a definition of actors is provided.

⁵⁵ <https://www.piano.nl/document/14291/plan-van-aanpak-programma-inkoop-innovatie-urgent>

⁵⁶ <https://www.piano.nl/>

4.5.2 Countries with innovation procurement actions in wider strategies

5 countries (DK, EE, EL, FR, SE) do not have a stand-alone action plan but have included policy objectives and concrete measures to foster innovation procurement in wider national strategies or programmes, often with a dedicated budget and with a clear commitment of key actors. Even if no score is attributed to these countries, the evidence is reported below for completeness:

- **Denmark.** Within its “Strategy for intelligent public procurement” (2013), the Danish government has defined 7 guiding principles for public procurement that request procurers to implement a list of actions to support innovation procurement practices.
- **Estonia.** set up a specific measure under the Estonian Entrepreneurship and Growth strategy 2014-2020 called “State as a smart customer” that is funded by the EU Regional Development Fund (€20 M per year). It defines objectives to foster innovation procurement in Estonia through a set of actions and a clear timeline. It is managed by Enterprise Estonia (EAS) under the supervision of the Ministry of Economic Affairs and Communications. Implemented activities under this measure include training, guidelines, the development of a monitoring system and the provisioning of financial incentives for innovation procurements to public procurers.
- **Greece.** The Action Plan for national Procurement Strategy (2017) identifies a list of actions to promote innovation procurement in the country, including (i) conducting a special study to promote innovation in the sectors of health, energy, environment and transport, (ii) building knowledge for the public sector and for economic operators regarding the new legislative framework for promoting innovation procurement and (iii) developing support actions and promoting clusters in the relevant field.
- **France.** As explained in Indicator 2, the National Pact for Growth, Competitiveness and Employment (2012) and the following Prime Minister Circular 5681/SG (2013) required each national central authority that is subject to the 2% innovation procurement target to produce a sectoral roadmap for innovation procurement. These roadmaps set a number of initiatives to foster innovation procurement but do not constitute a stand-alone Action Plan in the field.
- **Sweden.** The National Public Procurement Strategy dedicated specific actions and objectives to innovation procurement. Innovation procurement is one of the seven objectives identified in the Strategy which also encourages the use of functional specifications in procurement procedures to foster innovative practices and ideas. The Strategy is implemented by the Swedish national competence centre for innovation procurement, the National Agency for Public Procurement that, together with other Ministries and national Agencies, provides assistance to public procurers and defines innovation procurement-related activities according to their own objectives and needs.

4.6 Indicator 6 – Spending target

To achieve an equally innovation friendly public sector as in other regions of the world, there should be 2,5% of R&D procurements and 15-20% of PPIs in Europe (as a percentage of total amount of public procurement). This indicator reflects the progress on target setting for innovation procurement across Europe.

The table below provides the overall scores of Indicator "Spending Target" for each country that has fixed a spending target for innovation procurement. The score has been calculated taking into account information collected on the following 5 sub-indicators: presence (is there a spending target in the country), coverage (is the target applicable to all procurers in the whole country), for all types of innovation procurement (as opposed to only for certain types of innovation procurement), separate target (is there a separate target for R&D procurement as well or only for the whole innovation procurement), commitment of procurers (are there official commitments from all procurers covered by the target or only some of them contribute to reach this target).

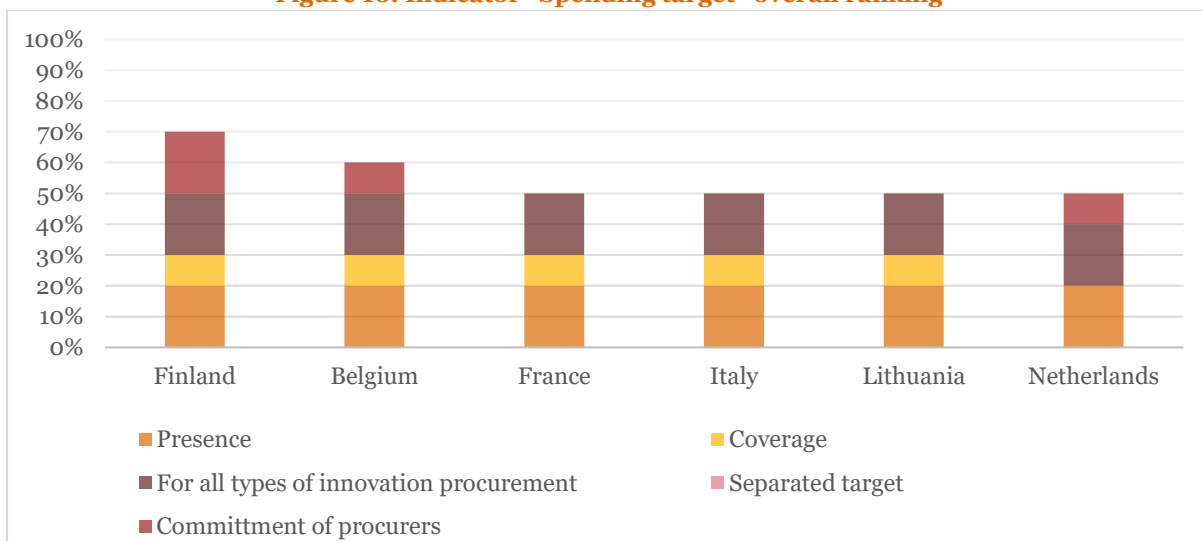
Table 46. Indicator 6: scores

Country	Presence	Coverage	For all types of innovation p.	Separated target	Commitment of procurers	Total
Belgium	20%	10%	20%	0%	10%	60%
Finland	20%	10%	20%	0%	20%	70%
France	20%	10%	20%	0%	0%	50%
Italy	20%	10%	20%	0%	0%	50%
Lithuania	20%	10%	20%	0%	0%	50%
Netherlands	20%	0%	20%	0%	10%	50%
All other 24 countries	0%	0%	0%	0%	0%	0%
European average	4,0%	1,7%	4,0%	0%	1,3%	11,0%

Source: Author's elaboration

The chart below shows the overall ranking of the “Spending target” indicator. Based on the evidence collected, Finland ranks first, followed by Belgium. The European average for this indicator is 11%. This is due to the fact that 24 out of 30 countries do not have a specific spending target, even though some of them the possibility of introducing it has been discussed. In 2 countries the government has set the objective to set a target – namely Estonia (3%) and Austria (2%) – but this target has not been officially adopted and implemented yet. In 2011, Spain set up a spending target: the 3% of the General State Administration budget should have been spent on innovation. However, as a result of the economic crisis, since 2013 the target has not been actively implemented.

Figure 10. Indicator "Spending target" overall ranking



Source: Author's elaboration

The following paragraphs provide more details on the scope of the targets in these 6 countries (BE, FI, FR, IT, LT, NL).

All the countries that have a spending target have also fixed a specific target for innovation procurement that is applicable to all types of innovation procurement. However, none of these spending targets differentiates between the different kinds of innovation procurement. In addition, the targets are not applicable to all types of public procurers. Even though the targets in all 6 countries are formally non-compulsory, there are some countries (BE, FI, NL) in which formal commitment has been obtained from key procurers to reach the target. In Belgium and Netherlands formal commitments were obtained from some procurers, whereas in Finland from all procurers covered by the scope of the target.

The table below provides an overview of the key characteristics of the targets in the 6 countries.

Table 47. Features of spending targets

Country	Target	Country wide applicable	Applicable to all types of innovation procurement	Commitment from key procurers	Separate target
Belgium	3% of the total public procurement budget of the Flemish Government (there are also some spending target set at local level, e.g. Ghent city)	No, at regional level (only in Flanders)	Yes	Partially (some key procurers have committed others not)	No
Finland	5% of total central government's public procurement spending	No, only for national level procurers	Yes	Yes (all procurers covered by the target)	No
France	2% of the total public procurement spending of the State (national ministries) and hospitals	No, only for national level procurers	Yes	No	No
Italy	3% of the total Lombardy region public procurement spending	No, only for the Lombardy Region	Yes	No	No
Lithuania	5% of total central government's public procurement spending	No, only for national level procurers	Yes	No	No
Netherlands	2,5 % of total central government's public procurement spending	No, only for some procurers that signed up to the action plan	Yes	Yes (only some procurers)	No

Source: Author's elaboration

The highest targets have been fixed in **Lithuania and Finland** (5%), but unfortunately, they apply only to central government authorities and not to local or regional or utility type procurers. In Finland, the target has been backed by a structured innovation procurement policy, which has foreseen practical support and monitoring activities, as well as the development of tools to facilitate the implementation of innovation procurement, but unfortunately only at the central government level. The spending target has also been embedded in a number of central government strategic projects with the aim to create an innovation procurement market and support the strategic use of innovation procurement in the whole economy. Despite not being formally obliged, advanced municipalities (e.g. Tampere) and ministries (e.g. Finnish Ministry of Transport) have set their own innovation procurement target.

In the **Netherlands**, the central government set a spending target for innovation procurement at 2,5% of total public procurement spending of the central government.⁵⁷ The target only applies to central government authorities, not to local and regional authorities. It comprises all types of innovation procurement (R&D procurement, PCP, PPI). As the target has a non-compulsory nature, only some public procurers (e.g. *Rijkswaterstaat*) have really embraced the commitment to reach the 2,5% target. In **France**, the National Pact for Growth, Competitiveness and Employment⁵⁸ set a spending target for innovation procurement in 2012, to be achieved by 2020. However in this case, the spending target is only for innovation procurement awarded to innovative SMEs and MSBs (Small and Medium Enterprises and Mid-Size Businesses).⁵⁹ In addition, the target has been set only for the central public authorities (the State and its operators) and hospitals, whereas local/regional authorities are excluded. In addition, there is no formal commitment from key procurers to achieve the 2% objective.

In **Belgium**, 3% of the total public procurement budget of the Flemish Government should go to innovation procurement. The target is applicable to all types of innovation procurement, but it is not country wide (only in the Flemish region). The target been backed by a structured innovation procurement policy, which has foreseen practical support and monitoring activities, as well as the development of tools to facilitate the implementation of innovation procurement. There are key procurers at local level (e.g. Digipolis which procures ICT for Ghent and Antwerp city) that have taken

⁵⁷ Brief aan de Tweede Kamer, Naar de top; het bedrijfslevenbeleid in actie(s), 13/09/2011.

⁵⁸ <https://www.economie.gouv.fr/files/PR-competitiveness.pdf>

⁵⁹ SMEs: The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding €50 mn, and/or an annual balance sheet total not exceeding €43 mn; MSBs: they have between 250 and 4.999 employees and an annual turnover < €1.5 bn. "Innovative" SMEs are defined in article L. 214-30 of the Monetary and Financial Code (available at <http://www.acheteurs-publics.com/marches-publics-encyclopedie/pme-innovantes>).

the commitment for themselves to even exceed the target and adopted a 10% target for innovation procurement spending.

In **Italy**, the Lombardy Region has decided to allocate at least the 3% of the resources annually spent for the purchase of goods and services from the region's public bodies on innovation public procurement. In addition, the Strategy for digital growth 2014-2020 includes a KPI entitled "volume growth for procurement of innovations", which defines specific targets devoted to innovation procurement. This target does not apply to all public procurement, but only to PPI and to a subset of e-procurement.

4.7 Indicator 7 – Monitoring system

This indicator reflects the progress of different countries on setting up a monitoring system to measure innovation procurement expenditure in the country and to evaluate the impacts of completed innovation procurements.

The following table provides an overview of the different expenditure measurement and impact evaluation systems in place. The breakdown in sub-indicators shows if an expenditure measurement and/or an impact evaluation system is in place (presence), if it is applied to all types of innovation procurement (PCP, PPI and R&D), and widely across the whole country. In addition the last column "structured approach" indicates if the measuring and/or evaluation activity is carried out on a regular basis.

Table 48. Indicator 7 scores

Country	Measurement system					Evaluation system					Total - Monitoring system
	Presence	For all types of innovation procurement	Widely across the whole country	Structured approach	Measurement system	Presence	For all types of innovation procurement	Widely across the whole country	Structured approach	Evaluation system	
<i>Austria</i>	25%	25%	25%	25%	100%	0%	0%	0%	0%	0%	50%
<i>Belgium</i>	25%	25%	25%	25%	100%	0%	0%	0%	0%	0%	50%
<i>Bulgaria</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Croatia</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Cyprus</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Czech Republic</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Denmark</i>	25%	0%	0%	0%	25%	0%	0%	0%	0%	0%	13%
<i>Estonia</i>	25%	25%	25%	25%	100%	0%	0%	0%	0%	0%	50%
<i>Finland</i>	25%	0%	25%	0%	50%	25%	0%	25%	0%	50%	50%
<i>France</i>	25%	25%	0%	0%	50%	0%	0%	0%	0%	0%	25%
<i>Germany</i>	25%	25%	0%	25%	75%	0%	0%	0%	0%	0%	38%
<i>Greece</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Hungary</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Ireland</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Italy</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Latvia</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Lithuania</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Luxembourg</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Malta</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Netherlands</i>	25%	25%	0%	0%	50%	0%	0%	0%	0%	0%	25%
<i>Norway</i>	25%	0%	0%	0%	25%	0%	0%	0%	0%	0%	13%
<i>Poland</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Country	Measurement system					Evaluation system					Total - Monitoring system
	Presence	For all types of innovation procurement	Widely across the whole country	Structured approach	Measurement system	Presence	For all types of innovation procurement	Widely across the whole country	Structured approach	Evaluation system	
<i>Portugal</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Romania</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Slovakia</i>	25%	25%	25%	25%	100%	0%	0%	0%	0%	0%	50%
<i>Slovenia</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Spain</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Sweden</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Switzerland</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>UK</i>	25%	0%	0%	0%	25%	25%	0%	0%	0%	25%	25%
<i>European average</i>	-	-	-	-	23%	-	-	-	-	3%	13%

Note: Yes = 25%, No = 0%

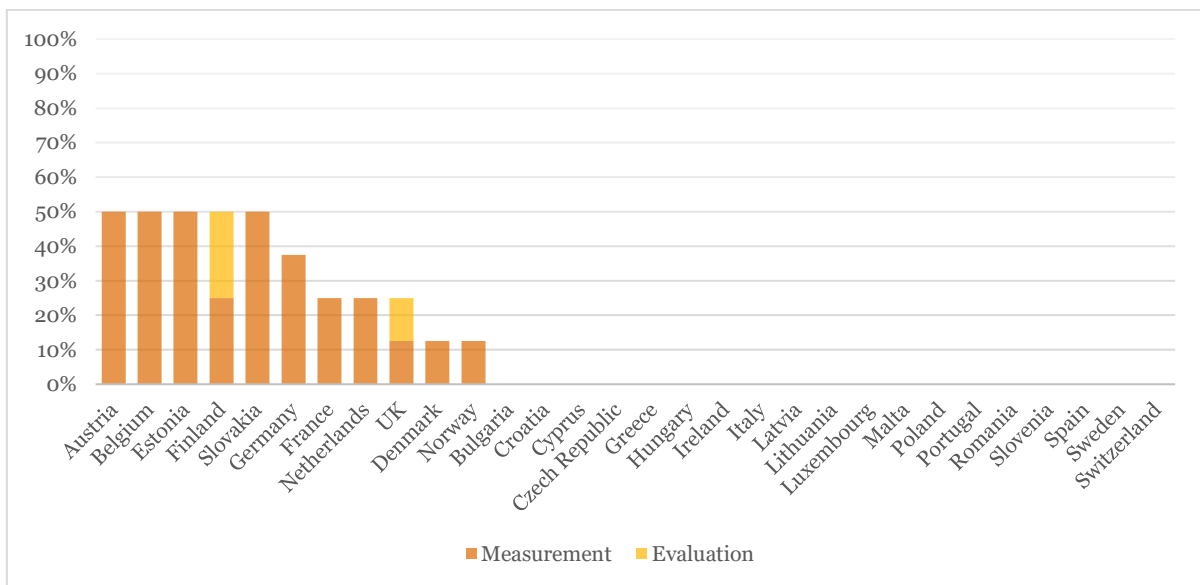
Source: Author's elaboration

The overall ranking of the indicator “Monitoring system” is illustrated in the graph below. As so far, no country has both a comprehensive measurement and impact evaluation system, no country achieves the maximum score (100%). The countries reporting the highest result are Austria, Belgium, Estonia, Finland and Slovakia. Among these countries, only Finland has started developing both expenditure measuring and impact evaluation activities for all types of innovation procurement across the country.

The European average for this indicator is 13%, which results from the averages for the sub-indicators "measurement system" (23%) and "impact evaluation system" (3%). These scores are affected by the fact that 18 out of 30 countries observed have not set up any form of expenditure measurement or impact evaluation for innovation procurement in their country. In addition, the 12 countries that have started developing some sort of measuring systems have not fully developed them yet (expenditure measurement is often still carried out in a non-systematic way and impact evaluation is still widely missing). As different countries want to know how they perform compared to others, several countries are in fact waiting for an EU wide monitoring system to be setup before investing substantially in national monitoring.

The next paragraphs provide an analysis of the different systems put in place at national level.

Figure 11. Indicator "Monitoring system" overall ranking



Source: Author’s elaboration

4.7.1 Expenditure measurement and impact evaluation systems

11 countries (AT, BE, DE, DK, EE, FI, FR, NL, NO, SK, UK) have developed an approach for measuring the amount of public procurement expenditure spent on innovation procurement.

Among these, 5 countries (AT, BE, DE, EE, SK) have developed a structured measurement system:

- Since 2013, **Austria** has been developing a comprehensive innovation procurement monitoring system. The Action Plan on Public Procurement Promoting Innovation PPPI provides the context for the monitoring and measurement activities, which consists of 4 dimensions, i.e. “reporting”, “assessing”, “measuring”, and “learning”.⁶⁰ All these dimensions provide a general overview on the activities carried out by all the actors involved in the system. The “measuring” activity consists of two pilot surveys which regularly monitor innovation procurement at organisational and at project level. This monitoring system is applicable countrywide and for all types of innovation procurement.

⁶⁰ https://www.ait.ac.at/fileadmin/mc/innovation_systems/projekte/IOEB/201709_PPPI_Policy_Note_Monitoring_Measurement.pdf

- In **Belgium**, under the PIO program, a measurement system has been set up and is applied in the Belgian e-Procurement platform and the regional contract management system (e-Delta). It consists of an indicator and aims at highlighting innovative tenders from the “normal” procurements. The measuring activity is expected to be carried out on a regular basis across the whole country and for all types of innovation procurement. The first round of measuring innovation procurement spending has recently started, and first statistics are expected in 2019.
- In 2017, **Slovakia** has introduced a system to flag green, social and/or innovation procurements in the form used by procurers to publish their tenders. This measurement system, is applicable countrywide and for all types of innovation procurement. However, it does not allow to distinguish between the different kinds of innovation procurement (it only identifies the innovative object of the tender). This system has not produced statistical results yet.
- In **Germany**, the new regulation for statistical data (§98 and §99 of the German Act against Restraints of Competition – Gesetz gegen Wettbewerbsbeschränkungen – GWB) requires procurers to provide specific types of information for all procurement activities. For procurement under the EU threshold, volume, kind of procedure and product group is required. With regard to procurements above the EU threshold, the indication of different categories such as innovation and environment are also required. In the country there have been also other measurement exercises. For instance, the *Bundeswehrhochschule München* in 2016 carried out a pilot measurement of public procurement in the country. The results of this study estimated that, of an overall €350 bn of public procurement expenditure, €40/50 bn, i.e. 11/14% of the overall budget, was spent on innovation procurements.⁶¹
- A good practice for the collection of data is also the structured system for measuring innovation procurement expenditures put in place in **Estonia**. The country has an effective monitoring system which enables public procurers to directly flag potentially innovative tenders on the e-Procurement system, through a survey. This survey is expected to collect on an annual basis data on the amount of innovation procurement carried out in the country.

Despite not having a structured approach to measure innovation procurement in the country, the other 6 countries (DK, FI, FR, NL, NO, UK) have carried out monitoring activities on pilot projects or through single policy initiatives:

- In **Denmark**, the Council for Public-Private Cooperation (ROPS) reports that only 12% of surveyed public buyers have carried out innovation procurement.⁶²
- **Finland** does not have a structured system to measure or evaluate the impacts of completed innovation procurement. However, monitoring activities for a subset of innovation procurements have been carried out only in parts of the country. In addition, the Competence Centre for Sustainable and Innovative Public Procurement (KEINO) has the responsibility to monitor innovation procurement, both in terms of its effectiveness and its efficiency. In the coming years it is expected to develop a management-oriented monitoring and evaluation system as well as monitoring and evaluation tools. These include the creation of follow-up indicators, indicators for achieving national targets and to assess and evaluate the effectiveness and efficiency of the innovation procurement processes.
- In **France** there are no structured monitoring and evaluating systems for innovation procurement across the whole country. However, two indicators have been created to evaluate the innovation procurement policy of the State and monitor the achievements of the objectives set by the National Pact for Growth Competitiveness and Employment. The first assesses the number of innovative enterprises benefiting from public procurement contracts, focusing on SMEs. The second requires public procurers to identify when public procurement is innovative.
- The **Netherlands**, after having conceived a method for measuring innovation procurement expenditure, which was applied between 2010-2013 to all types of innovation procurements, is

⁶¹ <https://rio.jrc.ec.europa.eu/en/file/11255/download?token=h7oOt2OW>

⁶² http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/dk.pdf

putting in place a new voluntary measurement initiative based on a tool in which public procurers can fill in, on voluntary basis, a number of questions to report to what extent completed public procurements were innovation procurements. However, the measurement system is not structurally implemented yet and is limited also to national authorities.

- **Norway** does not regularly measure innovation procurement expenditure but has only conducted some pilot initiatives.
- In the **UK** regular evaluation and monitoring assessments are carried out only for the activities implemented within the SBRI Programme. In 2014, an analysis of SBRI was conducted by Manchester Institute of Innovation Research (MIOIR) with the European Research Council and OMB Research.⁶³ Afterwards, recommendations from an independent evaluation on increasing the impact of the program was published in 2017.⁶⁴

In the remaining 19 countries there is no measurement system to monitor expenditure of innovation procurement. In these countries measuring activities are carried out in the context of ESIF funding or are expected to be implemented in the future:

- Countries financing innovation procurements only via ESIF funding (e.g. **Spain**) typically do not have a structural monitoring system for all innovation procurements in the country. They usually only monitor innovation procurement spending in ESIF as this is required by the EC.
- **In Sweden**, an annual evaluation of impacts of selected innovation procurements is being developed. Similarly, Lithuania and Portugal are in the process of developing a monitoring system for innovation procurement.

Interesting evidence collected on the implementation of monitoring and evaluation exercise concerns the methods used. In particular, various instruments are used for such a purpose, including surveys, external independent reviews, combined interim and ex-post evaluations, or one-off project-related evaluations, among others. The main approaches to conduct evaluations of innovation-related procurement initiatives seem to be surveys and qualitative methods (i.e. case studies, interviews with beneficiaries). This fact represents one of the most important limits of the evaluations and monitoring exercises, i.e. the lack of quantitative data and the need for further quantitative approaches.

No country (except for Finland and the UK, as described above) has put in place a structural system to evaluate the impacts of completed innovation procurements.

4.8 Indicator 8 – Incentives

This indicator reflects the progress of using financial or personal **demand-side incentives** to encourage public buyers to undertake more innovation procurements across different countries. It is calculated as the average of two sub-indicators, namely “financial incentives” and “personal incentives”.

The first sub-indicator shows the presence of dedicated financial incentives in the country (availability of these type of incentives in the country), whether the incentives are available for all types of innovation procurement (as opposed to only for certain types of innovation procurement), applicable country wide (whether they are available to all procurers/procurements in the whole country as opposed to available only certain types of procurers), whether there are incentives for large scale implementation across the whole country (as opposed to only pilots), whether national top-up funding is provided for procurement cases that are eligible for EU co-financing (“national top-up funding available for EU co-financed procurements”), whether national financial incentives are provided for procurement cases that are not eligible for EU co-financing (“national funding available for non-EU co-financed procurements”) and whether dedicated ESIF funding has been allocated for innovation procurements.

Please note that EU (co-)financing can include all types of EU (co-)financing (e.g. ESIF, Horizon 2020, EIB). The personal incentive sub-indicator shows the availability of personal incentives for public procurers in the country and whether the incentives are available for all types of procurers in the country (as opposed to only for certain types of procurers). The overall scores of the “Incentives” indicator is provided in the table below

⁶³ <https://www.gov.uk/government/publications/review-evaluation-of-the-small-business-research-initiative>

⁶⁴ <https://www.gov.uk/government/publications/leveraging-public-procurement-to-grow-the-innovation-economy-an-independent-review-of-the-small-business-research-initiative-sbri> (2017)

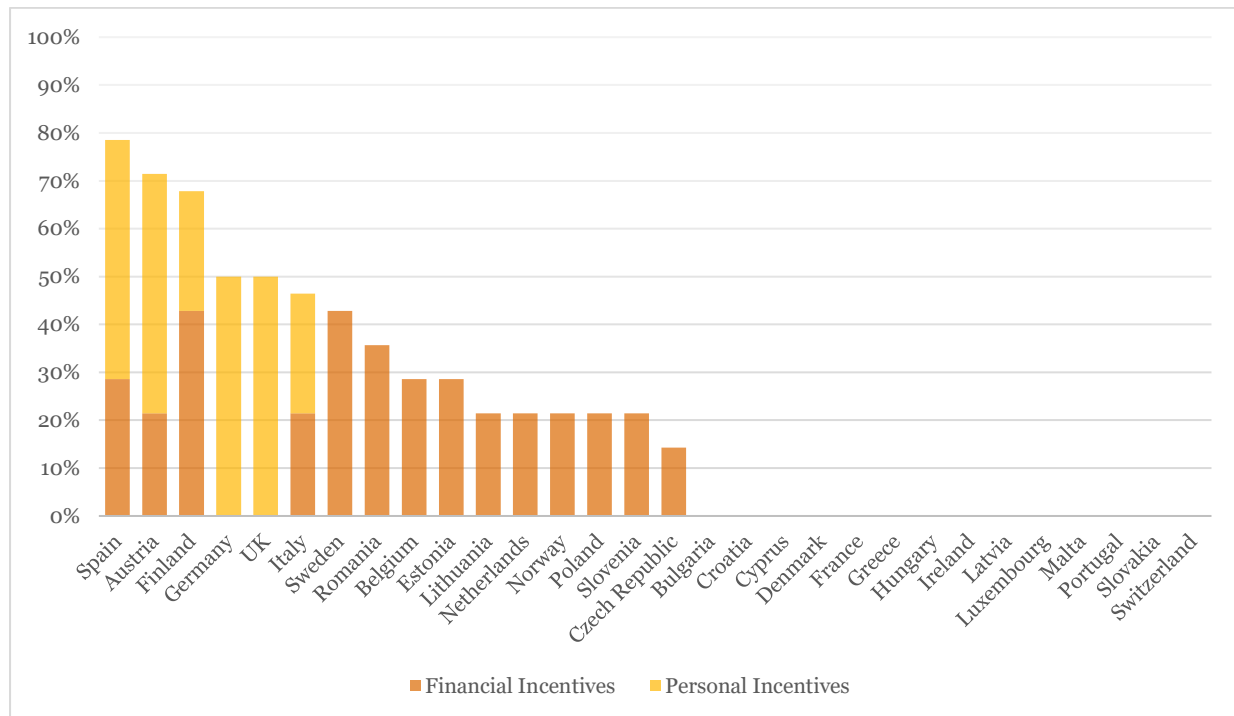
Table 49. Indicator 8: scores

Country	Financial incentives							Personal incentives				Total - Incentives
	Financial Incentives (Presence)	For all types of innovation procurement	Applicable to all procurers country wide	Large scale implementation	Nat. top-up funding available for EU cFP	Nat. funding available for non-EU cFP	Dedicated ESIF Funds for innovation procurement	Financial Incentives	Personal incentives (Presence)	Applicable to all procurers countrywide	Personal Incentives	
Austria	14,28%	0%	14,28%	0%	0%	14,28%	0%	43%	50%	50%	100%	71,4%
Belgium	14,28%	14,28%	0%	0%	14,28%	14,28%	0%	57%	0%	0%	0%	28,6%
Bulgaria	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Croatia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cyprus	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Czech Rep.	14,28%	0%	0%	0%	0%	0%	14,28%	29%	0%	0%	0%	14,3%
Denmark	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Estonia	14,28%	14,28%	14,28%	0%	0%	14,28%	14,28%	57%	0%	0%	0%	28,6%
Finland	14,28%	14,28%	14,28%	14,28%	14,28%	14,28%	0%	86%	50%	0%	50%	67,8%
France	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Germany	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	100%	50,0%
Greece	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Hungary	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ireland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Italy	14,28%	14,28%	0%	0%	0%	0%	14,28%	43%	50%	0%	50%	46,4%
Latvia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lithuania	14,28%	0%	14,28%	0%	0%	0%	14,28%	43%	0%	0%	0%	21,4%
Luxembourg	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Malta	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Netherlands	14,28%	14,28%	0%	0%	0%	14,28%	0%	43%	0%	0%	0%	21,4%
Norway	14,28%	0%	14,28%	0%	0%	14,28%	0%	43%	0%	0%	0%	21,4%
Poland	14,28%	14,28%	0%	0%	0%	0%	14,28%	43%	0%	0%	0%	21,4%
Portugal	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Romania	14,28%	14,28%	14,28%	0%	0%	14,28%	14,28%	71%	0%	0%	0%	35,7%
Slovakia	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Slovenia	14,28%	14,28%	0%	0%	0%	0%	14,28%	43%	0%	0%	0%	21,4%
Spain	14,28%	14,28%	0%	14,28%	0%	0%	14,28%	57%	50%	50%	100%	78,6%
Sweden	14,28%	14,28%	14,28%	14,28%	14,28%	14,28%	0%	86%	50%	50%	0%	42,8%
Switzerland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
UK	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%	100%	50,0%
European Avg.	-	-	-	-	-	-	-	24,8%	-	-	16,7%	20,7%

Source: Author's elaboration. Legend: cFP = co-financed projects

Only 16 countries (AT, BE, CZ, DE, EE, ES, FI, IT, LT, NL, NO, PL, RO, SI, SE, UK) have dedicated incentives for innovation procurement. In this field the best performers are Spain, Austria and Finland, which are also the only countries that have adopted both types of demand-side incentives considered at a country wide scale: financial incentives for procurers to reduce the financial risk of innovation procurement and personal incentives for procurers to encourage more innovation procurement.⁶⁵ The European average for the indicator "Incentives" is 20,7%. This value is mainly due to two reasons. Firstly, 14 countries (BG, CH, CY, DK, FR, EL, HR, HU, IE, LV, LU, MT, PT, SK) have not setup any form of incentive (financial or personal) to encourage public procurers to carry out more innovation procurements. Secondly, in the majority of the countries that have setup incentives, financial incentives are not budgeted to mainstream innovation procurement widely and personal incentives are underused. The ranking for the 16 countries that have incentives in place is presented below.

Figure 12. Indicator "Incentives" overall ranking



Source: Author's elaboration

4.8.1 Financial incentives

14 countries (AT, BE, CZ, EE, ES, FI, IT, LT, NL, NO, PL, RO, SI, SE) have set up a financial incentive system to encourage public procurers to undertake more innovation procurement.

The highest score is achieved by Finland, followed by Sweden and Romania.

- In **Finland**, the innovation funding agency Business Finland provides grants to public procurers through the Innovative Public Procurement financing instrument. All public procurers are eligible recipients of funding. The grant covers 40-50% of total costs in the preparation stage of a procurement. It may cover development, piloting and adoption of new products and services. The public procurer should use the grant to source additional expertise, build collaboration, undertake market consultation and carry out pilots or R&D work in order to strengthen cooperation with potential providers and end users and preparation of innovative public procurements. The Finnish financial incentives are available both for cases that can obtain co-financing from EU programmes (as top-up financing for Horizon 2020 and ESIF co-financed innovation procurements) and cases that cannot obtain EU co-financing.
- **Sweden** has set up financial incentives, in the form of grants, to encourage public procurers to undertake more innovation procurements. These incentives are for all types of innovation procurement and applicable to all Swedish public procurers in all sectors and at all levels (local,

⁶⁵ Italy has also adopted both types of demand-side incentives, however they are not applicable countrywide.

regional and national). The Swedish financial incentives are available both for cases that can obtain co-financing from EU programmes (as top-up financing for Horizon 2020 and ESIF co-financed innovation procurements) and cases that cannot obtain EU co-financing. Today, a Swedish VINNOVA programme called “Innovation procurement” is specifically designed to finance strategic investments and applications. The amount invested in innovation procurement has varied during the years, but it has accounted on average to approximately €1 M per year. Sweden has not pre-allocated dedicated ESIF budgets for innovation procurements but if a city or region decides to implement an innovation procurement via its ESIF budget, the VINNOVA funding can in principle top-up this ESIF funding.

- **Romania** has set up financial incentives, in the form of grants, to encourage public procurers to undertake more innovation procurements. These incentives are available for all types of innovation procurement. Romania has foreseen both national program funds and ESIF funds (grants) for innovation procurements, but the budgets foreseen are not designed to incentivise large scale implementation of innovation procurement. Romania does not provide additional national top-up funding for EU (Horizon 2020/ESIF) co-financed innovation procurements.

A second group of countries (BE, EE, ES) set up financial incentive schemes that score 57%.

- In **Belgium**, at national level there are no incentives to encourage public procurers to start more innovation procurements, while there are some at regional level. In particular, the Flemish PIO programme offers co-financing to any type of public procurer in Flanders for PCPs and other types of innovation procurements. However the budget of the programme is not large enough to mainstream innovation procurement widely. The PIO co-financing is available both for projects that are not eligible for EU funding and for projects that are eligible for EU funding (procurers that already receive EU funds for their innovation procurement are still eligible for Flemish funding, i.e. the PIO funding can top up the EU funding). Belgium and Flanders have not pre-allocated dedicated ESIF budgets for innovation procurements but if a city/region decides to implement an innovation procurement via its ESIF budget, the Flemish funding can in principle top-up this ESIF funding.
- **Estonia** has not allocated any national funds for financial incentives to encourage public procurers to undertake innovation procurements that are not eligible for EU co-financing. However, it has dedicated a limited amount of ESIF funds (€20 M) for supporting a few pilot innovation procurements in specific sectors. Also Enterprise Estonia (EAS) does not provide additional national top-up funding for EU (Horizon 2020/ESIF) co-financed innovation procurements.
- The **Spanish** financial incentives scheme is not open to all types of public procurers and procurements in the country. It is only available to projects eligible for co-financing from the Spanish ESIF programme which focuses on specific sectors (health and security) (as indicated in the smart specialisation priorities of Spain) but not for projects that are eligible for Horizon 2020 funding. In the health domain Spain has been able to stimulate large scale implementation of innovation procurement through ad-hoc programmes: for example, the Programme FID SALUD in INNOCOMPRA-FID 2014-2020 aims to systematically improve public health services portfolio through annual calls for innovation procurement. The programme is coordinated by the Health, Social Security and Equality Ministry and involved all regional health services. So far, more than 40 proposals have been independently assessed by ISCIII (Health Institute Carlos III) and 15 of them have been approved, mobilising approximately €62 M just in 2015.

A third group of countries (AT, IT, LT, NL, NO, PL SI) achieve an overall score of 43%. Some countries (IT, NL) have not implemented countrywide financial incentive schemes while others (AT, LT, NO) implemented schemes only for certain types of innovation procurement. The financial schemes implemented in these countries are presented below:

- In **Austria**, financial and practical support by the Ministries and the PPPI Service Centre is provided for certain sectors. The funds available are based on national funding, however, they are not designed to foster large scale implementation of innovation procurement. In addition,

financial incentives are not available for all types of innovation procurement and projects already receiving EU funds are not eligible (both for Horizon 2020 and ESIF).

- In **Italy** financial incentives for procurers do not exist at national level. National ministries implement PCP/PPI pilot actions for the 4 convergence objective regions. These actions, implemented within wider funding programmes dedicated to the convergence regions, do not provide financial incentives to regional authorities to implement innovation procurements. In Italy, financial initiatives are offered to public procurers only by some regions, e.g. in Lombardy and Sardinia. Both regions have set up calls for interest to select innovation needs and innovation procurement actions to be implemented by public procurers under the Operational Regional Program ERDF 2014-2020.
- **Lithuania** has allocated through the Agency for innovation and Technology (MITA) a limited amount of ESIF funds to support a few PCP procurements.
- In the **Netherlands** there is no national or regional financial incentives programme for innovation procurement. However, financial incentives are available in the sectoral High-Water Protection programme. These incentives are not conceived for combination with EU co-financing, are only available for public procurers in the high-water field and are not designed to incentivise large scale implementation of innovation procurement.
- In **Norway**, financial incentives to support pilot innovation procurements are envisaged in the context of the National Programme for Supplier Development.
- In **Poland** there are no specific separate financial support schemes for public procurers to incentivise the launch of innovation procurements. However, operational programmes under ESIF have dedicated funding for innovation procurements projects. Thus, financial incentives are allocated only in certain sectors and not designed to mainstream innovation procurement widely across the country.
- In **Slovenia** there are financial incentives co-financed by ESIF funds that are mainly used to support pilot projects, i.e. they are not able to mainstream innovation procurement across the country. There are no national funds available for undertaking innovation procurements that are not eligible for EU co-financing. Slovenia does not provide additional national top-up funding for EU (Horizon 2020/ESIF) co-financed innovation procurements.
- In the **Czech Republic** financial support is provided by the Pre-commercial Public Procurement Programme, i.e. an EU-funded ESIF programme within the Operational Programme Enterprise and Innovation for Competitiveness (2014-2020). It allows to provide grants to public procurers that provide co-financing for pilot PCP projects. However, there are no additional national funds that top-up the EU funding to cover the part of the PCP procurement costs that are not co-financed by ESIF. The city of Prague is the only authority that has been using these ESIF funded incentives.

4.8.2 Personal incentives

5 countries (AT, ES, FI, IT, UK) set up personal incentive schemes to encourage public procurers to undertake more innovation procurement.

This kind of non-financial support can take different forms.

- In Austria, Spain and Germany personal incentives are prizes aimed at rewarding top performances among public procurers in the procurement of innovative products and the design of innovative procurement processes.
- In Italy, a personal incentive scheme is reported in Lombardy, where there are bonuses for public servants related to achieving the 3% regional target for innovation procurement, which is also included in the career objectives.
- In the UK and Finland, non-personal incentives take the form of KPIs agreed between the government/ministries and procurers in the country, which set cost reduction and quality

improvement levels/targets for public procurements that are implemented by public procurers at all levels (e.g. CO2 reduction). These KPIs seriously drive forward innovation procurement in the UK and Finland. In Finland the use of KPIs is however mainly applied at the national level, not so much at local and regional level.

4.9 Indicator 9 – Capacity building and assistance measures

Lack of know-how and experience on innovation procurement is also a significant barrier to innovation procurement. Several countries around Europe have therefore set up measures to build up the know-how of public procurers on innovation procurement and/or to provide tailored case-by-case assistance to public procurers to implement specific innovation procurement projects. To make these measures easily accessible to public procurers in a one-stop-shop, these activities are typically coordinated by a national competence centre on innovation procurement. This indicator tracks progress on the capacity building and assistance measures implemented for innovation procurement across different countries. The table below provides the overall scores of different countries for the Indicator "Capacity building and assistance measures". The score is based on the 9 sub-indicators listed in the columns of the table.

Although 20 countries (AT, BE, DE, DK, EE, ES, FI, FR, HU, IE, IT, LT, LU, NL, NO, PL, SE, SI, SK, UK) foresee regular dedicated capacity building and assistance measures for innovation procurement, these activities are usually only partially developed: in many countries there is still a clear lack of basic capacity building measures, such as a central website on innovation procurement and a one-stop shop / national competence centre for innovation procurement. Available training and assistance initiatives (trainings, networking between procurers, lists of good practice cases, handbooks) are typically not designed and resourced to mainstream innovation procurement at large scale. The number of countries that provide advanced types of assistance is still very low: case specific full-scale practical implementation and legal assistance, template tender documents and coordination support for innovation procurements are scarce.

Table 50. Indicator 9 scores

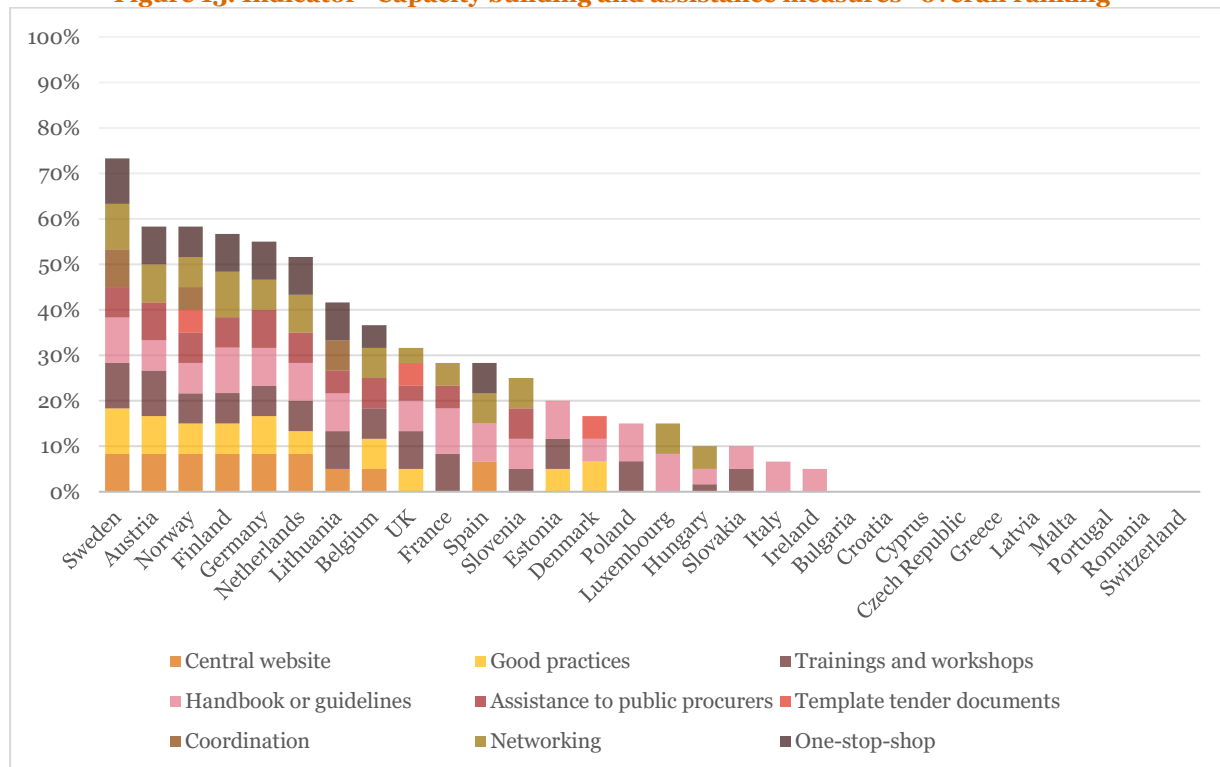
Country	Central website	Good practices	Trainings and workshops	Handbook or guidelines	Assistance to public procurers	Template tender documents	Coordination	Networking	One-stop-shop	Total score Capacity Building
<i>Austria</i>	83%	83%	100%	67%	83%	0%	0%	83%	83%	65%
<i>Belgium</i>	50%	67%	67%	0%	67%	0%	0%	67%	50%	41%
<i>Bulgaria</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Croatia</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Cyprus</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Czech Republic</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Denmark</i>	0%	67%	0%	50%	0%	50%	0%	0%	0%	19%
<i>Estonia</i>	0%	50%	67%	83%	0%	0%	0%	0%	0%	22%
<i>Finland</i>	83%	67%	67%	100%	67%	0%	0%	100%	83%	63%
<i>France</i>	0%	0%	83%	100%	50%	0%	0%	50%	0%	31%
<i>Germany</i>	83%	83%	67%	83%	83%	0%	0%	67%	83%	61%
<i>Greece</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Hungary</i>	0%	0%	17%	33%	0%	0%	0%	50%	0%	11%
<i>Ireland</i>	0%	0%	0%	50%	0%	0%	0%	0%	0%	6%
<i>Italy</i>	0%	0%	0%	67%	0%	0%	0%	0%	0%	7%
<i>Latvia</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Lithuania</i>	50%	0%	83%	83%	50%	0%	67%	0%	83%	46%
<i>Luxembourg</i>	0%	0%	0%	83%	0%	0%	0%	67%	0%	17%
<i>Malta</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Netherlands</i>	83%	50%	67%	83%	67%	0%	0%	83%	83%	57%
<i>Norway</i>	83%	67%	67%	67%	67%	50%	50%	67%	67%	65%
<i>Poland</i>	0%	0%	67%	83%	0%	0%	0%	0%	0%	17%
<i>Portugal</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Romania</i>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Slovakia</i>	0%	0%	50%	50%	0%	0%	0%	0%	0%	11%
<i>Slovenia</i>	0%	0%	50%	67%	67%	0%	0%	67%	0%	28%

Country	Central website	Good practices	Trainings and workshops	Handbook or guidelines	Assistance to public procurers	Template tender documents	Coordination	Networking	One-stop-shop	Total score Capacity Building
Spain	67%	0%	0%	83%	0%	0%	0%	67%	67%	31%
Sweden	83%	100%	100%	100%	67%	0%	83%	100%	100%	81%
Switzerland	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
UK	0%	50%	83%	67%	33%	50%	0%	33%	0%	35%
European average	22,2%	22,8%	34,5%	46,6%	23,3%	5,0%	6,7%	30,0%	23,3%	23,8%

Source: Author's elaboration

The average score for this Indicator is 23,8%. In this field, the top performers on this indicator are Sweden (81%), Austria (65%), Norway (65%), Finland (63%), Germany (61%) and the Netherlands (57%).

Figure 13. Indicator "Capacity building and assistance measures" overall ranking



Source: Author's elaboration

The table below provides an overview of the capacity-building activities and assistance measures implemented in each country.

Table 51. Capacity-building activities and assistance measures implemented in each country

Activity	Countries
Central website	AT, BE, DE, ES, FI, LT, NL, NO, SE (9)
Good practices	AT, BE, DE, DK, EE, FI, NL, NO, SE, UK (10)
Trainings and workshops	AT, BE, DE, EE, FI, FR, HU, LT, NL, NO, PL, SE, SI, SK, UK (15)
Handbooks and guidelines ⁶⁶	AT, DE, DK, EE, ES, FI, FR, HU, IE, IT, LT, LU, NL, NO, PL, SK, SI, SE, UK (19)
Assistance to public procurers	AT, BE, DE, FI, FR, LT, NL, NO, SI, SE, UK (11)
Template tender documents	DK, NO, UK (3)
Coordination / pre-approval	LT, NO, SE (3)
Networking of procurers	AT, BE, DE, ES, FI, FR, HU, LU, NL, NO, SE, SI, UK (13)
One-stop-shop/competence centre	AT, BE, DE, ES, FI, LT, NL, NO, SE (9)

Source: Author's elaboration

19 countries developed **handbooks and guidelines** on innovation procurement for public procurers, which clearly appears to be the most accessible capacity building measure. 15 countries also provide **trainings and workshops** on innovation procurement. Other common capacity-building activities implemented include **networking** activities between public procurers (in 13 countries) and

⁶⁶ In Latvia, the Ministry of Finance introduced national guidelines on the innovation partnership procedure (published in the second half of 2018).

assistance activities to prepare and implement innovation procurements (in 11 countries). Conversely, only a very limited **tender template documents** for innovation procurements for public procurers and **coordination activities** to pre-approve and/or coordinate innovation procurements across the country are offered (in 3 countries in both cases). Surprisingly, a central website for innovation procurement is only available in 9 countries and an operational one-stop-shop/competence centre for procurers is also only available in 9 countries, although 5 other countries have been in the process of setting it up (EE, EL, IE, IT, PT).

4.9.1 Central website

9 countries (AT, BE, DE, ES, FI, LT, NL, NO, SE) offer countrywide free of charge information on **innovation procurement on a central website**, with 8 of those covering all aspects of innovation procurement (AT, BE, DE, ES, FI, NL, NO, SE), and 5 providing information about initiatives in support of innovation procurement at EU level (AT, BE, DE, ES, SE). In 5 of the 9 countries the information provided also takes into consideration how to mainstream innovation procurement at a large scale (AT, FI, NL, NO, SE). An overview of the evidence collected is provided in the table below. The European average value for this sub-indicator "central website" is 22,2%.

Table 52. Evidences and score on central website in each country

	AT	BE	DE	ES	FI	LT	NL	NO	SE
Central website explains why the policy framework encourages public procurers and gives an overview of policy initiatives to mainstream innovation procurement	√	√	√	√	√	√	√	√	√
The site provides national and EU level references/initiatives that support innovation procurement			√						
Information is offered free of charge by the site	√	√	√	√	√	√	√	√	√
Information on the site covers all types of innovation procurement (i.e. covering R&D procurement, including PCP, and PPI)	√	√	√	√	√		√	√	√
Information on the site is applicable to all public procurers in the country	√		√	√	√	√	√	√	√
Information on the site addresses how to mainstream innovation procurement at a large scale	√				√		√	√	√
Total score	83%	50%	83%	67%	83%	50%	83%	83%	83%

Source: Author's elaboration

Interesting examples of country level activities are:

- The **Austrian** PPPI website and online platform centralises key information on the legal framework, the political context (action plan), case examples, financial incentives and available assistance for procurers on innovation procurement. However, information about key European initiatives on innovation procurement that Austrian procurers can benefit from is not up-to-date or missing. On the online platform innovation procurement stakeholders (public procurers, research institutions, enterprises, citizens, etc.) are free to interact, thus ensuring a greater match between the public needs and the market supply. In other words, the platform is designed to on the one hand allow procurers to specify a challenge, and on the other allow suppliers to present their innovative solutions.
- In **Belgium**, there is a website in the region of the Flanders. The website mainly provides information on what the PIO programme is doing in the Flanders. Information about European initiatives in support of innovation procurement that Flemish procurers can benefit from is missing.
- In **Lithuania**, the Ministry of Economy provides information especially on PCPs on its website, so not all aspects of innovation procurement are covered. Information focuses also on the ESIF funding opportunities for procurers. Information about the wider policy support for innovation

procurement, and on how Lithuanian procurers can benefit from key European initiatives on innovation procurement is still missing.

- In the **Netherlands** the Competence Centre for Public Procurement PIANOo also has a well-structured central website, which shares information about national policy initiatives, trainings/seminars and case examples on innovation procurement. There is a lack of information about available assistance and financial incentives for procurers (as there are no national initiatives on this and European funded ones are not visibly promoted).

4.9.2 Good practices

In terms of dissemination and exchange of good practices, 10 countries (AT, BE, DE, DK, EE, FI, NL, NO, SE, UK) publish good practice examples on a national website. Despite that, only one country (SE) has obtained a full 100% score as it covers all 6 below aspects related to how good practice examples are made available to procurers. In most countries only national case examples are promoted and examples from other countries (including European funded good practice examples) are missing. The European average for the “Good practices” sub-indicator is 22,8%.

Table 53. Evidences and score on good practices in each country

	AT	BE	DE	DK	EE	FI	NL	NO	SE	UK
Publication of good practice examples	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Publication includes besides national also international / EU funded good practice examples		✓	✓						✓	
Publication of good practice examples is offered free of charge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Publication of good practice examples covers all types of innovation procurement	✓	✓	✓	✓				✓	✓	
Good practice examples provided are applicable to all public procurers in the country	✓		✓	✓	✓	✓	✓	✓	✓	✓
Good practice examples are included that demonstrate how to mainstream innovation procurement at large scale	✓					✓			✓	
Total score	83%	67%	83%	67%	50%	67%	50%	67%	100%	50%

Source: Author's elaboration

Interesting examples regarding country activities in the dissemination of good practices are presented below:

- In **Belgium**, there is only a website which provides case examples in the region of the Flanders and in particular cases funded by the new PIO programme (it lacks references to Belgian cases that were not funded by the PIO programme and case examples from other countries). Both for Belgium and the **Netherlands**, apart from one case in which a local procurer was involved, there are also no EU funded case examples listed.
- **Finland** started publishing case examples recently. However, it lacks examples of innovation procurements that procure R&D such as PCPs.
- **Sweden** regularly publishes new national case examples. The examples present through in-depth analysis and interviews how the procurement was prepared, implemented, what the challenges were, and which results were achieved for both procurers and companies. The examples cover all types of procurements (including PCP and PPI) with both references to national and EU funded cases.

In the **UK** the Department for Business, Innovation and Skills (BIS) has published a series of good practices examples of Forward Commitment Procurements that clearly illustrate the benefits to procurers. Despite that, there is a lack of PCP good practice examples and references to examples from other countries including EU funded case examples.

4.9.3 Trainings and workshops

15 countries (AT, BE, DE, EE, FI, FR, HU, LT, NL, NO, PL, SE, SI, SK, UK) have been implementing dedicated training and workshop activities to increase the know-how of public procurers on innovation procurement practices in a systematic, regular way. Out of these, however, only Austria and Sweden obtained a full 100% score. The European average for the "trainings and workshops" sub-indicator is 34,5%, which is mainly due to the fact that in 15 countries there are no such trainings/workshops yet. However, some of these countries (e.g. BG, CY, HR, LV, PT) address innovation procurement in the context of wider trainings on public procurement, although not in a systematic way.

Table 54. Evidences and score on trainings and workshop in each country

	AT	BE	DE	EE	FI	FR	HU	LT	NL	NO	PL	SE	SI	SK	UK
Trainings/workshops are offered by the government	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trainings/workshops offered cover not only national aspects but also the EU and international framework	✓	✓				✓		✓	✓		✓	✓	✓		✓
Trainings/workshops are offered free of charge	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Trainings/workshops cover all types and aspects of innovation procurement	✓	✓	✓		✓	✓		✓		✓		✓		✓	
Trainings/workshops are available/applicable to all public procurers in the country	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓			✓
Training/workshops address how to implement innovation procurement at large scale	✓											✓			✓
Total score	100%	67%	67%	50%	67%	83%	17%	83%	67%	67%	67%	100%	50%	50%	83%

Source: Author's elaboration

The notable examples of Austria and Sweden, the only countries to reach a full score under this sub-indicator, are described in the following paragraphs:

- In **Austria**, the national competence centre on innovation procurement (PPPI Services Elle), in cooperation with the Federal Academy of Public Administration, carries out training activities that deliver a **certification of achieved innovation procurement competence** at basic and advanced levels.
- In **Sweden**, the national agency for public procurement organises a wide range of regular in-depth **trainings and workshops** on different aspects related to innovation procurement. Networks and associations of other Swedish procurers with similar needs are also invited to participate in the trainings and workshops.

4.9.4 Handbook and guidelines

Handbooks and guidelines on innovation procurement have been published in 19 countries (AT, DE, DK, EE, ES, FI, FR, HU, IE, IT, LU, LT, NL, NO, PL, SE, SI, SK, UK). In 3 countries (FI, FR, SE), these guidelines are covering all types and aspects of innovation procurement, highlighting also the EU and international framework for innovation procurement, are offered free of charge, are addressed and

applicable to all public procurers in the country and conceived to mainstream innovation procurement at large scale, thus reporting a full score. The European average value for this sub-indicator is 46,6%.

Table 55. Evidences and score on handbook and guidelines in each country

	AT	DE	DK	EE	ES	FI	FR	HU	IE	IT	LU	LT	NL	NO	PL	SE	SI	SK	UK
Official handbook or guideline is available	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Handbook/guidelines gives also guidance about relevant EU/international framework for innovation procurement		✓		✓	✓	✓	✓			✓	✓	✓			✓	✓	✓		✓
Handbook/guidelines is offered free of charge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Handbook/guidelines covers all aspects and types of innovation procurement	✓	✓		✓		✓	✓				✓	✓	✓	✓	✓	✓			
Handbook/guidelines is available and applicable to all public procurers in the country	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Handbook/guidelines addresses how to implement innovation procurement at large scale					✓	✓	✓						✓			✓			
Total score	67%	83%	50%	83%	83%	100%	100%	33%	50%	67%	83%	83%	83%	67%	83%	100%	67%	50%	67%

Source: Author's elaboration

Examples of guidelines are:

- In **Sweden**, the National Authority for Public Procurement published guidelines on innovation procurement. The guidelines refer to the Swedish strategy for innovation procurement, the legal framework, the definitions, provide examples and implementation advice on creating purchasing groups to achieve critical mass levels. Vinnova published a similar guide specifically for PCPs.
- There are also countries that published guidelines that address specific areas. For instance, **Italy** published a guide only for PCP. In **Slovenia**, the Ministry of Public Administration, in cooperation with relevant public and private stakeholders, prepared guidelines on innovative public procurement in the field of construction, engineering services and ICT.

4.9.5 Assistance to public procurers

11 countries (AT, BE, DE, FI, FR, LT, NL, NO, SE, SI, UK) provide dedicated technical and legal assistance to public procurers in a regular, structured manner to prepare and implement innovation procurement. The strongest performers in terms of assistance for procurers are Austria, Germany and Finland, each scoring 83%, considerably above the European average (23,3%). The absence in 19 countries of any form of assistance, aimed at public procurers, influenced this result.

Table 56. Evidences and score on assistance to public procurers in each country

	AT	BE	DE	FI	FR	LT	NL	NO	SE	SI	UK
Government offers case specific assistance	√	√	√	√	√	√	√	√	√	√	√
Assistance is also provided to obtain EU financing		√	√		√		√				
Assistance is offered free of charge	√	√	√	√	√	√	√	√	√	√	√
Assistance is available for all types and aspects of innovation procurement	√	√	√	√				√		√	
Assistance is available/applicable to all public procurers in the country	√		√	√		√	√	√	√	√	
Assistance is available to mainstream innovation procurements at large scale across the country	√								√		
Total score	83%	67%	83%	67%	50%	50%	67%	67%	67%	67%	33%

Source: Author's elaboration

An example of assistance is: in **Austria**, where the PPPI Service Centre provides assistance to public procurers both on a general basis (e.g. clarifications on the legal framework, or suggestions and advice on the tools that can be used) and on a case-by-case basis (tailor-made workshops, individual support in setting up specific innovation procurement projects/project development, providing support via the PPPI online). There is no limitation in terms of days of assistance provided.

4.9.6 Template tender documents

Only 3 countries (DK, NO, UK) provide template tender documents for innovation procurement to public procurers. However, all 3 countries obtained only a 50% score on the “template tender documents” sub-indicator, as outlined in the following table. Unsurprisingly, the European average was particularly low, at only 5%.

Table 57. Evidences and score on template tender documents in each country

	DK	NO	UK
Government offers template tender document to undertake innovation procurement	√	√	√
Tender template documents also refer to the relevant EU and international frameworks			√
Templates are offered free of charge	√	√	√
Templates are available for all types of innovation procurement			
Templates are applicable to all public procurers in the country	√	√	
Templates address how to implement public procurement at large scale			
Total score	50%	50%	50%

Source: Author's elaboration

Evidence regarding template tender documents includes:

- In **Denmark**, the Market Development Fund of the Danish Business Authority has published templates for PCPs.
- In **Norway**, the Difi provides within the “National Programme for Supplier Development” detailed instructions and templates to perform innovation procurement (including PCPs). Instructions include the use of practical examples from the over 150 innovation procurements procedures implemented in the country.
- In **the UK**, the Crown commercial services provides template tender documents that encourage innovation in public procurement. In the framework of the SBRI, Innovate UK provides also templates of standard contracts for these type of R&D procurements to public procurers.

4.9.7 Coordination of innovation procurements

This sub-indicator reflects on whether the government or another public institution (e.g. innovation procurement competence centre, Public Procurement Office) pre-approves innovation procurement procedures and/or coordinates the implementation of innovation procurements in the country. Only 3 countries (LT, NO, SE) offer either pre-approval, or coordination or both types of support to public procurers. As a consequence, the European average value for the sub-indicator "innovation procurements" is a mere 6,7%.

Table 58. Evidences and score on coordination of innovation procurements in each country

	LT	NO	SE
Government (itself or through an officially appointed entity e.g. competence centre) pre-approves and/or coordinates the implementation of innovation procurements nationally/ regionally	✓	✓	✓
Government pre-approves and/or coordinates the implementation of innovation procurements implemented with EU financing	✓		✓
Pre-approval and/or coordination is offered free of charge to procurers	✓	✓	✓
Pre-approval and/or coordination is applicable to all types of innovation procurement			✓
Pre-approval and/or coordination is applicable to all public procurers in the country	✓	✓	✓
Pre-approval and/or coordination for innovation procurements is implemented at large scale			
Total score	67%	50%	83%

Source: Author's elaboration

For instance:

- In **Lithuania**, the national competence centre for innovation procurement MITA pre-approves the procurement (approval of the compliance of the tender documents with the national Lithuanian regulation on PCP) and coordinates the implementation of innovation procurements under the national programme. So far, this is happening only at small scale and not for all types of innovation procurements (only PCPs).
- In **Norway**, the national supplier development programme, supported by Difi, coordinates the creation of buyers' groups of small procurers (typically local authorities) and the preparation of joint procurements to create enough market pull for suppliers to bring innovative solutions to the market. The national suppliers development programme coordinates the identification and specification of joint needs and helps those buyers groups organise open market consultations, promotes the calls for tenders based on template tender documents for PCPs and other types of innovation procurements provided by Difi. However, so far this is happening only on a small scale.
- In **Sweden**, the national procurement agency coordinates the creation of buyers' groups of small local authorities, helps them implement open market consultations and implement joint procurements. The national energy agency also coordinates joint procurements between groups of small local public procurers to create market pull. The agency collects needs of the local authorities, defines tender specifications, helps those procurers to organise preliminary market consultations, tests and certifies resulting solutions against achieved energy efficiency levels/labels and issues framework contracts from which local authorities can buy. However this type of coordination is not done yet in other sectors.

4.9.8 Networking between procurers

13 countries (AT, BE, DE, ES, FI, FR, HU, LU, NL, NO, SE, SI, UK) have put in place networking activities for public procurers – such as events, platforms or meetings – to facilitate experience sharing on innovation procurement between procurers. Only 5 countries (BE, FI, NL, NO, SE) organise networking activities with the involvement not only of national but also foreign procurers, thus giving a European or international dimension to the networking. The European average value for the sub-indicator "networking between procurers" is 30%.

Table 59. Evidences and score on networking between procurers in each country

	AT	BE	DE	ES	FI	FR	HU	LU	NL	NO	SE	SI	UK
Government facilitates experience sharing and networking between procurers in other cities/regions, sectors, countries	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connection with relevant EU / international networking initiatives		✓			✓				✓	✓	✓		
Networking is offered free of charge to procurers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Networking covers all types of innovation procurement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Networking is available to all public procurers in the country	✓		✓		✓			✓	✓		✓	✓	
Networking is addressing how to implement innovation procurements at large scale	✓			✓	✓						✓		
Total score	83%	67%	67%	67%	100%	50%	50%	67%	83%	67%	100%	67%	33%

Source: Author's elaboration

Networking activities are usually organised by the competence centres on innovation procurement, as in Austria, Belgium, Finland, Germany, the Netherlands, Spain and Sweden, usually in the form of events, conferences and seminars.

There are also countries and regions that established more structured ways of networking procurers across borders. For example:

- At national level, Austria, Finland, Sweden network individual procurers with national purchasing bodies to explore opportunities to achieve large scale multiplier effects with innovation procurements.
- In 2011 the Nordic Ministers of Industry launched together a so-called “Nordic lighthouse initiative” in the healthcare domain to strengthen collaboration between Denmark, Finland, Iceland, Norway and Sweden on innovation procurement. Nordic innovation and the national competence centres on innovation procurement in those countries organise from time to time meetings with procurers from different Nordic countries to discuss potential coordinated procurement possibilities.
- In Germany, KOINNO organises networking between national procurers. Under the impulse of ZENIT (the part of the Germany competence centre that works on the international dimension) the region North Rhine-Westphalia signed a cooperation agreement with the Netherlands and the Flemish region in Belgium to network public procurers of their different countries to stimulate cross-border innovation procurements. As this does not concern all procurers in Germany, the score does not exceed 67%.

4.9.9 One-stop-shop and competence centres

9 countries (AT, BE, DE, ES, FI, LT, NL, NO, SE) have a one-stop-shop where public procurers can access all capacity building and assistance measures for innovation procurement. Typically, this one-

stop-shop is provided by the national competence centre on innovation procurement (AT, DE, ES, FI, NL, SE, LT). In Belgium, the one-stop-shop exists for the moment only in the Flanders (however the national competence centre on innovation procurement is under construction). Based on the various criteria presented below for this sub-indicator, Sweden achieves a full 100% score, while the European average accounts for 23,3%.

Table 60. Evidences and score on one-stop-shop and competence centres in each country

	AT	BE	DE	ES	FI	LT	NL	NO	SE
Government offers a one-stop-shop for public procurers to the above type capacity building and/or assistance measures	✓	✓	✓	✓	✓	✓	✓	✓	✓
The one-stop-shop is connected not only to the relevant national but also the relevant EU / international initiatives	✓		✓	✓		✓	✓		✓
The one-stop-shop is offered free of charge to public procurers	✓	✓	✓	✓	✓	✓	✓	✓	✓
The one-stop-shop covers all types and aspects of innovation procurement	✓	✓	✓	✓	✓	✓	✓	✓	✓
The one-stop-shop is available/applicable to all public procurers in the country	✓		✓		✓	✓	✓	✓	✓
The one-stop-shop offers support to mainstream innovation procurement at large scale across the whole country					✓				✓
Total score	83%	50%	83%	67%	83%	83%	83%	67%	100%

Source: Author's elaboration

Examples of one-stop-shops are:

- The PPPI Service Centre in **Austria** has created a working group on innovation procurement with a national network of competence centres and entities which have different thematic or sectoral focuses (the Austrian Research Promotion Agency – FFG – as general competence centre for PCPs; the Austria Wirtschaftsservice – AWS – as general competence centre for PPIs; the Austrian Association for Transport & Infrastructure – GVS – as sectoral competence centre for Mobility; the Federal Real Estate – Bundesimmobiliengesellschaft – BIG – as sectoral competence centre in Building Construction, and the Austrian Energy Agency, as sectoral competence centre for Energy).
- **Finland** has recently set up a national Competence Centre for Sustainable and Innovative Public Procurement (KEINO), which has started its operations in April 2018. KEINO is a network-based consortium, whose founding members responsible for the operation and co-development are Motiva Ltd, the Association of Finnish Local and Regional Authorities, VTT Technical Research Centre of Finland Ltd, The Finnish Funding Agency for Innovation – Business Finland, the Finnish Environment Institute SYKE, Hansel Ltd, KL-Kuntahankinnat Ltd and the Finnish Innovation Fund Sitra. The Ministry of Economic Affairs and Employment has granted funding for the centre's founding and operations for three years, for an estimated total of €6 mn.
- In **Spain**, a structure of inter-connected centres is acting as a competence centre for innovation procurement: the structure is led by MINECO, with a specialised Deputy Directorate General for fostering innovation and supported by two national specialised nodes, namely: (i) Node for health: the Ministry for Health, Social Security and Equality; (ii) Node for dual technologies: the INTA – National Institute for Aerospace Technologies, depending from the Ministry of Defence. The network provides assistance to all public procurers at national level. At local level, MEIC also supports capacity building for municipalities through the network INNPULSO. In addition, Health Ministry has a specialised network for attending IP proposals from the 18 regional health services.

Some of the above competence centres participate also in the EU-funded project “Procure2Innovate - European network of competence centres for innovation procurement” that started in January 2018 to set a collaboration and interchange of best practices. The project is carried out between a group of 5

countries that are reinforcing existing national competence centres (AT, DE, ES, NL, SE) and 5 countries that are creating a national competence centre (EE, EL, IE, IT, PT). In July 2018, MITA was appointed by Lithuania as the national competence centre for innovation procurement and MITA has in the meantime also joined Procure2Innovate. KEINO did as well.

4.10 Indicator 10 – Innovation friendly public procurement market

This indicator reflects to what extent the public procurement market of each country encourages the implementation of innovation procurement on a wide scale and results from the combination of two sub-indicators: (I) the use of specific techniques to foster innovation in public procurement and (II) the openness of the national procurement market to innovations from across the EU single market.

The score for each sub-indicator relied on the EU Single Market Scoreboard indicators.⁶⁷ The most recent 2017 data was used whenever available, otherwise data from 2016 or earlier was used.

The following table presents the scores for the two sub-indicators and the aggregate scores for the indicator “Innovation friendly public procurement market”. Based on the evidence collected so far. Belgium, Ireland and France – all 3 with scores above 70% - are the strongest overall performers, while the European average for the indicator does not exceed 52%.

Table 61. Indicator 10: scores

Country	Total Sub-Indicator I (Use of specific techniques to foster innovation in public procurement)	Total Sub- Indicator II (Openness of the national procurement market to innovations from across the EU single market)	Aggregate Indicator 10
<i>Austria</i>	24%	60%	42%
<i>Belgium</i>	46%	60%	53%
<i>Bulgaria</i>	12%	68%	40%
<i>Croatia</i>	15%	72%	43%
<i>Cyprus</i>	8%	46%	27%
<i>Czech Republic</i>	13%	63%	38%
<i>Denmark</i>	23%	73%	48%
<i>Estonia</i>	19%	78%	49%
<i>Finland</i>	39%	73%	56%
<i>France</i>	45%	64%	55%
<i>Germany</i>	17%	58%	38%
<i>Greece</i>	12%	57%	34%
<i>Hungary</i>	25%	71%	48%
<i>Ireland</i>	39%	78%	59%
<i>Italy</i>	28%	56%	42%
<i>Latvia</i>	13%	71%	42%
<i>Lithuania</i>	9%	78%	44%
<i>Luxembourg</i>	23%	62%	43%
<i>Malta</i>	13%	48%	31%
<i>Netherlands</i>	33%	74%	53%
<i>Norway</i>	34%	81%	57%
<i>Poland</i>	20%	56%	38%
<i>Portugal</i>	15%	51%	33%
<i>Romania</i>	8%	52%	30%
<i>Slovakia</i>	9%	77%	43%
<i>Slovenia</i>	22%	61%	42%

⁶⁷ http://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm

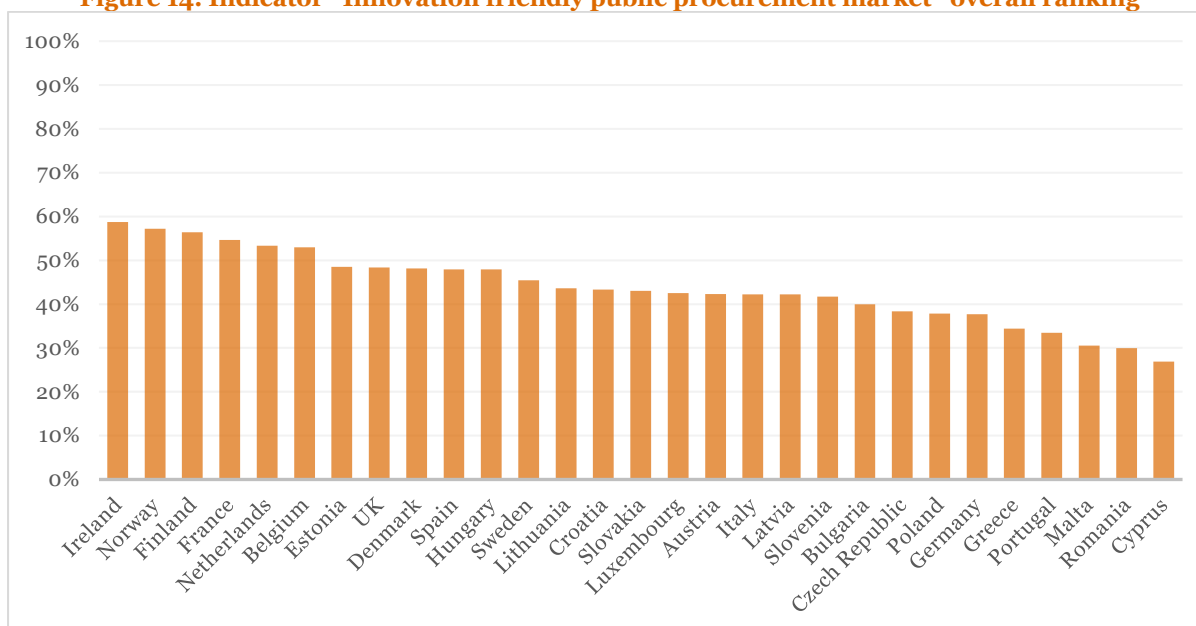
Country	Total Sub-Indicator I (Use of specific techniques to foster innovation in public procurement)	Total Sub- Indicator II (Openness of the national procurement market to innovations from across the EU single market)	Aggregate Indicator 10
Spain	31%	65%	48%
Sweden	14%	76%	45%
Switzerland*	36%	n/a	n/a
UK	49%	48%	48%
European average	23%	65%	44%

* EU Single Market Scoreboard data not available for Switzerland.

Source: Author's elaboration

The ranking is presented in the graph below.

Figure 14. Indicator “Innovation friendly public procurement market” overall ranking



Source: Author's elaboration

4.10.1 Sub-indicator I - Use of specific techniques to foster innovation in public procurement

The European average for sub-indicator I is 44%. This relatively low average is mainly due to the limited use of preliminary market consultations and the modest acceptance of variant offers by public procurers.

The top performing countries on sub-indicator I are the UK, Belgium, and France, which score above 40%, approximately two times higher than the European average (23%).

Table 62. Indicator 1 - sub-indicator I: scores

Country	a. IPR default regime	b. Value for money award criteria	c. Variants	d. Preliminary market consultation	Total sub-indicator I
Austria	25%	67%	4%	2%	24%
Belgium	100%	71%	6%	8%	46%
Bulgaria	25%	21%	0%	0%	12%
Croatia	25%	20%	0%	14%	15%
Cyprus	25%	7%	1%	0%	8%
Czech Republic	25%	23%	0%	5%	13%

Denmark	25%	47%	2%	20%	23%
Estonia	50%	24%	2%	0%	19%
Finland	75%	46%	3%	34%	39%
France	75%	84%	19%	3%	45%
Germany	25%	33%	8%	3%	17%
Greece	25%	14%	0%	7%	12%
Hungary	50%	49%	0%	0%	25%
Ireland	50%	83%	8%	16%	39%
Italy	25%	61%	8%	19%	28%
Latvia	25%	27%	0%	0%	13%
Lithuania	25%	10%	0%	3%	9%
Luxembourg	50%	31%	4%	6%	23%
Malta	25%	7%	1%	20%	13%
Netherlands	0%	83%	1%	48%	33%
Norway	25%	78%	2%	29%	34%
Poland	25%	54%	0%	0%	20%
Portugal	25%	35%	1%	1%	15%
Romania	25%	7%	0%	0%	8%
Slovakia	25%	8%	1%	4%	9%
Slovenia	50%	38%	1%	0%	22%
Spain	50%	70%	2%	0%	31%
Sweden	25%	26%	1%	6%	14%
Switzerland	75%	n/a	29%	0%	36%
UK	75%	88%	11%	21%	49%
European average	38%	42%	4%	9%	23%

* EU Single Market Scoreboard data not available for Switzerland.

Source: Author's elaboration

a. Use of an IPR regime that leaves IPR ownership by default to the suppliers

11 countries (BE, CH, EE, ES, FI, FR, HU, IE, LU, SI, UK) are promoting a default IPR allocation regime that aims to balance the need to obtain the best value for money for the public procurer, while promoting innovation. This is achieved by leaving IPR ownership rights to suppliers and at the same time granting usage rights to public procurers.

The European average for sub-indicator "IPR default regime" is 38%. This score is mainly due to the fact that 19 countries have not adopted such a default IPR allocation regime yet: they typically have not defined any IPR default allocation regime in public procurement and are silent about the issue of IPR allocation in general. As a result, European countries are still quite far from the situation in Europe's other major trading partners (US, Canada, Australia, Japan, Russia etc.), which already have such a default IPR regime in their public procurement legislation (which would correspond to a score of 100%). Regarding the allocation of IPRs in the public procurement framework, the different countries can be clustered in a number of groups.

Table 63 .Country clusters according to IPR regimes

Features of the IPR regime	Country allocation and score
IPR default regime that leaves IPR ownership with suppliers and usage rights with public procurers in public procurement law	BE (100% score), ES (50% score)
IPR default regime that leaves IPR ownership with suppliers and usage rights with public procurers in general terms and conditions for government contracts	CH, FI, FR, UK (75%)
IPR default regime that leaves IPR ownership with suppliers and usage rights with public procurers in official guidelines	EE, HU, IE, LU, SI (50%)

No IPR default regime in public procurement law, guidelines of general terms and conditions for government contracts	AT, CY, CZ, DE, DK, EL, HR, IT, LT, LV, MT, NO, PL, PT, RO, SE, SK (25%)
IPR default regime that keeps all IPR rights with the public procurer	NL (0%)

Source: Author's elaboration

In total, 11 countries define in their national public procurement system a default IPR regime that allocates ownership rights to the contractors and usage rights to the public procurer:

- 2 countries (BE, ES) define it **in their national public procurement law**. The default IPR allocation regime applies automatically unless otherwise specified in the tender documents / contract. In Belgium, the law assigns both the default rights for the procurer (usage rights) and for the suppliers (ownership rights). In Spain, there is only a default regime for the rights for the procurer (usage rights), thus scoring only half the score (50%) on this sub-indicator. As large procurers have announced to switch to an approach that leaves IPR ownership with suppliers, a discussion has started about updating also the general terms and conditions.
- 4 countries (CH, FI, FR, UK) define it **in general terms and conditions for government contracts**. This default IPR allocation regime applies automatically when the general terms and conditions for government contracts are referred to in the tender documents / contract.
- 5 countries (EE, HU, IE, LU, SI) define this **in national guidelines for public procurement or innovation procurement specifically**. The guidelines recommend public procurers in those countries to apply this type of IPR allocation regime in their tender documents / contract.

In the Netherlands, the public procurement law does not define a default IPR allocation regime, but the general terms and conditions for central government contracts define that all IPR rights remain with the public procurer unless otherwise specified in the tender documents.

In the remaining 18 countries, the national public procurement system (the public procurement law, guidelines and general terms and conditions for government contracts) does not define a default IPR allocation regime. In most of those countries, the public procurement system is silent about the issue of IPR allocation in public procurement. The responsibility to allocate IPRs in public procurements in a way that stimulates innovation and is compliant with applicable IPR/copyright law is left with the public procurer himself. As many public procurers are not well-informed and skilled in IPR issues, this approach is however prone to errors and disputes between public procurers and suppliers.

An interesting good practice example is in **Belgium**, where national legislation on public procurement defines that by default IPR ownership remains with the suppliers in public procurements and the public procurer obtains usage rights, except in exceptional duly justified cases where the public procurer may deviate from this default regime. The exceptional cases are defined in the law as those cases where the supplier should not be allowed to commercialise the results of the public procurement (e.g. because of confidentiality reasons, for instance if the public procurement concerned an internal HR evaluation) or the supplier would not be able to commercialise the results of the public procurement in any case (e.g. because the public procurement concerned the development of a logo/emblem that is characteristic/unique for the public procurer). To promote the default IPR allocation regime, the Belgian government has also issued guidelines that explain how to implement it in practice.

b. Use of value for money instead of lowest price award criteria

As reported in the table above, the European average for the use of value for money as award criterion in public procurements published on TED is 42%. This is below the "sufficient" level of 80% as defined in the EU Single Market Scoreboard. The best performing countries are UK (88%), France (84%), Ireland (83%) and Netherlands (83%). These are also the only countries that perform above the sufficient level. All other countries still have to make efforts to increase the use of value for money award criteria instead of awarding public procurement contracts based on lowest price considerations only.

An interesting good practice example is the UK: the Crown Commercial Service published in May 2016 a “Model Service Contract Guide”.⁶⁸ A chapter of this guide is dedicated to ensure value for money during the public procurement process, providing a “pricing mechanism toolkit” aimed at guaranteeing that maximum value is extracted from public procurements under the contractual arrangements. Similarly, in France, the Practical Guide to Innovative Public Procurement,⁶⁹ drafted by the Ministry of Economics and Finance and the Ministry of Economic Regeneration in 2014, recommends the use of tender award criteria for procurements where innovative solutions are expected. It recommends to use lowest price awarding only for recurrent purchases of standard non-innovative products.

c. Frequency of allowing the submission of variant offers

The European average in terms of frequency of allowing the submission of variant offers is 4%. 21 countries score below the European average. This result is particularly low and shows the very limited use made of allowing variant offers across Europe.

- The best performing countries are Switzerland (29%), France (19%) and UK (11%). These are the only countries where more than 10% of the call for tenders allowed submission of variant offers.
- In 18 countries (DE, IE, IT, BE, LU, AT, FI, DK, EE, NO, ES, CY, MT, NL, PT, SK, SI, SE) less than 10% of the call for tenders allowed the submission of variant offers.
- In 9 countries (BG, HR, CZ, EL, HU, LV, LT, PL, RO) there was not a single call for tenders allowed the submission of variant offers.

Table 64. Frequency of allowing the submission of variant offers in each country

Country	Number of CFTs* published in TED	Number of CFTs* published in TED allowing the use of variant offers	Share of CFTs* published in TED allowing the use of variant offers
Austria	2970	114	4%
Belgium	5036	290	6%
Bulgaria	5096	2	0%
Croatia	1964	0	0%
Cyprus	375	2	1%
Czech Republic	7197	20	0%
Denmark	2643	40	2%
Estonia	1320	24	2%
Finland	4282	110	3%
France	33367	6389	19%
Germany	40334	3255	8%
Greece	2687	8	0%
Hungary	2643	8	0%
Ireland	1441	116	8%
Italy	9879	833	8%
Latvia	1057	0	0%
Lithuania	3324	5	0%
Luxembourg	561	23	4%
Malta	784	7	1%
Netherlands	5537	57	1%
Norway	4492	111	2%
Poland	23999	29	0%

⁶⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/677891/MSC_Guidance_V1.0.pdf

⁶⁹ https://www.economie.gouv.fr/files/files/directions_services/daj/marches_publics/conseil_acheteurs/guides/guide-pratique-achat-public-innovant.pdf

Country	Number of CFTs* published in TED	Number of CFTs* published in TED allowing the use of variant offers	Share of CFTs* published in TED allowing the use of variant offers
Portugal	2536	29	1%
Romania	5145	3	0%
Slovakia	1703	9	1%
Slovenia	1528	15	1%
Spain	12437	256	2%
Sweden	8451	48	1%
Switzerland	4242	1229	29%
UK	10296	1118	11%
European average	6911	472	4%

*CFTs: Calls for Tender

Source: Author's elaboration

d. Use of preliminary market consultations

As for the previous sub-sub-indicator, the use and the transparent EU wide publication of a preliminary market consultation is a technique that is still rarely used across Europe. On average across Europe only on 9% of the prior information notices and periodic information notices (PINs) published in TED concerned the announcement of a preliminary market consultation.

- The best performing countries are the Netherlands (48%), Finland (34%), Norway (29%) and the UK (21%)
- 21 countries score below the European average (AT, BE, BG, CH, CY, CZ, DE, EE, EL, ES, FR, HU, LT, LU, LV, PL, PT, RO, SE, SI, SK)
- In 7 countries (BG, CH, CY, EE, HU, LV, SI) there was not a single PIN that concerned a preliminary market consultation

This confirms that the use and the transparent EU wide publication of preliminary market consultation to identify innovative solutions that could be delivered by the market is still very limited in a wide number of countries.

Table 65. Number of PIN in each country

Country	Number of PINs published in TED	Number of PINs published in TED envisaging a preliminary market consultation	Share of PINs published in TED envisaging a market consultation
Austria	314	6	1,9%
Belgium	132	11	8,3%
Bulgaria	240	0	0,0%
Switzerland	0	0	0,0%
Cyprus	6	0	0,0%
Czech Republic	515	25	4,9%
Germany	2490	66	2,7%
Denmark	351	69	19,7%
Estonia	31	0	0,0%
Greece	57	4	7,0%
Spain	1510	7	0,5%
Finland	600	204	34,0%
France	404	12	3,0%
Croatia	7	1	14,3%
Hungary	25	0	0,0%

Country	Number of PINs published in TED	Number of PINs published in TED envisaging a preliminary market consultation	Share of PINs published in TED envisaging a market consultation
Ireland	154	25	16,2%
Italy	565	107	18,9%
Lithuania	39	1	2,6%
Luxembourg	33	2	6,1%
Latvia	27	0	0,0%
Malta	10	2	20,0%
Netherlands	1036	494	47,7%
Norway	660	193	29,2%
Poland	626	1	0,2%
Portugal	173	1	0,6%
Romania	412	2	0,5%
Sweden	305	19	6,2%
Slovenia	7	0	0,0%
Slovakia	117	5	4,3%
UK	2854	589	20,6%
European average	457	62	9,0%

Source: Author's elaboration

4.10.2 Sub-indicator II - Openness of the national public procurement market to innovations from across the EU single market

The European average for sub-indicator II is 65%. This is below the 79,4% "sufficient" level calculated based on the sufficient levels of all the relative sub-indicators as defined in the EU Single Market Scoreboard. The top performing country, which is also the only one exceeding the sufficient level, is Norway (81%), closely followed by Estonia, Ireland and Lithuania (78%).

Table 66. Indicator 10 - sub-indicator II: scores

Country	Level of transparency	Level of competition	Total Sub-Indicator II
Austria	30%	91%	60%
Belgium	30%	90%	60%
Bulgaria	66%	71%	68%
Croatia	69%	75%	72%
Cyprus	27%	64%	46%
Czech Republic	55%	72%	63%
Denmark	56%	91%	73%
Estonia	69%	87%	78%
Finland	53%	94%	73%
France	37%	91%	64%
Germany	27%	89%	58%
Greece	32%	83%	57%
Hungary	63%	79%	71%
Ireland	62%	95%	78%
Italy	31%	82%	56%
Latvia	61%	82%	71%

Country	Level of transparency	Level of competition	Total Sub-Indicator II
Lithuania	68%	88%	78%
Luxembourg	32%	93%	62%
Malta	3%	93%	48%
Netherlands	58%	89%	74%
Norway	66%	95%	81%
Poland	39%	73%	56%
Portugal	14%	89%	51%
Romania	34%	70%	52%
Slovakia	65%	88%	77%
Slovenia	53%	70%	61%
Spain	46%	85%	65%
Sweden	58%	95%	76%
Switzerland	n/a	n/a	n/a
UK	14%	83%	48%
European average	45%	84%	65%

* EU Single Market Scoreboard data not available for Switzerland.

Source: Author's elaboration

Level of competition

The European average in terms of level of competition is 84%. For each country, the criterion was calculated as an average of two different sub-criteria: (i) the percentage of EU tendered procurements with more than one bidder, and (ii) the percentage of EU tendered procurements in which a call for bids was used.

The best performing countries for the sub-indicator "percentage of EU tendered procurements with more than one bidder" are Norway (90%), Sweden (89%) and Finland (89%). However, none of these countries reaches the 90% "satisfactory" level set in the EU Single Market Scoreboard. Regarding the second sub-indicator (i.e. percentage of EU tendered procurements in which a call for bids was used), the best performing countries are Sweden (100%), Luxembourg (100%), Malta (100%) and Ireland (100%). For this sub-indicator, 16 countries (SE, LU, MT, IE, AT, BE, DK, FI, FR, DE, GR, LT, PL, PT, SK, UK) reach the 95% "satisfactory" level.

The best performing countries on the total sub-indicator "level of competition" are Norway, Ireland, Finland, Sweden, Luxembourg and Malta, which are also the only ones above the "satisfactory level" of the EU Single Market Scoreboard.

Table 67. Total sub-indicator "level of competition": scores

Country	More than one bidder made an offer	Call for bids was used	Total sub-indicator Competition
Austria	83%	98%	91%
Belgium	81%	98%	90%
Bulgaria	68%	74%	71%
Croatia	56%	94%	75%
Cyprus	58%	70%	64%
Czech Republic	53%	90%	72%
Denmark	86%	95%	91%
Estonia	80%	94%	87%
Finland	89%	98%	94%
France	85%	97%	91%

Country	More than one bidder made an offer	Call for bids was used	Total sub-indicator Competition
<i>Germany</i>	81%	97%	89%
<i>Greece</i>	66%	99%	83%
<i>Hungary</i>	65%	92%	79%
<i>Ireland</i>	89%	100%	95%
<i>Italy</i>	70%	93%	82%
<i>Latvia</i>	73%	91%	82%
<i>Lithuania</i>	79%	97%	88%
<i>Luxembourg</i>	86%	100%	93%
<i>Malta</i>	85%	100%	93%
<i>Netherlands</i>	84%	94%	89%
<i>Norway</i>	90%	100%	95%
<i>Poland</i>	51%	95%	73%
<i>Portugal</i>	78%	99%	89%
<i>Romania</i>	57%	83%	70%
<i>Slovakia</i>	81%	95%	88%
<i>Slovenia</i>	63%	76%	70%
<i>Spain</i>	77%	92%	85%
<i>Sweden</i>	89%	100%	95%
<i>Switzerland</i>	n/a	n/a	n/a
<i>UK</i>	68%	97%	83%
European average	75%	93%	84%

* EU Single Market Scoreboard data not available for Switzerland.

Source: Author's elaboration

Level of transparency

The European average for the sub-indicator "level of transparency" is 45%. For each country, the score was determined by taking into consideration 3 different sub-criteria: (i) the publication rate, namely the value of procurement advertised on TED as a proportion of the national GDP, (ii) the "no missing calls for bids", namely the share of contract awards that have no missing information, and (iii) the "no missing buyer registration numbers", meaning the proportion of procedures where the registration number of the buyer was included.

The low European average score is mainly due to the fact that the "publication rate" in many countries is low. In this respect, the best performing countries are Latvia (9,8%) and Estonia (8,7%). Also Denmark, Poland, Slovakia, Romania and Bulgaria score above the 5% "satisfactory" level set for this indicator in the EU Single Market Scoreboard.

The best performing countries on sub-criterion "no missing call for bids information" are Estonia (99%), Lithuania (98%), Croatia (99%) and Ireland (98%). These countries are the only ones achieving the "satisfactory" 97% level set in the EU Single Market Scoreboard.

Finally, concerning the sub-indicator "no missing buyer registration numbers", the strongest performers are Estonia (100%), Croatia (100%) and Lithuania (100%). Also Norway, Bulgaria, Greece, Hungary and Slovakia are above the 97% "satisfactory" level.

As a result, the best performers on the overall sub-indicator "level of transparency on the EU single market" are Estonia (69%), Croatia (69%), Lithuania (68%), Norway (66%) and Bulgaria (66%), which are the only countries reaching on average the "satisfactory" level calculated by combining all 3 criteria.

Table 68. Total sub-indicator "transparency": scores

Country	Publication rate	No missing call for bids information	No missing registration numbers buyer	Total sub-indicator Transparency
<i>Austria</i>	2,2%	84%	3%	30%
<i>Belgium</i>	3,4%	74%	12%	30%
<i>Bulgaria</i>	6,4%	92%	99%	66%
<i>Croatia</i>	6,8%	99%	100%	69%
<i>Cyprus</i>	1,7%	80%	0%	27%
<i>Czech Republic</i>	3,8%	66%	96%	55%
<i>Denmark</i>	6,7%	91%	69%	56%
<i>Estonia</i>	8,7%	99%	100%	69%
<i>Finland</i>	4,2%	96%	60%	53%
<i>France</i>	3%	83%	25%	37%
<i>Germany</i>	1,2%	78%	3%	27%
<i>Greece</i>	1,8%	85%	99%	32%
<i>Hungary</i>	4,4%	87%	99%	63%
<i>Ireland</i>	2%	98%	85%	62%
<i>Italy</i>	2,5%	87%	3%	31%
<i>Latvia</i>	9,8%	95%	78%	61%
<i>Lithuania</i>	4,5%	98%	100%	68%
<i>Luxembourg</i>	1,5%	93%	0%	32%
<i>Malta</i>	4,8%	5%	0%	3%
<i>Netherlands</i>	2,4%	81%	92%	58%
<i>Norway</i>	4%*	94%	99%	66%
<i>Poland</i>	6,4%	92%	18%	39%
<i>Portugal</i>	1,4%	33%	9%	14%
<i>Romania</i>	5,7%	5%	0%	34%
<i>Slovakia</i>	5,6%	91%	99%	65%
<i>Slovenia</i>	4,3%	81%	73%	53%
<i>Spain</i>	1,6%	81%	55%	46%
<i>Sweden</i>	4,9%	93%	77%	58%
<i>Switzerland</i>	n/a	n/a	n/a	n/a
<i>UK</i>	4,9%	34%	2%	14%
European average	4%	84%	48%	45%

* Due to lack of data from the EU single market scoreboard, for Norway the average value for the publication rate sub-indicator is used.

Source: Author's elaboration

An interesting example of maximising transparency in public procurement is Greece, where the National System of e-Public Procurement-ESHDHS was updated in 2017. In addition to the tenders already available in the past, today the new portal also integrates all the tenders published in the Central e-Registry of Public Procurement (KHDMHS). On this national portal (ESHDHS) it is compulsory to publish all public procurements above €60.000. This includes not only the publication of prior information notices, contract notices and contract award notices but also the publication of all procurement stages (including contracts and payment orders). This measure has significantly helped companies identify interesting public procurement opportunities and enhanced the level of transparency.

5 *Methodological approach for benchmarking the amount of PPI investments across Europe*

This chapter describes the methodological approach adopted to estimate the amount of public procurement of innovative solutions (PPI) in each country, and the share of those PPI investments that are dedicated to the adoption of ICT-based solutions. The chapter consists of the following sections:

- Section 5.1, presenting the objectives of the benchmarking of PPI investments and outlining the key outputs produced;
- Section 5.2, illustrating the sources of data used for the identification of PPIs and their characteristics;
- Section 5.3, describing the process of identification of PPIs through the machine learning tool;
- Section 5.4, providing the definitions adopted by the study, and clarifying how these definitions impacted on the identification of PPIs and the calculation of the different breakdowns;
- Section 5.5, showing the methodology developed to estimate missing values from calls for tenders;
- Section 5.6, presenting the assumptions and extrapolations carried out to calculate PPI;
- Section 5.7, explaining how the total amount of public procurement was estimated;
- Section 5.8, explaining main limitations.

5.1 **Objectives and outputs**

A key objective of the study is to measure the **amount of public procurement spent on innovative solutions (PPI)** in 30 countries around Europe (27 Member States, UK, Norway and Switzerland). Each of the country profiles accompanying this report (see annex I) includes a stand-alone section that details the following amounts and breakdowns:

- The **amount of PPI investment**, its share out of total public procurement and its breakdown
 - Between transformative and incremental innovations;
 - Across different domains of public sector activity;⁷⁰
 - Between explicit and implicit PPI;
 - Between published and unpublished PPI;
 - Across different levels of public sector activity (local, regional, national).
- The **amount of PPI investment dedicated to ICT-based solutions**, its share out of the total amount of total public procurement and its breakdown

⁷⁰ The country datasets also include an analysis of key PPI projects and key PPI procurers in each sector, which is however not published in the country profiles for confidentiality reasons.

- Between transformative and incremental ICT-based innovations;
- Across different ICT sub-sectors;
- Across different domains of public sector activity;
- Across different levels of public sector activity (local, regional, national).

Since no comparable data were available at national level, the Study team developed an approach that enables to measure the amount of PPI expenditure in a comparable way across all 30 analysed countries. In a view to benchmark the performance of the different countries, the Study team developed a ranking system. Differently from the ranking adopted in the benchmarking of policy frameworks on innovation procurement (see Section 2.6 above), the ranking system for the benchmarking of PPI investments did not rely on the calculation of an S-score. To the contrary, countries were ranked and grouped into clusters based on their levels of attainment of so-called “ambition levels”, as detailed in the following table.

Table 69. Ambition levels

Ambition indicator	Ambition level	Description
PPI investments out of total public procurement investments	17%	A healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI procurement – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards*.
ICT-based PPI investments out of total public procurement investments	10%	For a healthy economy to fully capitalise on the adoption of innovative ICT-based solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds (~60%) of total PPI or 10% of total public procurement (60% of 17% PPI ambition level) should be devoted to innovative ICT-based solutions.**

* Source: Commission notice on innovation procurement C(2018)3051, based on the Bell innovation curve

** Source: ICTs generate over 60% of total factor productivity in leading economies that fully capitalise on the adoption of ICTs to generate economic growth, based EU KLEMS and JRC PREDICT

The values obtained have been used to cluster the countries into **6 groups**, which correspond to different performance levels of PPI investment (or ICT-based PPI investments). A description of the groups is provided in the following table.

Table 70. Performance clusters

Level of attainment	Cluster	Description
$x < 25\%$ of ambition	Bottom performers	PPI (or ICT-based PPI) investment is very limited and it represents a very minor share of public procurement that is sporadic if not absent from large parts of public sector activity.
$25\% < x < 35\%$ of ambition	Low performers	PPI (or ICT-based PPI) investment is at a very early development stage, with a limited diffusion across the country.
$35\% < x < 45\%$ of ambition	Modest performers	PPI (or ICT-based PPI) investment represents a discrete part of public procurement. Countries in this cluster are just above the ambition level.
$45\% < x < 55\%$ of ambition	Moderate performers	PPI (or ICT-based PPI) investment is structured and reasonably developed. While considerable room for improvement remains, these countries are almost halfway of reaching the ambition levels.
$55\% < x < 65\%$ of ambition	Good performers	PPI (or ICT-based PPI) investment is performed regularly. While significant room for improvement remains, these countries are at a level that is just above halfway the ambition level.
$65\% < x$ of ambition	Strong performers	PPI (or ICT-based PPI) investment accounts for a significant share of total public procurement in the country. While there is still room for improvement, these countries are within reasonable distance of reaching the ambition level.

Source: Author's elaboration

5.2 Sources and characteristics of data

The study aims to identify PPI procurements both above the EU thresholds and below the EU threshold. Above EU threshold procurements are published in the EU TED Portal. As regulated in the EU public procurement directives and presented in the following table,⁷¹ EU thresholds (excluding VAT) vary depending on the type of contracting authority/entity and the type of contract.

Table 71. EU thresholds

	Works, subsidised works and concessions	Goods	Services		
			Social and specific services that are listed in Annex to the directive	Subsidised services linked to a works contract	All other services and design contests
Central government authorities as per Directive 2014/24/EU	€5,548,000	€144,000	€750,000	€221,000	€144,000
Central government authorities as per Directive 2014/24/EU	€5,548,000	€144,000 €221,000	€750,000	€221,000	€144,000
Sub-central contracting authorities as per Directive 2014/24/EU	€5,548,000	€221,000	€750,000	€221,000	
All contracting authorities and contracting entities that are operating utilities services as per Directive 2014/25/EU	€5,548,000	€443,000	€1,000,000	€443,000	
All contracting authorities and contracting entities as per Directive 2009/81/EC on defence and security	€5,548,000	€443,000	€443,000		
All contracting authorities and contracting entities awarding concession contracts as per Directive 2014/23/EU	€5,548,000				

Source: Commission Delegated Regulation (EU) 2017/2365 of 18 December 2017 amending Directive 2014/24/EU in respect of the application thresholds for the procedures for the award of contracts. All EU thresholds for public procurement directives are also available at: https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds_en

For below EU thresholds procurements, each country has its own national procurement rules, including one or more thresholds. Above the national thresholds public procurers are required to publish calls for tenders nationally (typically on a national procurement portal and/or in a national official journal/gazette). Conversely, below the national thresholds public procurers are typically not required to publish a call for tenders and may follow simpler procedures such as direct awards. The table below illustrates the different national thresholds below which there is no obligation for public procurers to publish calls for tender nationally. The coverage of data sources used for this study below such thresholds can be assumed to be very limited.

⁷¹ Directives 2014/24/EU (for the classical sector, which covers public authorities) and 2014/25/EU (for public procurers in the water, energy, transport and postal services sector), Directive 2009/81/EC (for defence and security contracts not covered by the previous directives) and Directive 2014/23/EU (for concessions).

Table 72. National thresholds

Country	National thresholds
AT	Contracts worth less than €100.000 are allowed to be awarded with a direct award procedure without prior notification and may for this reason not be published in the central electronic portal. ⁷²
BE	Prior publication of a contract notice is not mandatory for contracts with a value up to €144.000 (€221.000 for research and development services, placement services and transport support services and €443.000 in the utilities sector). According to Belgian public procurement experts, smaller public procurers – rather than including a link to the entire contract notice documents – tend to solely provide their email address, only to provide the full documentation to those companies that request it.
BG	Bulgaria's national procurement law has various levels of sub-thresholds below the EU thresholds. Direct awarding is allowed for contracts worth less than €30.600 for works, €10.200 for goods and services and €33.600 for design contests. Any procedures can be used for contracts worth more than €134.900 for works and €33.600 for goods, services and design contests, with a possibility of simplifications for contracts below €1.347.000 for works, €129.700 for goods, services and design contests and €391.160 for telecommunications services. ⁷³
CH	For goods and services below €200.000 and for works below €8 M, simplified procedures are allowed. In addition, below €133.000 (for works and services) and €45.000 (for goods) public procurers may also directly award contracts. ⁷⁴
CY	According to national rules, all procurements above €2.000 are bound to be published in the central electronic portal, and other forms of publication – such as the national gazette – cannot substitute it. ⁷⁵
CZ	While public procurements below EU-thresholds tend to be subject to the same publication requirements as procurements above EU-thresholds, below €75.000 the so-called 'small contracts' are exempted from standard procurement regulation. ⁷⁶
DE	Below EU-thresholds, the standard national procurement rules do not apply. To the contrary, federal and local rules are observed, resulting in a variety of different publication requirements.
DK	A 500.000 DKR (approximately €70.000) threshold applies for goods and services, below which publication is not mandatory.
EE	Below the national threshold (€30.000 for services/goods, €60.000 for works) there is no obligation for the public procurer to publish notices in the central electronic portal. There may be procurements below the threshold (published voluntarily).
EL	For contracts below €20.000 public procurers may proceed to direct award. From €20.001 to €60.000 brief informal tendering procurers can be used, which do not require publication in a central electronic portal. ⁷⁷
ES	So-called minor contracts – worth below €15.000 for goods and services and below €40.000 for works – are allowed to be awarded directly, without prior publication. ⁷⁸
FI	Below the national threshold (€60.000 for services/goods, €150.000 for works, €500.000 for concessions) there is no obligation for the public procurer to publish tenders in the central electronic portal. Certain cities (e.g. Helsinki) collect all tenders of all sizes.
FR	Below the national threshold (€90.000) there is no obligation for the public procurer to publish notices in the central electronic portal. Although some may do it all the same – be it for from force of habit or intentionally to reach a wider audience of tenderers – experts estimate only a very minor share of notices below €90.000 to be published. As in Belgium, it is also noted that many public procurers do not usually publish a link to the full procurement documentation.
HR	Procurements for goods and services below HRK 200.000 (approximately €27.000) and for works below HRK 500.000 (approx. €67.000) are not mandated to be put up for tender according to standard procedures. ⁷⁹
HU	In Hungary, a variety of national thresholds apply, below which standard procurement rules do not apply and data and statistics are not available. For procurements operating in all sectors excluding water, energy, transport and postal services, the thresholds are HUF 15 million for goods and services (approx. €48.000), and HUF 25 million for works (approx. €80.000). ⁸⁰
IE	Below the national threshold (€25.000 for goods and services, and €50.000 for works and concessions) public procurers are not required to advertise tenders in the central electronic portal. While they are nonetheless encouraged to do so if the anticipated response would not be disproportionate, it is allowed to send specifications via fax or email directly to suppliers or service providers.

⁷² European University Association (2018), A comparative analysis of public procurement frameworks and practices in universities in Portugal and selected EU member states. Hereinafter: EUA (2018).

⁷³ Adapted from Study on administrative capacity in the EU - Bulgaria Country profile, available at: https://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/bg.pdf

⁷⁴ Based on Federal Act on Public Procurement of 16 December 1994 and the corresponding Ordinance on Public Procurement.

⁷⁵ Cyprus Procurement Monitoring Report - In view of the Member States' reporting process under the Directives 2014/23/EU, 2014/24/EU and 2014/25/EU. Available at: <https://bit.ly/2VMbBrs>

⁷⁶ Public Procurement Act and its amendments (Act No. 137/2006 Coll.) and the Concession Act (Act No. 139/2006 Coll.).

⁷⁷ Law 4412/2016 on Public works, supplies and services contracts.

⁷⁸ EUA (2018).

⁷⁹ Croatia Procurement Monitoring Report - In view of the Member States' reporting process under the Directives 2014/23/EU, 2014/24/EU and 2014/25/EU. Available at: <https://bit.ly/2VMbBrs>

⁸⁰ Hungary Procurement Monitoring Report - In view of the Member States' reporting process under the Directives 2014/23/EU, 2014/24/EU and 2014/25/EU. Available at: <https://bit.ly/2VMbBrs>

Country	National thresholds
IT	Depending on the type of procurement (goods/services/works) and on the value, a variety of procedures (direct purchasing, negotiated procedure, request of quotations, etc.) are envisaged, each with specific publication requirements, both in the public procurers' websites and in the national anti-corruption authority's portal.
LT	Below €10.000 there is no obligation for the public procurer to publish tenders in the central electronic portal. For tenders above €10.000 but below €58.000 (for good and services) or €145.000 (for works) limited information is available (see granularity table).
LU	All tenders below the EU threshold are included in the central electronic portal.
LV	Latvia has two levels of national thresholds below the EU thresholds. First, direct procurement is allowed for small value contracts of less than €4.000 for goods and services and €14.000 for works. Second, simplified procedures can be used for contracts between €4.000 and €42.000 for goods and services and €14.000 and €170.000 for works. Above this second level, the same reporting procedures and rules apply as above the EU thresholds, except for shorter time limits.
MT	A €5.000 national threshold applies, below which no data is available. Between €5.000 and the EU thresholds, public procurers have the obligation to publish tenders in the central electronic portal.
NL	Publication of notices below EU thresholds are orientated by the non-binding principle of proportionality, as described by the Dutch Public Procurement Expertise Centre in one of its publications. The proportionality principles aim at tailoring each procurement procedures to the size of the contract and to the needs of the public procurer, de facto leaving the decision on whether to publish the contract notice onto the public procurer itself.
NO	The national thresholds – below which publication of tenders is not compulsory - were increased in 2017 to NOK 1.1 million (€116.500) for procurements in general, and to NOK 6.3 million (€667.500) for health and social services contracts. Difi (Agency for Public Management and eGovernment) estimated 80% of tenders to be below the NOK 1.1 million threshold.
PL	Reportedly, in procurement proceedings below the EU thresholds, non-competitive procedures of direct-award contract are used in approximately 15% of the times. Moreover, standard procurement rules do not apply to contracts below €30.000. ⁸¹
PT	For works below €30.000 and goods and services below €20.000 direct ward is allowed. In addition, under specific conditions that make prior consultation impossible – such as specific urgent scenarios – direct award may also be adopted irrespective of contract value. ⁸²
RO	Below €10.000 for goods and services and below €100.000 for works, public procurers are not mandated to publish notices in the central electronic portal. ⁸³
SE	Below the EU thresholds public procurers may use a simplified or a selection procedure, which allows to negotiate directly with tenderers, with no mandatory publication. For this reason, tender data below EU thresholds are estimated to be scarce.
SI	Public procurements below €20.000 (for goods, services and design contests), and below €40.000 (for works) are exempted from standard reporting rules. A number of pieces of information – such as an indication of the subject-matter and the estimated value – are nonetheless required to be reported in a national procurement portal, if they are above €10.000. ⁸⁴
SK	So-called low value contracts are not required to comply with reporting requirements and no data are collected at central level. Low value contracts are below the €15.000 threshold for goods, services and works commonly available on the market with the exception of food. For good, services and works that are not commonly available on the market – and for goods of food – a variety of other thresholds apply, ranging from €40.000 to €200.000.
UK	In the UK there is no specific law or regulation covering below the threshold procurement other than European principles and certain requirements for local authorities.

Source: Author's elaboration

All countries apply national thresholds below which publication of calls for tenders is not compulsory. Such tenders are typically not published in national or European level tender databases. As mentioned above, below such national thresholds the study's coverage is very limited. In certain countries such threshold is significantly low (e.g. Cyprus, Latvia Malta with a €2.000 respectively €4.000 and €5.000 national threshold), allowing to consider it highly unlikely that any PPIs are left out. In other countries, however, the threshold is set at a considerably higher level (e.g. Belgium with a €144.000 national threshold), meaning that it is more likely that some PPIs has not been captured by the study. The coverage of procurements under such national thresholds is very limited in this study.

The following sections provide a detailed overview of the information collected, including in particular:

⁸¹ Act of 29 January 2004, Public Procurement Law. For statistics on the use of different procurement procedures, see: <https://www.lexology.com/gtdt/tool/workareas/report/public-procurement/chapter/poland>

⁸² EUA (2018).

⁸³ Romania Procurement Monitoring Report - In view of the Member States' reporting process under the Directives 2014/23/EU, 2014/24/EU and 2014/25/EU. Available at: <https://bit.ly/2VMbBrs>

⁸⁴ Slovenia Procurement Monitoring Report - In view of the Member States' reporting process under the Directives 2014/23/EU, 2014/24/EU and 2014/25/EU. Available at: <https://bit.ly/2VMbBrs>

- The different **data sources** for above and below-thresholds procurements, in all countries falling within the scope of the study (section 5.2.1).
- The different **types of calls for tenders** analysed by the study (section 5.2.2)
- For each data source, the **coverage of the metadata** included, namely the variables that are provided as a separate data field (section 5.2.3)
- For each data source, the degree of **availability of the metadata** (section 5.2.4)
- The **format** of the data collected (section 5.2.5)

5.2.1 Data Sources

For all countries falling within the scope of the study, **calls for tender above the EU thresholds** were retrieved from the **EU TED portal**.

Since there is no obligation to publish calls for tenders below EU-thresholds in the TED portal, a variety of **national data sources** were used to collect **calls for tenders below EU-thresholds**. The private data provider Tender Service Group allowed to cover below-thresholds notices for 15 countries (Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Germany, Greece, Hungary, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland). For the remaining 15 countries (Belgium, Denmark, Estonia, Finland, France, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Sweden, UK) a national data source was identified⁸⁵.

The table below illustrates the data provider selected in each country to collect calls for tenders for below EU-thresholds procurements.

Table 73. Public and private data sources for below thresholds calls for tenders

Country	Public/private	Data provider, name of database
AT	Private	Tender Service Group
BE	Public	Service public fédéral – Stratégie et Appui, e-Procurement Platform
BG	Private	Tender Service Group
CH	Private	Tender Service Group
CY	Private	Tender Service Group
CZ	Private	Tender Service Group
DE	Private	Tender Service Group
DK	Private	UdbudsVagten, Udbud og opgaver
EE	Public	Public procurement and state aid department, Riigihangete register
EL	Private	Tender Service Group
ES	Private	Tender Service Group
FI	Private	Credita, Julkisetankinnat
FR	Public	DILA, Bulletin officiel des annonces des marchés publics (BOAMP)

⁸⁵ In these 15 countries, public data sources were usually used. However, in certain cases – such as in those countries where notices are published in multiple decentralised e-procurement portals – private data providers appeared to be a more cost-effective solution, as they aggregate data in one single directory. For instance, this was the case in the United Kingdom, where on the one hand four different public portals are in use (Contract Finder for England, Sell2Wales for Wales, eSourcing NI for Northern Ireland, and Public Contracts for Scotland), while a single private data provider allowed to access all calls for tenders in one place. In addition, where notices in public portals lacked important metadata or were not accessible in an easy to use way or format (see section 5.2.3), private data providers were used when they offered more useful information in an easier way/format.

Country	Public/private	Data provider, name of database
HR	Private	Tender Service Group
HU	Private	Tender Service Group
IE	Private	Proactis Holdings Plc, Tenderdirect
IT	Public	ANAC, Sistema Informativo Monitoraggio Gare (SIMOG)
LT	Public	Public Procurement Office, Open VPN data
LU	Public	Department of Public Works, Portail des marchés publics
LV	Public	Procurement Monitoring Bureau, Open Public Administration Data Service
MT	Public	Department of Contracts, e-PPS database
NL	Public	PIANOO, TenderNed
NO	Public	Difi, Doffin
PL	Private	Tender Service Group
PT	Private	Tender Service Group
RO	Private	Tender Service Group
SE	Private	Visma, Opic
SI	Private	Tender Service Group
SK	Private	Tender Service Group
UK	Private	Proactis Holdings Plc., Tenderdirect

Source: Author's elaboration

5.2.2 Types of calls for tenders used for the study

For procurements above the EU-thresholds, calls for tender were retrieved from the TED database. The table below presents the types of notices taken into account by the study, for estimating both the amount of published explicit PPI investment and the total amount of published public procurement.⁸⁶

Table 74. Type of notices used for the Study

Classical Directive 2014/24/EU	Utilities Directive 2014/25/EU	Defence and security Directive 2009/81/EC	Concessions Directive 2014/23/EU
1 Prior Information Notice (when used as call for competition) 2 Contract Notice 12 Design Contest Notice 21 Call for Competition / Contract Notice for social and other specific services	4 Periodic Indicative Notice (when used as call for competition) 5 Contract Notice 7 Qualification System Notice 12 Design Contest Notice 22 Call for Competition / Contract Notice for social and other specific services	16 Prior Information Notice 17 Contract Notice	23 Call for Competition / Contract Notice for social and other specific services 24 Concession Notice

Source: Author's elaboration based on SIMAP

For procurements below the EU-thresholds, all the available types of notices were retrieved (different names are used by different providers).

5.2.3 Coverage of metadata

The choice of the selected databases was also linked to the availability of metadata. Overall, the variables collected for the purpose of this study are listed in the table below. The key variables are the ones

⁸⁶ Due to the fact that notices 12, 15, 23, and 24 do not allow to distinguish the sector (classical, utilities or defence), they were not used for the calculation of TED-published procurement in the classical, utilities and defence sectors.

identified as essential to estimate the total amount of PPI investment and the portion of it that is dedicated to ICT based solutions, whereas those labelled as secondary variables are required to calculate the various breakdowns of these total amounts.

Table 75. Coverage of metadata

	#	Metadata	Metadata description
Key metadata	1	Tender title	Title of the public procurement
	2	Tender description	Description of the public procurer's request
	3	Estimated value	For contract notices, a preliminary estimate of the contract value
	4	Currency	Currency of the estimated value
	5	CPV codes	Common Procurement Vocabulary codes
	6	Link to documents	Link to the full tender documentation
Secondary metadata	7	Activity	Field of activity of the public procurer ⁸⁷
	8	Tender ID	Code to univocally identify each tender
	9	Country ISO	Two-digit country code to univocally identify each country
	10	Name of procurer	Name of the entity responsible for the procurement
	11	Type of procurer	Classification of the entity responsible for the procurement ⁸⁸
	12	Type of contract	Services / Goods / Works
	13	Award criteria	Adopted principles for the adjudication of the tender
	14	Publication date	Date of publication of the notice
	15	ID type	The legal basis under which the notice was published, which can be used as a proxy for the sector of activity (classical, utilities, defence)

Source: Author's elaboration

With regard to the EU TED portal, all relevant variables are available. The picture is more complex for national data sources that were used to collect **calls for tender below EU-thresholds**, because the coverage is significantly more heterogeneous and fragmented. As far as Tender Service is concerned, it was possible to retrieve a very similar set of metadata, with only minor discrepancies. More specifically, all 6 key variables and 4 out of 9 secondary metadata are available. The other data sources that were used present relevant differences across countries. In certain countries the selected sources offer a nearly complete coverage of metadata (e.g. the Stratégie et Appui e-Procurement Platform in Belgium and the Riigihangete register in Estonia), in other countries the identified data sources are not able to cover even key variables, such as contract values and links to tender documents (e.g. the SIMOG in Italy and the e-PPS database in Malta). An overview of the metadata coverage is provided in the table below.

⁸⁷ Closed field in TED, with 21 different sectors. See the following section on definitions for a detailed analysis of the 21 sectors and how they fit into the 10 sectors of public procurement of the EU directives.

⁸⁸ Closed field in TED, with the following 8 different types of authority: Ministry or any other national or federal authority; Regional or local authority; Utilities entity; European Institution/ Agency or International Organisation; Body governed by public law; National or federal Agency/ Office; Regional or local Agency/ Office; Other.

Table 76. Coverage of metadata in calls for tenders

	#	Metadata	Below thresholds																
			TED (all)	Tender Service (1 st 15)	e-Proc Platform (BE)	Udbud og opgaver (DK)	Riigihangete register (EE)	Julkisethankinnat (FI)	BOAMP (FR)	Tenderdirect (IE)	SIMOG (IT)	Open PA Data Service (LV)	Open VPN data (LT)	Portail marchés publics (LU)	e-PPS database (MT)	TenderNed (NL)	Doffin (NO)	Opic (SE)	Tenderdirect (UK)
Key metadata	1	Title	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2	Description	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓
	3	Value	✓	✓	✓	✓	✓	✓	✓	⋯	✓	✓	✓	✓	✗	✗	✓	✓	✓
	4	Currency	✓	✓	✓	✓	✓	✓	✓	⋯	✓	✓	✓	✓	✗	✗	✓	✓	✓
	5	CPV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	6	Link	✓	✓	✓	✓	✓	✓	⋯	✓	✗	✓	✓	✓	✓	⋯	⋯	✓	✓
Secondary metadata	7	Activity domain	✓	✗	✓	✗	✓	✗	✗	✗	✓	✓	✓	✗	✗	✓	✓	✗	✗
	8	ID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	9	ISO	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓
	10	Procurer name	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✗
	11	Procurer type	✓	✗	✓	✓	✓	✗	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✗
	12	Contract type	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
	13	Award criteria	✓	✗	✓	✓	✓	✗	✗	✓	✗	✓	✗	✓	✓	✓	✓	✗	✓
	14	Pub. date	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
	15	ID type	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

Legend: ✓ = covered; ✗ = not covered; ⋯ = embedded in Description variable.

Source: Author's elaboration

5.2.4 Availability of metadata

The fact that a data source covers a certain piece of metadata does not always translate in a full availability of such metadata. In other words, a data source may be able to provide a dataset with a separate field for a certain piece of information, but such field may happen to be empty or misreported. This is mainly due to the fact that calls for tenders are filled in in the first place by public procurers themselves, who may omit or misreport certain details. Some data providers also use a different terminology for certain metadata fields than the terminology used in the TED. For instance, the e-Procurement Platform in Belgium maps the activity domain of the public procurer according to a classification which is slightly different from the one used in the TED (see section 5.4.3).

The following table presents the differences in the availability of metadata that the study observed in the datasets that were provided by the different data sources, in each country.

Table 77. Percentage of available metadata

		Title	Description	Value	Currency	CPV	Link	Activity	ISO	ID	Procurer name	Procurer type	Contract type	Award criteria	Pub. date
AT	TED	100%	100%	11%	11%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	100%	3%	3%	97%	37%		100%	100%	100%				100%
BE	TED	100%	100%	28%	28%	99%	100%	100%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	100%	12%	12%	100%	100%	100%	100%	100%	100%	100%	100%	74%	100%
BG	TED	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%
	TS	100%	100%	90%	90%	100%	4%		100%	100%	99%				100%
CH	TED	100%	100%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	100%	1%	1%	99%	0%		100%	100%	99%				100%
CY	TED	100%	100%	92%	92%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	TS	100%	100%	78%	78%	100%	43%		100%	100%	100%				100%
CZ	TED	100%	100%	91%	91%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	100%	29%	29%	100%	44%		100%	100%	100%				100%
DE	TED	100%	100%	19%	19%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%
	TS	100%	100%	0%	0%	52%	27%		100%	100%	99%				100%
DK	TED	100%	100%	60%	60%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	100%	12%	12%	98%	60%	69%	100%	98%	98%	85%	98%	98%	98%
EE	TED	100%	100%	40%	40%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	97%	83%	83%	100%		100%	100%	100%	100%	79%	100%	100%	100%
EL	TED	100%	100%	94%	94%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%
	TS	100%	100%	44%	44%	100%	42%		100%	100%	100%				100%
ES	TED	100%	100%	93%	93%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%
	TS	100%	100%	59%	59%	74%	34%		100%	100%	99%				100%
FI	TED	100%	100%	41%	41%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	98%	2%	2%	100%	59%		100%	100%	100%		100%		100%
FR	TED	100%	100%	31%	31%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	99%	8%	8%	79%	24%		100%	100%	100%		100%		100%
HR	TED	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%
	TS	100%	100%	67%	67%	72%	47%		100%	100%	100%				100%
HU	TED	100%	100%	15%	15%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%
	TS	100%	97%	4%	4%	98%	30%		100%	100%	98%				100%
IE	TED	100%	100%	82%	82%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Nat.	100%	100%			42%	100%		100%	100%	100%	99%	100%	100%	100%
IT	TED	100%	100%	86%	86%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%
	Nat.	100%		100%	100%	100%		100%	100%	100%	100%	100%	100%		100%
LT	TED	100%	100%	21%	21%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

		Title	Description	Value	Currency	CPV	Link	Activity	ISO	ID	Procurer name	Procurer type	Contract type	Award criteria	Pub. date
	Nat.	100%	50%	15%	14%	100%	100%	18%	100%	100%	100%	42%	93%	6%	99%
LU	TED	100%	100%	23%	23%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%
	Nat.	100%	100%			72%	100%		100%	100%	100%		100%		100%
LV	TED	100%	100%	31%	31%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Nat.	100%		7%	7%	100%			100%	100%	100%		100%	71%	100%
MT	TED	100%	100%	9%	9%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%
	Nat.	100%		80%	80%	100%			100%	100%			100%	100%	100%
NL	TED	100%	100%	20%	20%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%
	Nat.	100%	100%	16%	16%	100%		91%	100%	100%	100%	94%	100%	62%	100%
NO	TED	100%	100%	52%	52%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	Nat.	99%	89%	26%	25%	0%	0%		0%	0%	100%				100%
PL	TED	100%	100%	27%	27%	100%	100%	98%	100%	100%	100%	100%	99%	100%	100%
	TS	100%	100%	9%	9%	92%	41%		100%	100%	100%				100%
PT	TED	100%	100%	81%	81%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	100%	68%	68%	90%	0%		100%	100%	99%				100%
RO	TED	100%	100%	66%	66%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	100%	53%	53%	100%	48%		100%	100%	100%				100%
SE	TED	100%	100%	21%	21%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	100%	8%	8%	100%	100%	0%	100%	100%	100%	0%	0%	100%	100%
SI	TED	100%	100%	20%	20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	100%	0%	0%	100%	50%		100%	100%	100%				100%
SK	TED	100%	100%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	TS	100%	96%	44%	44%	98%	25%		100%	100%	100%				100%
UK	TED	100%	100%	67%	67%	100%	100%	99%	100%	100%	100%	100%	99%	100%	100%
	Nat.	100%	100%			48%	100%		100%	100%	100%	100%	100%	100%	100%

Legend: TS = Tender Service; Nat. = country-specific national source; Grey = not covered by the data source.

Source: Author's elaboration

Significant metadata gaps emerged in particular for two variables, namely procurement values and links to tender documentation. With regard to the latter, the issue of availability appeared to be of particular complexity. Even if links were provided, they frequently happened to be expired or to redirect to generic procurement portals, rather than to specific procurement documentation. As a result, the actual number of directly accessible procurement documents was significantly lower than the number of links available.

In the context of this study, missing metadata of identified PPIs were filled in manually. This was carried out, first and foremost, by retrieving the full notice and the complete documentation. If this did not bear results, missing fields were added by the Study team. For instance, if the type of procurement (good/services/works) was missing, the Study team would review the description and determine the type of procurement autonomously. Missing values were estimated with a dedicated methodology, presented in the following sections. All metadata from national data sources had to be harmonised with TED, meaning that they had to be adapted in order to match the type of values that could be included in each field.

5.2.5 Available data formats

Given the high number of calls for tenders and the even higher number of metadata to be assessed for each call for tenders, the format of data was essential to allow for the automatic grabbing and incorporation of metadata in the machine learning tool (see following section for a detailed description of the functioning of the machine learning tool that was used for the study).⁸⁹

The following table provides an overview of the various formats used by different sources.

Table 78. Data formats

Country	Public/private	Data source, name of database	Format
All countries	Public	TED	CSV, as published online
AT, BG, CH, CY, CZ, DE, EL, ES HR, HU, PL, PT, RO, SI, SK	Private	Tender Service Group	CSV, following the technical specifications requested
BE	Public	Service public fédéral – Stratégie et Appui, e-Procurement Platform	CSV and XLS, partially following the technical specifications requested
DK	Private	UdbudsVagten, Udbud og opgaver	CSV, following the technical specifications requested
EE	Public	Public procurement and state aid department, Riigihangete register	CSV, partially following the technical specifications requested
FI	Private	Credita, Julkisetankinnat	XML, as internally available
FR	Public	DILA, Bulletin officiel des annonces des marchés publics (BOAMP)	XML, as published online
IE	Private	Proactis, Tenderdirect	CSV and XLS, following the technical specifications requested
IT	Public	ANAC, Sistema Informativo Monitoraggio Gare (SIMOG)	CSV and XLS, as available upon request to the relevant authority
LV	Public	Procurement Monitoring Bureau, Open Public Administration Data Service	CSV, partially matching the technical specifications requested
LT	Public	Public Procurement Office, Open VPN data	CSV, following the technical specifications requested
LU	Public	Department of Public Works, Portail des marchés publics	XML, as published online
MT	Public	Department of Contracts, e-PPS database	CSV and XLS, as available upon request to the relevant authority
NL	Public	PIANoo, TenderNed	XLS, as published online
NO	Public	Difi, Doffin	CSV, as available upon request to the relevant authority

⁸⁹ The Study team enquired with the various data providers about the available data formats of their respective databases. In particular, a list of technical specifications – describing the machine learning tool’s preferred format – was prepared and shared to verify if the data providers would be able to both offer the required data and to provide it in a suitable format. As expected, the situation was once again somewhat diverse across countries, especially as far as public sources are concerned.

Country	Public/private	Data source, name of database	Format
SE	Private	Visma, Opic	CSV, following the technical specifications requested
UK	Private	Proactis, Tenderdirect	CSV and XLS, following the technical specifications requested

Source: Author's elaboration

To sum up the above table:

TED – which covers all countries for above thresholds procurement – provides data in CSV format, and the same format is also available from Tender Service, which covers 15 countries for below thresholds procurement

As far as the other 15 countries are concerned, in 11 cases it was possible to receive data in CSV format as well, whereas in 4 cases (FI, FR, LU, NO) XML was the only available format, and additional efforts were required to convert the datasets into CSV

5.3 Adopted strategies for identification of published PPIs and training of the machine learning tool

Once the datasets for all 30 countries had been collected, the study identified those public procurements that concern the purchase of innovative solutions. Such identification of PPIs required to inspect and analyse a significant amount of unstructured information, such as project descriptions, contract values, a multitude of identification codes, and many other variables. Due to the high number of calls for tenders to be analysed, the study made use of an Artificial Intelligence based machine learning tool from Hewlett Packard Enterprise (HPE) called Intelligent Data Operating Layer (IDOL). IDOL is a search engine based on pattern matching and probabilistic modelling, which treats words as abstract symbols of meaning, deriving understanding through the context in which these symbols occur. Once the information had been centrally stored in the system, the IDOL tool was trained to identify PPIs. Three different training methods were implemented, namely:

- Known PPI case examples;
- PPI tender documents obtained via email and automated retrieval;
- Clustering-based identification of new PPIs from 2018 calls for tenders.

After various attempts and adjustments, the first two methods alone turned out not to be effective enough on their own. Adding the third method was needed to obtain a sufficiently large set of PPI case examples to successfully train IDOL.

This section is divided in three paragraphs providing information on:

- the first two methods used to train IDOL, which did not deliver a sufficiently large set of PPI case examples to train IDOL (section 5.3.1);
- the clustering-based training, which identified from the country data sets enough PPI case examples to train IDOL and was therefore used for all the countries (section 5.3.2);
- relevant language related aspects linked to the training (section 5.3.3)

5.3.1 Previous trainings

This section outlines the methods initially used to train IDOL. The aim is to provide a very short overview of the methods that were used, highlighting the obstacles that did not allow to identify enough PPI case examples to train IDOL effectively.

Case examples

The Study team started by manually identifying a number of PPI case examples from a range of sources (e.g. innovation procurement platforms and guidance documents, innovation procurement awards,

national innovation procurement competence centre websites, etc.). Desk research on the 2018 dataset of calls for tenders also revealed additional PPI case examples. The case examples and desk research enabled the Study team to identify a list of 230 keywords (see Annex IV) that are commonly used to characterise PPIs (e.g. innovative, prototype, new, improved, cutting edge artificial intelligence, blockchain, autonomous vehicle, biosensor, wave power, carbon capture etc.). This list could then be used to directly instruct IDOL on how to recognise new PPIs.

A few examples of the PPIs identified through desk research are provided in the table below.

Table 79. Examples of PPIs used in the ‘case examples’ training

Country	Title	Short description
Bulgaria	Specialised supply for forest fire fighting	The subject of the contract was the supply of a specialised vehicle, a surveillance drone and personal protective equipment for forest fire fighting for the needs of the municipal volunteer emergency response unit in the Municipality of Kula.
Denmark	Multichannel electrophysiological recording system for in vivo rodents	Aarhus University has been investing in a multichannel electrophysiological recording system for in vivo rodents for the Department of BioMedicine, with the aim to monitor brain activity of nerve cells. The system is composed by the data acquisition system hardware, input board, data acquisition software and head stage.

Source: Author’s elaboration

However, the set of manually identified PPIs was too small and the training did not allow IDOL to identify innovative tenders as effectively as expected. As a result, this approach did not identify sufficient public procurements of innovative solutions to train IDOL.

Email training

Another strategy implemented to identify more PPIs to train the IDOL tool was based on the development of an emailing system. The Study team incorporated in the EU TED platform a software component that contacted automatically via email all the procurers publishing a tender on TED. The email included a short survey asking whether the published tender was innovative, potentially innovative or not innovative. The aim was to identify a list of innovative tenders and use them to train IDOL.

Despite the large amount of emails sent to public procurers, the overall response rate was extremely low and did not allow to build a representative sample. Emails were blocked by anti-spam services or simply disregarded by recipients. For instance, in Spain – between January and May 2018 – only 33 surveys were completed, representing only 1.5% of the emails sent. Out of the 33 replies, only 4 tenders were flagged as potentially innovative, and none as innovative.

Due to concerns on data protection and little constructive response received from public procurers, it was agreed with the European Commission to abandon the sending of e-mails at the end of May 2018, when the new General Data Protection Regulation (GDPR) came into force.

5.3.2 Clustering-based training

Due to the previous approaches not being effective in collecting a large enough reference set of PPI examples to train IDOL, the Study team devised a third approach exploiting automatic text mining techniques to identify a larger initial number of PPIs, which were then used to train the machine learning tool.

Text Mining (TM) - also known as Text Data Mining (TDM) or Knowledge Discovery in Text (KDT) - is a discipline devoted to the development of linguistic, statistical and machine learning techniques for extracting knowledge and deriving information from text documents. In more detail, the Text Mining techniques identify the themes a text deals with, in order to facilitate the process of developing a logical map of the knowledge embedded in unstructured information, and extract from it new information. In other words, **such techniques (semi)automatically identify chunks of text in documents that are representative of a given domain of knowledge.** After that, analytical algorithms are executed on the chunks of text to distinguish what is said (substance) from how it is said (form) in order to find convergences of meaning between words and concepts, highlighting connections between information within one or more texts.

Within Text Mining techniques, clustering algorithms are specifically used for exploratory data mining and pattern recognition. They allow to collect documents dealing with the same “concept” (a detailed explanation of the notion of “concept” is provided in the box). Thus, clustering algorithms grouped documents by maximizing, as much as possible, cluster *compactness* (i.e. a measure of how close the concepts represented in the documents are) and, cluster *distinctness* (i.e. a measure of how distinct concepts in different clusters are). A more detailed explanation of clustering is provided in the box below. In the context of this study, clustering algorithms allowed to identify clusters of innovative tenders, reduce the human effort needed to manually inspect tenders-related documentation and identify an adequate “training set” for the machine learning tool. A training set consists of a subset of tenders that the tool use as prototype in order to “learn” what has to be understood as innovative. An “adequate” training set collects examples of text dealing with each innovation topic of interest. Hence it has to be well balanced, meaning that the innovation topic it deals with is represented by a fair number of documents (or chunks of them), ensuring that the most common ways to describe innovation are included. By using unsupervised clustering to derive a training set, it was possible to limit the human inspection activity to the analysis of the only document that best represented each cluster. If such a document dealt with an innovation topic of interest, all the documents included in the cluster were tagged and included in the training set. Therefore, instead of manually inspecting each document dealing with tenders, a clustering-based approach allows to limit the inspection to the number of automatically identified clusters (typically 10 to 100 times less than the documents number).

Box - Definition of concept

A concept is defined as a bag-of-words, a typical model used in natural language processing and information retrieval to simplify the representation of text. In this model, a text (such as a sentence or a document) is represented as the bag (multiset) of its words, disregarding punctuation, grammar and word order but keeping the number of times words appear in it (i.e. multiplicity). The bag-of-words model is commonly used in methods of document classification where the relative (frequency of) occurrence of each word is used as a feature for training a classifier. In a way, a concept can be considered as a group of words that frequently co-occur together in the same proportion.

For instance, the “biosensor” concept – meaning a device for the detection of a certain chemical substance – consists not only of the word “biosensor”, but also of a series of other phrases that are commonly associated with it, such as “physicochemical detector”, “transducer“, “enzyme”, etc.

The process for PPI Identification can be summarised as follows:

- Application of clustering techniques on public procurement descriptions with the aim to identify a training set of PPIs. As further clarified in the box below, the definition of clusters on innovative themes was made through desk research of public data sources;
- Use of the training set of PPIs to train the machine learning tool to “learn” what a PPI is;
- Execution of the machine learning algorithm to recognise through automatic classification new further potential PPI tenders from an entirely new document set loaded on the system from new data sources.

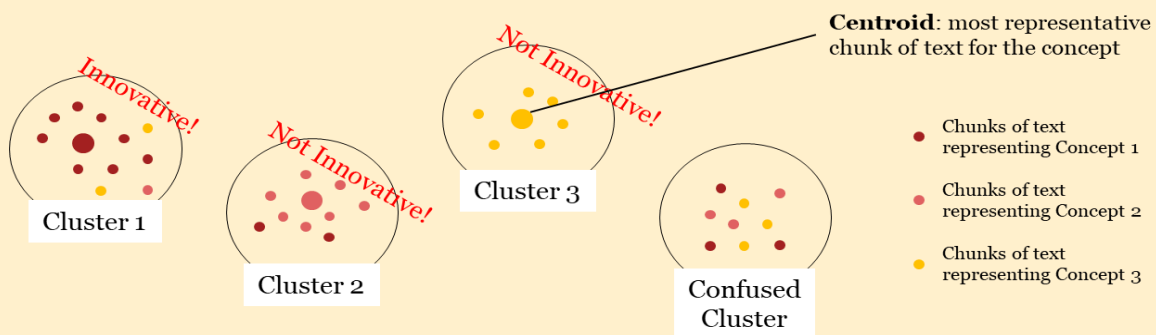
Box - Clustering

Clustering can be defined as the grouping of objects so that members in a certain group are more similar – according to certain criteria – to each other rather than to those in other groups.

For the purposes of the study, a k-means clustering algorithm is used to group chunks of text included in the tender descriptions. The extraction and weighting of chunks of text is based on automatic Natural Language Processing and Semantics techniques. The clustering algorithm tries to optimise cluster compactness (i.e. a measure of how close the concepts represented in the documents are) and cluster distinctness (i.e. a measure of how distinct concepts in different clusters are).

It therefore produces as output a set of clusters each of them collecting chunks of documents (potentially) dealing with the same topic and their relevant bag-of-words. Chunks in each cluster are automatically scored by a measure of their membership to their relevant cluster. The most representative chunks of text of each cluster are referred to as centroids.

The possibility for sector experts to review only the centroids of each cluster allow to dramatically decrease the effort required to expand the training set and to identify innovative topics that humans may not have thought of, increasing the maintainability and adaptability of the training set over time. The figure below illustrates clusters dealing with different topics, also including a confused cluster that is discarded as machine’s rationale for clustering it is unclear to humans.



The following table provides an example of innovative cluster, with various chunks of text grouped together as they deal with a similar topic.

TENDER ID	TENDER DESCRIPTION
30490620_ES20180911	Servicio para la redacción del Plan de Movilidad Urbana Sostenible de Alcalá de Xivert-Alcossebre
30885075_ES20180925	Prestación del servicio de redacción del proyecto de ejecución de la obra de espacio público de uso lúdico deportivo marítimo, incluido en la estrategia de desarrollo urbano sostenible e integrado (EDUSI)
30865277_ES20180923	Plan de Movilidad Urbana Sostenible (PMUS) para Los Llanos de Aridane
30865093_ES20180925	Servicio consistente en la asistencia técnica y realización del Plan de Movilidad Urbana Sostenible de Playa Honda (T.M. de San Bartolomé). Cofinanciado por el Fondo Europeo de Desarrollo Regional en el Marco del Programa Operativo de Crecimiento Sostenible 2014-2020.
30865103_ES20180925	Asistencia técnica necesaria para la Unidad de Gestión y Áreas Ejecutoras de la Estrategia de Desarrollo Urbano Sostenible Integradado (EDUSI) de Roquetas de Mar

To measure the performance of IDOL after the clustering-based training, the Study team selected a sample of 9.079 public procurements (the Spanish procurements gathered from TED and Tender Service between 10 and 25 September 2018 were used as a test sample), analysed them individually and for each procurement indicated manually whether or not they were innovative, identifying a total of 237 PPIs. Subsequently, for each element of the test sample, the results of the IDOL classification (after the clustering-based training) were compared with the manual tagging. The clustering-based approach allowed to identify 203 PPIs correctly and 49 procurements incorrectly (15 false positives and 34 false negatives), with 89% of accuracy. The approach was therefore considered as successful and suitable to train IDOL.

5.3.3 Language aspects of the training

Each country expresses innovative concepts differently, both in terms of language used and in terms of how innovative concepts are commonly called and referred to. For this reason, the training of the machine learning tool had to be customised in each country. In addition, in certain countries calls for tender are published in more than one language.

In this framework, language aspects of the training had to be considered for each country. In most countries, multiple trainings had to be implemented to ensure the tool's ability to identify innovative concepts regardless of the language used to express them. The following table presents for each country the various languages in which the training was carried out. Since certain innovative concepts are usually expressed in English even in countries that are not English-speaking (e.g. blockchain or cloud), the training in each country also included several concepts in English.

Table 80. Examples of languages used for the training

Country	Languages of training
Austria	German, English
Belgium	French, German, Dutch, English
Bulgaria	Bulgarian, English
Croatia	Croatian, English
Cyprus	Greek, English
Czech Republic	Czech, English
Denmark	Danish, English
Estonia	Estonian, English
Finland	Finnish, English
France	French, English
Germany	German, English
Greece	Greek, English
Hungary	Hungarian, English
Ireland	English
Italy	Italian, English
Latvia	Latvian, English
Lithuania	Lithuanian, English
Luxembourg	French, German, English
Malta	English, Maltese
Netherlands	Dutch, English
Norway	Norwegian, English
Poland	Polish, English
Portugal	Portuguese, English
Romania	Romanian, English
Slovakia	Slovak, English
Slovenia	Slovenian, English
Spain	Spanish, Catalan, English
Sweden	Swedish, English
Switzerland	German, French, Italian, English
United Kingdom	English

Source: Author's elaboration

As mentioned above, the training relied on a clustering approach, which was repeated in each country, thus allowing to create clusters of calls for tenders descriptions in each country, which were then

manually tagged to create the full country training set (for a detailed description of how the training set is expanded through the so-called machine-processable definition, please refer to the section 5.4).

The country by country training was coordinated by the Study team, with the support of internal native language speakers, so to ensure the creation of comparable training sets in every country.

5.4 Definitions

In order to determine the boundaries of the study, a number of definitions were developed.

First, due to the fact that public tenders do not usually include any indicator allowing to easily determine whether they purchase innovative solutions or not, it was necessary to develop a **definition of public procurement of innovative solutions (PPI) that is suitable to use in the machine learning based study methodology**. The definition of PPI is developed in Section 5.4.1.

In addition, the study requires to identify the amount of PPI investments in ICT based solutions and break this down also across different ICT subsectors (ICT, content and media, etc.). In this respect, the study makes use of the OECD **definition of ICT based solutions and the definition of the ICT subsectors**. The definitions and the approach used are described in Section 5.4.2.

Finally, the study requires to break down the amount of PPI expenditure across different domains of public sector activity (health, public transport etc.). The study requires the areas of public sector activity to cover at least the 10 areas defined in the EU public procurement directives and to be consistent with the COFOG breakdowns of areas of public sector functions. The definition of the **domains of public sector activity** are provided in Section 5.4.3.

5.4.1 Definition of public procurement of innovative solutions (PPI)

Innovation is defined in the **2014 EU public procurement directives**⁹⁰ as “the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations inter alia with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”.

The **European Commission's guidance on innovation procurement** provides additional information on the definition of **innovation procurement**: “*Innovation procurement occurs in any procurement that has one or both of the following aspects (i) buying the process of innovation – research and development services – with (partial) outcomes; or (ii) buying the outcomes of innovation already created by others, which are nearly or already in small scale on the market*”.⁹¹

- In the first instance (i), the public buyer buys the research and/or development of solutions that do not exist yet. The public buyer describes its need, prompting businesses and researchers to develop innovative solutions to meet its need.
- In the second instance (ii), the public buyer acts as an early adopter⁹² and buys a product, service or process that is new to the market and contains substantially novel characteristics.

This definition includes both product innovation (i.e. introduction of a new good/service, also including works such as building and construction works), process innovation (i.e. implementation of new or significantly improved production or delivery method), marketing innovation (i.e. a new method to introduce an innovation into the market) and organisational innovation (i.e. an innovation in workplace organisation, business practices or external relations).

⁹⁰ Directives 2014/23/EU on the award of concession contracts, 2014/24/EU on public procurement, and 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors.

⁹¹ European Commission (2018), Guidance on Innovation Procurement, C(2018) 3051 final.

⁹² Being an early adopter refers to the first 20% of customers on the market that are buying a new or significantly improved product, service or process.

This aim of study is to quantify innovation procurement in general, but only PPI. According to the **European Commission's guidance on innovation procurement** PPI occurs when a public procurer “acts as an early adopter for a product, service or process that is new to the market and contains substantially novel characteristics. Early adopters refer to the first 20% of customers on the market that are buying a new or significantly improved product, service or process”.

Thus, PPI includes procurements of products, services or processes that have been already demonstrated on a small scale and may be nearly or already in small quantity on the market, but that have not been widely adopted by the market yet. It also includes existing solutions that are to be utilised in a new and innovative way. Conversely, PPI does not include procurements that require only research and development.⁹³

For the study PPIs can include the purchase of any the following four types of innovation:

- Totally new products, services, processes, organisational or marketing methods
- Significant improvement of an existing product, service, process, organisational method or marketing method
- Combination of existing products, services, processes, organisational or marketing methods that results in significant improvements
- New use of existing products, services, processes, organisational or marketing methods that results in significant improvements (e.g. use of an existing solution in an innovative way in another sector, in a new application field etc.)

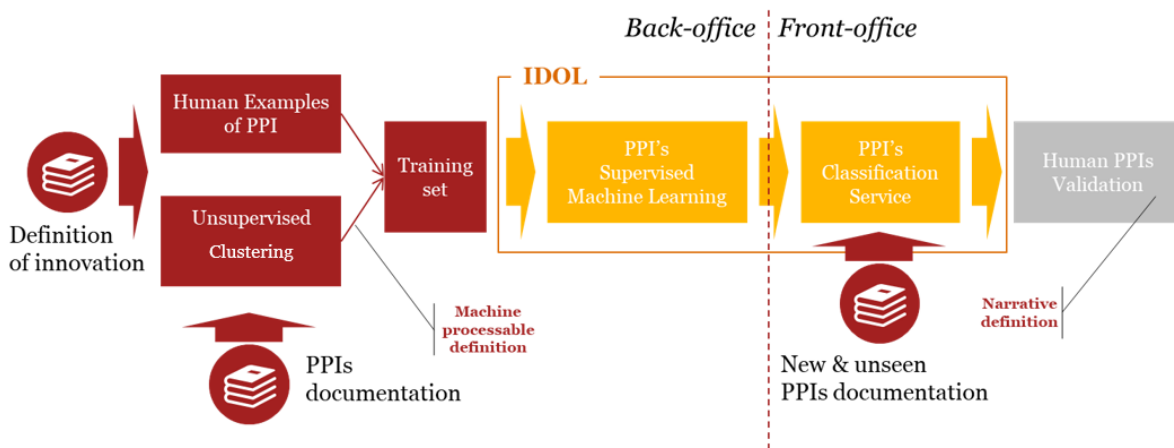
The first two types of innovation are referred to also as **transformative innovations**, while the last two types of innovation are also referred to as **incremental innovations**. Additional details are provided in the box at the end of this section.

It is not currently possible to quantify PPIs using the standard tender classification systems, because PPIs are not defined in national and international tender databases, nor are they univocally associated with certain CPV codes. While previous studies in this field relied on the use of keyword-based approaches to identify PPIs, the present study makes use of an innovative machine-learning approach. In order to teach the machine what a PPI is, it was necessary to **operationalise the above definition of PPI in way that is suitable for machine learning**. For the purpose of this study, the PPI definition was broken down in two parts:

- a **machine-processable definition** which was used as “training set” for IDOL to learn what a PPI is, enabling to make an initial selection and identify a list of “potential PPIs”; and
- a **narrative definition**, which was used by humans to fine-tune the list of potential PPIs identified by IDOL and derive a final list of “confirmed PPIs”.

The figure below presents the process of identification of PPIs, showing where each of the two definitions have been used. In particular, it highlights how the machine-processable definition serves the purpose of enhancing the training set of PPIs to train IDOL. Moreover, it indicates that the narrative definition came into play after IDOL’s identification of PPIs, in order to carry out a human-made ex-post validation.

⁹³ In this study, PPIs shall include the purchase and/or deployment of a solution (or at least a partial solution) that is innovative, meaning that tenders requesting only R&D shall not be considered as PPIs. R&D procurements that include the purchase of a (partial) solution (e.g. the purchase of a prototype or first series of tested end-products) are counted in this study as PPIs because they result in the purchase/deployment/uptake of an innovative solution.

Figure 15. The process for the identification of PPIs

Source: Author's elaboration

The following paragraphs describe the machine-processable and the narrative definitions and explain in detail how they were developed and fine-tuned.

The machine-processable definition

The machine-processable definition is used to expand the training set for IDOL. It serves the purpose of translating the definition of PPI into a group of concepts (for the definition of concept, see the box in Section 5.3.2) that a machine learning tool would be able to understand and learn from. For example, when desk research identified the word biosensor to be a word that is commonly used to characterise PPIs, the concept biosensor was created in IDOL that consists not only of the keyword “biosensor”, but also of a series of synonyms, other related words and phrases that machine learning tools can recognise as being commonly associated with a biosensor, such as “physicochemical detector”, “transducer”, “enzyme”, etc. The last column of Annex IV shows the list of keywords for which concepts were created. This machine-processable definition is based on a number of vertical and horizontal concepts used to identify an initial list of procurements that are expected to be innovative, as explained below.

Vertical innovation concepts consist of innovative goods, services and processes that are characteristic to a certain domain of public activity (health, public transport etc.) that are still in the stage of early adoption of their innovation life cycle (meaning that they have not been adopted yet by more than 20% of the customers on the market). For instance, a biosensor is an innovative device in the healthcare and social services sector that is still in the early adoption stage. Known innovative technology concepts that may be applied in more than one domain of public sector activity – such as for instance the blockchain technology – were also included in the vertical innovation concepts innovations.

Horizontal innovation concepts consist of innovation-related activities or outcomes that are typically requested in PPIs by public procurers that are not specific to a particular domain of public sector activity or a particular innovative technology and are therefore not limited to a specific field.⁹⁴ The mapping of horizontal activities also introduced in the methodology the notion of differentiating between certain activities that are likely to be linked to a PPI, and some others that are unlikely to be linked to a PPI. For instance:





- the “prototyping” and “prototype” was considered as an activity or outcome that may be linked to a PPI, since a prototype clearly points to a solution that is not yet available at a large scale on the market. For this reason, a procurement requesting the purchase of a prototype of a good or service was retained by the machine-learning tool.
- the activity of “event organisation” was considered as an activity that is unlikely to be linked to a PPI, because the organisation of events does not require to come up with an innovative solution to an existing need, even in case the topic of the event is closely related to innovation. As a result, a procurement that requests purely an “event organisation”, without other

⁹⁴ The activities that are most frequently requested by public procurers were mapped through a top-down review of a sample of approximately 2,000 notices from Spain and 500 notices from the UK. The analysed sample included both below- and above-threshold notices from Tender Service and TED, in order to account for any potential differences in the activities requested at different price levels.

innovation related vertical or horizontal concepts appearing in the tender description, was discarded by the machine-learning tool.

Vertical and horizontal concepts were developed by combining a bottom-up approach performed by the machine learning tool, and a top-down approach carried out by thematic experts. The combination of the two allowed to ensure a more systematic coverage. In the case of vertical concepts, for instance, innovative concepts were identified for each of the 10 domains of public sector activity defined in the public procurement directives and in each of the 21 sub-domains as classified in TED (for more information on the definition of the (sub) domains of public sector activity, see section 5.4.3).⁹⁵ The table below illustrates how the list of concepts has been developed.

Table 81. The two-step process to develop the list of concepts to train IDOL

Step	Top-down or bottom-up	Machine- or human-made
Step 1: Clustering and tagging		
The machine learning tool analysed a big sample of tender specifications, grouping them into clusters of chunks of text that dealt with similar topics (for a definition of clustering, see box above). Thematic experts reviewed the most representative chunks of text (i.e. centroids) of each cluster manually tagging them as innovative or non-innovative concepts. By tagging a centroid as innovative, the whole cluster was used in the training set. ⁹⁶	 Bottom-up	 Machine-made
Step 2: Gap filling		
In order to ensure a comprehensive coverage of innovative concepts, a thorough desk-based review of a variety of sources on sectorial innovations was conducted. ⁹⁷ This allowed for instance to identify a list of innovative concepts for all 10 sectors of public procurement (as defined in the EU procurement directives) and in all the 21 TED sectors. Finally, the complete lists of innovative concepts were shared and discussed with subject matter experts of the PwC and European Commission networks, who validated the lists developed and filled potential gaps.	 Top-down	 Human-made

Source: Author's elaboration

As a final step, the machine-processable definition was iteratively tested, potentially adding or removing a limited number of concepts to strike the best possible balance between precision and recall.

Importantly, the machine-processable definition did not aim at comprehensively map all innovative solutions that may be purchased by a public procurer. To the contrary, it constituted the basis for the construction of the training set of IDOL, allowing it to learn how to classify tenders in PPIs and non-PPIs. In other words, the machine processable definition provided IDOL with a sizeable volume of examples of innovative concepts, allowing it to discover tenders that deal with innovative concepts.

⁹⁵ With the addition of a residual 'other' category, which includes other innovative concepts that did not fall within any of the previous sectors.

⁹⁶ For this reason, it is inappropriate to use the term "keywords". Each word included in this definition includes a number of concepts which are included in the cluster. This technique has been extensively used in machine learning.

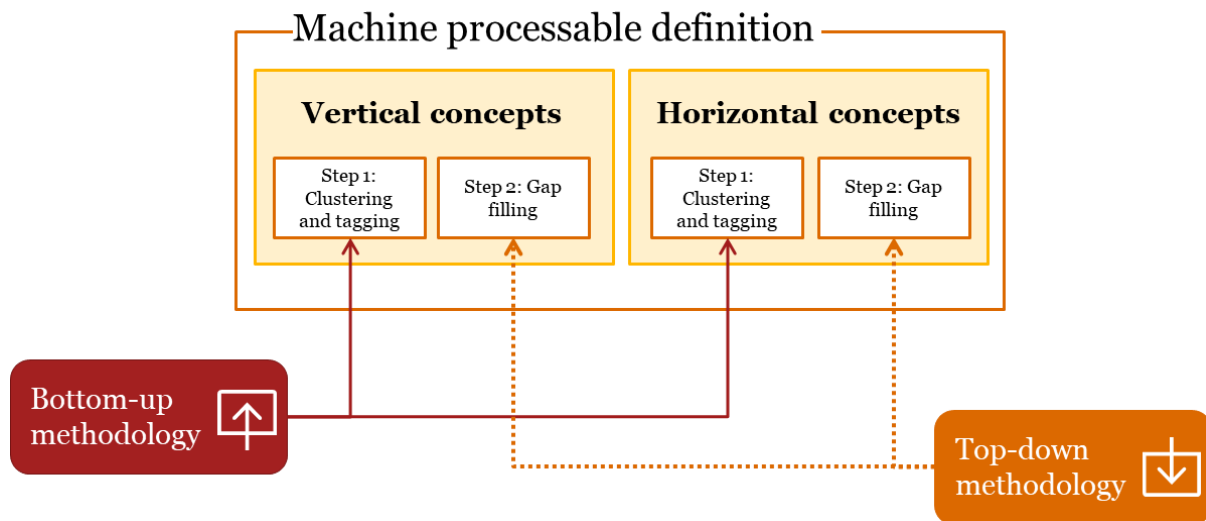
⁹⁷ Consulted sources include multiple publications of leading market intelligence providers (e.g. Gartner, Technavio, Allied Analytics, Forrester, and Gigaom). In addition, various publicly available reports and publications were also reviewed, including for instance the following:

- ENISA (2018), Looking into the crystal ball – A report on emerging technologies and security challenges;
- European Commission (2018), Guidance on Innovation Procurement;
- European Commission (2018), Horizon 2020 - Work Programme 2018-2020 on Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing;
- European Commission (2018), Horizon 2020 List of Key Enabling Technologies (KETs);
- Institute of Educational Technology (2017), Innovating Pedagogy Report;
- International Congress Innovation and Technology XXI: Strategies and Policies Towards the XXI Century;
- Massachusetts Institute of Technology (MIT) (2016, 2017, 2018), Technology Review;
- OECD (2013), Innovative Learning Environments;
- Peters, R.W. (2014), Basic environmental technology: Water supply, waste management, and pollution control;
- Procurement Innovation Platform (undated), Guidance for public authorities on Public Procurement of Innovation;
- WIK Consult (2016), Technology and change in postal services.

In addition, the lists developed under each sector were further expanded based on the list of innovative metadata, keywords and tags collected from the Horizon 2020 Work Programmes 2018-2020.

An overview of how vertical and horizontal concepts are developed through both bottom-up and top-down approaches is provided in the following figure.

Figure 16. Methodologies for the development of the machine processable definition



Source: Author's elaboration

The final version of the machine-processable definition includes a total of **585 vertical concepts and 103 horizontal concepts**. Annex IV lists the 585 vertical keywords and the 103 horizontal keywords for which concepts (bags of words) were created in IDOL.

The narrative definition

Box - Terminology

In order to provide the clustering tool with the required terminology of the different innovative fields, a common technique in the literature for the automatic extraction of vocabulary was applied, known as **word embedding**. For each vertical innovation concept, a google web-search query was performed, allowing to retrieve a number of webpages, in a way similar to how a human would carry out a search on a given topic. Importantly, the quality of the information presented in each webpage is not considered to be relevant, since webpages were retrieved for the mere purpose of collecting the widest possible set of terms. The full list of webpages consulted to derive the terminology is presented in Annex VIII.

After the preliminary selection of potential PPIs made by the machine learning tool, **the Study team reviewed through human verification each potential PPI, determining on a case-by-case basis whether it could be actually considered as a PPI**. This review of the potential PPIs was based on the narrative definition, which was developed by further operationalising the definition provided at the beginning of this section 5.4.1 into a number of practical **criteria and instructions to validate or discard potential PPIs in order to determine a list of confirmed PPIs**.

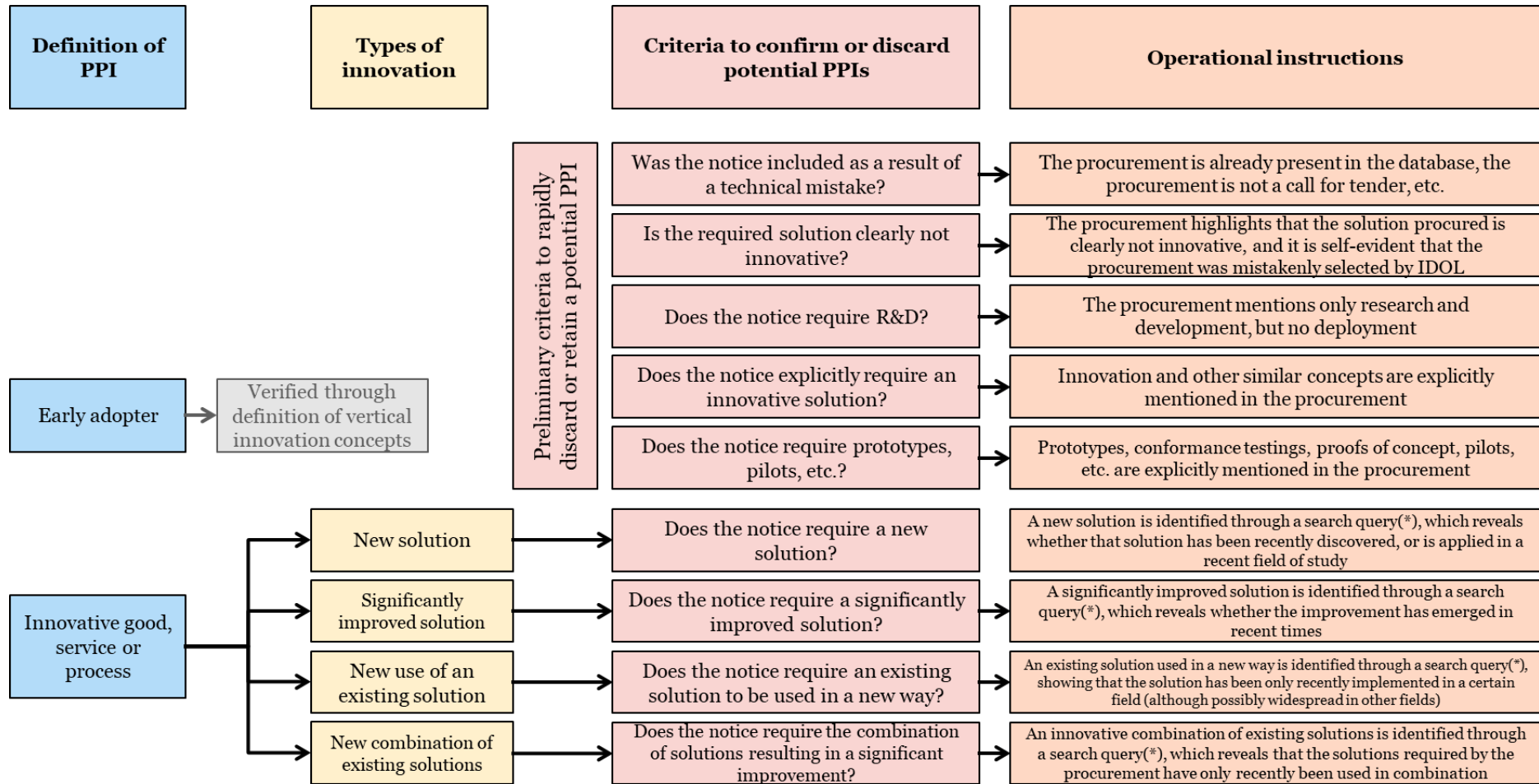
An overview of the criteria used to discard or validate a PPI is provided in the figure below:

- **Definition of PPI.** The first column consists of the two key elements of the definition of PPI, namely it verifies if the purchase concerns an (i) early adopter type procurement, and if the purchase bought an (ii) innovative solution (good, service or process).
- **Types of innovation.** The second column, operationalises further whether it concerns the procurement of an innovative solution, by verifying the above mentioned four types of innovation: (i) new solution, (ii) significantly improved solution, (iii) new use of an existing solution, (iv) new combinations of existing solutions.
- **Criteria to confirm or discard potential PPIs.** The third column further defines the criteria used for the validation (or, to the contrary, for the elimination) of a potential PPI. A

number of these were conceived for a rapid preliminary validation as they concern certain features that are easy to check.

- **Operational instructions.** The fourth column aims at operationalising the previous criteria, by providing step-by-step instructions on what to do to verify each criterion. For instance, to verify whether a certain procurement explicitly requires an innovative solution, the procurement's description is reviewed, looking for terms such as 'innovative', 'state of the art' and/or other similar expressions.

Figure 17. Development of criteria starting from definition of PPI

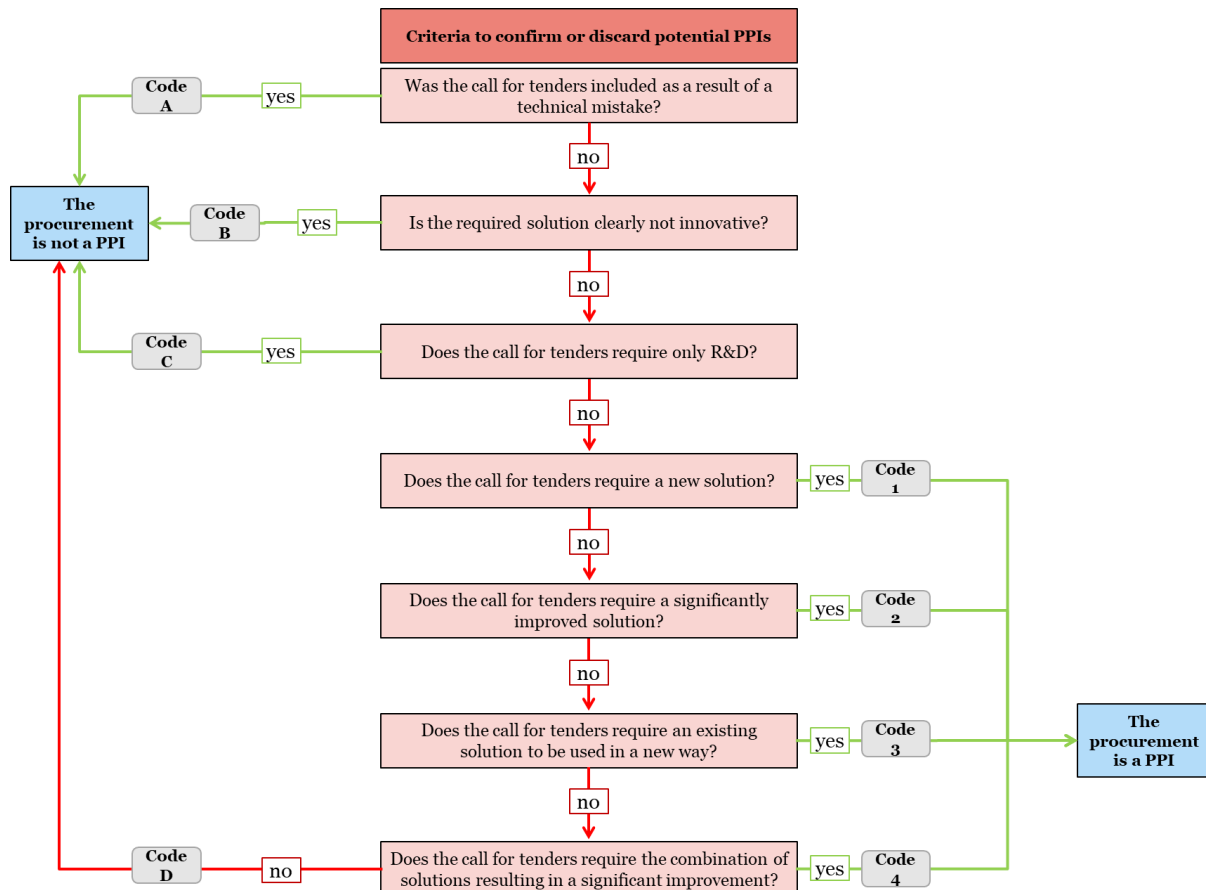


Note: The search query was performed through PwC's internal search engine of leading market research sources, which include Gartner, Technavio, Allied Analytics, Forrester, and Gigaom.

Source: Author's elaboration

The practical criteria used and their operational instructions were then organised in a series of sequential steps, in order to create a user-friendly tool that allowed to analyse potential PPIs. The tool is presented in the figure below. Once the decision has been made to confirm or discard a potential PPI, a code is assigned to the procurement, which refers to the rationale for confirming or discarding the potential PPI. Numeric codes (1, 2, 3 and 4) refer to the criteria used to confirm a certain PPI. For instance – as shown in the figure below – if a certain procurement requires a new solution and is for this reason considered as a PPI, it was coded with a ‘1’. Similarly, letter-codes (A, B, C, and D) were used to refer to the criteria to discard a potential PPI. For example, if a procurement is present two times in the database by mistake, the duplicate was discarded and marked with an ‘A’.

Figure 18. Tool of sequential steps for the identification of PPI



Source: Author's elaboration

The human verification / review of potential PPIs based on the narrative definition also includes a number of further refinements. These include:

- The manual check of procurements with a CPV related to R&D (73000000-2 to 73100000-3, 73300000-5, 73420000-2 or 73430000-5). These are not discarded automatically because procurers that buy R&D together with large scale deployment of solutions may also indicate these CPV codes in their call for tenders. These CPV codes are only discarded if the procurement covers only the purchase of R&D without purchasing the resulting solution.
- The removal of PPIs in the defence sector (i.e. published under Directive 2009/81/EC) to avoid the risk of double-counting of the amount of defence PPI procurement, which is estimated through a different approach that does not use the analysis of calls for tenders (see section 5.6.3).

Box – Transformative and incremental innovation

Innovative solutions purchased by public procurers can be distinguished based on their degree of innovativeness. On the one hand, transformative innovation consists of innovations that will have a significant transformation as impact. On the other hand, incremental innovation includes less ground-breaking innovations with a comparatively more limited impact.

The coding system of the tool for the analysis of all potential PPIs allowed the Study team to distinguish between transformative and incremental PPI. In particular:

- Transformative innovation includes: Calls for tenders requesting solutions that are new to the market (code ‘1’) or significantly improved (code ‘2’)
- Incremental innovation includes: Calls for tenders requesting existing solutions that are used in a new way or in a new sector as well as innovative combinations of existing solutions (codes ‘3’ and ‘4’)

Further sections in this report that create the EU wide benchmarking of PPI expenditure – as well as the country profiles in Annex I – assess the breakdown between transformative and incremental innovation in each country, both out of the overall PPI expenditure and also out of the PPI expenditure that adopts ICT-based solutions.

5.4.2 Definition of ICT-based solutions

After the identification of the list of PPIs in each country, all the missing CPV codes were manually filled in for each PPI procurement. This gap-filling effort allowed to use CPV codes to filter out PPIs that purchased ICT-based solutions.

Building upon the definitions of the ICT sector by the OECD⁹⁸ and expanding a previous classification made by a study carried out on behalf of the European Commission,⁹⁹ a list of 1.791 CPV codes was created, including all the CPV codes of ICT products and services.

The ICT-based CPV codes were divided into three different ICT sub-sectors, namely:

- **Core ICT**, includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes, namely ICT goods and services that are intended to fulfil or enable information processing and communication by electronic means, including transmission and display (1.143 CPV codes)
- **Content and media**, includes printed and audio-visual hardware and software, including printed and audio-visual messages published in communication media, with value in their information, educational, or entertainment content (156 CPV codes)
- **ICT plus** (also written in short form as “ICT+”), includes ICT hardware and software for ancillary IT and telecommunication purposes such as measurement and detection applications in different vertical markets like health, transport, security markets, which includes various products with embedded ICT (492 CPV codes)

The whole list of CPV codes included in the 3 ICT sub-sectors is provided in Annex V. In order to pinpoint those PPIs that purchase ICT-based solutions, the following procedure was followed:

- First, the Study team identified those PPIs that include one or more of the above ICT CPV codes from the list of ICT-based CPV codes in the published into call for tenders. All the PPIs that purchase ICT-based solutions were classified over the three sub-sectors using the main ICT CPV code that was published in the call for tenders, in order to allow the Study team to distinguish between Core ICT sector PPIs, Content and Media sector PPIs and ICT Plus PPIs.
- This first CPV-code based step enabled to filter out automatically the lion share of all call for tenders that concerned ICT-based solutions. However, when procurers publish their call for tenders, they often tick only the main CPV code that indicates the field in which they intend to use the ICT solution (construction, health), without an additional CPV code for the ICT aspects of the procurement¹⁰⁰. Therefore, an additional manual check was carried out across the other

⁹⁸ See <http://www.oecd.org/sti/ieconomy/oecdguidetomeasuringtheinformationsociety2011.htm>

⁹⁹ Quantifying public procurement of R&D of ICT solutions in Europe. Final report (SMART 2011/0036). European Commission, Directorate General of Communications Networks, Content & Technology, 2014.

¹⁰⁰ This is the case especially when the purchase does not concern ‘only’ ICT good or services (e.g. the purchase of construction and ICT equipment) or where ICTs are embedded inside other solutions (e.g. a digital learning system).

calls for tenders that were not identified as ICT related tenders by procurers through the ICT CPV codes. This manual check revealed that across Europe there were 30% extra ICT-based PPI investments (PPI investments that purchased ICT-based solutions) that were not identified by procurers as ICT-based procurements by ticking ICT sector CPV codes in their call for tenders.

5.4.3 Definition of the different domains of public sector activity

The study also determined the distribution of PPI and ICT-based PPI investments across the different public sector domains in which public procurers are active. Therefore, each tender was classified to a specific public sector domain according to the main area of activity of the public buyer.

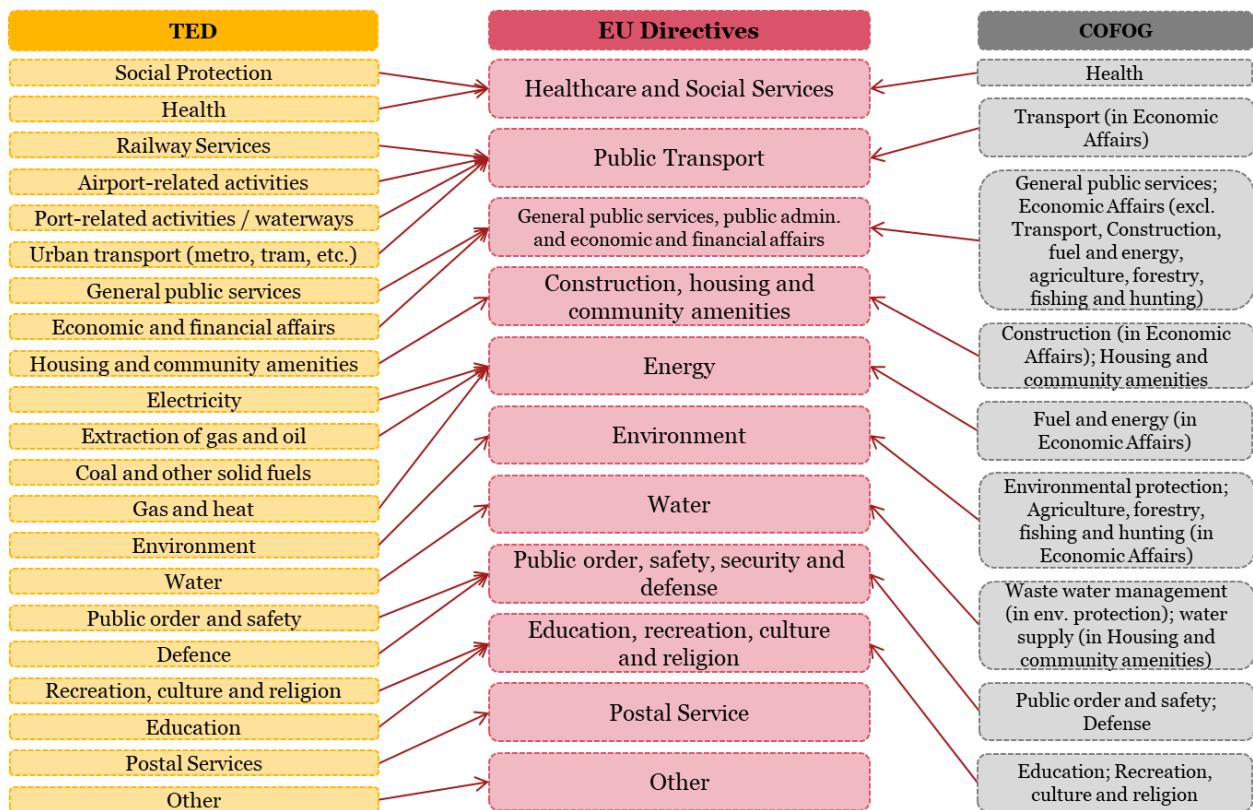
The focus of the analysis to identify the public sector domain was not on the CPV code or on the type of product or service provided, but on the “mission” and the areas of responsibilities of the public procurers launching the tender. For example, if a hospital published a tender procedure to purchase innovative sustainable bags, this PPI is classified under the public sector domain “healthcare and social services” and not under “environment”.

PPI and ICT-based PPI investments were broken down across the 10 domains of public sector activity that are defined in the EU public procurement directives in a way that is consistent with the areas of public sector activity defined in EUROSTAT COFOG and other relevant (e.g. OECD) breakdowns of areas of public sector functions.¹⁰¹ For the analysis of call for tenders, the 10 public sector domains defined in the TED database are used as a starting point. The TED database includes a variable that classifies the “main activity” of each public procurer. This field is divided in 21 different variables.

The figure below shows the link between the 21 variables included in TED under the “main activity” field, the 10 sectors included in the EU public procurement directives and the 9 sectors used by COFOG.

¹⁰¹ Consistency with EUROSTAT COFOG is important to enable the study later to correctly compare the amount of identified PPI and ICT-based investments in the classical, utilities and defence sector with the total amount of public procurement in those sectors identified by EUROSTAT.

Figure 19. Correspondence between different classifications of public sector activity



Source: Author's elaboration

In procurement notices that are published in TED, public procurers indicate themselves their domain of public sector activity through the metadata field “Activity domain”. If the metadata field “Activity domain” was not available in the datasets (e.g. in the national non-TED datasets), the values for the “Activity domain” were filled in manually for each notice by the Study team based on the name of the public procurer (e.g. a school was mapped to the “Education, recreation, culture and religion domain”). In case of uncertainty, a web-search was conducted to determine the main area of activity of the public procurer.

5.5 Estimation of missing contract values

As the Study aims to quantify the amount of PPI expenditure in each country in 2018, it had to identify the contract values of all the identified PPIs of 2018. However, sometimes public procurers don't include the contract value in their contract notices or make a mistake and include an incorrect nonsensical value. In addition, some national e-procurement portals do not publish any contract value. The Study team therefore had to devise an approach to estimate missing contract values, both for countries where only a few contract values were missing and countries where lots of all contract values were missing. Challenges linked to missing or misreported contract values have already been reported in previous publications from DG GROW. A review of the methodologies adopted in previous studies is provided in the box below.

Box - Methodologies to calculate missing procurement values in Europe

The challenges related to data gaps and misreported values are well known among the research community. As a result, the real annual value of procurement cannot be directly recovered from the information collected in the databases. A number of different methods have been developed to compute the estimated value of procurement, usually focusing on the information published in the OJ/TED.

DG GROW's current methodology consists of computing for a certain year for each country separately the average value of contract award notices (both classical and utilities) between €4,500 and €100 mn. For smaller countries with a limited number of contract award notices, the average is calculated over a greater number of years. The average value of the contract award notices is then multiplied by the number of contract notices published during the given year with a value below €100 mn. Finally, the value of contract award notices above €100 mn is manually checked and added to the total. The methodology distinguishes between works, goods and services.

In 2014 the Economic and Statistical Working Group from DG GROW proposed an update of the methodology.¹⁰² Based on the assumption that the estimated value of a tender is a natural proxy of the total final value of a contract, it is possible to estimate how close the estimated and the final values are on average, for contract award notices where both values are known. For each contract notice value is therefore possible to impute the final value. The methodology can also control for different types of procedures (open, restricted, ...), contracts (works, supplies, services), public procurers (national, regional, local, ...), and CPV divisions or codes. A number of robustness checks – such as the manual verification of jumps in historical series or sensitivity analysis on the different assumptions of the model – are also envisaged.

Another study carried out by T33 et al. in 2014 aimed at quantifying the amount of public procurement of R&D of ICT solutions in Europe. The study adopted a multiple imputation method to assign a probable value to all contracts with missing values. This method created several versions of a relevant dataset, replacing missing values with a set of plausible values. The plausible values were drawn from a distribution specifically modelled using “appropriate information” to address the choice towards likely values and preserve the relations among variables in the imputed data.¹⁰³

The analysed methods present shortcomings and pitfalls. The most relevant are summarised below:

- The large variability of data is a clear shortcoming of the mentioned methodologies. For example, considering the first DG GROW methodology the great variability of the contract award notices used (notices between €4,500 and €100 million) is expected to clearly affect the estimate of the total public tender value. Similarly, the T33 et al. (2014) study highlights that the estimation procedure is affected by the share of missing values. The larger the share of missing values, the larger the variability of the estimates.
- The imputation method relies more on tender-specific factors to predict the expected value of each contract. However, the different quality of the data available both across countries and between above and below EU-threshold is expected to have a relevant impact. In addition, this approach has been proposed to calculate the total amount of public procurement of tenders included in one single database (i.e. the TED) which is supposed to provide standardised data.
- Overall, the methodology developed by DG GROW has been used to analyse only public procurements above the EU-threshold using the TED database. Despite the use of a single database, clear limits related to the quality of data are reported. The T33 et al. study covered all public procurements, both above and below EU-thresholds tenders, for 27 countries. In this respect, the scope appears to be more in line with the present study. However, the T33 et al. study based its methodology on the use of CPV codes, which would not be suitable when dealing with innovation procurement since innovative solutions are transversal across sectors and CPV codes.

This Study estimated missing contract values based on a different approach, in order to overcome some of the above hurdles encountered by previous studies and to adapt the approach to the specificities of this Study (which covers also below-threshold datasets, but only covers one year 2018).

The Study team estimated missing contract values of contract notices based on values that were published in the same year 2018 (not across multiple years) in other contract notices (not using contract award notices) using a “cluster approach” that spans across all the 30 countries (missing contract values

¹⁰² A presentation is available at http://data.europa.eu/euodp/repository/ec/dg-grow/mapps/20140429_ESWG_Varela-Irimia.pdf

¹⁰³ T33 et al (2014) Quantifying public procurement of R&D of ICT solutions in Europe

are not just estimated based on contract notices for similar solutions in the same country, but across all 30 countries). Clusters were created based on two variables, namely:

- country;
- contract size (above or below EU-thresholds) (to estimate missing values of European wide published larger size procurements based on other European wide published similar size procurements, and to estimate missing values of national published smaller size procurements based on other national published similar size procurements);
- 4-digit CPV code (to estimate missing values based on other procurements that bought similar types of solutions).

For each cluster, the median value of all contract notices in that cluster was calculated, without taking outliers into consideration. Outliers consist of the following:

- For clusters of above EU-thresholds procurements, outliers are calls for tenders with a value above €100 million and below the EU-threshold of €5,5 million (for works) or below the EU-threshold €144.000 (for goods and services)
- For clusters of below EU-thresholds procurements, outliers are calls for tenders with a value above the EU-threshold of €5,5 million (for works) or above the EU-threshold of €144.000 (for goods and services), and below €4.500.

In order to create large enough clusters (to increase the reliability of the estimates) and in order to be able to estimate also the contract values in countries with no or very limited information, the clusters were created by using the contract notices from all the 30 analysed countries.¹⁰⁴

Once the clusters were created, prices were adjusted using the Purchasing Power Parity (PPP), a rate that allows to compare prices between different countries by taking into consideration the different costs of living between them. The PPP approach requires a number of specific assumptions, including:

- The Purchasing Power Parity rate is calculated by the OECD and Eurostat based on a basket of final consumptions goods. Therefore, it is assumed that the differences in price levels of final consumption goods are the same as for publicly procured goods, services and works.
- Certain goods – such as trains – usually have the same price across different countries. This is due to the fact that there are only a limited number of producers, rather than different producers in each country (each sourcing intermediate goods for the production process from its own country). However, this methodology assumes that all publicly procured goods and services are produced in the country, in line with the country's price levels. For instance, while a train would be sold at the same price in both Germany and Bulgaria, the study assumed that the train is more expensive in Germany and cheaper in Bulgaria, since Germany has a higher cost of living. In reality, it is likely that the train's manufacturing company sells the train at the same price in the two countries.

Additional details of the adopted methodology are reported below.

5.5.1 Steps to estimate contract notices' missing values

This section explains in detail the steps implemented to estimate missing contract values.

The first step requires to bring together all calls for tenders published in all the 30 countries, broken down by country, contract size (i.e. below/above EU-thresholds), and CPV code. Once the dataset is

¹⁰⁴ Clusters were initially created in each country, however, as a result of missing data, two main challenges emerged. First, the insufficient number of observations did not allow for the creation of big enough clusters: in certain countries only few observations per cluster were reported. In addition, clusters could be created only taking into account only the 3-digit CPV code, which would have significantly reduced the degree of accuracy of the estimation.

complete, clusters are created based on 4-digit CPV codes. In order to estimate missing values in a certain cluster in a certain country, the values from the other countries had to be adjusted based on the above-mentioned Purchasing Power Parity (PPP). In order to be able to compare the price levels of different countries, a benchmark country is necessary. The OECD and Eurostat publish every year the Purchasing Power Parity (PPP) rates for all countries against the US dollar.¹⁰⁵ PPPs are defined as the rates of currency conversion that equalise the purchasing power of different currencies, taking the differences in price levels between countries into account. The basket of goods and services priced is a sample of all those that are part of final expenditures: final consumption of households and government, fixed capital formation, and net exports. This indicator is measured in terms of national currency per US dollar. In other words, the PPP indicates the amount of national currency that is required to purchase a certain basket of goods that would cost \$1 in the US.

By dividing the PPP of a certain country (expressed in national currency per US dollar) by its exchange rate (expressed in national currency per US dollar),¹⁰⁶ it is possible to obtain the cost of the basket of goods (which would cost \$1 in the US) in the country in US dollars. In other words, this operation allows to remove from the PPP the effect of the exchange rate, comparing only the differences in price levels across countries. Therefore, the cost of a basket of goods in one country expressed in US dollars is calculated as follows:

$$\text{Cost (in US\$) of a basket of goods that would cost \$1 in the US} = \text{PPP} \left(\frac{\text{nat}}{\text{USD}} \right) \div \text{EXCH} \left(\frac{\text{nat}}{\text{USD}} \right)$$

The table below presents – for each country analysed by the study – the results of the above-mentioned calculation.

Table 82. Cost (in US\$) of a basket of goods that would cost \$1 in the US in each country

Country	Currency	PPP (national currency per US dollar)	Exchange rate (national currency per US dollar)	Cost (in US\$) of a basket of goods that would cost \$1 in the US
AT	EUR	0,79	0,85	0,93
BE	EUR	0,78	0,85	0,92
BG	BGN	0,70	1,66	0,42
CH	CHF	1,19	0,98	1,22
CY	EUR	0,63	0,85	0,74
CZ	CZK	12,62	21,73	0,58
DE	EUR	0,76	0,85	0,90
DK	DKK	6,96	6,31	1,10
EE	EUR	0,55	0,85	0,65
EL	EUR	0,58	0,85	0,69
ES	EUR	0,65	0,85	0,76
FI	EUR	0,88	0,85	1,04
FR	EUR	0,77	0,85	0,91
HR	HRK	3,39	6,28	0,54
HU	HUF	140,41	270,21	0,52
IE	EUR	0,80	0,85	0,95
IT	EUR	0,70	0,85	0,82
LT	EUR	0,46	0,85	0,54
LU	EUR	0,87	0,85	1,03
LV	EUR	0,50	0,85	0,59
MT	EUR	0,60	0,85	0,71
NL	EUR	0,80	0,85	0,94
NO	NOK	10,14	8,13	1,25
PL	PLN	1,78	3,61	0,49

¹⁰⁵ Available at: <https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm#indicator-chart>

¹⁰⁶ Annual exchange rates are also published by the OECD and Eurostat, available at: <https://data.oecd.org/conversion/exchange-rates.htm#indicator-chart>

Country	Currency	PPP (national currency per US dollar)	Exchange rate (national currency per US dollar)	Cost (in US\$) of a basket of goods that would cost \$1 in the US
PT	EUR	0,59	0,85	0,70
RO	RON	1,72	3,94	0,44
SE	SEK	8,92	8,69	1,03
SI	EUR	0,58	0,85	0,69
SK	EUR	0,49	0,85	0,58
UK	GBP	0,70	0,75	0,93

Source: Author's calculation based on OECD/Eurostat data.

After calculating the cost in US\$ of a basket of goods that would cost 1US\$ in the United States, it is possible to calculate its cost in Euro by multiplying it by the exchange rate of Euro per US dollar. This allows to obtain a PPP expressed in Euro per US dollar even in those countries around Europe that have a currency different from the Euro.

$$PPP \left(\frac{EUR}{USD} \right) = \text{Cost in US\$ of a basket of goods that would cost \$1 in the US} \times EXCH \left(\frac{EUR}{USD} \right)$$

The table below presents – for each country– the above-mentioned calculation.

Table 83. PPP in each of the 30 countries around Europe

Country	Currency	Cost (in US\$) of a basket of goods that would cost \$1 in the US	Exchange rate (EUR per US dollar)	PPP (EUR per US dollar)
AT	EUR	0,93	0,85	0,79
BE	EUR	0,92		0,78
BG	BGN	0,42		0,36
CH	CHF	1,22		1,03
CY	EUR	0,74		0,63
CZ	CZK	0,58		0,49
DE	EUR	0,90		0,76
DK	DKK	1,10		0,93
EE	EUR	0,65		0,55
EL	EUR	0,69		0,58
ES	EUR	0,76		0,65
FI	EUR	1,04		0,88
FR	EUR	0,91		0,77
HR	HRK	0,54		0,46
HU	HUF	0,52		0,44
IE	EUR	0,95		0,80
IT	EUR	0,82		0,70
LT	EUR	0,54		0,46
LU	EUR	1,03		0,87
LV	EUR	0,59		0,50
MT	EUR	0,71		0,60
NL	EUR	0,94		0,80
NO	NOK	1,25		1,06
PL	PLN	0,49		0,42
PT	EUR	0,70		0,59
RO	RON	0,44		0,37

Country	Currency	Cost (in US\$) of a basket of goods that would cost \$1 in the US	Exchange rate (EUR per US dollar)	PPP (EUR per US dollar)
SE	SEK	1,03		0,87
SI	EUR	0,69		0,58
SK	EUR	0,58		0,49
UK	GBP	0,93		0,79

Source: Author's calculation based on OECD/Eurostat data.

The PPP (expressed in Euro per US\$) indicates the cost (in Euro) in each country of a basket of goods that would cost \$1 in the United States.

By comparing PPPs across different countries, it is possible to determine the difference of price levels. For instance, the same basket of goods would cost EUR 1,06 in Norway and EUR 0,42 in Poland, highlighting that in Norway the cost of living is more than double. By dividing the PPP in Norway (1,06) by the PPP in Poland (0,42), we see that Norwegian prices are 2,5 times higher than Polish prices. In other words, we can estimate that a product costing EUR 1 in Poland would cost EUR 2,5 in Norway. In other words, by dividing the PPP in a given country A by the PPP in another country B, it is possible to obtain a multiplying factor to be applied to price values in country B, which allows to adjust them for the different price levels in the two countries. If the multiplying factor is >1, it means that country A has a higher cost of living. If the multiplying factor is <1, it means that country A has a lower level of prices. For more information on the multiplying factors, see Annex VII.

$$\begin{aligned} & \text{multiplying factor for using values in country B to estimate values in country A} \\ & = \text{PPP (country A)} \div \text{PPP (country B)} \end{aligned}$$

For instance, if we want to estimate missing contract values in Austria (country A), the multiplying factor for using contract values from Bulgaria (country B) for this estimation could be calculated as:

$$\text{PPP(Austria)} \div \text{PPP(Bulgaria)} = 0,79 \div 0,36 = 2,2$$

As a result, a certain Bulgarian contract notice with value x would have to be multiplied by a 2,2 factor to be used for the estimation of the value of an Austrian contract notice. This is sensible because the cost of living in Austria is higher, and a same basket of goods would be more expensive in Austria (regardless of the currency used).

Missing contract values can be estimated by using **available contract values from the country itself and from all other countries (adjusted through the multiplying factor)**. The value is estimated taking into account all the calls for tenders with the same 4-digit CPV code. It consists of the median of all available values of all calls for tenders in its cluster adjusted through the multiplying factor.

As the study works with separate datasets for above EU-threshold procurements (TED) and below EU-threshold procurements (national datasets), **two separate estimations of missing contract values were carried out for contract notices above and below EU-thresholds.**

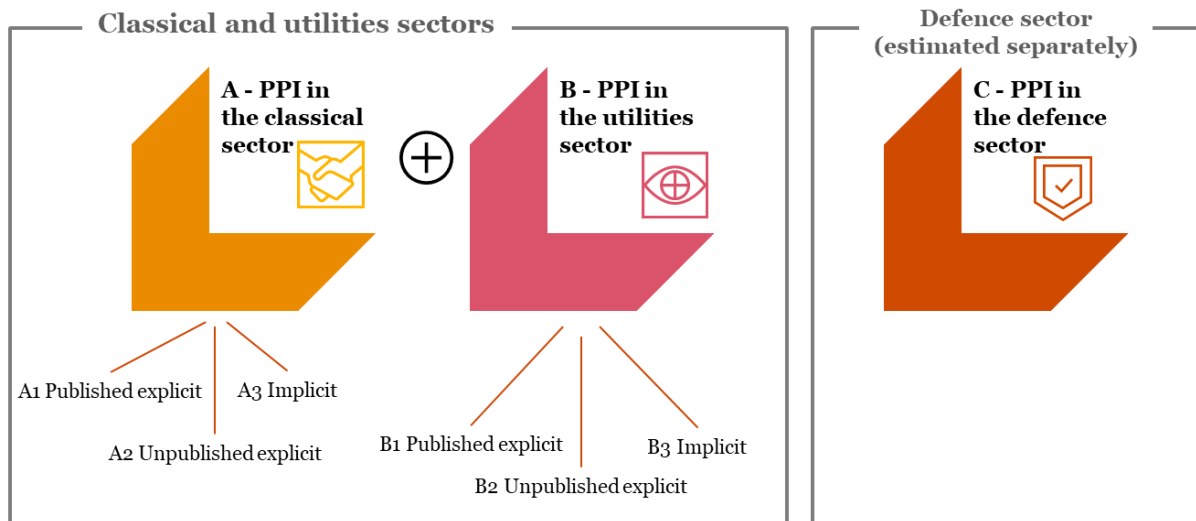
5.6 The 3 components of PPI investment

In order to measure the total amount of PPI investment and its different breakdowns, the Study team developed a methodological approach that considers three different components according to the different public procurement directives:

- Component A consists of **classical sector PPI**, which is performed by public procurers as defined by Directive 2014/24/EU (section 5.6.1);
- Component B consists of **utilities sector PPI**, performed by public procurers as defined in Directive 2014/25/EU (section 5.6.2);
- Component C consists of **defence sector PPI**, which is performed by public procurers as defined in Directive 2009/81/EC (section 5.6.3);

The overall estimation of PPI investment consists of the sum of these three components.

Figure 20. The three different components of PPI



Source: Author's elaboration

As shown in the above figure, PPI investment in the classical and utilities sectors is estimated by estimating the value of their 3 sub-components, while PPI investment in the defence sector is estimated through a different methodology as it is not possible in the defence sector to distinguish between different sub-components.¹⁰⁷ The three sub-components of the amount of PPI investment in the classical and utilities sectors are:

- **Explicit published PPI**, which consists of the amount of published public procurement in which public procurers explicitly request innovative solutions. It is identified through the analysis of the contract values in published calls for tenders (and tender documents where available) that explicitly request innovative solutions.
- **Explicit unpublished PPI**, namely the amount of unpublished public procurement in which public procurers explicitly request innovative solutions. This amount cannot be found in published calls for tenders due to the fact that this share of public procurement is not published. It is estimated based on the amount of explicit published PPI through a number of assumptions and extrapolations.
- **Implicit PPI**, which measures the amount of public procurement in which a procurer does not explicitly request an innovative solution, but the procurer does eventually buy an innovative solution because the winning supplier proposed an innovative solution on its own initiative in its offer for the procurement. It is estimated on the basis of a reference country that measured the amount of implicit PPI investment (Austria) and based on a number of indicators that reflect the extent to which different countries make use of specific procurement techniques that tend to encourage suppliers to spontaneously propose innovative solutions (e.g. the use of value for money award criteria, the possibility of submitting variant offers, etc.).

¹⁰⁷ This is due to the fact that only very little defence procurement data is published (due to exemptions, derogations or simple non-compliance with publication rules) and virtually all data collected is bound by confidentiality agreements. Conversely, in the classical and utilities sectors, where a significant part of the procurements are published (in European and national databases), the part of PPI investment that is published has been estimated by analysing calls for tenders and tender documents (whenever tender documents were available) and the part of PPI investment that was not published was estimated via extrapolation.

Box – The breakdowns between the different sub-components of PPI

In the following Chapters 6 and 7 that present the findings of the benchmarking of PPI investments across all 30 countries – as well as in the country profile reports in Annex I – the breakdowns between the different sub-components of PPI are presented and analysed for each country.

In particular, the study analyses:

- The **breakdown between published and unpublished explicit PPI**, so to assess the publication rate of PPI investments in each country. In general terms, when public procurers publish calls for tenders widely, a greater level of healthy competition can be expected, both from national suppliers and from suppliers from other European countries. To the contrary, if public procurers apply limited tendering or do not publish calls for tenders at all (direct awards) – they risk missing out on potential innovations that could speed up public sector modernisation, both from national suppliers and from suppliers from other European countries that are not informed about these business opportunities.
- The **breakdown between total explicit and implicit PPI**, allowing to assess whether procurers have a proactive or a reactive attitude towards buying innovative solutions. In those countries with a high amount of explicit PPI investment and low amount of implicit PPI investment, it may be assumed that public procurers are proactively asking themselves for innovative solutions in their calls for tenders and are not particularly open to suppliers who propose innovative solutions in response to calls for tenders that did not specifically request for innovation. On the other hand, in countries with high amount of implicit PPI investment and a low amount of explicit PPI investment, it may be concluded that public procurers are quite risk-averse in explicitly requesting themselves for innovative solutions when drafting their calls for tenders, but are rather open to accept unsolicited innovative proposals from suppliers in calls for tenders that did not specifically request for innovation.

5.6.1 PPI in the Classical Sector (component A)

As mentioned above, the total amount classical sector PPI is further divided in three sub-components:

- Explicit published PPI in the classical sector (A1)
- Explicit unpublished PPI in the classical sector (A2)
- Implicit PPI in the classical sector (A3)

The next sections present in detail how the calculations are carried out to estimate the three sub-components A1, A2 and then A3 and how they finally added up together to calculate A.

5.6.1.1 Explicit published PPI (A1)

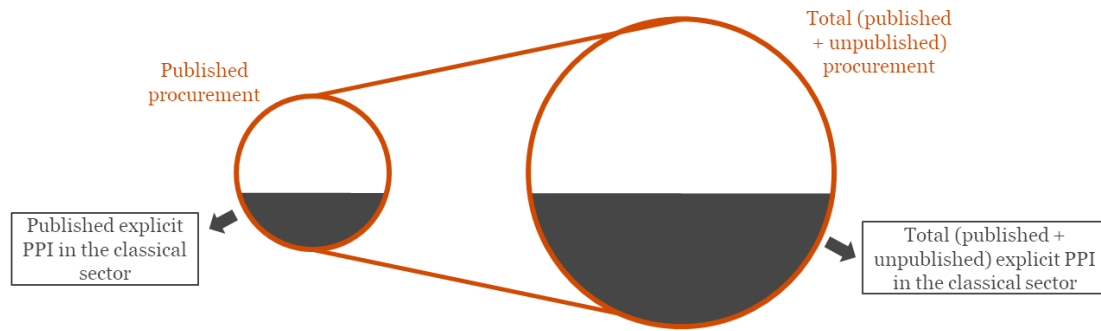
In order to estimate the explicit published PPI expenditure in the classical sector, the study takes into consideration all contract notices that were published by procurers in the classical sector in 2018. Conversely, it does not consider contract award notices and public procurement opportunities that occurred in previous years and were awarded during 2018.

After the collection of contract notices – as presented in Section 5.2 above – the machine learning tool was used for the identification of potential PPIs in the classical sector, which were then manually verified by the Study team (for more details on the identification of PPIs, please refer to Sections 5.3 and 5.4 above). Once the final list of confirmed PPIs in the classical sector has been created, the amount of explicit published PPI in the classical sector was calculated by summing up all the values, including estimated values as detailed in Section 5.5 above.

5.6.1.2 Explicit unpublished classical sector PPI (A2)

Only a portion of calls for tenders are published. Therefore, it is important to estimate the amount of explicit classical sector PPI that is not published (i.e. the portion that is not published in the TED or any other databases collected in the framework of this study). This sub-component is estimated based on the assumption that the share of published explicit PPI out of the volume of published procurement is the same as the share of the total amount of explicit PPI (published + unpublished) out of the total amount of procurement in the classical sector, as illustrated in the following figure:

Figure 21. Explicit unpublished classical sector PPI



It can also be written down as a formula:

$$\frac{\text{Total explicit PPI}}{\text{Total procurement}} = \frac{\text{Published explicit PPI}}{\text{Published procurement}}$$

Taking into consideration that the study estimated published explicit PPI and published procurement from two different sources (the TED and an additional non-TED dataset), the formula can be rewritten as follows.

$$\frac{\text{Total explicit PPI}}{\text{Total procurement}} = \frac{\text{Explicit PPI published in TED} + \text{Explicit PPI published in non-TED dataset}}{\text{TED-published procurement} + \text{non-TED-published procurement}}$$

Considering that each source includes calls for tender in both the classical and the utilities sectors, even greater detail can be added to the formula:

$$\frac{\text{Tot. expl. PPI in classical sector} + \text{Tot. expl. PPI in utilities sector}}{\text{Tot. proc. in classical sector} + \text{Tot. proc. in utilities sector}} = \frac{\text{Expl. PPI pub. in TED in classical sector} + \text{Expl. PPI pub. in TED in utilities sector} + \text{Expl. PPI pub. in non-TED in classical sector} + \text{Expl. PPI pub. in non-TED in utilities sector}}{\text{TED-pub. proc. in classical sector} + \text{TED-pub. proc. in utilities sector} + \text{non-TED-pub. proc. in classical sector} + \text{non-TED-pub. proc. in utilities sector}}$$

For the sake of simplicity, the same formula can be rewritten with the following letters:

$$\frac{a + b}{c + d} = \frac{e + f + g + h}{i + j + k + l}$$

In each country, all the variables are known,¹⁰⁸ with the exception of *a* and *b*. The variables *k* and *l* are not known individually, however their sum is known as it is the sum of non-TED published calls for tenders in the classical and utilities sectors. The equation can be rewritten as follows:

$$(I) \quad a + b = \frac{(e+f+g+h)(c+d)}{i+j+k+l}$$

¹⁰⁸ As detailed in the following section 5.7, figures on total procurement are retrieved from Eurostat, while figures on TED-published procurement rely on the same methodology for the estimation of missing values, applied to the entire TED dataset.

In addition, it is possible to calculate the ratio between a and b:

$$\frac{a}{b} = \frac{c(e+g)(j+l)}{d(f+h)(i+k)} = \text{ratio}$$

Assuming that the size of l and k is very small compared to the size of other variables, they can be removed and simplify the equation as follows. This simplification introduces a certain degree of error in the estimates, which is however considered to be reasonable as l and k are considerably smaller size amounts in the equation.

$$(II) \quad \frac{a}{b} = \frac{c(e+g)(j)}{d(f+h)(i)} = \text{ratio}$$

Combining (I) and (II), and knowing the value of $a+b$ (total explicit PPI in the classical and utilities sector), the variable a (total explicit PPI in the classical sector) can thus be calculated as follows:

$$a = \left(1 - \frac{1}{1 + \text{ratio}}\right) * (a + b)$$

Finally, explicit unpublished PPI in the classical sector can be calculated with a simple difference that subtracts the total published explicit PPI from the total explicit PPI:

$$A2 = a - A1$$

5.6.1.3 Implicit classical sector PPI (A3)

Once the total amount of explicit PPI has been calculated from its two components ($A1$ and $A2$), the component of implicit explicit PPI ($A3$) can be estimated. Implicit classical sector PPI also contributes to the total amount of PPI expenditure as it covers all those procurements in which a procurer did not explicitly request an innovative solution in its calls for tenders, but the winning supplier proposed an innovative solution on its own initiative in its offer.¹⁰⁹

Public procurers can use a number of techniques in public procurement that encourage suppliers to propose innovative solutions in its offer even when the procurer does not explicitly ask for an innovation in its tender documents. The use of these techniques has been assessed in the chapter on the benchmarking of innovation procurement policy frameworks (Chapter 4), in particular under Indicator 10 - sub-indicator I. This indicator assesses the following techniques:

- The use of value for money award criteria;
- The use of open market consultations to consult the market before procuring;
- The adoption of a default IPR regime that leaves IPR ownership with suppliers;
- Allowing the submission of variant offers.

By not awarding contracts only based on lowest price but by taking into account also the quality of the proposed solutions, the award procedure rewards suppliers that propose innovative solutions that can deliver a higher quality than existing solutions. Consulting the market before procuring enables innovative companies to be better informed and prepared to make offers, thus increasing the chances that innovative offers successfully win contracts. Leaving IPR ownership with suppliers in public procurements makes the procurement commercially more attractive for suppliers with innovative solutions and enables them to offer better value for money offers, which increases their chances to win

¹⁰⁹ As explained in chapter 8.2, it would be possible to estimate the amount of implicit PPI by conducting a survey among companies across all 30 countries and all 10 domains of public sector activity. The survey should ask them to estimate the percentage of their yearly sales of innovative solutions to the public sector that included an innovation proposed by the company rather than requested by the customer (and where the public sector customer was among the first 20% of customers on the market for this innovation). However, this is not within the scope of this study. Therefore, this study estimates the component of implicit PPI using the approach described in this section.

contracts. Allowing companies to submit variant offers, allows them to submit alternative – and thus possibly also innovative – approaches to meet the procurers’ needs.

As a result, when a country X uses these techniques in twice as many procurements compared to country Y, it can be assumed that there are twice as many chances for companies in country X to propose/sell innovations in country X compared to in country Y. This can be assumed to be case for both PPIs in the classical and the utilities sectors. An innovation procurement monitoring exercise conducted in Austria¹¹⁰ found that the amount of innovation procurement that is explicitly requested by Austrian procurers is approximately equivalent to the amount of innovation procurement that is not explicitly requested. Assuming that the Austrian implicit PPI is the result of the above techniques (value for money award criterion, open market consultations, IPR regime, and variants) and that the amount of implicit PPI is directly proportional to the use of these techniques, the amount of implicit PPI in a certain country X can be calculated as follows:

$$\frac{T(AT)}{T(x)} = \frac{\frac{I(AT)}{V(AT)}}{\frac{I(x)}{V(x)}}$$

Where:

- T(AT): use of techniques to foster innovation in procurement in Austria, i.e. score on sub-indicator I of indicator 10 in Austria
- T(x): use of techniques to foster innovation in procurement in country x, i.e. score on sub-indicator I of indicator 10 in country x
- I(AT): value of implicit classical sector PPI in Austria
- V(AT): value of total amount of public procurement in the classical sector in Austria
- I(x): value of implicit classical sector PPI in country x
- V(x): value of total amount of public procurement in the classical sector in country x

Taking into consideration that in Austria the amount of explicit classical sector PPI (hereafter E(AT)) is approximately equivalent to the amount of implicit classical sector PPI, namely $I(AT) = \frac{2,5}{2,2} E(AT)$,¹¹¹ the formula can be rewritten as:

$$\frac{T(AT)}{T(x)} = \frac{\frac{E(AT) \cdot 2,5}{2,2}}{\frac{I(x)}{V(x)}}$$

Rearranging the formula to isolate the unknown variable I(x), the formula can be rewritten as follows:

$$I(x) = \frac{T(x) * V(x) * E(AT) * 2,5}{T(AT) * V(AT) * 2,2}$$

As a result, in each country the amount of implicit classical sector PPI can be estimated based on the score on Indicator 10 - sub-indicator I (for Austria and the country under consideration), the total value

¹¹⁰ Bundesministerin für Verkehr, Innovation und Technologie (2012), Leitkonzept für eine innovationsfördernde öffentliche Beschaffung (IÖB) in Österreich.

¹¹¹ The ratio between explicit classical sector PPI and implicit PPI in Austria was based on Bundesministerin für Verkehr, Innovation und Technologie (2012), Leitkonzept für eine innovationsfördernde öffentliche Beschaffung (IÖB) in Österreich. In particular, according to the study, the total amount of explicit PPI (across all sectors) was 2,2% of public procurement expenditure and the total amount of implicit PPI (across all sectors) was 2,5% of public procurement expenditure.

of public procurement (for Austria and the country under consideration) and the amount of explicit classical sector PPI (only for Austria).

5.6.2 PPI in the Utilities Sector (component B)

As for the classical sector, the methodology adopted to estimate the total amount of PPI expenditure in the utilities sector (component B) consists of three sub-components:

- Explicit published PPI in the utilities sector (B1)
- Explicit unpublished PPI in the utilities sector (B2)
- Implicit PPI (B3)

5.6.2.1 Explicit published PPI in the utilities sector (B1)

The utilities sector is covered by separate public procurement rules with several derogations and exemptions. For instance, specific utilities markets in certain countries can award contracts directly without a call for tenders. As a result of the lighter public procurement regime, in the utilities sector a smaller number of procurements are published in TED and in non-TED databases compared to the classical sector, making it necessary to consider the estimates for component B1 with caution.

The methodology adopted in the classical sector to estimate the explicit amount of PPI is replicated for the utilities sector. Thus, for the estimation of sub-component B1 the study takes into consideration all contract notices for all procurements that were published by procurers in the utilities sector in 2018.

After the collection of contract notices – as presented in Section 5.2 above – the machine learning tool is used for the identification of potential PPIs, which are then manually verified by the Study team (for more details on the identification of PPIs, please refer to Sections 5.3 and 5.4). Once the final list of confirmed PPIs in the utilities sector has been created, the amount of explicit published PPI in the utilities sector is calculated by summing up all the values, including estimated values as detailed in Section 5.5.

5.6.2.2 Explicit unpublished PPI in the utilities sector (B2)

As detailed in the above Section 5.6.1.2, the extrapolation of the total amount of published explicit PPI was carried out for both the classical and utilities sectors together. Replicating the formula for its calculation, the total amount of explicit PPI in the utilities sector is estimated as follows:

$$b = \left(\frac{1}{1 + ratio} \right) * (a + b)$$

It is possible to calculate the amount of unpublished explicit PPI in the utilities sector by subtracting the amount of published explicit PPI in the utilities sector from the amount of explicit PPI in the utilities sector.

$$B2 = b - B1$$

5.6.2.3 Implicit PPI in the utilities sector (B3)

Finally, replicating the formula for the calculation of implicit PPI in the classical sector presented above, the amount of implicit PPI in the utilities sector is estimated as follows.

$$I_{utilities}(x) = \frac{T(x) * V(x) * E_{utilities}(A) * 2,5}{T(AT) * V(AT) * 2,2}$$

5.6.3 PPI in the Defence Sector (component C)

The third component consists of PPI in the defence sector. This component is measured separately because the EU directives regulating public procurement in the defence sector allow for several exemptions and derogations from standard procurement. Member States tend to make systematic and extensive use of such exemptions and derogations, leading to a scarcely harmonised legislative framework of defence contracts awarded based on national rather than EU rules.¹¹² For instance, as far as the 2011-2015 period is concerned, it was estimated that TED included contract award notices covering only 7.4% of public expenditure in the defence sector. For this reason, the study's machine learning methodology – which is based on the analysis of published calls for tenders – could not be sufficient for the identification of PPIs in the defence sector. Thus, it was important to fill this gap by using another methodology to estimate the total amount of money spent on public procurement of innovative solutions in the defence sector.

In order to tackle the lack of publicly available data, the study's methodology used three methods of primary and secondary data collection:

- an interview programme with the national authorities responsible for public procurement in the defence sector;
- a review of available national literature, such as reports on defence procurement and yearly budgets of the ministries of defence;
- in countries where all the above-mentioned sources were insufficient to make direct estimates of PPI, a like-for-like approach was adopted, by clustering countries according to a number of criteria and making informed estimates.

The following paragraphs explain the methodological approach used to estimate the amount of PPI in the defence sector.

5.6.3.1 Interview programme with national defence authorities

Telephone interviews carried out with relevant national defence authorities served the purpose of:

- Validating the total amount of public procurement spent in the defence sector;
- Collecting estimates on the share of public procurement devoted to purchase PPI in the defence sector;
- Collecting estimates on the share of PPI specifically devoted to ICT-based solutions in the defence sector;
- Retrieving references to available sources that provide further insights in the breakdown of public procurement in the defence sector.

The first piece of information allows to triangulate the data on total procurement in the defence sector collected from Eurostat, while the second and the third were used to estimate the amount of PPI spent in the defence sector at national level and its share that is spent on ICT-based solutions. The box below outlines how the questionnaire was developed, piloted and fine-tuned.

Box - Development of the Questionnaire

The preliminary version of the questionnaire included a total of 12 questions, aimed at estimating total procurement, innovation procurement, PPI procurement and PPI procurement of ICT-based solutions. The questionnaire also included an introductory section to present the background and objectives of the study, and various sub-sections providing the definitions of the key concepts used. The questionnaire was submitted to the European Commission, which suggested limiting the questionnaire to only two essential questions on the amount of PPI expenditure and the amount of ICT-based PPI expenditure, with the aim of increasing the respondents' willingness to participate. As a result, the questionnaire was significantly streamlined. In its final

¹¹² SWD(2016) 407 final (hereinafter also referred to as "Evaluation of Directive 2009/81/EC").

version, it includes the following four questions, consisting of those proposed by the Commission, and two additional questions to delve further into the context:

1. Could you please estimate the amount of public procurement in the defence sector in the country? (*)
2. Could you please estimate – out of the amount of public procurement in the defence sector in the country – the share that was devoted to purchase innovative solutions (PPI)?
3. Could you please estimate – out of the amount of PPI – the share that was devoted specifically to Information and Communications Technology (ICT) solutions?
4. Could you please provide the references (title, link, etc.) to any publicly available studies on the amount and breakdown of public procurement in the defence sector in the country? (*)

() questions added to the 2 essential questions suggested by the European Commission*

The final version of the questionnaire was the result of a series of adjustments based on the feedback collected from the Spanish Ministry of Defence, which agreed to participate in the piloting of the questionnaire, filling in four different versions of the questionnaire and participating in a conference call to discuss the results.

An important finding of the questionnaire pilot was that the respondent was completely unaware of the distinction made in the preliminary version of the questionnaire between defence procurements falling within the scope of EU directives and defence procurements that are exempted from them. The pilot therefore confirmed the need to stick to simple questions, rather than asking more complex estimates on the amount of procurement falling outside or inside the various procurement directives.

In addition to the four questions, the questionnaire also includes a streamlined background section, from which legislative requirements were removed for the sake of simplicity, and a clearer section on definitions, providing examples of PPIs and of PPIs of ICT-based solutions in the defence sector.

5.6.3.2 Review of national defence literature

The interview programme allowed to collect first-hand estimates in a number of countries. Given the particularly sensitive nature of the defence sector and that various national defence authorities do not distinguish between procurements of innovative and non-innovative solutions in their internal repositories, in certain countries it was not possible to retrieve any figures, resulting in a heterogeneous collection of data.

For this reason, whenever possible, the figures and estimates collected via the interview programme were triangulated and complemented with available literature and reports on defence procurement, such as yearly budgets and press releases by ministries of defence and other relevant authorities (e.g. the Observatoire Economique de la Défense in France, which is responsible for performing statistical analyses in the defence and armaments sector).

Indeed, most countries publish yearly reports that provide insights in how defence budgets – and defence procurement in particular – are divided into some expenditure categories. In certain cases, it was possible to identify items of expenditure that could be considered as relatively close proxies of PPI expenditure.

5.6.3.3 Like-for-like approach to fill data gaps

In those countries where the previous methods did not allow to formulate robust estimates, a like-for-like approach was adopted. As a preliminary step, the 30 countries falling within the scope of the study were clustered into 2 groups, based on the share of public procurement in the defence sector out of the total amount of public procurement. The 2 groups had the following characteristics:

- **Group 1 – big defence spenders.** This cluster includes countries that devote over 4% of public procurement to the defence sector, such as Scandinavian and Baltic countries, or Member States that traditionally set aside sizeable amounts of the public purse for defence (i.e. UK and France).¹¹³
- **Group 2 – limited defence spenders.** This cluster includes countries spending less than 4% of public procurement in the defence sector, such as for instance Italy and the Netherlands, which have a comparable amount of public procurement with UK and France, but spend less than half than the UK and France in terms of defence public procurement. This group also includes Eastern European Member States, and other countries that are traditionally small defence buyers, such as Belgium and Ireland.

¹¹³ It is noted that Germany, despite having a share of procurement in the defence sector out of total public procurement below 4% was nonetheless classified with big defence spenders.

In countries where the interviews and reviews of defence literature did not identify the value of PPI procurement in the defence sector, missing values for the amount of PPI expenditure in defence (and for the amount of ICT-based PPI expenditure in defence) were estimated by multiplying the country's total public procurement expenditure in the defence sector by the cluster's average share of PPI expenditure out of total procurement in the defence sector. At the same time, the amount of ICT-based PPI expenditure in the defence sector was estimated by multiplying the country's total PPI expenditure in the defence sector with the average share of ICT-based PPI expenditure out of total PPI procurement in the defence sector. The table below presents the share of PPI out of total procurement in the defence sector and the share of ICT-based PPI expenditure out of total PPI procurement in the defence sector.

Table 84. Estimation of the average share of PPI and ICT-based PPI expenditure out of total procurement in clusters of countries that are big versus limited defence spenders (2018)

Cluster number	Countries	Cluster's average share of PPI out of total procurement in the defence sector	Cluster's average share of ICT-based PPI out of total PPI in the defence sector
1 – Big defence spenders	Cyprus, Denmark, Estonia, France, Germany, Latvia, Lithuania, Norway, Poland, Sweden, Switzerland, UK	30%	58%
2 – Limited defence spenders	Austria, Belgium, Bulgaria, Croatia, Czech Republic, Finland, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain.	15%	58%

Source: Author's elaboration

5.7 Estimation of total public procurement

In order to estimate the share of PPI expenditure out of the overall amount of public procurement in each country and its different breakdowns, it was necessary to calculate the total amount of public procurement and the total amount of published procurement for both TED and non-TED procurements in each country.

The first part of this section (5.7.1) presents how the total amount of public procurement in 2018 was estimated in each country. More specifically, the breakdown between the classical, utilities and defence sectors is presented.

The second part of this section (5.7.2) focuses on how the TED-published and the non-TED-published procurement in 2018 was estimated in each country. In this case, the breakdown between the classical, utilities and defence sectors was possible only for TED-published procurement, since the great majority of non-TED data source do not provide the relevant information to allow a sector classification.

5.7.1 Total amount of public procurement

This section presents the methodology adopted to estimate the total amount of public procurement and its breakdown between the classical, utilities and defence sectors (for more info, see Annex VI). In accordance with the official methodology used by DG GROW, the total expenditure of the general government sector is considered as a proxy of public procurement, based on the assumption that all public expenditures were previously procured. All calculations are based on the data reported by Member States to Eurostat in accordance with the European System of National and Regional Accounts (ESA 2010) accounting standards.

5.7.1.1 Classical sector

According to the report “Public Procurement Indicators 2015” published by DG GROW in 2016, public procurement expenditure for each country for the government sector (excluding utilities but including defence) is derived from Eurostat.¹¹⁴

In particular, the total expenditure of the general government¹¹⁵ is calculated as the sum of three aggregates:

- P2 – Intermediate consumption
- P51G – Gross fixed capital formation
- D632PAY - social transfers in kind, purchased market production, payable

Public expenditure on utilities is not included by default in the Eurostat figures. Public expenditure in the defence sector has been removed manually to derive the estimates of the classical sector (which does not cover defence and utilities procurers).

The sum of the three aggregates – removing defence expenditure - is provided in the table below.

Table 85. Estimates of public procurement in the classical sector (€ million)

Country	2012	2013	2014	2015	2016	2017	2018
Austria	41.136	42.587	43.402	44.928	46.541	48.271	49.793
Belgium	55.737	55.618	58.367	58.864	60.423	62.238	65.757
Bulgaria	4.360	4.815	5.353	6.042	4.508	4.753	5.397
Croatia	5.816	6.012	6.133	6.054	6.294	6.220	6.895
Cyprus	1.274	1.093	953	1.036	1.079	1.137	1.921
Czech Republic	21.576	20.807	21.079	23.429	21.516	23.023	26.949
Denmark	35.576	35.413	36.864	36.857	38.042	37.794	38.686
Estonia	2.397	2.395	2.443	2.580	2.532	3.037	3.167
Finland	33.090	34.626	35.214	35.160	37.016	38.060	40.080
France	299.478	304.890	304.539	300.997	302.797	311.252	317.534
Germany	393.598	413.409	432.239	449.749	476.763	494.359	512.587
Greece	18.666	18.267	17.565	18.213	18.378	19.629	17.027
Hungary	12.942	13.966	15.636	17.809	14.024	17.075	19.290
Ireland	17.002	16.660	18.105	19.107	20.271	21.209	23.722
Italy	171.438	171.062	169.105	171.374	172.356	174.867	178.272
Latvia	2.585	2.605	2.654	2.824	2.465	2.820	3.259
Lithuania	3.478	3.406	3.487	3.695	3.441	3.664	3.833
Luxembourg	5.541	5.635	5.950	6.271	6.389	6.866	7.078
Malta	740	721	843	1.013	935	1.041	1.263
Netherlands	134.357	133.805	135.316	135.627	136.694	139.728	145.122
Norway	44.930	46.855	47.079	46.312	47.382	49.276	50.713
Poland	46.190	44.032	48.089	49.216	42.983	48.684	56.888
Portugal	16.668	16.099	16.100	16.925	16.347	17.180	17.986
Romania	15.479	15.896	16.651	18.732	16.433	15.273	16.968
Slovakia	9.860	10.135	11.048	13.591	11.255	11.565	12.383
Slovenia	4.702	4.821	5.140	5.222	4.683	4.840	5.337
Spain	111.333	103.467	103.354	110.121	104.963	108.636	114.382

¹¹⁴ Total expenditure on works, goods and services of the general government excluding utilities (gov_10a_main).

¹¹⁵ In the European system of accounts (ESA2010), paragraph 2.111 the general government sector (S.13) is defined as consisting “of institutional units which are non-market producers whose output is intended for individual and collective consumption, and are financed by compulsory payments made by units belonging to other sectors, and institutional units principally engaged in the redistribution of national income and wealth.”

Country	2012	2013	2014	2015	2016	2017	2018
Sweden	65.999	68.272	67.805	69.126	72.919	74.278	73.838
Switzerland	42.617	42.955	45.012	52.393	52.207	52.244	51.734
United Kingdom	259.917	257.132	286.117	322.218	291.009	275.950	281.908
Total	1.878.480	1.897.455	1.961.640	2.045.484	2.032.644	2.074.967	2.149.769

Source: Eurostat table Government revenue, expenditure and main aggregates [gov_10a_main] and Eurostat table General government expenditure by function (COFOG) [gov_10a_exp] for the removal of expenditure in the defence sector.

5.7.1.2 Utilities sector

The total expenditure on utilities is calculated separately because it is not published by Eurostat or by the DG GROW anymore since 2012, as reported in the Public Procurement Indicators of 2012.¹¹⁶ As shown in the following table, the total expenditure of the general government on utilities – consisting of the expenditure made by utility companies – was calculated for this study, based on a similar method used in the past by DG GROW, as the sum of three aggregates of the “naio_10_cp16” table:

- B – Mining and quarrying
- E36 – Water collection, treatment and supply
- D – Electricity, gas, steam and air conditioning supply

The table includes data up to 2018. For countries where 2018 figures were not available, the latest available figures were retrieved. For those countries with no data available (i.e. Malta and Switzerland), figures have been extrapolated from those countries with the closest amount of public procurement in the classical and defence sectors (i.e. Cyprus and Poland respectively).

Table 86. Estimates of public procurement in the utilities sector (€ million)

Country	2012	2013	2014	2015	2016	2017	2018	Used for the study
Austria	18.548	18.149	24.762	24.427	21.860	-	-	21.860
Belgium	9.232	9.692	8.607	8.194	8.751	-	-	8.751
Bulgaria	3.850	3.780	2.993	-	-	-	-	2.993
Croatia	-	-	-	3.867	-	-	-	3.867
Cyprus	-	-	-	-	-	-	-	641*
Czech Republic	13.960	13.251	10.584	10.787	10.534	11.614	12.096	12.096
Denmark	5.864	6.100	4.852	4.224	4.444	-	-	4.444
Estonia	1.143	1.169	1.131	993	954	-	-	954
Finland	6.370	6.256	6.306	6.234	-	-	-	6.234
France	88.860	87.829	79.585	77.458	77.989	-	-	77.989
Germany	94.301	92.907	89.286	92.059	95.661	-	-	95.661
Greece	4.419	4.374	4.105	3.882	3.650	-	-	3.650
Hungary	4.073	3.750	3.252	3.221	3.081	-	-	3.081
Ireland	3.168	3.800	3.023	3.993	4.579	-	-	4.579
Italy	73.551	75.846	72.994	72.330	68.955	-	-	68.955
Latvia	2.234	2.125	1.862	1.527	1.352	-	-	1.352
Lithuania	1.286	1.415	1.378	1.318	1.225	-	-	1.225
Luxembourg	1.067	1.108	989	958	795	795	1.077	1.077
Malta	-	-	-	-	-	-	-	641

¹¹⁶ DG GROW, Public Procurement Indicators 2012, “[...] the total expenditure by utilities is no longer included due to the questionable reliability of the available figures”, page 3. Annex IV elaborates on the methodology to estimate the total amount of public procurement, and presents in detail the methodology to estimate public expenditure in the utilities sector. It then compares, for each country, the results against GDP data.

Country	2012	2013	2014	2015	2016	2017	2018	Used for the study
Netherlands	15.613	15.373	15.420	16.873	14.738	-	-	14.738
Norway	21.935	22.983	22.779	19.527	17.262	-	-	17.262
Poland	22.610	21.449	20.154	21.991	18.268	-	-	18.268
Portugal	12.306	12.160	11.402	11.405	11.661	12.949	-	12.949
Romania	13.690	12.685	11.769	11.568	10.227	-	-	10.227
Slovakia	10.129	9.934	7.983	8.568	8.185	-	-	8.185
Slovenia	1.560	1.571	1.488	1.414	1.336	1.434	-	1.434
Spain	64.924	69.932	72.150	63.875	41.297	-	-	41.297
Sweden	9.652	9.842	8.641	9.033	-	-	-	9.033
Switzerland	-	-	-	-	-	-	-	18.268*
United Kingdom	136.032	136.501	142.719	152.912	133.669	132.919	-	132.919
Total	640.376	643.981	630.212	632.638	560.472	159.712	13.173	604.631

(*)For Malta and Switzerland, data have been extrapolated from Cyprus and Poland respectively.

Source: Eurostat table Use table at purchasers' prices [naio_10_cp16]

5.7.1.3 Defence sector

The total public procurement expenditure in the defence sector was estimated following the DG GROW methodology adopted in the evaluation of Directive 2009/81/EC on public procurement in the field of defence and security for the estimation of total procurement in the defence sector.¹¹⁷ In this study, the military defence procurement expenditure by general government of EU-27 and EEA countries was estimated based on Eurostat data.¹¹⁸ The data are presented in the table below.

Table 87. Estimates of public procurement in the defence sector (€ million)

Country	2012	2013	2014	2015	2016	2017	2018
Austria	620	696	663	610	727	734	739
Belgium	772	819	824	818	691	746	741
Bulgaria	113	130	223	252	170	157	208
Croatia	245	228	213	249	217	201	209
Cyprus	102	47	39	35	46	129	107
Czech Republic	626	572	407	816	470	514	704
Denmark	2.013	1.888	1.668	1.640	1.784	2.039	2.094
Estonia	219	225	225	249	363	333	365
Finland	1.715	1.809	1.718	1.899	1.658	1.811	1.592
France	16.678	16.581	15.772	18.487	20.843	20.711	20.851
Germany	18.098	17.352	16.016	17.078	18.320	19.968	22.266
Greece	1.251	929	1.653	1.470	757	1.613	816
Hungary	357	339	290	395	445	798	760
Ireland	127	134	214	228	243	194	294
Italy	5.623	4.831	4.815	5.132	6.766	6.743	6.011
Latvia	78	84	102	119	211	264	354
Lithuania	100	98	114	190	249	326	386
Luxembourg	65	51	44	36	85	68	150

¹¹⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0407&from=EN>

¹¹⁸ Estimates based on COFOG classification for defence (GFO2) by general government (aggregates: gross fixed capital formation, intermediate consumption, and social transfers in kind – purchased market production), table gov_10a_exp, as in the Evaluation of Directive 2009/81/EC and in line with DG GROW's methodology to estimate total public procurement. Estimates are for the total (not only military) defence procurement covering 5 parts: military defence procurement, civil defence procurement, foreign military aid procurement, R&D defence procurement and defence n.e.c procurement (see SWD(2016) 407 final). The figures in Table 20 of this study are thus those for military defence procurement in table 2 of the SWD + the 4 additional parts above.

Country	2012	2013	2014	2015	2016	2017	2018
Malta	14	11	24	36	17	24	14
Netherlands	2.946	3.146	3.087	3.335	3.652	4.080	4.459
Norway	3.081	3.122	3.116	3.173	3.172	3.801	4.068
Poland	2.341	2.941	2.381	3.018	2.825	3.673	3.646
Portugal	538	480	491	521	300	433	502
Romania	210	180	361	524	759	751	577
Slovakia	227	225	306	233	271	385	423
Slovenia	112	82	74	70	99	111	144
Spain	3.270	3.493	2.759	3.975	4.440	4.007	3.942
Sweden	3.843	4.059	3.441	3.055	3.426	3.458	3.514
Switzerland	2.645	2.719	2.595	2.964	3.096	3.189	3.087
United Kingdom	33.766	31.906	34.390	36.927	31.623	30.012	30.459
Total	101.796	99.175	98.024	107.531	107.722	111.270	113.480

Source: Eurostat, gov_10a_exp.

The figures on public procurement were triangulated and cross-checked against available relevant literature, such as the already quoted “*Evaluation of Directive 2009/81/EC on public procurement in the fields of defence and security*” or the study on “*The impact of the defence package Directives on European defence*”.¹¹⁹

5.7.1.4 Total amount of public procurement

The total amount of public procurement in each country for 2018 was therefore calculated as the simple sum of the latest available figure on the total amount of public procurement of each component (classical, utilities and defence). The results are presented in the following table.

Table 88. Estimates of total amount of public procurement, including defence (€ million)

Country	2018 (latest available figures)
Austria	72.391
Belgium	75.249
Bulgaria	8.598
Croatia	10.971
Cyprus	2.669
Czech Republic	39.750
Denmark	45.223
Estonia	4.487
Finland	47.906
France	416.374
Germany	630.514
Greece	21.493
Hungary	23.131
Ireland	28.595
Italy	253.238
Latvia	4.965
Lithuania	5.444
Luxembourg	8.305
Malta	1.918
Netherlands	164.319

¹¹⁹ European Parliament, Policy Department, Directorate-General for External Policies, The impact of the 'defence package' Directives on European defence, 2015.

Country	2018 (latest available figures)
Norway	72.043
Poland	78.802
Portugal	31.438
Romania	27.772
Slovakia	20.990
Slovenia	6.915
Spain	159.621
Sweden	86.386
Switzerland	73.088
United Kingdom	445.285
Total	2.867.879

Source: Eurostat table Government revenue, expenditure and main aggregates [gov_10a_main], Eurostat table General government expenditure by function (COFOG) [gov_10a_exp], Eurostat table Use table at purchasers' prices [naio_10_cp16]. (*) For Malta and Switzerland, data were extrapolated from Cyprus and Poland respectively.

5.7.2 Estimation of TED-published and non-TED-published public procurement

As detailed in the previous section, figures on the overall volume of public procurement in the classical, defence and utilities sectors can be retrieved from Eurostat. In addition to this, the Study team estimated the amount of public procurement that is published in the TED dataset and in the various non-TED datasets collected within the framework of the study.

Estimating TED-published public procurement

The total amount of TED-published public procurement was estimated as follows¹²⁰ : for each country, the contract values of all calls for tender¹²¹ published in TED were added up (including estimated values, in accordance with the methodology presented in Section 5.5 above), thus calculating the volume of TED-published public procurement in the classical, utilities and defence sectors. In addition, the following manual adjustments were carried out in all countries:

- Manual verification of all contract notices above €100 million, thus allowing to correct large-size misreported values;
- Manual adjustment of all framework contracts values, taking into consideration only the value corresponding to the first four years;
- Manual adjustment of all contract notices below €100 million based on the non-award rate, namely the ratio between non-awarded contracts and the total number of contract award notices in 2018;¹²²
- Manual adjustment of all contract notices below €100 million based on the assumption that the value of CNs is on average higher than the value of CANs.

In the context of this study, the TED dataset was used as a proxy of above EU-thresholds published procurement. Since the TED contains both above and below EU-thresholds calls for tender, all calls for

¹²⁰ The methodology was inspired by the methodology adopted by DG GROW to estimate the total amount of public procurement published in TED (available in DG GROW – 2019 – Public Procurement Indicators 2017). However, it was not replicated since the complexities of the approach did not allow to make the methodology replicable across different years.

¹²¹ For the classical sector, the following standard procurement forms were used: 1, 2, 21. For the utilities sector, the following standard procurement forms were used: 4, 5, 7, 22. For the defence sector, the following standard procurement forms were used: 16, 17.

¹²² The information on whether a procurement procedure was discontinued is available only in TED standard forms 2.0.9.

tender below €144,000 were removed from the TED dataset.¹²³ As a result, the study obtained the following estimates for the total amounts of public procurement published in TED in the classical and utilities sectors.

Table 89. Estimates of TED-published public procurement in the classical and utilities sectors (€ million)

Country	TED-published procurement in the classical sector	TED-published procurement in the utilities sector
Austria	3.985	581
Belgium	7.971	1.730
Bulgaria	3.114	2.351
Croatia	2.459	1.210
Cyprus	364	323
Czech Republic	8.790	2.326
Denmark	11.158	3.129
Estonia	729	140
Finland	8.282	997
France	56.388	6.728
Germany	26.253	3.045
Greece	3.610	1.542
Hungary	1.576	308
Ireland	6.981	968
Italy	63.170	12.802
Latvia	1.189	248
Lithuania	2.683	539
Luxembourg	639	64
Malta	327	40
Netherlands	12.074	1.121
Norway	12.076	3.734
Poland	11.700	4.677
Portugal	2.429	539
Romania	10.053	2.946
Slovakia	4.834	583
Slovenia	852	215
Spain	34.657	4.936
Sweden	11.357	1.167
Switzerland	10.445	1.565
United Kingdom	195.254	18.660
Total	515.399	79.215

Note: TED-published procurement in the defence sector was not used in the study

Source: Author's elaboration

¹²³ While in TED it is possible to distinguish between different types of contract (supplies, services, works), this information is not available in the non-TED datasets. Therefore, in order to use the same approach to estimate the total amount of public procurement and avoid double counting, it was decided to eliminate all below EU-threshold calls for competition regardless of their type of contract.

Estimating non-TED-published public procurement

A similar approach was adopted for the estimation of non-TED published procurement : in each country, the values of all calls for tender were added up (including estimated values, in accordance with the methodology presented in Section 5.5 above). Differently from TED-published procurement, no distinction was made between different sectors.

In the context of this study, the non-TED datasets have been used as a proxy of below EU-thresholds published procurement. Thus, all calls for tender above €5,5 mn were removed from non-TED datasets (above this threshold a call for tender is certainly above EU-thresholds).¹²⁴

Table 90. Estimates of non-TED-published public procurement (€ million)

Country	non-TED-published procurement (€ million)
Austria	693
Belgium	1.857
Bulgaria	5.158*
Croatia	5.913*
Cyprus	326
Czech Republic	8.281
Denmark	166
Estonia	291
Finland	1.762
France	31.402
Germany	12.507
Greece	9.083*
Hungary	470
Ireland	1.408
Italy	51.705
Latvia	142
Lithuania	2.201*
Luxembourg	53
Malta	83
Netherlands	232
Norway	4.649
Poland	25.048
Portugal	2.095
Romania	7.184
Slovakia	2.942
Slovenia	1.035
Spain	14.728
Sweden	2.075
Switzerland	1.587
United Kingdom	5.010
Total	200.089

(*) Note: For these countries, the estimate of non-TED-published procurement was not used for the extrapolations of unpublished explicit PPI, as it was assumed that all below EU-threshold calls for tenders were already published in the TED database.

Source: Author's elaboration

¹²⁴ See note 134.

5.8 Limitations

The results of the study presented throughout the present report rely on a number of assumptions and need to be taken into consideration with caution and with a clear understanding of the limitations of data and of the subsequent analysis. The following limitations emerged as particularly relevant:

- **Coverage of data.** The coverage of metadata varies strongly across different countries and across different data sources. While TED provides all the 15 variables required for the study, other sources may lack up to 7 variables. In order to address the issue, a number of metadata had to be manually filled in after reviewing the procurement description and documentation. This was especially the case for the type of public procurer and the domain of public sector activity.
- **Availability of data.** In addition to coverage issues, published notices are often missing a significant number of data points. In particular, contract values appear to be frequently unavailable. As in the previous case, a substantial amount of gap-filling manual work turned out to be necessary and, as far as contract values are concerned, a dedicated methodology to estimate missing values was developed.
- **Availability of tender documentation.** Another key variable for the study that turned out to be frequently unavailable are links to the full tender documentation. The current mode of publication and collection of calls for tenders does not always allow for a straightforward access to tender documents. For this reason, in the framework of the study the machine learning tool used for the identification of PPIs only analysed tender documents when directly downloadable and accessible.
- **Homogeneity of data.** Although the use of variables allows for the standardisation of information, a certain degree of data heterogeneity remains. This is mainly due to the fact that public procurers – when filling in the details of their respective notices – may have different data input practices. For instance – when stating the value of a contract – certain countries may use commas or dots as thousands separators, while others may not use thousands separators at all. Moreover – in addition to Norway and Switzerland – 9 other countries use a currency different than the Euro, further increasing the differences in contract values data (and the PPP approach was needed to attempt to mitigate this issue). Data quality issues may also result from mere clerical mistakes, such as typos, repeated words, and content inserted in the wrong place.
- **Definitions.** The lack of a commonly accepted EU wide definition of PPI that is understood and applied in the same way in all the different countries is a key challenge of the study. PPIs are defined differently across countries and relevant data are not systematically collected by public procurers. As a result, the training of the machine learning tool was particularly complex, and the development of the machine processable definition required a considerable amount of interactions with the Commission. It was only after the consultation of a variety of sources and various thematic experts that the machine processable definition was considered to be sufficiently comprehensive, as presented in Annex IV.
- **National thresholds.** Below EU-thresholds, each country applies different national thresholds, with a variety of procurement procedures and the corresponding publication requirements for public procurers. As a result, the available procurement datasets that were retrieved and collated in the framework of the study do not offer the same degree of coverage of calls for tenders. In certain countries with stricter procurement rules that mandate the publication of notices, it was possible to retrieve a high number of procurements. To the contrary, in other countries with more relaxed rules that allow for the use of more direct procurement procedures, the number of collected notices was more modest. While the study adopted multiple measures to cross-check PPI estimates, these should be taken into consideration with caution.

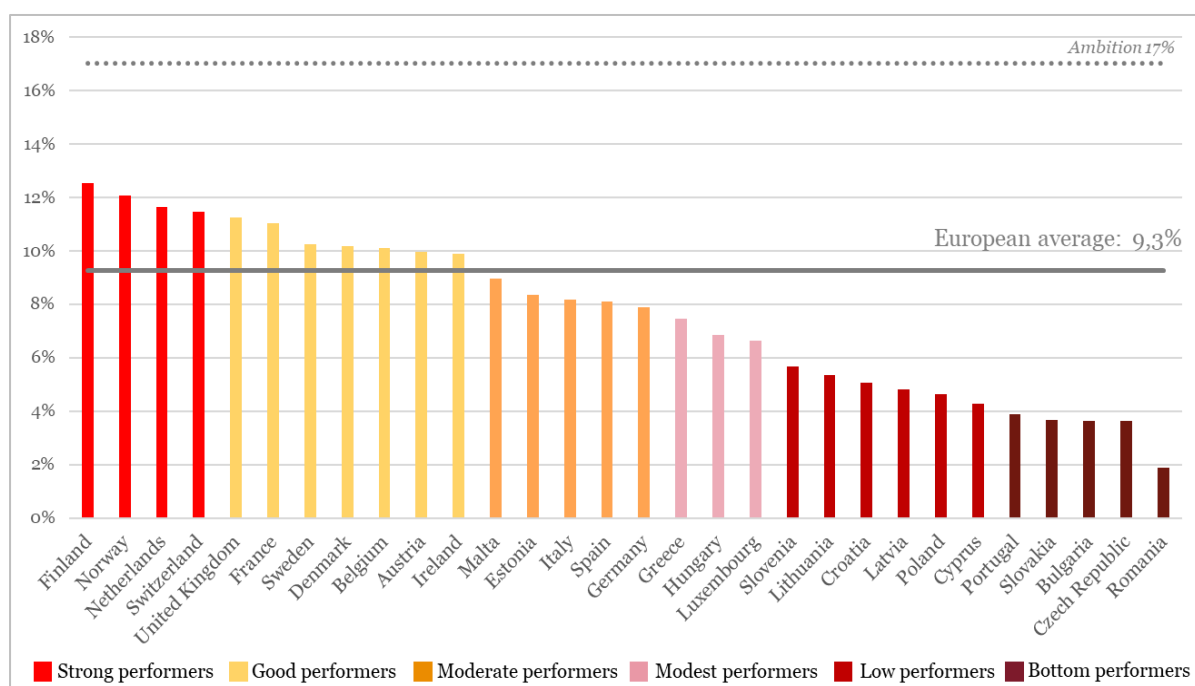
6 Benchmarking of PPI investments: key findings

6.1 PPI investments: ranking and conclusions

6.1.1 PPI investments: ranking

In 2018, the total amount of PPI investments across Europe (EU 27, Norway, Switzerland and the UK) reaches €255 bn.¹²⁵ The average amount of PPI investments across the 30 countries corresponds to 9,3% of the total amount of public procurement. The following chart presents the ranking of the 30 countries in terms of their share of PPI investments out of the total amount of public procurement in the country.

Figure 22. Ranking and clustering of countries based on their share of PPI investments in the classical and utilities sectors out of total public procurement in the classical and utilities sectors (%)



Source: Author's elaboration

Countries are clustered into different groups based on their performance. As detailed in Chapter 5, clusters were created based on how close countries are to reaching the level of ambition identified in section 5.1 (table 69), namely that 17% of the total amount of public procurement in each country should consist of PPI.¹²⁶ The higher the share of PPI investments out total public procurement in a given country, the closer that country is to the ambition level and therefore the higher its performance and its position in the benchmarking. Countries with the highest performance are assigned to the 'strong performers' cluster. To the contrary, countries with the lowest degrees of performance are assigned to the 'bottom performers' cluster. Between these two clusters, countries with intermediate degrees of attainment are clustered as 'low', 'modest', 'moderate' or 'good performers'.

The table below presents the absolute amount of PPI investments and its relative share out of total public procurement for each country. In addition, the last two columns show the degree of attainment of the ambition level, also indicating the corresponding cluster.

¹²⁵ This figure does not include PPI investments in the defence sector, which is provided separately in section 7.1.3 and in aggregate for methodological and confidentiality reasons.

¹²⁶ Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve.

Table 91. PPI investments in the classical and utilities sectors

Country	PPI, in € mn (not incl. defence)	PPI, as share out of public procurement (not incl. defence)	Degree of attainment of ambition level	Cluster
Finland	5.811,5	12,5%	73,8%	Strong performer
Norway	8.193,5	12,1%	70,9%	Strong performer
Netherlands	18.609,8	11,6%	68,5%	Strong performer
Switzerland	8.021,8	11,5%	67,4%	Strong performer
United Kingdom	46.591,5	11,2%	66,1%	Good performer
France	43.586,5	11,0%	64,8%	Good performer
Sweden	8.497,7	10,3%	60,3%	Good performer
Denmark	4.390,8	10,2%	59,9%	Good performer
Belgium	7.520,8	10,1%	59,4%	Good performer
Austria	7.129,9	10,0%	58,5%	Good performer
Ireland	2.801,7	9,9%	58,2%	Good performer
Malta	170,6	9,0%	52,7%	Moderate performer
Estonia	344,1	8,3%	49,1%	Moderate performer
Italy	20.186,4	8,2%	48,0%	Moderate performer
Spain	12.616,7	8,1%	47,7%	Moderate performer
Germany	47.941,7	7,9%	46,4%	Moderate performer
Greece	1.539,7	7,4%	43,8%	Modest performer
Hungary	1.532,6	6,9%	40,3%	Modest performer
Luxembourg	540,7	6,6%	39,0%	Modest performer
Slovenia	383,8	5,7%	33,3%	Low performer
Lithuania	270,1	5,3%	31,4%	Low performer
Croatia	545,0	5,1%	29,8%	Low performer
Latvia	221,1	4,8%	28,2%	Low performer
Poland	3.489,2	4,6%	27,3%	Low performer
Cyprus	109,5	4,3%	25,1%	Low performer
Portugal	1.204,2	3,9%	22,9%	Bottom performer
Slovakia	750,1	3,6%	21,5%	Bottom performer
Bulgaria	304,7	3,6%	21,4%	Bottom performer
Czech Republic	1.415,6	3,6%	21,3%	Bottom performer
Romania	511,7	1,9%	11,1%	Bottom performer
<i>European weighted average</i>	255.233,1	9,3%	54,5%	Moderate performer

Source: Author's elaboration

Europe as a whole is a moderate performer on PPI investments (counting all 30 countries). The weighted average of the share of public procurement devoted to the adoption of innovative solutions in 2018 across Europe is 9,3%, which is just above half of the ambition level, the level that a healthy economy needs for full speed public sector modernisation. In other words, Europe is using only half of the potential power of public procurement of innovative solutions to boost economic growth. Indeed, the majority of countries (18) have not yet reached 50% of the ambition level, and 5 countries are still below 25% of it. Also well-performing countries still have significant room for improvement, since even the strongest

performer does not reach three quarters of the level of ambition yet. For this reason, all European public procurers need to step up their efforts in carrying out public procurements of innovative solutions, so to fully support public sector modernisation and competitiveness.

Finland, Norway, the Netherlands and Switzerland are **strong performers**, with a degree of attainment of the ambition level of more than 65%. The overall share of PPI in these countries is well above the European average and they are definitely on the good path for reaching the ambition level. **Finland ranks 1st with a share of PPI of 12,5%**, closely followed by **Norway** (12,1%), the **Netherlands** (11,6%) and **Switzerland** (11,5%). At the same time, this group of countries still needs to increase investments in PPI to fully capitalise the positive effects of innovation in the public sector.

They are followed by a group of **good performers** (Austria, Belgium, Denmark, France, Ireland, Sweden and the UK) characterised by a degree of attainment of the ambition above 55%. These countries report a share of PPI above the European weighted average of 9,3%, ranging from 9,9% in Ireland to 11,2% in UK. Despite showing encouraging progress on the path of reaching a satisfactory proportion of PPI out of total public procurement, additional efforts are still needed to reach the ambition level.

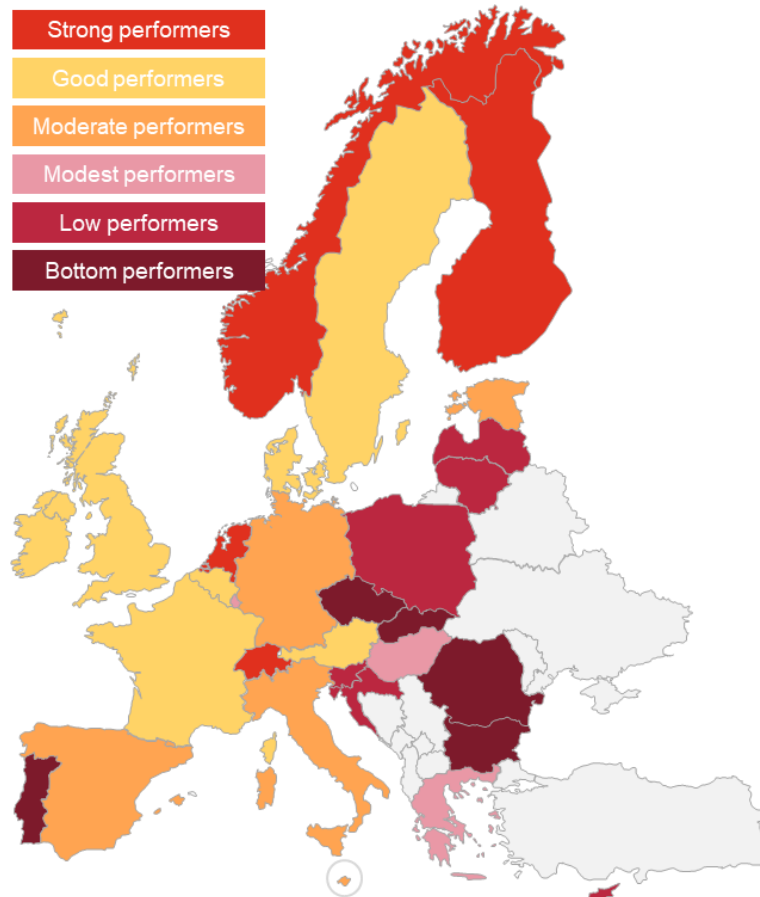
The share of PPI in the remaining countries is below the European weighted average. In these countries, a relevant increase of investments in PPI is needed in the following years. The group of **moderate performers** – identified by a degree of attainment of the ambition level comprised between 45% and 55% – includes countries where the share PPI is slightly below the European weighted average (Germany, Estonia, Italy, Malta and Spain). This group of countries still needs to step up considerably its investments in the adoption of innovative solutions.

Modest performers, namely Greece, Hungary and Luxembourg, present a degree of attainment ranging between 35% and 45% of the ambition level. This group is followed by the **low performers** cluster, which comprises Slovenia, Lithuania, Croatia, Latvia, Poland and Cyprus, characterised by a degree of attainment of the ambition comprised between 25% and 35%. These countries, where the proportion of PPI out of total procurement ranges between 4,3% and 5,7%, need to considerably increase investments devoted to innovation procurement to enable full-speed modernisation of the public sector. With the exception of Latvia, the experienced delay is reflected in the type of innovative solutions purchased: compared to the European average, low performers still rely on a large extent on the adoption of incremental innovations, such as existing solutions used in a new way or sector and innovative combinations of existing solutions.

The last group consists of countries with a degree attainment of the ambition level below 25% and are for this reason labelled as **bottom performers** (Bulgaria, Czech Republic, Portugal, Romania, Slovakia). With less than 4% of their public procurement devoted to investments in innovative solutions, these countries are significantly below the European weighted average and the ambition level, showing a considerable delay in their ability to support innovative processes the public sector.

In terms of **geographical distribution**, some interesting patterns emerge. Countries presenting the highest percentage of PPI investments out of total procurement are usually Northern European countries, while Central European countries tend to be included in the group of moderate performers. Eastern European countries fall usually in the group of modest and low performers. Indeed, some relevant exception occur. For example, Estonia falls under the group of strong performers while Portugal and Ireland are low performers. An overview of the geographical distribution of the percentage of PPI in the classical and utilities sectors is presented in the figure below.

Figure 23. Geographical distribution according to the share of PPI investments out of total public procurement in the classical and utilities sectors



Source: Author's elaboration

The geographical distribution also shows that size of a country's economy is not what matters most in the performance on procuring innovatively. In order to treat small and large countries equally fairly, the benchmarking is based on relative numbers (PPI investments as a share out of total public procurement investments). Indeed, in absolute terms, the four largest countries (Germany, the UK, France and Italy) are also the largest investors in PPI investment. They represent together 62% of the total PPI investment across Europe. However, looking at the relative numbers shows that these countries are not the leading investors on innovation procurement in Europe. For example, the largest European country Germany spends a significantly smaller percentage of its purchasing power on the adoption of innovative solutions to modernise its public services (7,9%) than some of the smaller countries such as Finland and Norway (12,5% and 12,1% respectively).

6.1.2 PPI investments: conclusions

The proportion of public procurement that is devoted to the purchase of innovative solutions is influenced by a number of factors. To provide some insights on how different countries could improve their performance in terms of PPI investment in the future, these factors were further analysed both at national level (for more info, see the country profiles in Annex I) and at European level.

- **The type of innovative solutions purchased:** On average, 84% of investments on innovative solutions across Europe are transformative innovations. Transformative solutions correspond either to solutions that are new to the market or significantly improved solutions. Conversely, 16% of PPI falls under the category of incremental innovations, which are already existing solutions used or combined in a new way or in a new sector. According to the evidence collected in this study, leading countries tend to invest more on transformative innovations compared to countries lagging behind. In addition, leading countries tend to invest a larger share in innovative solutions that are new to the market.

- The level of **investment readiness of the different domains of public sector activity**: Overall across Europe, the largest share of investments in innovative solutions comes from public procurers that operate in the following two sectors: general public services (35%) and healthcare (21%). Public transport is another domain of public sector activity in which public procurers are responsible for a large share of the total amount of PPI investment across Europe (approximately 10%). The rest of PPI investments is spread across the remaining domains of public sector activity (never reaching an average share higher than 8%). PPI investments in green solutions are prominent across different domains of public sector activity (green mobility, higher energy efficiency, carbon reduction, circular waste treatment, cleaner water etc.): this shows the important impact that political support (in this case to 'green' the public sector) can have on PPI investments. The analysis also highlighted significant differences in terms of average contract values across public sector domains, as well as in terms of number of calls for tenders. These differences are most probably related to both the number of procurers potentially operating in each domain and on the level of public sector activity at which these procurers operate. For instance, procurers in the 'education, recreation and culture' domain carry out a very high number of calls for tenders. However, calls for tenders in this domain report the lowest average contract value, most probably due to the fact that procurers in this domain are usually small size ones, e.g. local schools. To the contrary the 'postal services' domain presents the highest average contract value despite having the lowest share of PPI investment and despite being the sector with the lowest number of calls for tenders. This is potentially linked to the fact that the majority of postal service-related procurers are medium-to-big scale procurers operating at regional or national level.
- **Risk aversion in requesting innovations and openness to accept offers with unsolicited innovative solutions**: The breakdown between explicit and implicit PPI investments provides insights on the procurers' attitude towards innovations. The low proportion (29%) of explicit PPI investments (the purchase of innovative solutions explicitly requested by public procurers in calls for tenders) indicates that public procurers across Europe are generally risk-averse in requesting innovations; they don't straightforwardly set out themselves to purchase innovations. Conversely, the high proportion (71%) of implicit PPI investments (the purchase of innovative solutions proposed by the supplier in response to a call for tenders in which the procurer did not directly request them) may indicate that public procurers across Europe are generally more cautious, however open to accept offers with unsolicited innovative proposals.
- **Level of publication of innovation procurement opportunities to suppliers**: Only a limited share of PPI investments across Europe (22%) was published in the datasets collected in the framework of the study. Considering that 16 different data sources were used, it emerges that the majority of PPI investments is purchased through procurements with only very limited or no form of publication (direct awards). By not publishing PPI calls for tenders widely, European public procurers are missing out on a great potential of innovative solutions that could speed up public sector modernisation, since both national and cross-border suppliers with innovative solutions are not duly informed about these business opportunities.
- **The investment readiness of different levels of public sector activity**: Overall across Europe, significant shares of PPI investments are carried out by regional and local procurers, highlighting that innovation is taking place to a considerable extent at sub-national level, and that most of the time it is implemented through traditional procedures. It should also be noted that the share of PPI investments published by regional and local authorities is lower compared to their weight in overall public procurement spending. This may indicate a lack of awareness and/or engagement of sub-national buyers on PPI procurement. While there is no strong pattern related to the performance clusters, a slight tendency of strong performing countries to perform most of their PPI investments at regional level has been observed.
- **The type of contract used**: Across Europe, PPI investments are mostly carried out using services and supplies contracts, and to a smaller extent using works contracts (20%). Despite that, supplies and works PPI contracts have not reached the same critical mass yet as supplies and works contracts in non-innovative procurements. Overall, leading countries seem to be

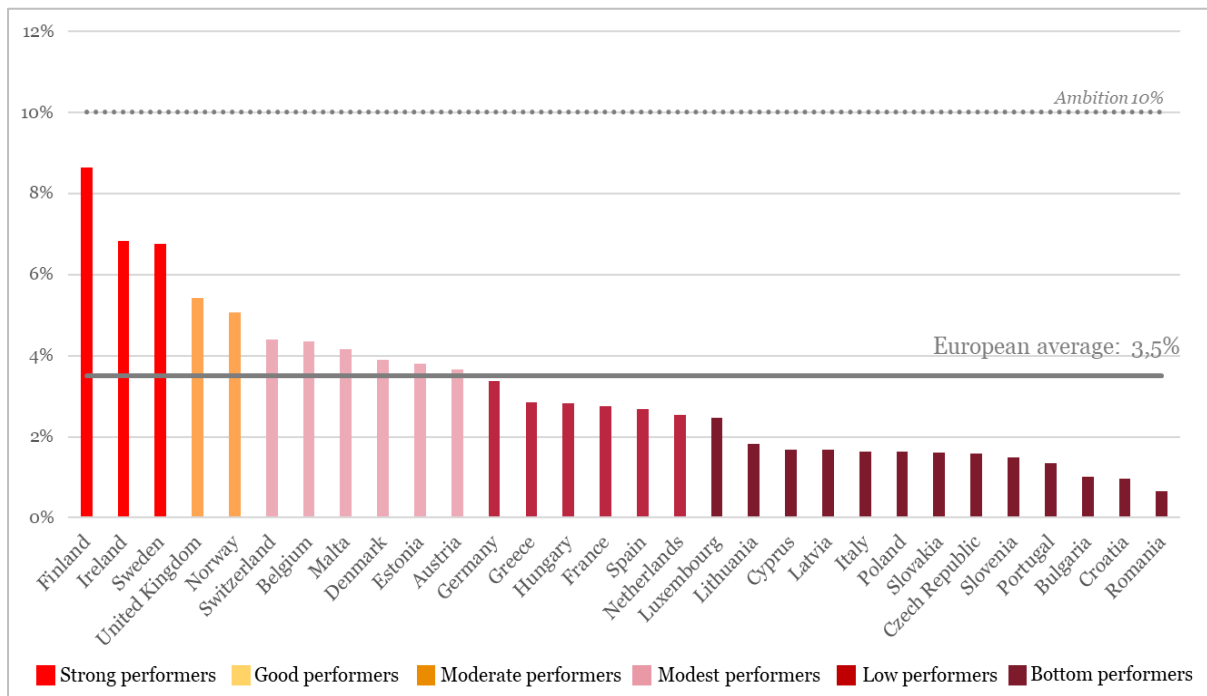
implementing significantly more PPI investments using services contracts than countries lagging behind.

6.2 ICT-based PPI investments: ranking and conclusions

6.2.1 ICT-based PPI investments: ranking

ICT is a key driver for the adoption of innovative solutions in the public sector. Therefore, adequate investments in procuring innovative ICT-based solutions (ICT-based PPI investments) is expected to have positive effects on the ability of the countries to modernise the public sector and boost economic growth and competitiveness. In this regard, the analysis of ICT-based innovative solutions allows to better understand the most relevant patterns of one of the key drivers of innovation across Europe. In 2018, **the total amount of innovative solutions devoted to the purchase of ICT-based solutions across Europe accounted for €96 bn.** This represents approximately **38% of the total amount of PPI investment** and **3,5% of the total amount of public procurement in Europe.** The following table presents the ranking of the 30 countries analysed in terms of their share of ICT-based PPI investments out of the total amount of public procurement in the country. Alike for the benchmarking of PPI investments, also here only the classical and utilities sectors are shown in the graph.

Figure 24. Share of ICT-based PPI investments in the classical and utilities sectors out of total procurement in the classical and utilities sectors (%)



Source: Author's elaboration

Also for ICT-based PPI investments, the 30 countries were clustered into 6 groups, taking into account their distance from the level of ambition identified in section 5.1 (table 69). Countries with the highest degrees of attainment of the ambition level are classified as 'strong performers' cluster, while countries with the lowest degrees of attainment fall within the 'bottom performers' cluster.

For each country, the table below presents: (i) the absolute amount of ICT-based PPI investment, (ii) the relative share of ICT-based PPI procurement out of total public procurement, (iii) the relative share of ICT-based PPI investment out of total PPI investment, (iv) the degree of attainment of the ambition level and the corresponding the cluster.

Table 92. Amount of ICT-based PPI investment in the classical and utilities sectors

Country	ICT-based PPI, in € mn (not incl. defence)	ICT-based PPI, as share out of public procurement (not incl. defence)	ICT-based PPI, as share out of PPI (not incl. defence)	Degree of attainment of ambition level	Cluster
Finland	4.005,6	8,6%	68,9%	86,5%	Strong performer
Ireland	1.933,9	6,8%	42,0%	68,3%	Strong performer
Sweden	5.593,2	6,7%	21,7%	67,5%	Strong performer
United Kingdom	22.435,5	5,4%	38,3%	54,1%	Moderate performer
Norway	3.437,5	5,1%	48,2%	50,6%	Moderate performer
Switzerland	3.071,7	4,4%	24,9%	43,9%	Modest performer
Belgium	3.237,5	4,3%	65,8%	43,5%	Modest performer
Malta	79,1	4,2%	38,3%	41,5%	Modest performer
Denmark	1.681,1	3,9%	43,0%	39,0%	Modest performer
Estonia	157,1	3,8%	36,7%	38,1%	Modest performer
Austria	2.614,4	3,6%	69,0%	36,5%	Modest performer
Germany	20.451,3	3,4%	46,4%	33,6%	Low performer
Greece	591,0	2,9%	45,6%	28,6%	Low performer
Hungary	632,4	2,8%	20,0%	28,3%	Low performer
France	10.861,8	2,7%	33,0%	27,5%	Low performer
Spain	4.168,0	2,7%	42,7%	26,8%	Low performer
Netherlands	4.046,1	2,5%	38,4%	25,3%	Low performer
Luxembourg	201,0	2,5%	41,3%	24,6%	Bottom performer
Lithuania	92,3	1,8%	37,2%	18,2%	Bottom performer
Cyprus	43,2	1,7%	26,1%	16,9%	Bottom performer
Latvia	77,4	1,7%	34,2%	16,8%	Bottom performer
Italy	4.027,4	1,6%	19,2%	16,3%	Bottom performer
Poland	1.222,5	1,6%	35,0%	16,3%	Bottom performer
Slovakia	329,6	1,6%	35,0%	16,0%	Bottom performer
Czech Republic	620,6	1,6%	39,4%	15,9%	Bottom performer
Slovenia	100,2	1,5%	34,4%	14,8%	Bottom performer
Portugal	413,9	1,3%	43,9%	13,4%	Bottom performer
Bulgaria	85,8	1,0%	28,1%	10,2%	Bottom performer
Croatia	104,5	1,0%	43,8%	9,7%	Bottom performer
Romania	177,4	0,7%	34,7%	6,5%	Bottom performer
<i>European weighted average</i>	96.493,0	3,5%	39,2%	35%	Modest performer

Source: Author's elaboration

Europe as a whole is a low performer on ICT-based PPI investments (counting all 30 countries). The weighted average of the share of public procurement that is devoted to the adoption of ICT-based innovations in 2018 across Europe is only **3,5%**, which is roughly one third of the ambition level of 10% that a healthy economy needs to reach full speed public sector

modernisation. This **factor 3 underinvestment in the adoption of ICT-based solutions** is holding back Europe from fully capitalising on the transformative power of ICTs to fuel public sector modernisation, economic growth and competitiveness. For this reason, all European public procurers should step up their efforts in carrying out public procurements of ICT-based innovations, so to fully support public sector modernisation and competitiveness.

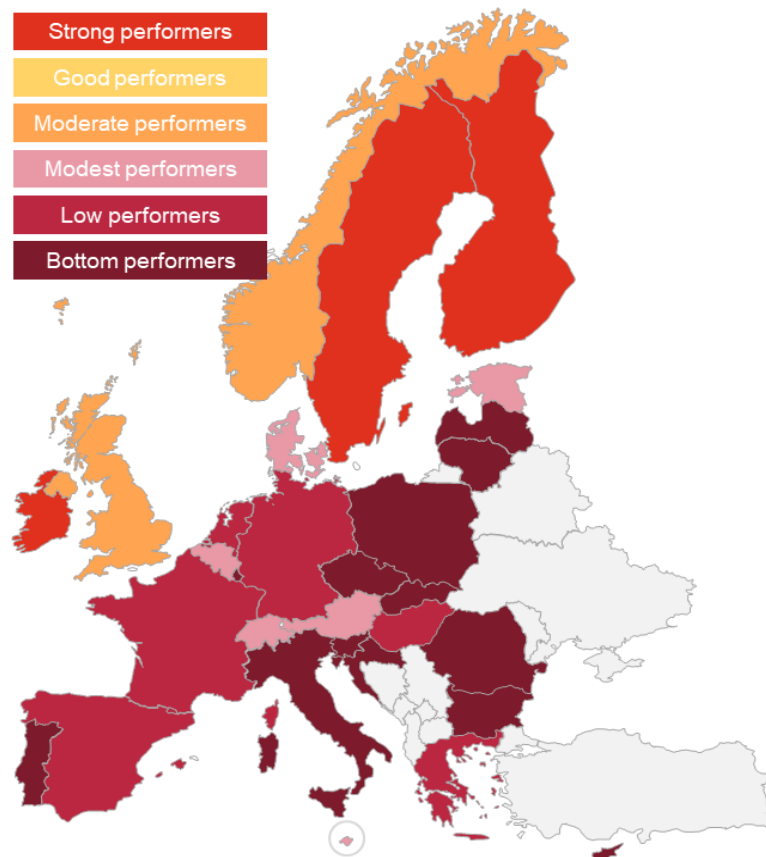
The underinvestment in the adoption of ICT-based innovations is also highlighted by the fact that only three countries are in the cluster of strong performers, and there are no countries in the cluster of good performers. The only country that is in the group of strong performers in the benchmarking of both overall PPI investments and ICT-based PPI investments is Finland.

Finland, Ireland and Sweden fall in the cluster of **strong performers**, with a share of ICT-based PPI investment that is well above the European weighted average. Although their share of procurement of ICT-based innovations out of total public procurement is below the ambition level of 10%, all three countries are well positioned. To reach the ambition level and capitalise on the positive effects of ICT to speed up their public sector modernisation, they will have to dedicate some extra effort over the coming years.

The rest of the countries are distributed among a small group of **moderate performers** (Norway and the UK), two sizeable groups of **modest performers** (Austria, Belgium, Denmark, Estonia, Malta and Switzerland) and **low performers** (France, Germany, Greece, Hungary, Netherlands and Spain) and a large group of **bottom performers** (13 countries). These countries all have a share of ICT-based PPI investment that is well below the 10% ambition level. In two thirds of the countries - all modest, low and bottom performers - the share of ICT-based PPI investment is below the European average share (3,5%). As a result, across most countries a considerable increase in purchasing innovative ICT-based solutions is needed to beef up public sector modernisation.

In terms of **geographical distribution**, most of the Western and Central European economies – which in terms of overall PPI investment were classified as good or moderate performers – have joined Eastern and Southern countries in the lower clusters, when it comes to ICT-based PPI investments. This can be seen as an indicator of a generally weak performance across Europe in relation to the degree of attainment of the ambition level for ICT-based PPI investments, compared to the level of attainment in terms of the ambition level for the overall PPI investments. This suggests that **greater efforts are needed in the public sector across Europe when it comes to the adoption of ICT-based innovations compared to the adoption of innovations in general**. To the contrary, countries from the Northern part of Europe tend to confirm their good performance in overall PPI investments also in terms of ICT-based PPI investments, representing the majority of countries in the cluster of strong performers. Still, there is still significant room for improvement also across these countries.

Figure 25. Geographical distribution according to the share of ICT-based PPI investments out of total public procurement in the classical and utilities sectors



Source: Author's elaboration

The geographical distribution also shows that size of the country's economy is not what matters most in the performance on procuring innovatively. In order to treat small and large countries equally fairly, the benchmarking is based on relative numbers (ICT-based PPI investments as a share of total public procurement investments). In absolute numbers, contrary to what was found for the overall PPI investments – where the four countries with the largest total procurement power (Germany, the UK, France and Italy) were also the largest investors in PPI investment – this is not the case for ICT-based PPI investments. Although Germany has a larger total public procurement spending than the UK, it spends less on ICT-based innovations. Although France has a total public procurement spending that is only 10% smaller than that of Germany or the UK, it spends only half the amount that Germany or the UK spend on ICT-based innovations. Italy, with a total procurement power of 40% of that of the UK or Germany, spends less than one fifth on ICT-based innovations and roughly the same amount of Finland, which has a considerably lower procurement power. Relative to the size of its purchasing power, Finland is investing a significantly larger share of its total public procurement budget in the adoption of ICT-based innovations, thereby fuelling public sector modernisation faster.

6.2.2 ICT-based PPI investments: conclusions

Different factor may influence the proportion of public procurement that is devoted in a country to the purchase of ICT-based innovations. To provide some insights on how different countries could improve their performance in terms of ICT-based PPI investment in the future, different factors were further analysed for reach country individually (for more info, see the country profiles in Annex I) and for Europe as a whole.

- **The type of innovative solutions purchased:** Across Europe, ICT-based PPI investments consisted mostly of transformative innovations (79% of transformative innovations versus 21% of incremental innovations). The proportion that is invested in transformative ICT-based innovations is lower in comparison with that for overall PPI investments (84% of

transformative innovation versus 16% of incremental innovation). This suggests that Europe needs to step up its game in particular in the early adoption of transformative ICTs. Indeed, those countries that are already close to the ambition level for ICT-based PPI investment, i.e., the strong performers, already purchase the highest shares of transformative innovations.

- **Adoption of innovations from different ICT sub-sectors:** Across Europe, public procurers were most keen on buying innovations from the Core ICT subsector. The Core ICT sector accounts for the greatest share of ICT-based PPI investments (54%). Indeed, it accounts for the highest portion of ICT-based PPI investments in 23 out of the 30 countries analysed. Next, the ICT Plus sub-sector accounts for a significant share of ICT-based PPI investments (44%). To the contrary, the Content & Media sub-sector accounted for only 1% of ICT-based PPI investments, with many countries where investments in this sector are close to zero.
- **The level of investment readiness of different domains of public sector activity:** The highest share of investments in ICT-based innovation was made by public procurers that are active in the healthcare sector (30%, which is 9% higher than the share of overall PPI investment in the same sector but still below its weight in total public expenditure). The share of investments made by procurer in general public services, public administration, economic and financial affairs in ICT-based innovations (16%) is 19% lower than the share invested in innovations in general (35%). On the other hand, public procurers active in public order, safety and security invest a 11% higher share in ICT-based innovations (19%) than in innovations in general (8%). In the other domains of public sector activity, including public transport, ICT-based PPI investments are in line with overall PPI investments.
- **The investment readiness of different levels of public sector activity:** Across Europe ICT-based PPI investments are made by national authorities in the majority of cases (69%). This clearly differs from the distribution of overall PPI investments, where more than half of the investment occurs at sub-national level. It also diverges from total public procurement spending, where the share of investments of regional and local authorities is considerably higher. The reason behind this skewed distribution may be due to the lack of awareness and engagement of sub-national public procurers on ICT-based PPI procurement.
- **The type of contract used:** Across Europe, alike for PPI investments, ICT-based PPI investments are mostly carried out using services and supplies contracts, and to a smaller extent using works contracts (8%). ICT-based PPI contracts have a smaller average contract size than PPI contracts in general. In particular, for ICT-based PPI contracts, supplies and works have not reached the same critical mass yet as supplies and works contracts in non-innovative procurements. Leading countries seem to be implementing significantly more ICT-based PPI investments using services contracts than lagging countries.

7 Benchmarking of PPI investments: analysis of results. Commonalities and disparities across countries

This chapter illustrates the key findings in terms of commonalities and disparities that can be derived from the comparison of PPI expenditure in the 30 analysed countries. The figures are based on the calls for tender published in the TED database and in the national databases analysed by this study.

Although the results of the study are based on a large-scale data collection effort, they should be interpreted with a solid understanding of the methodological assumptions made. While a number of mitigating measures and cross-checks were carried out to address data quality and data variability when combining different datasets (see Chapter 5), estimates are still subject to a degree of variability and cross-country comparisons are to be assessed with particular caution.

As usual with similar studies involving multiple estimates and extrapolations, the reliability of the figures provided can be considered to be rather high when considering aggregate values, and progressively lower when looking at more and more detailed breakdowns.

7.1 PPI investments broken down by component

7.1.1 PPI investments in the classical sector (component A)

As explained in section 5.6.1 of the study methodology, the total amount of PPI investment made by public procurers in the classical sector is estimated by adding up three different sub-components of PPI investment: published explicit PPI investments (component A1), unpublished explicit PPI investments (component A2) and implicit PPI investments (component A3).

Overall, in 2018 the **total amount of PPI investment made by public procurers across Europe that are active in the classical sector is €210,4 billion**, including €51,7 billion (24,6%) of explicit PPI procurement and €158,7 billion (75,4%) of implicit PPI procurement. Public procurers in the classical sector seem to be particularly risk averse to launching calls for tenders that explicitly request innovative solutions, but quite open also to accept offers with innovative solutions proposed by suppliers even if they didn't explicitly ask for an innovation.

The highest share of public procurement in the classical sector devoted to innovative solutions was found in the United Kingdom (13,1%), Switzerland (12,8%) and the Netherlands (12,1%). The lowest share of public procurement in the classical sector devoted to innovative solutions occurred in Lithuania (4,1%) and Romania (2,1%).

The following table provides the absolute amount of PPI investments in the classical sector and the relative share out of public procurement in the classical sector for all the analysed countries, with indication of the volumes of each sub-component.

Table 93. Amount of PPI investment in the classical sector, broken down by sub-components A1, A2 and A3, in million €

Country	PPI in the classical sector by component			Total amount of PPI in the classical sector (in € mn)	% of PPI out of public procurement in the classical sector
	Explicit published PPI in the classical sector (A1)	Explicit unpublished PPI in the classical sector (A2)	Implicit PPI in the classical sector (A3)		
Austria	228,7	2.522	3.125,9	5.876,6	11,8%
Belgium	132,0	751	6.181,3	7.064,4	10,7%
Bulgaria	82,1	48	125,9	256,4	4,8%
Croatia	63,3	116	230,5	409,5	5,9%
Cyprus	22,2	57	25,0	104,1	5,4%
Czech Republic	214,7	193	774,4	1.182,4	4,4%
Denmark	638,3	1.304	2.293,5	4.235,9	10,9%
Estonia	36,3	68	108,4	212,8	6,7%
Finland	185,5	470	3.399,1	4.054,9	10,1%
France	1.411,8	3.627	32.635,0	37.673,7	11,9%
Germany	1.408,2	16.977	20.825,6	39.211,0	7,6%
Greece	222,6	762	400,7	1.385,2	8,1%
Hungary	45,1	387	1.006,1	1.438,3	7,5%
Ireland	79,6	144	2.286,7	2.510,1	10,6%
Italy	1.553,9	792	13.316,3	15.662,1	8,8%
Latvia	27,9	36	90,8	155,2	4,8%
Lithuania	72,5	19	65,0	156,4	4,1%
Luxembourg	14,7	130	325,2	470,3	6,6%
Malta	27,6	68	36,1	131,8	10,4%
Netherlands	251,4	2.715	14.584,6	17.551,4	12,1%
Norway	140,1	289	4.613,9	5.043,3	9,9%
Poland	130,6	115	2.769,6	3.015,0	5,3%
Portugal	51,4	207	634,7	893,2	5,0%
Romania	125,8	8	221,0	355,1	2,1%
Slovakia	180,0	168	211,0	559,2	4,5%
Slovenia	34,5	76	236,3	347,1	6,5%
Spain	717,1	604	7.992,2	9.312,9	8,1%
Sweden	952,9	4.361	2.384,5	7.698,0	10,4%
Switzerland	155,8	470	5.982,3	6.607,8	12,8%
United Kingdom	3.573,3	1.419	31.851,2	36.843,2	13,1%
Total	12.780,0	38.904,7	158.732,8	210.417,6	9,8%

Source: Author's elaboration

7.1.2 PPI investments in the utilities sector (component B)

As explained in section 5.6.2 of the study methodology, the total amount of PPI investments made by public procurers in the utilities sector is estimated by adding up three different sub-components of PPI

investment: published explicit PPI investments (component B1), unpublished explicit PPI investments (component B2) and implicit PPI investments (component B3)¹²⁷.

Overall, the **total amount of PPI investment by public procurers across Europe that are active in the utilities sector is €44,8 billion** in 2018, including €23,3 billion (52%) of explicit PPI procurement and €22,6 billion (48%) of implicit PPI procurement. Public procurers in the utilities sector appear to be much less risk averse than procurers in the classical sector in launching calls for tenders that explicitly request innovative solutions, but also less open also to accept offers with innovative solutions proposed by suppliers even if they didn't explicitly ask for an innovation.

The highest share of public procurement in the utilities sector devoted to innovative solutions is found in Finland (28,2%), Norway (18,2%) and Estonia (13,8%). Conversely, the lowest share of public procurement in the utilities sector devoted to innovative solutions occurred in Bulgaria (1,6%), Romania (1,5%) and Cyprus (0,8%).

The following table presents the absolute amount of PPI investment in the utilities sector and the relative share out of public procurement in the utilities sector for all the analysed countries, with indication of the volumes of each sub-component.

Table 94. Amount of PPI investment in the utilities sector, broken down by sub-components B1, B2, B3, in million €

Country	PPI in the utilities sector by component			Total amount of PPI in the utilities sector	% of PPI out of public procurement in the utilities sector
	Explicit published PPI in the utilities sector (B1)	Explicit unpublished PPI in the utilities sector (B2)	Implicit PPI in the utilities sector (B3)		
Austria	16.2	570.4	666.6	1,253.2	5.7%
Belgium	13.9	43.0	399.6	456.4	5.2%
Bulgaria	12.4	2.1	33.9	48.3	1.6%
Croatia	22.5	50.1	62.8	135.5	3.5%
Cyprus	1.0	0.4	4.1	5.5	0.8%
Czech Republic	20.0	44.4	168.8	233.2	1.9%
Denmark	21.7	5.3	128.0	154.9	3.5%
Estonia	25.5	89.9	15.9	131.3	13.8%
Finland	328.4	1,171.3	256.8	1,756.6	28.2%
France	274.8	1,744.4	3,893.6	5,912.8	7.6%
Germany	325.7	6,517.1	1,887.9	8,730.7	9.1%
Greece	50.8	62.0	41.7	154.5	4.2%
Hungary	2.1	14.1	78.1	94.2	3.1%
Ireland	19.8	57.4	214.4	291.6	6.4%
Italy	701.9	1,320.4	2,502.0	4,524.3	6.6%
Latvia	10.4	37.2	18.3	65.9	4.9%
Lithuania	51.7	51.9	10.1	113.7	9.3%
Luxembourg	3.1	43.3	24.0	70.4	6.5%
Malta	2.1	27.8	8.9	38.8	6.0%
Netherlands	26.3	312.7	719.5	1,058.4	7.2%
Norway	707.6	1,679.6	762.9	3,150.1	18.2%
Poland	27.9	14.2	432.0	474.2	2.6%
Portugal	5.5	83.6	222.0	311.0	2.4%

¹²⁷ The figures provided in this section should be regarded with caution. Due to the unreliability of the Eurostat data in the utilities sector, since 2012 DG GROW has stopped including utilities figures in its publications on public procurement indicators at national level.

Country	PPI in the utilities sector by component			Total amount of PPI in the utilities sector	% of PPI out of public procurement in the utilities sector
	Explicit published PPI in the utilities sector (B1)	Explicit unpublished PPI in the utilities sector (B2)	Implicit PPI in the utilities sector (B3)		
Romania	41.9	50.0	64.7	156.6	1.5%
Slovakia	11.6	111.6	67.7	190.9	2.3%
Slovenia	1.7	4.1	30.9	36.7	2.6%
Spain	407.4	1,494.7	1,401.7	3,303.8	8.0%
Sweden	99.1	558.9	141.7	799.7	8.9%
Switzerland	41.0	346.9	1,026.1	1,414.0	7.7%
United Kingdom	356.0	2,097.4	7,295.0	9,748.3	7.3%
Total	3,629.9	18,606.1	22,579.6	44,815.5	7.4%

Source: Author's elaboration

7.1.3 PPI investment in the defence sector (component C)

In order to estimate the total amount of PPI investment in the defence sector, the Study team adopted a different methodology with the aim of addressing the renowned lack of published data on procurement spending in this sector (see section 5.6.3). Given the confidential nature of the information collected by the Study team in relation to defence procurement, this section presents only aggregate figures and estimates that were deemed suitable for publication. All other tables and charts in other sections of this report do not include data on defence procurement, which is purposely kept separate.

The study estimates from the data collected from the 30 countries that **the defence sector in Europe invested €32,9 bn in PPI procurement** in 2018.¹²⁸ This is **just above 10% of the total amount of PPI investments in Europe**. However, **out of the total amount of public procurement in the defence sector (€113,5 bn), 29% consists of PPI procurement (€32,9 bn)**, which is significantly higher than in the classical sector (where 10% of total public procurement is PPI) and in the utilities sector (where 7% of total procurement is PPI). This highlights the strong affiliation with innovation of the defence sector. Historically, it has indeed always been important to constantly innovate defence systems, since outdated equipment tends to be of little to no use in this sector.

This finding was also confirmed by various interviews conducted with the ministries of defence in countries with large and middle size defence budgets. Conversely, countries with limited defence budgets prefer to wait for other countries to invest in innovative defence solutions and then purchase only those that have been well-tested and proven to be highly reliable.

Table 95. Amount and share of PPI investment in the classical, utilities and defence sectors (in € bn and as % of public procurement in the same sector)

	Public procurement (in € bn)	PPI (in € bn)	Share of PPI out of public procurement
Classical sector	2,149,8	210,4	10%
Utilities sector	604,6	44,8	7%
Defence sector	113,5	32,9	29%
Total all 3 sectors	2867,9	288,1	10%

Source: Author's elaboration

When including the defence sector in the overall picture, some changes are experienced in the ranking of countries' overall performance on PPI procurement. Despite that, the changes in the ranking are limited compared to the ranking based on the classical and utilities sectors only (presented and discussed in detail in Chapter 5).

In particular, when including defence PPI spending, 9 out of 30 countries maintain their initial position in the ranking (Austria, Belgium, Denmark, France, Greece, Hungary, Ireland, Latvia, Romania). 10 countries lose or gain just one position (Switzerland, Cyprus, Czech Republic, Estonia, Germany,

¹²⁸ This figure should be considered with caution and of indicative nature. As highlighted in the methodology, the estimating of this figure has requested several assumptions.

Luxembourg, Malta, Norway, Portugal, United Kingdom), and 6 lose or gain 2 positions (Bulgaria, Finland, Italy, Lithuania, Slovakia, Slovenia). Finally, the remaining 5 countries are those with the greatest changes in the ranking, losing or gaining up to 5 positions (Spain, Croatia, the Netherlands, Poland, Sweden). The revised ranking is presented in the following table.

Table 96. Rankings of countries based on their shares of PPI investment excluding and including defence

Country	Ranking based on share of PPI (classical and utilities) out of public procurement (classical and utilities)	Ranking based on share of PPI (classical, utilities and defence) out of public procurement (classical, utilities and defence)	Rank difference
Austria	10	10	0
Belgium	9	9	0
Bulgaria	28	26	2
Croatia	22	25	-3
Cyprus	25	24	1
Czech Republic	29	28	1
Denmark	8	8	0
Estonia	13	14	-1
Finland	1	3	-2
France	6	6	0
Germany	16	15	1
Greece	17	17	0
Hungary	18	18	0
Ireland	11	11	0
Italy	14	16	-2
Latvia	23	23	0
Lithuania	21	19	2
Luxembourg	19	20	-1
Malta	12	13	-1
Netherlands	3	7	-4
Norway	2	1	1
Poland	24	21	3
Portugal	26	27	-1
Romania	30	30	0
Slovakia	27	29	-2
Slovenia	20	22	-2
Spain	15	12	3
Sweden	7	2	5
Switzerland	4	5	-1
United Kingdom	5	4	1

Source: Author's elaboration

The study estimates from the data collected from the 30 countries that **the defence sector in Europe invested €19,2 bn in ICT-based PPI procurement** in 2018.¹²⁹ This represents **58,3% of the total amount of PPI investments in the defence sector in Europe (€32,9 bn)** and **16,9% of the total amount of public procurement in the defence sector (€113,5 bn)**. Both are significantly higher than in the classical sector (where 10% of total public procurement is PPI and 41,6% of PPI is ICT-based PPI) and in the utilities sector (where 7% of total procurement is PPI and 14,5% of

¹²⁹ This figure should be considered with caution and of indicative nature. As highlighted in the methodology, the estimating of this figures has requested several assumptions.

PPI is ICT-based PPI). Across the classical and utilities sector, PPI represents 38% of public procurement. This highlights the strong affiliation of the defence sector with ICT innovations.

Table 97. Amount and share of ICT-based PPI investment in the classical, utilities and defence sectors (in € bn and as % of public procurement in the same sector)

	Public procurement (in € bn)	ICT-based PPI (in € bn)	Share of ICT-based PPI out of PPI	Share of ICT-based PPI out of procurement
Classical sector	2.149,8	87,6	41,6%	4%
Utilities sector	604,6	6,5	14,5%	1%
Defence sector	113,5	19,2	58,3%	16,9%
Total 3 sectors	2867,9	115,2	40%	4%

Source: Author's elaboration

The above table shows that the defence sector performs much better than the utilities and classical sector in terms of reaching the ambition levels defined in section 5.1. The share of ICT-based PPI out of total PPI in defence is very close to the 60% ambition level. The share of ICT-based PPI out of total procurement in defence even surpasses the 10% ambition level.

7.2 PPI investments in the classical and utilities sector: comparative analysis

This section provides a comparative assessment of a number of key breakdowns of the total amount of PPI investment in the classical and utilities sectors across the 30 counties. Because of the confidentiality of defence data, these breakdowns do not include PPI investments made by procurers in the defence sector. These breakdowns can also be found for each country individually and in greater detail in their country profile report (see Annex I).

7.2.1 PPI investments

7.2.1.1 Adoption of transformative versus incremental innovations

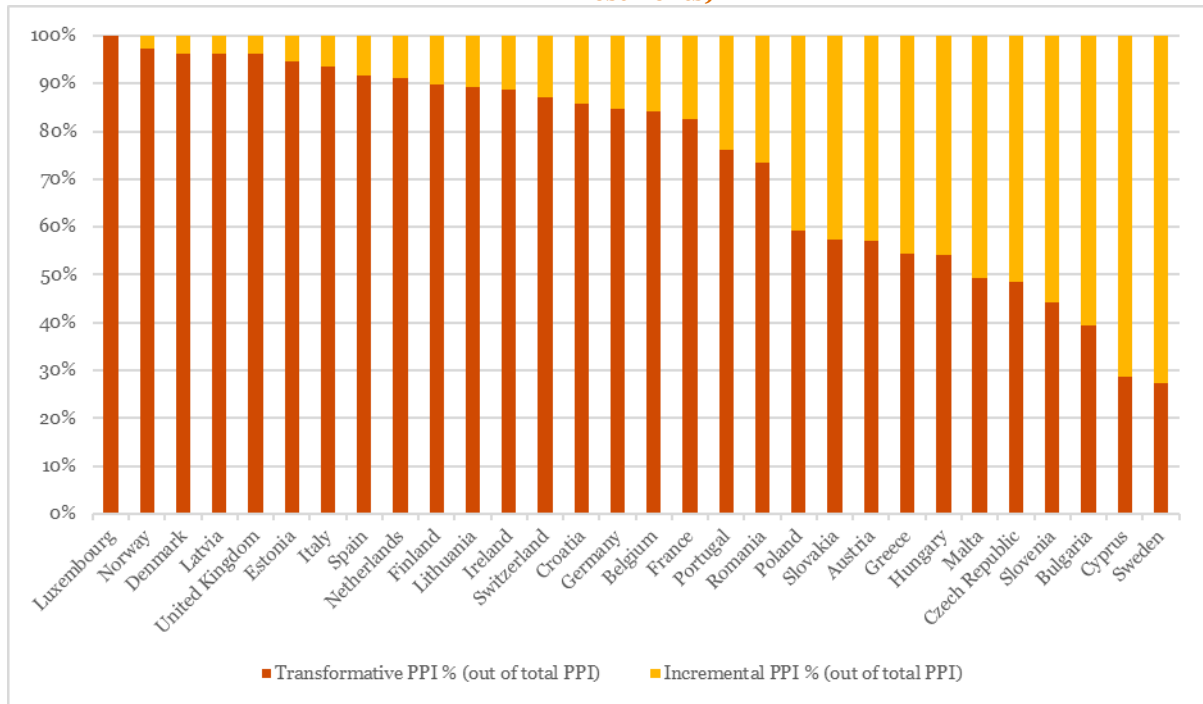
Innovative solutions can vary in terms of their degree of innovativeness. Certain innovations are significantly improved solutions or completely solutions new-to-the-market. These innovations are referred to as “transformative innovations” thanks to their significant and game-changing impact on the market. Other innovations are comparatively less ground-breaking – such as for instance when existing solutions are used or combined in a new way or in a new sector – and are for this reason referred to as “incremental innovations”.

As presented in the following charts and tables, innovative solutions purchased by public procurers across all 30 countries consisted predominantly of transformative innovations (84%), and to a lesser extent of incremental innovations (16%). Most transformative innovations bring significant improvements compared to existing solutions (57%) but are not new to the market. Investments in new to the market innovations represent only one third of the investments in transformative innovations, and roughly one quarter of the total investments in innovations (27%).

When it comes to individual countries' performances, a strong variance across countries can be observed, ranging from Luxembourg – where the entire amount of PPI investment consists of

transformative innovations – to Sweden, where nearly three quarters of PPI investments were incremental innovations.

Figure 26. Adoption of transformative versus incremental innovations (as % of published explicit PPI investments)



Source: Author's elaboration

The following table also presents the figures for each country.

Table 98. Adoption of transformative versus incremental innovations (as % of published explicit PPI)

Country	Transformative PPI % (out of total PPI)	Incremental PPI % (out of total PPI)
Austria	57%	43%
Belgium	84%	16%
Bulgaria	39%	61%
Croatia	86%	14%
Cyprus	29%	71%
Czech Republic	49%	51%
Denmark	96%	4%
Estonia	95%	5%
Finland	90%	10%
France	83%	17%
Germany	85%	15%
Greece	55%	45%
Hungary	54%	46%
Ireland	89%	11%
Italy	94%	6%
Latvia	96%	4%
Lithuania	89%	11%
Luxembourg	100%	0%
Malta	49%	51%
Netherlands	91%	9%
Norway	97%	3%

Country	Transformative PPI % (out of total PPI)	Incremental PPI % (out of total PPI)
Poland	59%	41%
Portugal	76%	24%
Romania	74%	26%
Slovakia	57%	43%
Slovenia	44%	56%
Spain	92%	8%
Sweden	27%	73%
Switzerland	87%	13%
United Kingdom	96%	4%
European average	84%	16%

Source: Author's elaboration

There is a link between the performance of countries and their investments in transformative PPI:

- Strong performers (Switzerland, Finland, the Netherlands, Norway) have a high (above 90%) or at least medium (above 50% and below 90%) share of transformative PPI investments.
- Among the bottom performers (Bulgaria, Czech Republic, Portugal, Romania, Slovakia), none has a high share of transformative PPI investments.
- Among the other performance clusters, the “good” and “moderate” performance clusters tend to have a higher density of countries with a high or medium share of transformative PPI investments, while the “modest” and “low” performance clusters appear to have relatively few countries with a high share of transformative PPI investments.

Table 99. Analysis of performance clusters and transformative innovations' adoption rate

	High share of transformative PPI (i.e. countries with share equal or above of 90%)	Medium share transformative PPI (i.e. countries with share above 50% and below 90%)	Low share of transformative PPI at local level (i.e. countries with share below 50%)
Strong performers	NL, NO	FI, CH	-
Good performers	DK, UK	FR, BE, IE, AT	SE
Moderate performers	EE, IT, ES	DE	MT
Modest performers	LU	EL, HU	-
Low performers	LV	HR, LT, PL	SI, CY
Bottom performers	-	RO, PT, SK	CZ, BG

Source: Author's elaboration

In conclusion, the key findings that emerge from the analysis of this breakdown are that:

- On average, European countries devote the majority of their PPI investments to purchase transformative innovations, such as solutions that are new to the market or significantly improved. Indeed, on average 84% of PPI entails the purchase of transformative innovations;
- Countries in the higher performance clusters – namely those with higher shares of PPI investment out of total procurement – also tend to be those that invest the most on transformative innovations. On the other hand, countries in the lower performance clusters appear to invest less in transformative innovations and rely more on incremental innovations.

7.2.1.2 Investment readiness across domains of public sector activity

In 2018, the majority of PPI investments across Europe came from public procurers that were active in the “**General public services, public administration and economic and financial affairs**” domain (35% of the total PPI investments), which includes all national, regional and local public authorities. Although all countries have a sizeable share of PPI investment in this sector, there are significant variations between countries in the contribution that this domain of public sector activity brings to the total amount of PPI investments: its contribution ranges from 7% of total PPI investments in Finland up to 87% of total PPI investments in Norway. The average PPI contract value in this domain of public sector activity is €1,5 mn, which is surprisingly small compared to other domains like healthcare and social services that proportionally have even smaller size procurers.

Public procurers in the “**Healthcare and social services**” domain accounted also for a very significant share of the total amount of innovative solutions procured across Europe (21%). Even in this very fragmented sector with primarily small procurers (e.g. hospitals), relevant calls for tenders in this domain were identified across all 30 countries. The average PPI contract value in this domain of public sector activity of €2,1 mn.

Thirdly, public procurers in the “**Transport**” domain accounted for 10% of PPI investments across Europe, and even in this case there was at least one case of PPI in each country. The average PPI contract value in this domain of public sector activity is €2,2 mn.

The relative weight of the other domains never goes above 8%. The lowest share of PPI investments was found in the “**Postal services**” domain, which accounts for only 1% of the overall published explicit PPI investments. This domain is characterised by the highest average PPI contract value (€8,7 mn), pointing to the fact that the few PPI procurements conducted in this domain were particularly sizeable. To the contrary, the “**Education, recreation, culture and religion**” domain features the lowest average PPI contract value (€0,4 mn), with many small-scale PPI procurements performed by small public procurers, such as local schools.

Table 100. PPI investment readiness across domains of public sector activity (as % of published explicit PPI investments)

Country	General pub. services*	Transport	Health*	Energy	Environment	Construction*	Education*	Water	Public order*	Postal services	Other
Austria	35%	4%	19%	4%	5%	2%	2%	1%	1%	1%	26%
Belgium	17%	12%	44%	8%	6%	4%	5%	2%	1%	1%	0%
Bulgaria	50%	2%	10%	9%	4%	10%	9%	2%	3%	0%	1%
Croatia	41%	3%	20%	22%	3%	3%	4%	2%	0%	0%	2%
Cyprus	11%	3%	55%	2%	0%	13%	8%	0%	0%	0%	9%
Czech Republic	16%	7%	28%	8%	6%	10%	19%	0%	5%	0%	2%
Denmark	14%	1%	54%	3%	3%	0%	12%	0%	12%	0%	0%
Estonia	21%	31%	6%	6%	1%	3%	18%	11%	1%	0%	1%
Finland	7%	65%	6%	1%	7%	5%	7%	0%	1%	0%	0%
France	62%	2%	3%	15%	2%	4%	3%	1%	4%	0%	5%
Germany	14%	10%	18%	7%	9%	17%	9%	1%	2%	0%	13%
Greece	48%	22%	2%	8%	3%	0%	7%	4%	3%	0%	2%
Hungary	18%	5%	21%	2%	7%	4%	28%	3%	0%	0%	13%
Ireland	21%	5%	35%	13%	3%	2%	13%	5%	1%	1%	1%
Italy	48%	3%	12%	10%	3%	2%	2%	8%	2%	10%	1%
Latvia	36%	1%	11%	26%	2%	0%	22%	0%	2%	0%	0%
Lithuania	34%	24%	9%	24%	2%	0%	4%	0%	2%	0%	1%
Luxembourg	33%	10%	3%	13%	0%	17%	14%	0%	0%	0%	10%
Malta	32%	6%	24%	0%	5%	0%	25%	5%	4%	0%	0%
Netherlands	66%	4%	3%	8%	1%	4%	5%	5%	3%	0%	0%
Norway	87%	3%	4%	0%	0%	0%	4%	0%	2%	0%	0%
Poland	20%	4%	4%	12%	7%	13%	10%	22%	3%	0%	5%
Portugal	16%	6%	13%	9%	7%	0%	19%	16%	5%	0%	9%
Romania	45%	11%	9%	11%	7%	2%	7%	3%	3%	0%	2%
Slovakia	18%	3%	5%	5%	8%	37%	6%	2%	3%	0%	13%
Slovenia	48%	4%	6%	4%	19%	1%	15%	0%	1%	0%	1%

Country	General pub. services*	Transport	Health*	Energy	Environment	Construction*	Education*	Water	Public order*	Postal services	Other
Spain	36%	36%	21%	0%	2%	1%	2%	0%	0%	0%	1%
Sweden	30%	8%	1%	2%	1%	1%	3%	0%	52%	0%	1%
Switzerland	17%	20%	9%	8%	2%	23%	12%	2%	7%	1%	0%
United Kingdom	25%	5%	46%	1%	0%	1%	4%	6%	12%	0%	1%
European average	35%	10%	21%	6%	3%	4%	5%	4%	8%	1%	3%

Note: General pub. services* includes: general public services, public administration and economic and financial affairs; Health* includes: healthcare and social services; Construction* includes: construction, housing and community amenities; Education* includes: education, recreation, culture and religion; Public order* includes: public order, safety and security. Other* includes to a large extent research organisations

Source: Author's elaboration

Table 101. Average PPI contract values across domains of public sector activity (in € mn)

	General pub. services*	Transport	Health*	Energy	Environment	Construction*	Education*	Water	Public order*	Postal services	Other
European average	1,5	2,2	2,1	0,9	0,6	0,7	0,4	1,5	5,7	8,7	0,9

When comparing the performance of countries according to their cluster, findings are in line with aggregate results. In all clusters there are at least two countries where the “General public services, public administration and economic and financial affairs” domain contributed the greatest share of PPI investments. Similarly, also the “Healthcare and social services” domain is a top contributor to the total amount of PPI investments in multiple countries (7 in total, of which 4 only in the group of good performers). As shown in the following table, there were also 9 countries where a different domain delivered the highest share of PPI investments, such as “Transport” in Finland, Estonia and Spain, or “Education, recreation, culture and religion” in Hungary and Portugal. However, these cases appear to be rather isolated. As a result, no clear link between the performance cluster and the top domain of public sector activity is reported.

Table 102. Analysis of performance clusters and distribution of PPI investments across domains of public sector activity

	Domains of public sector activity with highest PPI investment readiness (Top contributing domains to total PPI investment)						
	General pub. services*	Health*	Transport	Education*	Water	Construction*	Public order*
Strong performers	NL, NO		FI			CH	
Good performers	AT, FR	BE, DK, IE, UK					SE
Moderate performers	IT, MT	DE	EE, ES				
Modest performers	EL, LU			HU			
Low performers	HR, LT, LV, SI	CY			PL		
Bottom performers	BG, RO	CZ		PT		SK	

Note: General pub. services* includes: general public services, public administration and economic and financial affairs; Health* includes: healthcare and social services; Construction* includes: construction, housing and community amenities; Education* includes: education, recreation, culture and religion; Public order* includes: public order, safety and security

Source: Author's elaboration

7.2.1.3 Risk aversion in requesting innovations & Openness to unsolicited innovative proposals

Interesting insights also emerge when PPI investments are broken down into explicit PPI investments (consisting of the purchase of innovative solutions explicitly requested by public procurers in their calls for tenders) and implicit PPI investments (namely the purchase of innovative solutions proposed by the supplier in response to a call for tenders in which the procurer did not directly request them). Indeed, this breakdown allows to shed light on the procurers' attitude towards innovative solutions.

In a country where the relative share of explicit PPI investments is particularly high and the share of implicit PPI investments is particularly low compared to the European average, this may indicate that:

- public procurers tend to be less risk averse than the European average in taking the initiative to ask specifically for innovative solutions in their calls for tenders,
- public procurers tend to be less open than the European average to accept offers from suppliers who propose innovative solutions in response to a call for tender that did not ask for innovation.

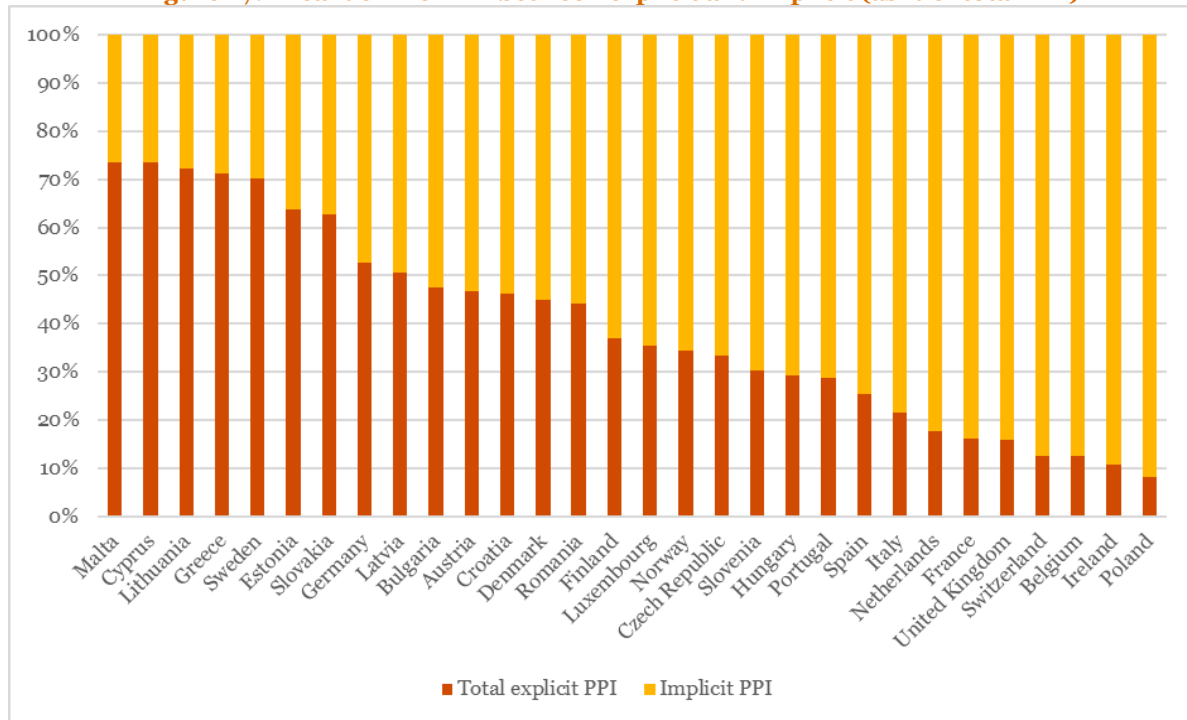
In a different country where the share of implicit PPI investments is particularly high and the share of explicit PPI investments is particularly low compared to the European average, this may indicate that:

- public procurers are more risk-averse than the European average in explicitly asking for innovative solutions when drafting their calls for tenders
- public procurers are more open than the European average to accept offers from suppliers who propose innovative solutions in procurements that do not ask for innovation.

On average, across Europe the amount of implicit PPI investment is significantly higher than the amount of explicit PPI investment (71% and 29% respectively), underlining that European procurers are to some extent cautious in directly requesting innovative solutions in their calls for tenders. On the other hand, they appear to be relatively open to accept offers with innovative solutions to address a procurement need even when the procurer itself did not specifically ask for innovation.

The following chart presents the breakdown between explicit and implicit PPI investment across countries.

Figure 27. Breakdown of PPI between explicit and implicit (as % of total PPI)



Source: Author's elaboration

In over two thirds of the countries, even in several strong and good performing countries, implicit PPI investment exceeds its explicit counterpart. The general risk aversion of public procurers to explicitly request innovative solutions shows that Europe is still underutilising the potential of actively driving

innovation from the demand side. This aspect, which is often regarded as one of Europe's main weaknesses in mainstreaming innovation procurement, is confirmed by the study findings.

At the same time, a high variance can be observed across countries. For instance, Malta, Cyprus, Lithuania, Greece and Sweden are characterised by over 70% of explicit PPI investment. On the opposite side of the spectrum, Switzerland, Belgium, Ireland and Poland have a very limited share of explicit PPI investment, which is below or just above 10% of the total.

Table 103. Breakdown of PPI investments between explicit and implicit PPI investments (as % of total PPI investments)

Country	Explicit PPI investments	Implicit PPI investments
Austria	47%	53%
Belgium	12%	88%
Bulgaria	48%	52%
Croatia	46%	54%
Cyprus	73%	27%
Czech Republic	33%	67%
Denmark	45%	55%
Estonia	64%	36%
Finland	37%	63%
France	16%	84%
Germany	53%	47%
Greece	71%	29%
Hungary	29%	71%
Ireland	11%	89%
Italy	22%	78%
Latvia	51%	49%
Lithuania	72%	28%
Luxembourg	35%	65%
Malta	74%	26%
Netherlands	18%	82%
Norway	34%	66%
Poland	8%	92%
Portugal	29%	71%
Romania	44%	56%
Slovakia	63%	37%
Slovenia	30%	70%
Spain	26%	74%
Sweden	70%	30%
Switzerland	13%	87%
United Kingdom	16%	84%
European average	29%	71%

Source: Author's elaboration

When comparing the breakdown between explicit and implicit PPI investments with performance clusters, no universal pattern emerges. Some very well performing countries perform below average on explicit PPI investments. There is however a positive relationship between the share of explicit PPI investment and the ranking of the country on PPI investment in its cluster: the majority of the best performing countries in each cluster show typically an above European average amount of explicit PPI investments. Although leading countries generally perform better, reducing the risk aversion of public procurers to actively drive public demand for innovative solutions is still a point that all countries need to work on.

Table 104. Analysis of performance clusters and breakdown of PPI investments between explicit and implicit investments

	Above European average explicit PPI investments	Below European average explicit PPI investments
Strong performers	FI, NO	CH, NL
Good performers	SE, AT, DK	BE, FR, IE, UK
Moderate performers	DE, EE, MT	IT, ES
Modest performers	EL, LU	HU
Low performers	CY, LT, LV, HR, SI	PL
Bottom performers	SK, BG, CZ, RO	PT

Source: Author's elaboration

7.2.1.4 Publication rate of PPI investments towards potential suppliers

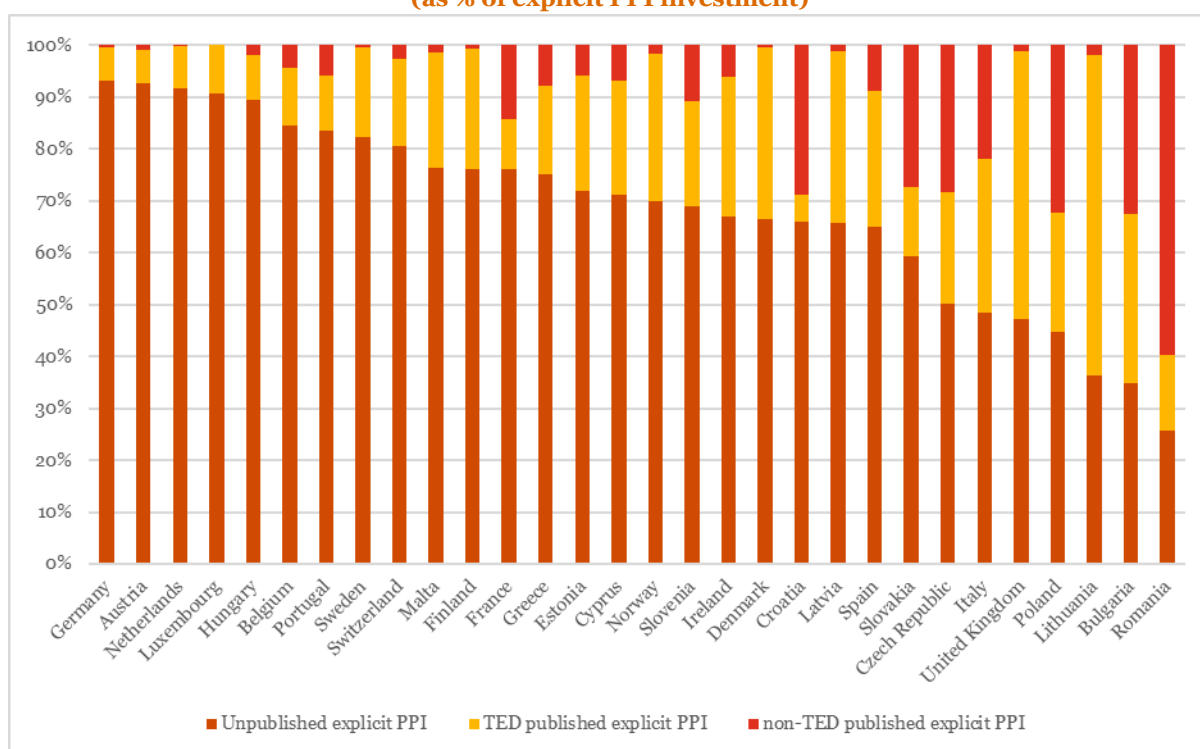
A further breakdown of PPI investments can be made between:

- Published PPI investments, for which a call for tenders was published EU wide or nationally (in one of the databases collected by the study) ¹³⁰
- Unpublished PPI investments, for which no call for tenders was published, not EU wide nor in national databases (limited tendering or direct awards)

Overall, 78% of explicit PPI investments across Europe were unpublished, while only the remaining 22% was published EU wide or nationally. By not publishing the vast majority of calls for tenders for innovative solutions, **European countries are missing out on potential innovations that could speed up public sector modernisation from suppliers that are not informed about the vast majority of PPI business opportunities across Europe.**

The lack of publication of PPI investment opportunities towards potential suppliers is manifest both at European and at national level. On average, across Europe both the portion of PPI investments that is published at European level in the TED database (18%) and the portion of PPI investments that is published at national level (5%) are low. **European countries are thus missing out on potential innovations both from national and other European suppliers** that are unaware about the vast majority of PPI business opportunities across Europe.

¹³⁰ For a more detailed explanation of the data sources used and on the extrapolation methods, please refer to Chapter 5.

Figure 28. Breakdown of PPI investments between published and unpublished investments (as % of explicit PPI investment)


Source: Author's elaboration

In four countries – Germany, Austria, the Netherlands and Luxembourg – the share of unpublished PPI investment exceeds 90% of the total. In two thirds of the countries the share of unpublished PPI is between 50% and 90%. There are only 6 countries (Romania, Bulgaria, Lithuania, Poland, the UK and Italy) where the share of published PPI investments exceeds the share of unpublished PPI investments. The publication rate of both PPI investments in the European database (TED) and in national databases is in generally low, although there are large differences between countries.

Table 105. Breakdown of PPI investments between published and unpublished investments (in % of explicit PPI)

Country	Published explicit PPI investments			Unpublished explicit PPI investments
	TED	non-TED	Total	Not published in TED or in national databases
Austria	6%	1%	7%	93%
Belgium	11%	4%	16%	84%
Bulgaria	33%	32%	65%	35%
Croatia	5%	29%	34%	66%
Cyprus	22%	7%	29%	71%
Czech Republic	22%	28%	50%	50%
Denmark	33%	1%	34%	66%
Estonia	22%	6%	28%	72%
Finland	23%	1%	24%	76%
France	10%	14%	24%	76%
Germany	7%	<1%	7%	93%
Greece	17%	8%	25%	75%
Hungary	9%	2%	11%	89%
Ireland	27%	4%	33%	67%
Italy	30%	22%	52%	48%
Latvia	33%	1%	34%	66%

Country	Published explicit PPI investments			Unpublished explicit PPI investments
	TED	non-TED	Total	Not published in TED or in national databases
Lithuania	62%	4%	64%	36%
Luxembourg	9%	0%	9%	91%
Malta	22%	2%	24%	76%
Netherlands	8%	0%	8%	92%
Norway	28%	4%	30%	70%
Poland	23%	32%	55%	45%
Portugal	10%	6%	16%	84%
Romania	60%	14%	74%	26%
Slovakia	13%	28%	41%	59%
Slovenia	20%	11%	31%	69%
Spain	26%	9%	35%	65%
Sweden	17%	1%	18%	82%
Switzerland	17%	2%	19%	81%
United Kingdom	52%	1%	53%	47%
European average	18%	5%	22%	78%

Source: Author's elaboration

Logically, countries that have stricter overall publication obligations for all public procurements also have the highest share of published PPI investments (e.g. Romania with 74%, Bulgaria with 65%, Lithuania with 64% and Poland with 55% of published PPI investments).

Table 106. Analysis of performance clusters and breakdown of PPI between explicit and implicit

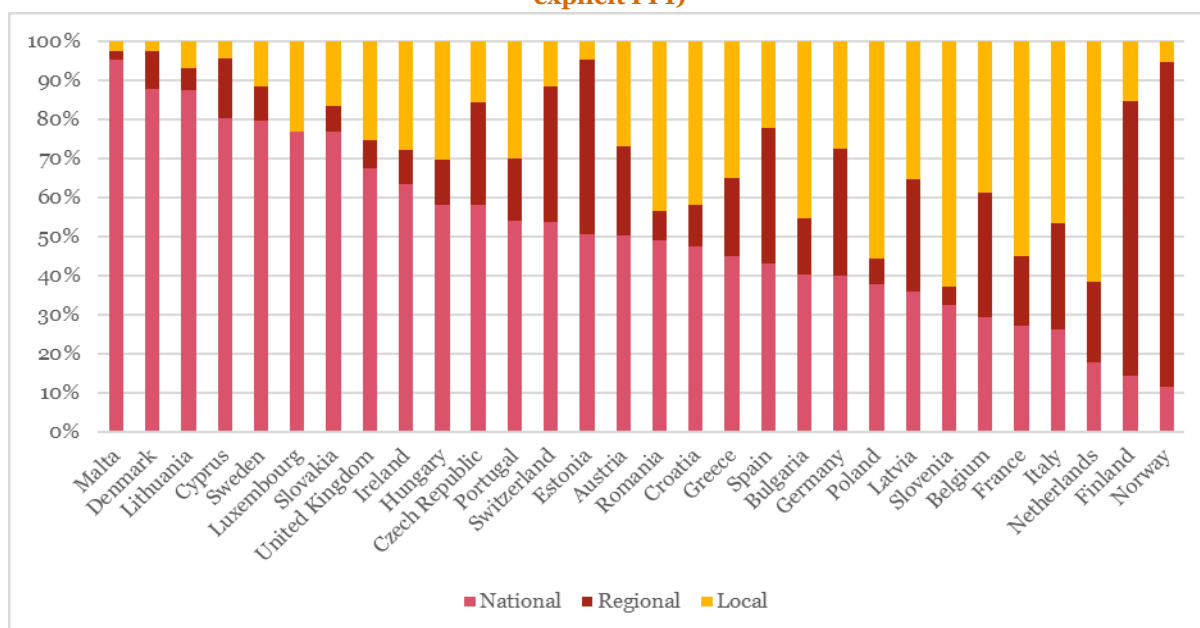
	Above European average published PPI investments	Below European average published PPI investments
Strong performers	FI, NO	CH, NL
Good performers	UK, FR, DK, IE	SE, AT, BE
Moderate performers	MT, EE, IT	DE, ES
Modest performers	EL	HU, LU
Low performers	SI, LT, HR, CY, LV, PL	–
Bottom performers	SK, BG, RO, CZ, SK	PT

Source: Author's elaboration

7.2.1.5 Investment readiness across levels of public sector activity

PPI investments were broken down according to three categories / levels of public buyers that carried out the investments, namely: national, regional and local procurers. National PPI investments are those performed by national ministries, national agencies or other national level institutions, while investments performed by public procurers at sub-national level can be distinguished between regional and local level PPI investments.

The following chart and table highlight that, on average, the highest share – and nearly half – of European PPI investments was performed by national level procurers (47%), while the remaining share was nearly equally performed by regional level procurers (24%) and local procurers (29%). Although this might indicate a lack of awareness or know-how about PPI procurement at sub-national level, it must be noted that significant differences emerge among the analysed countries. While some of them confirm this pattern, e.g. Malta – where 95% of PPI investment is performed at national level – others completely diverge from it, e.g. Norway – where regional level procurers are responsible for the vast majority of PPI investment (83%).

Figure 29. Distribution of PPI investment across levels of public sector activity (as % of published explicit PPI)


Source: Author's elaboration

The following table lists the data presented in the chart above. In all countries, all existing levels of public sector activity are actively making PPI investments, albeit with varying magnitude.

Table 107. Distribution of PPI investments across levels of public sector activity (as % of published explicit PPI investment)

Country	National	Regional	Local
	%	%	%
Austria	50%	23%	27%
Belgium	29%	32%	39%
Bulgaria	40%	14%	45%
Croatia	47%	10%	42%
Cyprus	80%	15%	5%
Czech Republic	58%	26%	16%
Denmark	88%	10%	3%
Estonia	51%	45%	5%
Finland	14%	70%	15%
France	27%	18%	55%
Germany	40%	32%	28%
Greece	45%	20%	35%
Hungary	58%	11%	30%
Ireland	63%	9%	28%
Italy	26%	27%	47%
Latvia	36%	29%	35%
Lithuania	87%	6%	7%
Luxembourg	77%	0%	23%
Malta	95%	2%	2%
Netherlands	18%	21%	62%
Norway	12%	83%	5%
Poland	38%	7%	56%

Country	National	Regional	Local
	%	%	%
Portugal	54%	16%	30%
Romania	49%	8%	44%
Slovakia	77%	7%	17%
Slovenia	32%	5%	63%
Spain	43%	35%	22%
Sweden	80%	9%	12%
Switzerland	54%	35%	12%
United Kingdom	67%	7%	25%
European average	47%	24%	29%

Source: Author's elaboration

The analysis shows no clear relationship between the overall amount of PPI investment and the investment readiness of different levels of public sector activity. However, when taking into account performance clusters it emerges that:

- In most of the analysed countries (21), the highest share of PPI investment is conducted at national level. These countries are well-distributed across all clusters.
- While the largest share of European PPI investment consists of innovative solutions purchased by national-level authorities, countries belonging to the 'strong performers' cluster generally go against the trend: Finland and Norway have their greatest share of published explicit PPI investment at regional level, and the Netherlands at local level. In strong performing countries, the awareness and know-how about PPI procurement may be already better spread also to sub-national procurers.
- Countries reporting the greatest share of PPI investment at local level are also spread across different performance clusters, ranging from strong (Netherlands) to bottom performers (Bulgaria).
- The cluster of modest performers – composed of Greece, Luxembourg and Hungary - is the only one in which all countries have the same pattern in terms of prevalent level of public sector activity (national).
- In general terms, most countries present a non-marginal share of PPI investment performed at local level, however without any cluster-specific correlation.

Table 108. Cluster-based analysis of PPI investment across levels of public sector activity (as % of published explicit PPI investment)

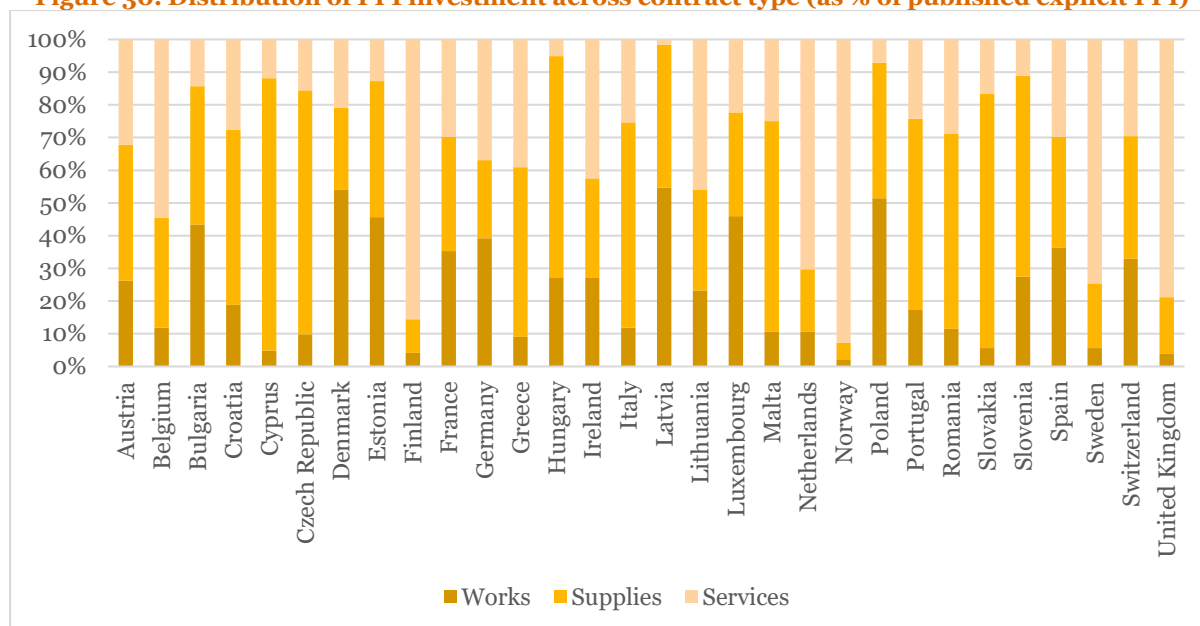
	Countries with the greatest share of published explicit PPI at national level	Countries with the greatest share of published explicit PPI at regional level	Countries with the greatest share of published explicit PPI at local level
Strong performers	CH	FI, NO	NL
Good performers	DK, SE, UK, IE, AT		BE, FR
Moderate performers	EE, ES, DE, MT		IT
Modest performers	LU, HU, EL		
Low performers	LT, CY, HR, LV		PL, SI
Bottom performers	SK, CZ, PT, RO		BG

Source: Author's elaboration

7.2.1.6 Distribution of PPI investments across contract types

In order to better understand if a specific contract type is more used for innovative contracts, PPI investments were broken down according to the three contract types: goods, services and works.

Figure 30. Distribution of PPI investment across contract type (as % of published explicit PPI)



Source: Author's elaboration

In terms of value, the largest portion of total PPI investment across Europe is implemented as services contracts (51%), followed by supplies contracts (31%) and works contracts (18%). In terms of number of contracts, the largest number of PPI contracts across Europe is implemented as supplies contracts (53%), followed by services contracts (30%) and works contracts (19%).

The reason for this difference is that the average PPI contract value differs considerably across the contract types: the average PPI services contracts value (€2,6 mn) is nearly three times the average PPI supplies contracts value (€0,9 mn) and over 60% percent larger than average PPI works contracts value (€1,6 mn). Remarkably, whereas works contracts in public procurement are typically more than twice as large as services contracts and more than three times the size of supplies contracts, this is not the same for PPI contracts. PPI purchases in works and supplies contracts are smaller compared to contracts in public procurement in general. Conversely, PPI purchases in services contracts are on average 35% larger compared to services contracts in public procurement contracts in general. This may indicate that innovative services are more costly than regular services.

The portion of PPI investment across Europe that is implemented as works contracts is 12% lower than the typical portion of works contracts in public procurement in general. At the same time, the portion of PPI investments implemented as supplies and services contracts is higher compared to public procurement in general (approximately 6% higher for both types of contracts). As a result, compared to public procurement contracts in general, PPI procurements therefore seem to be implemented on average less as works contracts and more as supplies and services contracts.

Large variations across countries are reported, as shown in the figure above and the table below. Some countries implemented the majority of PPI procurements as services contracts (e.g. Norway), while other countries implemented PPI mainly as supplies contracts (e.g. Czech Republic). When comparing clusters' performance with the contract types used for PPI investments, the strong performing countries (except Switzerland) implement a larger portion of PPI investments through services contracts than low performing countries.

**Table 109. Distribution of PPI investments across contract types
(as % of published explicit PPI investment, as % of nr of calls for tenders)**

Country	Works		Supplies		Services	
	% of investment value	% of call for tenders	% of investment value	% of call for tenders	% of investment value	% of calls for tenders
Austria	26%	44%	41%	38%	32%	30%
Belgium	12%	26%	34%	44%	55%	27%
Bulgaria	43%	27%	42%	46%	14%	18%
Croatia	19%	21%	54%	60%	28%	26%
Cyprus	5%	12%	83%	62%	12%	13%
Czech Republic	10%	6%	75%	80%	16%	32%
Denmark	54%	6%	25%	61%	21%	26%
Estonia	46%	4%	42%	71%	13%	45%
Finland	4%	12%	10%	43%	86%	30%
France	35%	19%	35%	51%	30%	21%
Germany	39%	26%	24%	52%	37%	18%
Greece	9%	11%	52%	71%	39%	7%
Hungary	27%	17%	68%	76%	5%	53%
Ireland	27%	10%	30%	37%	42%	27%
Italy	12%	26%	63%	47%	25%	15%
Latvia	55%	5%	44%	80%	2%	27%
Lithuania	23%	7%	31%	66%	46%	26%
Luxembourg	46%	35%	32%	39%	22%	13%
Malta	11%	6%	64%	81%	25%	47%
Netherlands	11%	6%	19%	47%	70%	33%
Norway	2%	6%	5%	61%	93%	18%
Poland	51%	28%	41%	55%	7%	24%
Portugal	17%	10%	58%	66%	24%	27%
Romania	12%	10%	60%	63%	29%	21%
Slovakia	6%	9%	78%	70%	17%	31%
Slovenia	27%	14%	62%	55%	11%	47%
Spain	36%	8%	34%	45%	30%	18%
Sweden	6%	13%	20%	69%	75%	35%
Switzerland	33%	17%	38%	48%	30%	51%
United Kingdom	4%	6%	17%	43%	79%	29%
European average	18%	17%	31%	54%	51%	30%

Source: Author's elaboration

7.2.2 ICT-based PPI investments

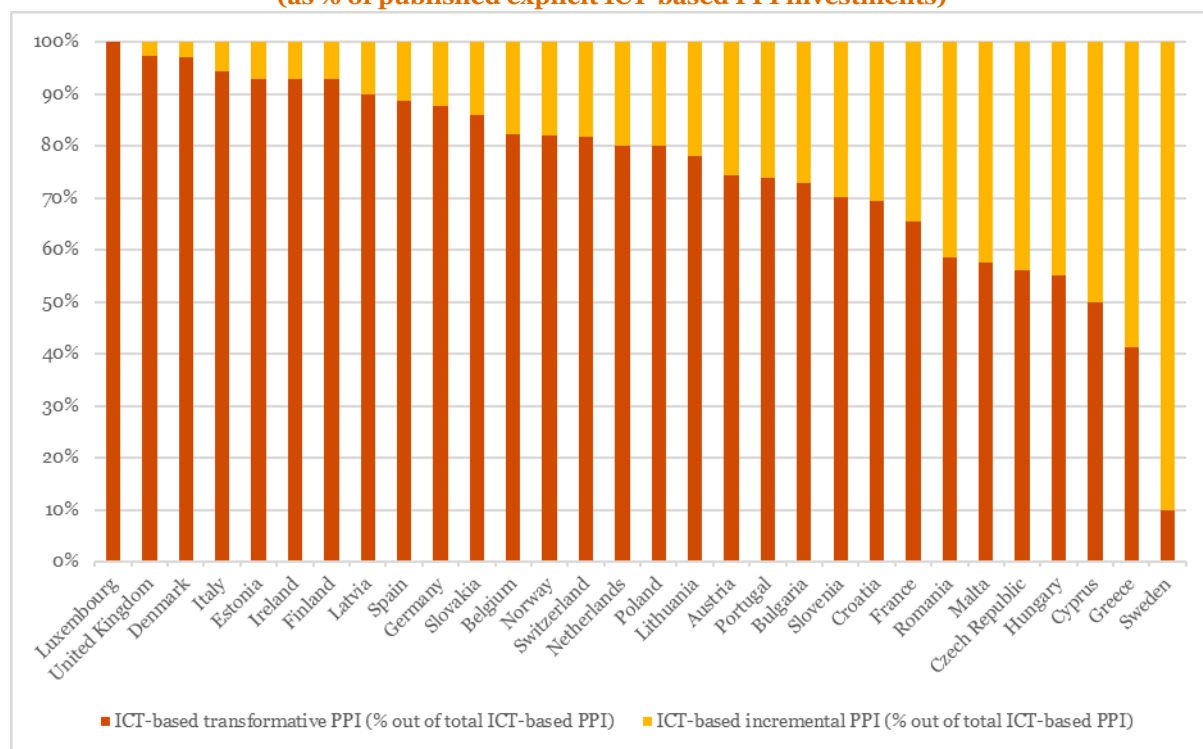
7.2.2.1 Adoption of transformative versus incremental ICT-based innovations

As presented in the following charts and tables, ICT-based innovations acquired by public procurers across Europe consist predominantly of transformative innovations (77%) and to a lesser extent of incremental innovations (23%). Compared to the overall PPI investment figures, public procurers are more risk-averse when buying ICT-based solutions compared to innovative solutions in general: the share of transformative ICT solutions (77%) out of total amount of ICT-based solutions purchased is significantly smaller than the share of transformative solutions in general (84%) out of the total amount of innovative solutions that are purchased.

Many countries (27) invest more in transformative than in incremental ICT-based innovations: only Sweden, Greece and Cyprus report a greater or equal share of incremental ICT-based innovation. Overall, the mix of transformative and incremental ICT-based innovations that are adopted in all the countries mirrors the mix experienced for the overall adoption of innovative solutions. For example, Luxembourg shows a predominant share of transformative ICT-based PPI investment while Sweden presents the highest proportion of incremental ICT-based PPI investment.

However, compared to the total amount of PPI investment some differences occur. In 14 countries the share of ICT-based PPI investment spent on transformative ICT innovations is lower than the share of transformative PPI investment in general. In 8 countries (Croatia, France, Greece, Lithuania, Netherlands, Norway, Romania and Sweden), the share of ICT-based PPI investment that was spent on transformative ICT innovations is even 10 percentage points lower compared to the share of general PPI investment that was spent on transformative innovations. Public procurers around Europe therefore need to step up investments in the adoption of transformative ICTs to boost public sector modernisation.

Figure 31. Adoption of transformative versus incremental ICT-based innovations (as % of published explicit ICT-based PPI investments)



Source: Author's elaboration

The following table presents the shares of transformative and incremental ICT-based PPI investment for each country. As for the general PPI, the greatest amount of transformative innovative solutions takes place in the largest European economies.

Table 110. Comparison between ICT-based PPI investment and overall PPI investment in the adoption of transformative innovations

Country	Transformative ICT-based PPI	Transformative PPI
	% (out of total ICT-based PPI investment)	% (out of total PPI investment)
Austria	74%	57%
Belgium	82%	84%
Bulgaria	73%	39%
Croatia	69%	86%
Cyprus	50%	29%
Czech Republic	56%	49%
Denmark	97%	96%

Country	Transformative ICT-based PPI	Transformative PPI
	% (out of total ICT-based PPI investment)	% (out of total PPI investment)
Estonia	93%	95%
Finland	93%	90%
France	65%	83%
Germany	88%	85%
Greece	41%	55%
Hungary	55%	54%
Ireland	93%	89%
Italy	94%	94%
Latvia	90%	96%
Lithuania	78%	89%
Luxembourg	100%	100%
Malta	58%	49%
Netherlands	80%	91%
Norway	82%	97%
Poland	80%	59%
Portugal	74%	76%
Romania	58%	74%
Slovakia	86%	57%
Slovenia	70%	44%
Spain	89%	92%
Sweden	10%	27%
Switzerland	82%	87%
United Kingdom	97%	96%
European average	77%	84%

Source: Author's elaboration

When comparing the performance of countries according to their cluster with their shares of transformative ICT-based PPI investment, it can be observed that high shares of transformative ICT-based investment occur in countries falling in the clusters of best performing countries, the strong and moderate clusters. Conversely, modest, low and bottom performing countries typically invest less in transformative ICT-based innovations and still rely more on incremental ICT-based innovations.

Table 111. Comparison of clusters and the adoption of transformative ICT-based innovations in Europe (as % of published explicit ICT-based PPI investment)

	High share of transformative ICT-based PPI investment (i.e. countries with share equal or above of 90%)	Medium share transformative ICT-based PPI investment (i.e. countries with share above 50% and below 90%)	Low share of transformative ICT-based PPI investment (i.e. countries with share below 50%)
Strong performers	FI, IE	-	SE
Good performers			
Moderate performers	NO, UK	-	-
Modest performers	DK, EE	AT, BE, CH, MT	-
Low performers	-	DE, ES, FR, HU, NL	EL
Bottom performers	IT, LV	BG, CY, CZ, HR, LT, LU, PT, RO, PL, SI, SK	-

Source: Author's elaboration

In conclusion, the main findings can be summarised as follows:

- On average across Europe, a smaller share of ICT-based PPI investments goes to the adoption of transformative innovations compared to overall PPI investments (7% different). Europe needs to boost investment of transformative ICT based innovations to speed up public sector modernisation and economic growth.
- In terms of clusters, leading countries tend to invest more in transformative ICT-based solutions more than countries that are lagging behind. This pattern is in line with the evidence collected on general PPI investments.

7.2.2.2 Distribution of PPI investment across different ICT-subsectors

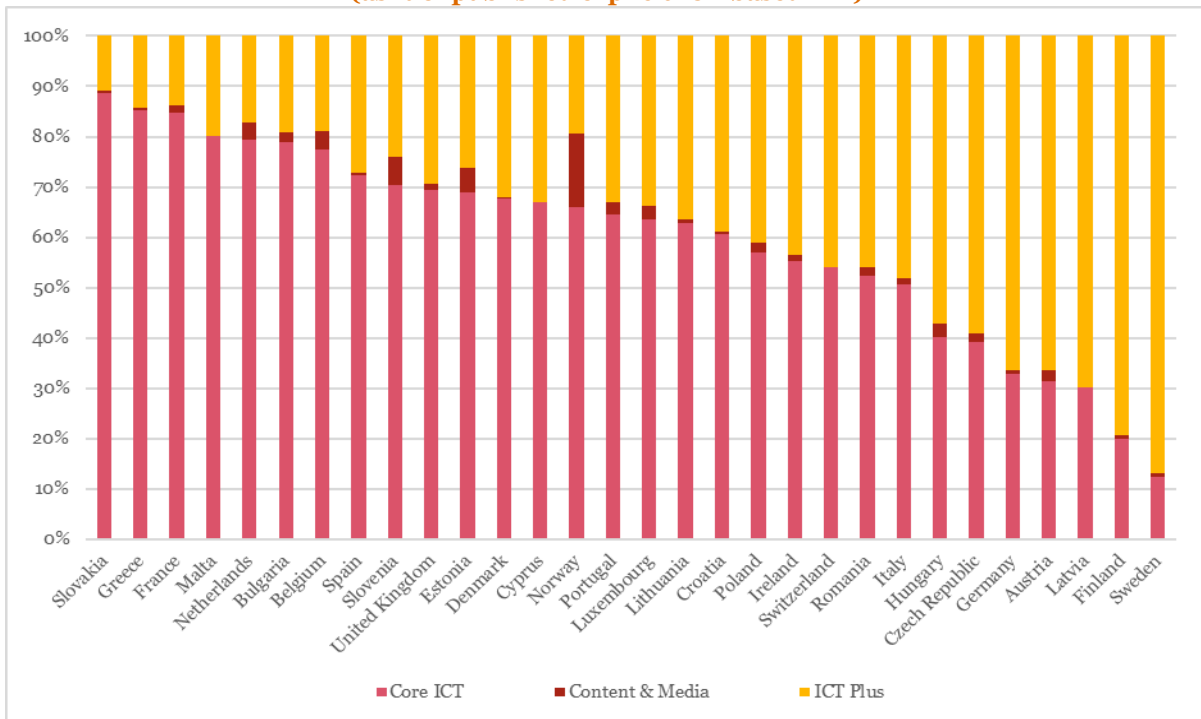
ICT-based PPI investments have been broken down according to the ICT sub-sectors from which they bought ICT solutions: Core ICT-based PPI, Content & Media and ICT Plus.

As a reminder the three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audio-visual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

As shown in the following graph across Europe, most of the innovative ICT-based investments were used for the adoption of Core ICT type solutions (54%), followed by ICT-Plus solutions (44%) and by Content & Media solutions (1%). This not surprising, as the Content & Media sector is also significantly smaller than the other two sectors in Europe. The first two sectors are popular among public procurers across Europe: the Core ICT-sector accounts for the highest proportion of ICT-based PPI investments in 23 out of 30 countries, while ICT Plus accounts for the highest proportion of ICT-based innovative solutions in 7 countries and is well-represented in the others.

Figure 32. Adoption of ICT-based innovations from different ICT sub-sectors (as % of published explicit ICT-based PPI)



Source: Author's elaboration

Taking into account the average value of a single call for tenders, ICT Plus solutions are those with the largest average contract value (€1,3 mn), while Content and Media solutions have the lowest average contract value (€ 0,4 mn). The following table presents more in detail the information included in the chart, indicating the share of investment in each ICT sub-sector for each country.

**Table 112. Adoption of ICT-based innovations from different ICT sectors
(as % of published explicit ICT-based PPI investment)**

Country	Core ICT	Content and media	ICT Plus
	% (out of total ICT-based PPI)	% (out of total ICT-based PPI)	% (out of total ICT-based PPI)
Austria	31%	2%	66%
Belgium	78%	4%	19%
Bulgaria	79%	2%	19%
Croatia	61%	0%	39%
Cyprus	67%	0%	33%
Czech Republic	39%	2%	59%
Denmark	68%	0%	32%
Estonia	69%	5%	26%
Finland	20%	1%	79%
France	85%	2%	14%
Germany	33%	1%	66%
Greece	85%	1%	14%
Hungary	40%	3%	57%
Ireland	55%	1%	43%
Italy	51%	1%	48%
Latvia	30%	0%	70%
Lithuania	63%	1%	36%
Luxembourg	64%	3%	34%
Malta	80%	0%	20%
Netherlands	79%	3%	17%
Norway	66%	15%	19%
Poland	57%	2%	41%
Portugal	65%	2%	33%
Romania	52%	2%	46%
Slovakia	89%	0%	11%
Slovenia	70%	6%	24%
Spain	72%	0%	27%
Sweden	12%	1%	87%
Switzerland	54%	0%	46%
United Kingdom	69%	1%	29%
Total	54%	1%	44%

Source: Author's elaboration

Overall, no relevant pattern emerges by comparing the performance cluster of each country with the innovative solutions that is adopted from the three subsectors. However, two out of three strong performing countries allocate most of their ICT-based PPI investments to ICT Plus solutions, investing highly in ancillary ICTs used for measuring and detection purposes, like sensors and smart meters. As expected, none of the analysed countries allocate the highest share of their ICT-based PPI investments to Content & Media solutions.

Table 113. Comparison of the cluster performance with the adoption of innovations from different ICT-subsectors in Europe (as % of published explicit ICT-based PPI investment)

	Countries with the greatest share of published ICT-based PPI in Core ICT	Countries with the greatest share of published ICT-based PPI in Content & Media	Countries with the greatest share of published ICT-based PPI in ICT Plus
Strong performers	IE	-	FI, SE
Good performers			
Moderate performers	NO, UK	-	-
Modest performers	DK, EE, BE, CH, MT	-	AT
Low performers	EL, ES, FR, NL	-	DE, HU,
Bottom performers	BG, CY, HR, IT, LT, LU, PT, RO, PL, SI, SK	-	CZ, LV

Source: Author's elaboration

The conclusions from ICT-subsector breakdown can be summarised as follows:

- The highest proportion of investment in ICT-based innovative solutions across Europe goes to solutions from the Core ICT subsector, followed by ICT Plus type solutions. In all the analysed countries, the lowest investments and calls for tenders focusing on adopting innovative solutions from the Content & Media sub-sector.
- ICT Plus contracts appear to have the highest average contract value, while Content and Media contracts the lowest.
- In all clusters, most countries allocate the highest share of innovative solutions to Core ICT solutions. Strong performers are an exception, with two out of three countries investing most of their ICT-based PPI investments in ICT Plus solutions.

7.2.2.3 Investment readiness across domains of public sector activity

The following tables illustrate how the share of investments in innovative ICT-based solutions is distributed across different domains of public sector activity. Overall, across Europe all sectors purchased innovative ICT based solutions. The highest share of ICT-based PPI investments comes from public procurers that are active in the **'Healthcare and social services'** domain (30%), followed by the domains of **'Public order, safety and security'** (19%) and **'General public services, public administration and economic and financial affairs'** (16%). Public procurers in the 'Health and social services' and 'public order, safety and security' domains invest relatively more in ICT-based innovations (30% and 19% respectively) than in innovations in general (21% and 8% respectively). However public procurers in 'general public services, public administration and economic and financial affairs' invest relatively less in ICT-based innovations (16%) than in innovations in general (35%). Other domains with a relevant share of ICT-based PPI investment are **'Public Transport'** and **'Education, recreation, culture and religion'**, the first perfectly aligned to its corresponding share out of overall PPI investment (10%), the latter increasing its share of investment in ICT-based innovations (9% compared to 4%).

The average size of the calls for tender varies considerably across domains of public sector activity. Some sectors launched a large number of small size tenders, while other sectors purchased innovative solutions through a small number of larger tenders. For example, the highest number of calls for tender was launched by public procurers in the "General public services" domain. However, the **average contract value** in this domain (€ 0,7 mn) is three times smaller than the average contract value in the domain of "Healthcare and social services" (€ 2,2 mn). This confirms a relatively similar pattern to the one observed in the analysis of overall PPI investments.

Another commonality between ICT-based PPI investments and overall PPI investments is the marginal shares of investment in innovative solutions that come from public procurers in the domains of **'Water'** and **'Postal services'**. Together with the construction sector, water and postal services invest even less in ICT-based innovations than in innovations in general. Both appear to be domains with limited purchasing of innovative solutions through calls for tender. Finally, strong differences emerge at country level, as presented in the following tables.

**Table 114. Distribution of ICT-based PPI investment across domains of public sector activity
(as % of published explicit ICT-based PPI investment)**

Country	General pub. Services*	Transport	Health	Energy	Environment	Construction*	Education*	Water	Public order*	Postal services	Other
Austria	38%	3%	47%	4%	0%	0%	4%	0%	1%	0%	3%
Belgium	27%	12%	32%	7%	6%	3%	10%	1%	1%	1%	0%
Bulgaria	17%	3%	19%	2%	11%	21%	20%	1%	5%	0%	2%
Croatia	15%	10%	47%	11%	3%	7%	4%	1%	1%	0%	1%
Cyprus	11%	0%	9%	3%	0%	33%	20%	0%	0%	0%	23%
Czech Republic	17%	10%	17%	2%	5%	9%	36%	0%	3%	0%	2%
Denmark	35%	0%	9%	5%	2%	1%	22%	0%	25%	0%	0%
Estonia	17%	15%	15%	7%	1%	5%	34%	0%	2%	0%	3%
Finland	6%	78%	6%	1%	4%	1%	3%	0%	1%	0%	0%
France	15%	2%	9%	34%	2%	1%	9%	0%	9%	0%	18%
Germany	20%	1%	40%	1%	10%	1%	9%	1%	5%	0%	12%
Greece	46%	13%	2%	2%	1%	0%	16%	8%	8%	0%	4%
Hungary	14%	1%	24%	0%	5%	0%	47%	1%	0%	0%	7%
Ireland	23%	5%	40%	9%	2%	0%	14%	4%	0%	1%	1%
Italy	17%	3%	27%	31%	2%	1%	5%	5%	6%	0%	3%
Latvia	2%	3%	25%	0%	6%	0%	59%	0%	5%	0%	0%
Lithuania	29%	29%	8%	14%	4%	0%	10%	0%	6%	0%	1%
Luxembourg	30%	0%	8%	11%	0%	14%	20%	0%	0%	0%	17%
Malta	41%	0%	1%	0%	6%	0%	46%	1%	4%	0%	0%
Netherlands	23%	11%	7%	16%	5%	4%	17%	9%	8%	0%	1%
Norway	26%	11%	26%	0%	1%	0%	31%	0%	4%	0%	0%
Poland*	17%	4%	8%	8%	9%	15%	24%	1%	5%	0%	8%
Portugal	24%	12%	14%	1%	8%	0%	25%	0%	6%	0%	10%
Romania	21%	15%	15%	20%	3%	4%	15%	2%	3%	0%	2%
Slovakia	34%	0%	4%	14%	4%	17%	9%	0%	3%	0%	15%
Slovenia	26%	1%	16%	8%	6%	1%	37%	0%	2%	0%	3%
Spain	47%	23%	21%	0%	1%	0%	4%	0%	1%	1%	2%
Sweden	11%	3%	1%	1%	0%	0%	4%	0%	79%	0%	0%
Switzerland	19%	16%	12%	15%	0%	8%	24%	0%	5%	1%	0%
United Kingdom	4%	5%	57%	1%	0%	1%	5%	3%	24%	0%	0%
European average	16%	10%	30%	6%	3%	2%	9%	2%	19%	0%	4%

General pub. Services* - includes: general public services, public admin. and economic and financial affairs; Construction* - includes: construction, housing and community amenities; Education* - includes: education, recreation, culture and religion; Public order* - includes: public order, safety and security

Source: Author's elaboration

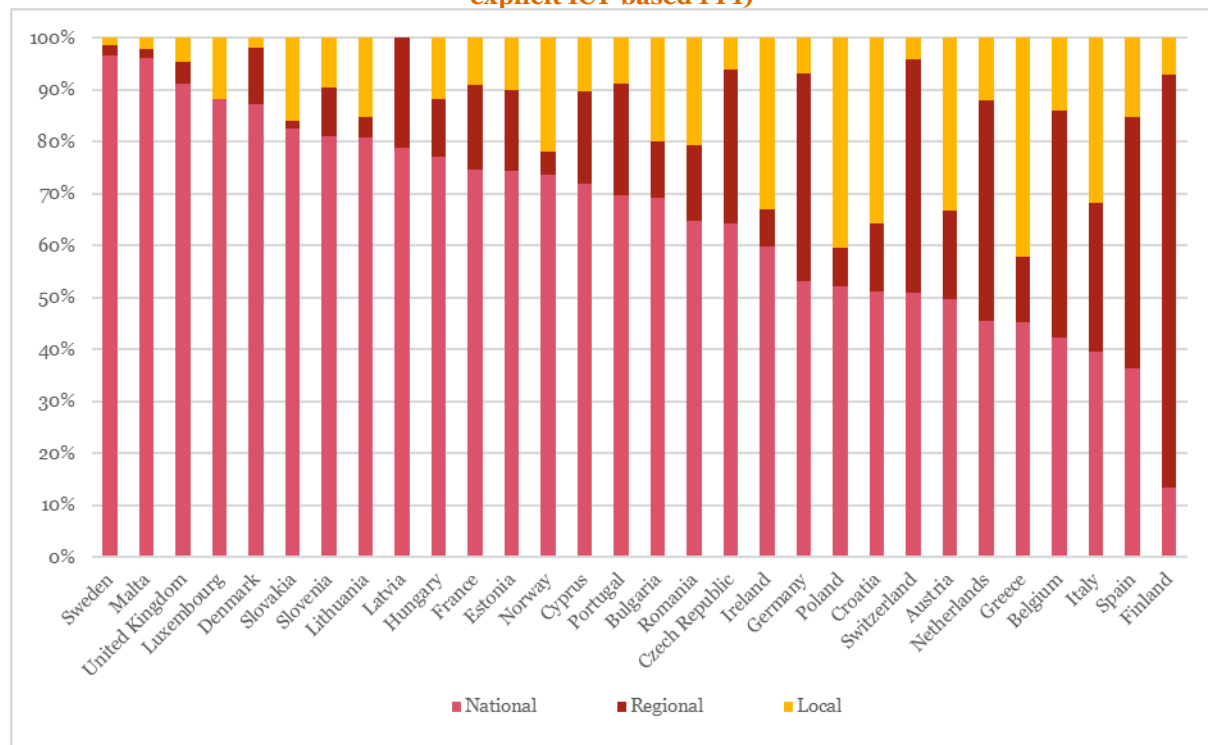
7.2.2.4 Investment readiness across levels of public sector activity

In this section, ICT-based PPI investment is analysed according to the level of public sector activity where it occurs (national, regional and local).

In contrast with what emerged from the analysis of overall PPI investment, on average across Europe, the largest share of investment in ICT-based innovations is implemented by procurers that operate at national level (69%), while procurers at regional and local level perform a significantly lower share of ICT-based PPI investment (21% and 10% respectively).

Significant differences occur at national level as shown in the chart below.

Figure 33. Distribution of ICT-based PPI across levels of public sector activity (as % of published explicit ICT-based PPI)



Source: Author's elaboration

The table below details the contents of the chart just described, indicating the share of ICT-based PPI investment that was implemented by each level of public sector activity in every country.

Across Europe as a whole, ICT-based PPI investment takes place even more at national level than PPI investment in general. In 27 out of 30 countries **the majority of ICT-based PPI investment was performed at national level** and in 24 of them national level PPI investment accounts for 50% or more of the total amount of ICT-based PPI investment. The same is valid for only 15 out of 30 countries, when overall PPI investment is considered. In three countries, Belgium, Spain and Finland, most of the ICT-based PPI investment is performed at regional level; among these only in Finland this share is more than 50% (80% of regional level ICT PPI investment).

Looking at the individual countries it can be noted that, compared to total PPI investment, some of them show significant differences in their internal distribution investments across levels of public sector activity, when it comes to ICT-based innovative solutions. For example, Norway, which was the country with the highest share of overall PPI investment at regional level (83% regional and 12% national), drastically changes this internal distribution in favour of national-level contracts for ICT-based PPI investments (74% national and 5% regional). Similarly, in the Netherlands the distribution of PPI investment changes in favour of national-level contracts when only ICT-based PPI investment is considered (46% national and 12% local level) compared to the analysis of overall PPI investment (18% national and 62% local level). In addition, in Latvia the sizeable share of overall PPI investment that occurred at local level (35%) becomes close to zero when ICT-based PPI investment is considered. All of this might suggest a tendency by national-level procurers to assume more easily the function of “early adopters” in the field of ICT, especially if compared to regional and local procurers. It may also suggest

an even greater lack of know-how and/or risk aversion towards early adoption of innovative ICTs at sub-national level. The investment readiness of sub-national level is smaller than at national level.

In line with the analysis of overall PPI investment, also when it comes to ICT-based PPI investment public procurers at all levels of public sector activity are actively buying innovative ICTs, albeit with different degree of investment intensity. This indicates that, at all levels, a portion of resources spent for innovative solutions is used to deploy ICTs.

Table 115. Distribution of ICT-based PPI investments across levels of public sector activity (in % of published explicit ICT-based PPI investment)

Country	National	Regional	Local
	% (out of total ICT-based PPI)	% (out of total ICT-based PPI)	% (out of total ICT-based PPI)
Austria	50%	17%	33%
Belgium	42%	44%	14%
Bulgaria	69%	11%	20%
Croatia	51%	13%	36%
Cyprus	72%	18%	10%
Czech Republic	64%	30%	6%
Denmark	87%	11%	2%
Estonia	74%	16%	10%
Finland	13%	80%	7%
France	75%	16%	9%
Germany	53%	40%	7%
Greece	45%	13%	42%
Hungary	77%	11%	12%
Ireland	60%	7%	33%
Italy	40%	29%	32%
Latvia	79%	21%	0%
Lithuania	81%	4%	15%
Luxembourg	88%	0%	12%
Malta	96%	2%	2%
Netherlands	46%	43%	12%
Norway	74%	5%	22%
Poland*	52%	7%	40%
Portugal	70%	21%	9%
Romania	65%	15%	21%
Slovakia	82%	2%	16%
Slovenia	81%	9%	10%
Spain	36%	48%	15%
Sweden	97%	2%	1%
Switzerland	51%	45%	4%
United Kingdom	91%	4%	4%
Total	69%	21%	10%

Source: Author's elaboration

There is no relation between countries in different clusters and their shares of national-based ICT-based PPI investment, suggesting that the overall ICT-based PPI investment performance of countries (clusters) is not related to the prevalent level of public sector activity that does most of the purchasing.

Table 116. Comparison between clusters and the share of ICT-based PPI investments performed at the national level (as % of published explicit PPI investments)

	High share of PPI investment at national level (i.e. countries with share above 75%)	Medium share of PPI investment at national level (i.e. countries with share between 50% and 75%)	Modest share of PPI investment at national level (i.e. countries with share between 25% and 50%)	Low share of PPI investment at national level (i.e. countries with share below 25%)
Strong performers	SE	IE	-	FI
Good performers				
Moderate performers	UK	NO	-	-
Modest performers	DK, MT	AT, CH, EE	BE	-
Low performers	HU	DE, FR	EL, ES, NL	-
Bottom performers	LT, LU, SI, SK, LV	CY, CZ, HR, PT, BG, RO, PL	IT	-

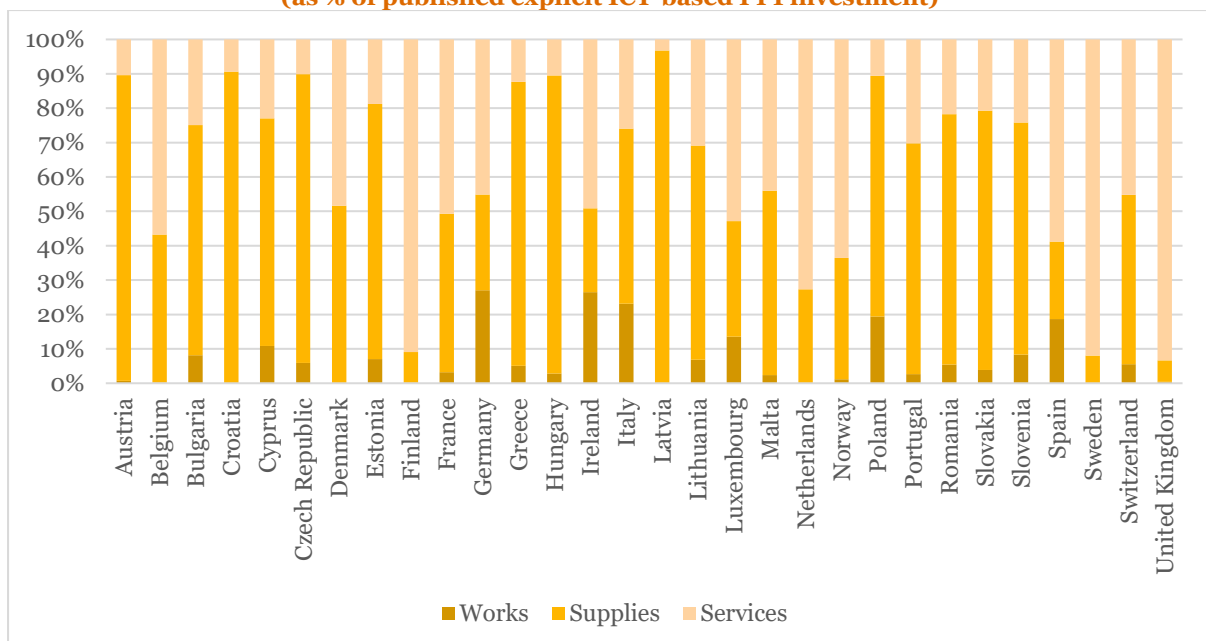
Source: Author's elaborations.

The main conclusions of the analysis of the distribution of PPI investments across the three considered levels of public sector activity are:

- In almost all countries ICT-based PPI investments are performed at all three levels of public sector activity.
- Compared to the overall PPI investments, ICT-based innovative solutions are purchased more predominantly at national level. This evidence occurs in most countries. ICT-based innovations are purchased to a small extent only at local level.
- The average contract value at local level is considerably lower than at the national and regional levels, where the average contract value of ICT-based PPIs is very similar to each other.

7.2.2.5 Distribution of ICT-based PPI investments across contract types

In order to better understand if a specific contract type is more used for adopting ICT-based innovation, ICT-based PPI investments were broken down according to the three contract types: goods, services and works.

Figure 34. Distribution of ICT-based PPI investment across contract type (as % of published explicit ICT-based PPI investment)


Source: Author's elaboration

In terms of value, the largest portion of total ICT-based PPI investment across Europe is implemented as services contracts (66%), followed by supplies contracts (29%) and works contracts (5%). In terms of

number of contracts, the largest number of PPI contracts across Europe are implemented as supplies contracts (61%), followed by services contracts (31%) and works contracts (8%). The reason for this difference is that the average ICT-based PPI contract value differs significantly across the contract types: ICT-based PPI services contracts are on average considerably larger (€3,2 mn) compared to both ICT-based PPI supplies and works contracts (presenting an average contract value of €0,7 mn and €1,1 mn respectively).

When comparing ICT-based PPI average contract values with PPI average contract values, different trends emerge based on the type of contract under analysis. In particular, ICT-based PPI services contracts are on average nearly one fourth larger than PPI services contracts (€3,2 mn versus €2,6 mn average contract value). To the contrary, ICT-based PPI supplies contracts are on average one quarter smaller than PPI supplies contracts (€0,7 mn versus €0,9 mn average contract value). This might be due to cost savings generated by ICTs, when choosing for a digital over a non-digital solutions. It could also point to lack of critical mass in ICT-based PPI supplies contracts. Similarly, ICT-based PPI works contracts are on average 31% smaller than PPI works contracts (€1,1 mn versus €1,6 mn average contract value). Compared to the average size of public procurement contracts in general, the picture is similar to the general PPI. ICT-based PPI works and supplies contracts are smaller compared to public procurement contracts in general, while services contracts are 35% larger. This may indicate that innovative services are more costly than regular services.

In line to what has been registered in terms of overall PPI, also for ICT-based PPI there are relevant variations occurring across countries. As shown in the previous figure and also in the table below, some countries implemented the majority of ICT-based PPI as services contracts (e.g. Norway, Finland and UK), while others implemented most of ICT-based PPI as supplies contracts (e.g. Latvia, Croatia and Austria). When comparing clusters' performance with the contract types used for ICT-based PPI investments, it emerges that strong performing countries (except Switzerland) implement a larger portion of ICT-based PPI investments through services contracts.

**Table 117. Distribution of ICT-based PPI investments across contract types
(as % of published explicit ICT-based PPI investment, as % of nr of calls for tenders)**

Country	Works		Supplies		Services	
	% of investment value	% of call for tenders	% of investment value	% of call for tenders	% of investment value	% of calls for tenders
Austria	1%	3%	89%	65%	10%	32%
Belgium	0%	1%	47%	56%	53%	43%
Bulgaria	6%	3%	72%	73%	22%	24%
Croatia	0%	0%	93%	89%	7%	11%
Cyprus	10%	17%	63%	44%	27%	39%
Czech Republic	5%	3%	84%	87%	11%	10%
Denmark	0%	1%	52%	68%	48%	31%
Estonia	7%	2%	76%	79%	18%	20%
Finland	0%	1%	9%	49%	90%	51%
France	3%	5%	50%	55%	47%	41%
Germany	23%	12%	37%	68%	40%	20%
Greece	5%	12%	84%	73%	12%	15%
Hungary	3%	5%	88%	84%	10%	11%
Ireland	25%	1%	26%	39%	49%	60%
Italy	12%	21%	45%	55%	43%	24%
Latvia	0%	0%	97%	87%	3%	13%
Lithuania	5%	3%	54%	66%	41%	31%
Luxembourg	11%	18%	48%	36%	41%	45%
Malta	2%	3%	58%	78%	39%	19%
Netherlands	0%	0%	39%	38%	61%	62%
Norway	0%	1%	4%	63%	96%	36%
Poland	15%	22%	74%	62%	11%	16%

Country	Works		Supplies		Services	
	% of investment value	% of call for tenders	% of investment value	% of call for tenders	% of investment value	% of calls for tenders
Portugal	3%	4%	67%	68%	30%	28%
Romania	4%	1%	54%	86%	42%	13%
Slovakia	4%	3%	72%	67%	24%	31%
Slovenia	8%	10%	69%	70%	23%	20%
Spain	17%	4%	27%	34%	56%	61%
Sweden	0%	2%	18%	79%	82%	19%
Switzerland	4%	6%	59%	55%	37%	39%
United Kingdom	0%	1%	10%	50%	89%	49%
European average	5%	8%	29%	61%	66%	31%

Source: Author's elaboration

8 Methodology related guidelines for decision-makers

This chapter outlines a set of guidelines to enable decision-makers to continue regular monitoring of the progress of national policy frameworks and investments on innovation procurement in the future. These guidelines are aimed at the development of an approach to collect data on public procurement of innovative solutions at EU+ level, designed to be:

1. Harmonised and systematically applicable;
2. Expertise-based, as it builds upon the feedback from consultations with stakeholders;
3. Evidence-based, as it relies upon data collected through a dedicated methodology.

The guidelines are built on the *learning-by-doing* experience that the Study team acquired during the study, taking into account all the shortcomings and difficulties that emerged during the data collection and analysis processes. Such caveats, presented in Section 5.8 above, include the coverage and availability of data (including in particular the availability of tender documentation), the homogeneity of data, the difficulties in implementing EU wide a clear-cut and unambiguous definition of PPI, and the different national thresholds for publication of public procurement calls for tenders.

This chapter is structured into three different sections:

- Section 8.1, which provides operational recommendations to decision-makers on how to benchmark – in a way that enables to compare different countries across Europe – the progress in rolling out comprehensive national policy frameworks that foster innovation procurement;
- Section 8.2, which includes guidelines for the quantification and benchmarking of national investments in public procurement of innovative solutions and the part of that which is procuring ICT-based solutions, allowing to make cross-country comparisons;
- Section 8.3, which focuses on the possible integration of the policy and investment benchmarking results into existing EU scoreboards and benchmarking exercises, including the Digital Economy and Society Index (DESI) and the European Digital Progress Report (EDPR).

8.1 Systematic benchmarking of national policy frameworks for innovation procurement

This section expands the methodology for benchmarking national policy frameworks for innovation procurement, presented in detail in Chapter 2 above.

Specifically, the section presents recommendations for an effective and efficient implementation of the methodology, addressing the issues concerning (i) how to gather, clean and align data, (ii) how to address and overcome possible data quality problems, and finally (iii) the possible initiatives to improve the current methodology (i.e. capacity building workshops and the adoption of an IT tool for data collection and validation activities).

8.1.1 Collect the data on a regular annual basis, calibrate data from different countries and apply the scoring

Considerable effort and time were dedicated to develop the methodology and set up for the first time a consistent data collection approach for benchmarking policy measures on innovation procurement across the different countries. It is therefore recommended to apply the same methodology in the future, taking into account the (sub-)indicators and the scoring system detailed in Chapter 2.

As most of the work was done manually, it would be good to automate some of the steps to speed up the process when moving to regular repetition of the benchmarking exercise. For this reason, the following recommendations are proposed with the aim of streamlining the process for data gathering, cleaning and calibration.

For data gathering, cleaning and aligning, it is essential to maintain a two-steps approach:

1) Make use of an online survey for the collection of information, and collect not only responses to questions but also the evidences to justify the response:

- EU survey turned out to be an appropriate tool for conducting the survey, as it offers all the necessary functionalities to conduct the survey, while also allowing to upload background documentation. At the same time, it is available free of charge and easily accessible to all EU officials;
- Building upon the study's experience – which required two qualitative surveys / questionnaires to collect all data – it is suggested to adopt a modular structure in the questionnaire to streamline the process. Indeed, a modular structure would allow respondents to complete only specific parts in order to reduce fatigue. For instance, by including 10 different sections – one per indicator – a respondent who is not particularly expert in one indicator (e.g. on the country's spending targets) could easily skip that relevant section, focusing on providing information for the other indicators. Similarly, a respondent could be allowed to skip a certain section in case no changes have taken place since the previous survey by ticking a box (“the situation in the country on (sub-)indicator x has not changed since the last survey”);
- Based on the study experience, it is essential to ask respondents to provide the necessary evidence that justifies the status of each indicator (national weblinks or documents where more information about the status in the country on the indicator can be found). On several occasions, the Study team found that (when verifying this evidence) the respondent had answered the questions differently from other respondents. In order to collect the correct information per country and to calibrate the scoring for each (sub-)indicator across the different countries in a fair way, it turned out to be crucial to collect and verify the additional evidence / justification provided by the respondents.

2) Follow-up the survey with in-depth interviews

- The study found that follow-up interviews were important to clarify unclear or incomplete responses and for collecting missing and/or additional evidences to justify the responses and the scoring for each (sub-)indicator;
- In this context, it is also recommended that the survey asks respondents for their consent to be re-contacted at a later stage in order to carry out such follow-up interviews.

To identify and engage the most suitable survey respondents, the following actions are recommended:

1) Collect information from multiple sources per country

- The information needed for the survey is distributed across different entities in each country. As each entity may have only partial or even different views on different questions in the survey, there is a need to consult multiple sources in each country in order to be able to collect all the information and calibrate the scorings based on a representative and reliable set of evidence. The list of respondents for this study included national ministries (and regional ministries, for countries with regional innovation procurement policies) of different types (ministries responsible for public procurement, for innovation and for the horizontal and vertical sectors), national competence centres on innovation procurement (where available) and, if information was still incomplete, also some individual experts (thematic and innovation procurement experts). Given the fragmentation of competencies in the field, maintaining this approach in each country is needed to ensure completeness and reliability of the survey.

2) Reuse the same sources for future surveys

- Future surveys may be addressed to the same list of respondents that was built up throughout this study. This solution would increase efficiency, considering that these

contacts have already been established, and that their willingness to contribute to the study has already been ascertained. It would also allow simplified data collection for the future, as these respondents may reply simply that the status of a certain indicator has not changed since the previous survey. At the same time, in certain countries competencies and responsibilities on innovation procurement are shifting across different public institutions, which means that the validity of the list of respondents for the survey should be verified (and where needed updated) every time in order to collect all the available and most up-to-date evidence in the field of innovation procurement.

3) Establish a list of dedicated national respondents for future surveys

- As it makes sense to reuse previous sources for future surveys, it is also advisable to create a more structured approach, by establishing a dedicated group of national contact points that are appointed to regularly provide information for the survey on the status of all the national policy measures on innovation procurement in their country. This solution would ensure to have qualified official counterparts to provide data, ensuring greater systematism in the data collection process. The national contact points could be the national statistics offices: they would then be responsible (in collaboration with the EC) for maintaining a valid list of national respondents for the survey. Alternatively, the EC could also maintain itself a valid list of national respondents for the survey (as was done by the Study team).

As regards the timing of the different steps of the benchmarking, the study recommends ensuring a close alignment with the timing of other EU scoreboards. First of all, since the study reused indicators from the EU Internal Market Scoreboard, it is considered essential to ensure that the latest results of the EU Internal Market Scoreboard are included as soon as they become available. Moreover, it is also necessary to align the benchmarking with the timing of other indexes and scoreboards that may reuse results from this study, such as the DESI/EDPR, the European Innovation Scoreboard and other sectorial scoreboards (e.g. EU energy union scoreboard). As other EU scoreboards are published every year and base their indicators on data from several consecutive past years, this means that the innovation procurement policy benchmarking should also be repeated every year. To update the innovation procurement policy benchmarking on an annual basis, the definition of a clear timeline for data collection, validation and incorporation in the country profiles is recommended.

In this respect, a possible **timeline** is presented below¹³¹:

- Phase 1 (January-April): the first four months of the year could be used to update the evidence available in the country profiles. This time should be used to gather new evidence from respondents and experts at national level.
- Phase 2 (May-August): during these four months, activities should focus on the validation of the data collected and retrieved in Phase 1.
- Phase 3 (September-October): once validated, the new evidence will be incorporated in the country profiles, presented in an annual EU innovation procurement benchmarking and included in other relevant official yearly EU statistics, scoreboards and benchmarking exercises (additional information on how to incorporate the findings of this study in these exercises is provided in Chapter 8.3).
- Phase 4 (November-December): publication of the new evidence in the EU innovation procurement benchmarking and in other relevant EU statistics, scoreboards and benchmarking exercises.

All the activities envisaged could be carried out by an internal team in the EC and supported by national statistics offices and/or an external contractor.

¹³¹ The timeline should be verified with other relevant Commission departments that are responsible for other EU scoreboards

8.1.2 Address and overcome possible data quality problems

As presented in Chapter 2, certain indicators are retrieved from already existing EU indexes and rankings, in particular from the EU internal market scoreboard. Future initiatives will therefore need to periodically verify such indexes and rankings in order to ensure the retrieval of the latest available data.

At the same time, other indicators and sub-indicators were built upon figures that are directly collected in the framework of the study. In this respect, two recommendations are considered to be of particular importance.

- First of all, the survey shall include – for each indicator – a section where respondents are asked to upload **additional and supporting materials**, such as official documents, national guidance papers, reports, case studies, weblinks, etc. Such additional documentation is often only available in the local language and for this reason may be difficult to retrieve for non-native speakers who may be unaware of where exactly to look for. Therefore, collecting such additional documentation directly from survey respondents significantly reduces the required time to verify and complement information, when necessary.
- Secondly, the possibility of conducting a second survey – after the publication of the draft results from the previous one (at least to the respondents) – should also be taken into consideration. This would allow stakeholders, as done also in the framework of the present study, to **flag any inaccuracies and suggest possible amendments**.

Despite all the strategies and devices to limit respondents' fatigue, the effort required from stakeholders to provide their contributions remains significant. For this reason, in order to encourage participation, potential respondents should be informed of the advantages of taking part in the survey, such as the possibility of being cited as contributors or receiving reports information.

8.1.3 Suggestions to improve the current methodology

8.1.3.1 Organisation of capacity building workshops

In order to build the capacity at country level to collect and provide the relevant data for the periodical monitoring and benchmarking, it is suggested to **organise capacity building workshops with national, regional and local authorities**. The workshops – which may be organized autonomously by the European Commission or with the support of an external consultant – would allow to train national interested parties on the characteristics of the indicators, the required steps to monitor them and how to build a national system to monitor innovation procurement.

In this respect, the study's mapping of national institutional counterparts may serve as a basis for the preparation of a list of potential participants in such workshops.

8.1.3.2 Set-up of an IT tool to collect information

In order to streamline the complex process of gathering, cleaning and aligning data, a dedicated IT tool could be created for the purpose of centralising the collection of information e.g. a web portal allowing national public procurement experts and officials to fill in requested information through ad-hoc surveys. Such surveys could be structured by presenting the results of the study, asking respondents to validate or amend them. This would reduce respondents' effort, while allowing for higher accuracy and constant updating of information.

For instance, the qualitative indicator 1 focuses on the definitions of innovation procurement, R&D procurement, PCP and PPI in national legislation. In this respect, the survey could provide – for each country – the four different definitions, asking respondents to confirm if they are still applicable, or if to the contrary they have been replaced. In the latter case, follow-up questions would allow to gather information on the new definitions and the pieces of legislation defining them.

Such IT tools could be either developed and deployed as a stand-alone web portal, or included into already existing EC portals/websites where this data collection exercise can be easily centralised, such as the Digital Single Market website.

The proposed solution is a so-called smart crowdsourcing approach, enabling experts to provide directly the information on a web platform. This solution has already been successfully implemented by the European Commission, for example, in the Regional Innovation Scoreboard, the eGovernment action plan evaluation, the Open Science Monitor, the Co-VAL Dashboard, and the Startup Manifesto Policy Tracker, with constant high quality of information and increased sustainability¹³².

The tool may be based on the following elements:

- a central website where information on the policy progress can be directly updated and is immediately published;
- an intelligently created crowdsourcing approach, where quantitative and qualitative information is uploaded directly on the website by a limited set of appointed experts;
- a checklist-based approach aimed at policy monitoring. Each policy objective is translated into a number of concrete measures with “Yes” or “No” answers, backed up by supporting evidence;
- an interactive visualisation of the policy progress through a traffic light system. For instance, indicators above a certain threshold (e.g. the European average) would be coloured in green, indicators with average values would be coloured in yellow, while indicators below the average would be coloured in red;
- real time country profiles summarising all the main information and providing data for download (downloadable country profiles and country datasets in machine readable format, such as CSV).

The use of a checklist approach would be preferable, as it ensures a good quality and comparable policy analysis. The use of such approach would require adapting the questionnaire accordingly. Indeed, all the answers provided have to be evidence-based, i.e. accompanied by a reference to an official document. Finally, an editorial process ensures that a central team revises the experts’ input to ensure consistency of calibration and scoring in the benchmarking.

In terms of benefits, this approach usually allows to increase the quality of data at a reduced cost. By enabling experts to directly provide data, this mechanism allows to collect and update evidence with limited effort.

This tool could be used during the above-mentioned Phase 1 (Update of the evidence available in the country profiles). The following phases, namely validation (Phase 2) and incorporation in the country profiles and other EU scoreboards (Phase 3) and publication of the benchmarking (Phase 4), could be implemented by an EC internal team supported by an external contractor. In addition, the platform could envisage visualisation systems to easily compare data.

8.2 Systematic benchmarking of national investments on public procurement of innovative solutions

This section elaborates on the methodological approach presented in Chapter 5 to estimate the total amount of PPI investments, the total amount of ICT-based PPI investments and the total amount of public procurement. It provides operational recommendations to implement the methodology developed throughout the study in a regular way in the future, paying attention to ensure the robustness of data collection and the comparability of information retrieved from different data sources.

Moreover, the challenges faced by the Study team on the ground during the data collection process are taken into consideration, highlighting the key issues to be prevented and addressed for a successful and streamlined procedure.

Finally, the section provides a number of suggestions to complement and improve the study’s methodology.

¹³² See <http://egovap-evaluation.eu/>, https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor_en, <http://www.co-val.eu/dashboard/>, <http://www.europeandigitalforum.eu/startup-manifest-policy-tracker/dashboard>

8.2.1 Collect the data on a regular annual basis, calibrate data from different countries and apply the scoring

The study retrieved data on public procurement expenditure above EU thresholds entirely from TED, which provides a standardised dataset of procurement notices from all the 27 Member States, UK, Norway and Switzerland. Through the EU Open Data Portal, the TED dataset can be freely downloaded in convenient CSV format, and, based on the study's experience, results for a given year are made available during the first half of the following year. However, textual variables such as titles and descriptions of procurements – which are particularly relevant for a semantic machine learning approach – are not provided through the EU Open Data Portal, as the size of the dataset would become too big and unmanageable. For this reason, it is suggested to make arrangement with the unit within DG GROW responsible for the management of the TED database in order to obtain a copy of the dataset with all available variables.

As far as procurements below EU thresholds are concerned, no standardised dataset covering all the 30 countries is currently available. Therefore, building upon the results of this study, it is suggested to conduct extensive desk research to map all available (public and private) sources of tender data in all countries. A substantial amount of time for the interactions with national data providers shall be envisaged, ensuring that a minimum set of variables is provided in accordance with pre-defined technical standards (e.g. data format, order of columns, decimal separator, etc.). Indeed, the construction of the dataset for below EU thresholds procurements turned out to be one of the most challenging tasks of the study and may for this reason be managed as a standalone project in the future, so to better address its complexities.

For a number of countries, the study interacted with the national policy officers responsible for the management of national e-procurement portals. Following-up on these contacts, the possibility of being granted direct access to the e-procurement portals repositories would allow to facilitate the collection of data. Such approach was tested in France, which provides procurement data through a beta Application Programming Interface (API) to its national gazette (Bulletin officiel des annonces de marchés publics).¹³³ Such a real-time access to public procurement would allow to access a greater amount of tender documentation in comparison with an ex-post collection, due to the fact that public procurers sometimes make tender documentation available only for a limited time (i.e. while they are open to receive offers). At the same time, due to the renowned issues related to the automation of access to tender documentation (such as generic links to the public procurers' portals, links redirecting to generic administrative documents, and other issues as detailed in Chapter 5), it is not possible to exactly quantify the impact of a real-time approach to access procurement documentation.

For the purposes of further increasing the volume and improving the quality of data collected, it is also proposed to explore the possibility of exploiting synergies with similar projects in the field, such as the Opentender Portal of the DIGIWHIST project, which, throughout the implementation of the present study, included only a limited number of calls for tenders but is constantly improving.

For a single country, multiple datasets from different data sources could be potentially combined, taking the necessary precautions to avoid duplication of data. Indeed, the study highlighted that certain data sources – while insufficient when considered alone due to the lack of certain key variables – provided a wealth of additional information to be exploited, if appropriately combined and aligned with other data sources. For instance, in Finland the Ministry of Finance provides a public database (Hilma) that includes the most relevant key variables requested for the study. However, this database does not include any description of the procurement or relevant link to tender documentation. As a result, it was not possible to identify potential PPIs using a machine learning tool. For this reason, the dataset was combined with the database from a private data provider (Credita), which includes information on the tender description. The combined use of both databases allowed to fill this gap and cover all the variables needed to carry out the analysis.

In conclusion, the construction of the dataset of public procurements – with particular reference to those below EU thresholds – is to be regarded as a snowball process, to be developed and improved over time.

¹³³ <https://echanges.dila.gouv.fr/OPENDATA/BOAMP/>

Given that a real-time data collection would still not be carried out in the majority of countries as far as below EU-thresholds procurements are concerned, a possible timeline for the ex post collection of quantitative data and the replication of the study's methodology for the analysis is presented below, with the aim of estimating PPI expenditure for a hypothetical year x:

- Phase 1 (July-December of year x): the second half of the year x could be used to map all the available data sources for public procurements below EU thresholds, assessing the coverage and availability of data, the different formats and – as far as private data sources are concerned – the cost of the service.
- Phase 2 (January – June of year x+1): after the mapping and selection of data sources, the first 6 months of the year x+1 could be devoted to putting together the dataset, and carrying out the necessary data cleaning procedures.
- Phase 3 (July of year x+1): once the dataset is ready – and assuming a machine learning tool for the identification of PPIs is used as in the present study – the month could be used to run the machine to prepare a preliminary list of potential PPIs.
- Phase 4 (August – October of year x+1): building upon such list, the following three months would serve the purpose of manually checking and validating potential PPIs, so to finalise the confirmed list of PPIs in each country.
- Phase 5 (November of year x+1): this phase would have to be devoted to implement the analytical methodology, including calculations, extrapolations and estimations.
- Phase 6 (December of year x+1): finally, the new evidence will be incorporated in the innovation procurement expenditure country profile reports, presented in an annual report and included in relevant EU official yearly innovation statistics, scoreboards and benchmarking exercises (additional information on how to incorporate the findings of this study in these exercises is provided in Section 8.3).

All the activities envisaged could be carried out by an internal team in DG CNECT and supported by an external contractor. The following table provides scores to the different sources of data used in the framework of the study for the collection of data for public procurements below EU-thresholds, according to the following criteria:

- Country coverage, namely the different countries covered by the data source;
- Contribution to cover below-EU thresholds procurements, which was based on the number of calls for tenders provided;
- The availability of contract prices, defined in terms of calls for tenders for which the value field is available (for an exact quantification of the coverage and availability of all metadata fields, please refer to Chapter 5 above);
- The availability of other key variables such as procurement descriptions and links to the full documentation (for an exact quantification of the coverage and availability of all metadata fields, please refer to Chapter 5 above)
- The price of the data;
- The willingness to contribute, determined on the basis of the interactions that took place with the Study team to agree on the delivery and the format of the data.

Such information may serve as a basis for evaluation of the suitability of the sources for future data provision to the European Commission.

Table 118. Public and private data sources for below thresholds notices

Data provider, name of database	Public/private	Country coverage	Contribution to cover below EU-thresholds procurements	Availability of contract prices	Availability of other key meta data	Price	Willingness to contribute
Tender Service Group	Private	AT, BG, HR, CY, CZ, DE, EL, HU, PL, PT, RO, SK, SI, ES, CH	Varies greatly from country to country	Varies greatly from country to country	Medium	Low	High
Service public fédéral – Stratégie et Appui, e-Procurement Platform	Public	BE	High	Low	High	Free	Low
UdbudsVagten, Udbud og opgaver	Private	DK	Low	Low	High	High	High
Public procurement and state aid department, Riigihangete register	Public	EE	Medium	High	Medium	Free	Medium
Credita, Julkiset Hankinnat	Private	FI	Low	Low	Medium	Low	Medium
DILA, Bulletin officiel des annonces des marchés publics (BOAMP)	Public	FR	High	Low	Medium	Free	Low
Proactis Holdings Plc, Tenderdirect	Private	IE, UK	Medium	Low	Medium	Medium	Medium
ANAC, Sistema Informativo Monitoraggio Gare (SIMOG)	Public	IT	High	High	Low	Free	Medium
Public Procurement Office, Open VPN data	Public	LT	Medium	Low	Medium	Free	Medium
Department of Public Works, Portail des marchés publics	Public	LU	Low	Low	Medium	Free	Low
Procurement Monitoring Bureau, Open Public Administration Data Service	Public	LV	Low	Low	Low	Free	High
Department of Contracts, e-PPS database	Public	MT	Medium	High	Low	Free	High
PIANoo, TenderNed	Public	NL	Low	Low	Medium	Free	Low
Difi, Doffin	Public	NO	Medium	Low	Low	Free	Medium
Visma, Opic	Private	SE	Low	Low	High	High	High

Source: Author's elaboration

8.2.2 Address and overcome possible data quality problems

The current methodology for the estimation of PPI investments and ICT-based PPI investments necessarily relies on incomplete datasets, as not all procurements are published and accessible. In order to strengthen the robustness of estimates, an increasing amount of data have to be collected in the

future, including in particular procurements below EU thresholds. At the same time, a number of areas for improvement in how estimates are made can be envisaged. These include in particular:

- For the TED dataset and certain datasets of below EU thresholds procurements, more reliable estimation of missing contract values could be obtained if it were possible to automatically retrieve the missing value of a certain call for tenders from the corresponding contract award notice, through the use of a dedicated code that allows – starting from a contract award notice – to track back the original Call for tenders. It is to be noted, however, that such approach would not be applicable for all Calls for tenders that have not been awarded yet. From the moment the benchmarking is applied to several years, the contract values in the contract award notices instead of the values in the contract notices could be used;
- The accuracy of the approach to estimate missing contract values based on other tenders of a similar type (clusters) could be improved through the use of historical series, with the aim to increase the number of observations within each cluster of contract notices, and consequently increase the number of CPV-digits of each cluster for which missing contract values are estimated, making cluster values more accurate. While historical series are already available for TED, they would have to be built up over the years for below EU thresholds procurements;

From a more operational point of view, it is highlighted that contractual agreements with private data providers shall envisage payments only after one or two months from receipt of data extractions, so to allow to spot any inaccuracies and request updated extractions. In addition, substantial amount of time to manually clean the data, including in particular the manual retrieval of Calls for tenders' CPV codes, which are essential for the clustering of procurements and the subsequent estimation of missing values, shall be taken into account. In a view to reduce the substantial amount of manual work required to clean data and fill in gaps, additional efforts will have to be devoted to interacting with national data providers so to ensure that information is provided homogeneously.

The lack of data and its heterogeneity is considered to be particularly challenging in the defence and utilities sectors, which in accordance with the EU Public Procurement Directives have less stringent obligations to publish Calls for tenders. Since the current methodology for the classical and utilities sector relies significantly on extrapolations based on the limited information available in TED, efforts to improve the collection of published procurement data at national level should be made also in these sectors. For collection of the defence sector data it would help to work with a dedicated network of contact points in national defence ministries. In the defence sector, contacts with relevant national representatives should be launched as soon as possible, based on the study's database of contact points and dedicated questionnaire, so to allow for the sometimes-lengthy procedures of national ministries for the authorisation of information disclosure.

The study methodology to identify the investments in public procurement of ICT-based solutions (ICT-based PPI) used first known CPV codes for the ICT sector and its sub-sectors to filter out automatically the lion share of all call for tenders that concern ICT-based solutions. However, especially when the purchase does not concern 'only' ICT good or services (e.g. the purchase of construction and ICT equipment) or where ICTs are embedded inside other solutions (e.g. a digital learning system), procurers often tick only the main CPV code (construction, health) without an additional CPV code for the ICT aspects of the procurement. Therefore, the Study team learned that it was important to implement also an additional manual check across the other calls for tenders that were not identified as ICT related tenders through the CPV codes.¹³⁴

8.2.3 Suggestions to improve the current methodology

8.2.3.1 Supply-side data collection methodology

The current methodology for the classical and utilities sector is based on the analysis of demand-side data (Calls for tenders and tender documents). The great advantage is that allows to analyse detailed breakdowns of what type of innovative solutions are being procured by which type of procurers etc. However, a clear limit emerges from this methodology: only a percentage of all procurements is

¹³⁴ The manual check carried out during the study revealed that there were approximately 30% extra ICT-based PPI investments compared to filtering out only the PPI tenders with an ICT sector CPV code. Therefore, it would be important in the future to continue this manual cross-checking

published and only a fraction of these calls for tenders include all the data parameters needed for the study. Thus, in several cases significant extrapolation is needed to estimate the total amount of PPI investment and the total amount of ICT based PPI investment in Europe. This issue could be addressed by complementing the demand-side methodology with a supply-side methodology to cross-check the data on the total amount of PPI and ICT based PPI investment.

The supply-side methodology can be implemented by collecting information on the amount of sales of innovative solutions by suppliers across Europe to the public sector, including a breakdown between sales of explicitly requested innovative solutions and sales of innovative solutions autonomously proposed by the supplier. From the sales reported by suppliers in the ICT sector, the total amount of ICT based PPI investment (and its split into explicit and implicit ICT based PPI investment) could be estimated. From the sales reported by suppliers in thematic sectors (e.g. health, energy, security etc.), the total amount of PPI investment in each of those thematic sectors could be estimated.

As the EU innovation scoreboard already contains an indicator that collects information on the amount of sales of innovative solutions by European suppliers across all EU countries, this indicator could be further developed and broken down to collect the missing information for estimating the amount of explicit and implicit PPI investment from the supply side. It could also differentiate between the sales of ICT based and non-ICT based solutions. As there is very little cross-border procurement in Europe (1,6%) the information collected from suppliers in each country could estimate both the total national PPI investment and when adding up the data for all countries the total PPI investment in Europe.

In order to retrieve such information, a survey of a representative sample of European companies that have public sector customers could be carried out. This would require that enough suppliers in each country are surveyed in all 10 thematic sectors of public sector activity used by the demand-side methodology (i.e. the 10 sectors of public sector activity of the EU public procurement directives) and that enough suppliers of ICT based solutions in each country are surveyed across those 10 thematic sectors.

8.2.3.2 EU wide survey of public procurers

In addition to a supply-side survey, a European-wide survey to a representative set of public procurers across all sectors of public sector activity could be implemented in order to collect information on their individual PPI investments. This approach is considered to be particularly relevant for the defence and utilities sectors, which are characterised by a more limited rate of publication of calls for tenders than the classical sector.

8.2.3.3 Flag system to be incorporated in the TED portal

As highlighted in Chapter 5, the study applied a machine learning tool to automatically identify PPIs. However, due to the fact that the definition of an innovative solution is multi-faceted and that the descriptions of what is being procured in contract notices and tender documents vary greatly in terms of quality and length, this approach entails a number of limitations. For this reason, the study's experience suggests the creation of a mandatory flag system that requires public procurers themselves to indicate whether the notice they are publishing concerns the procurement of an innovative solution or not. In particular, the flag system could be used in all types of notices in the three following cases:

- 1) **Prior information notice** (and periodic indicative notice): here, the flag would help identify those procurements that are potentially innovative because the procurer is consulting the market on innovation aspects when preparing its tender documents.
- 2) **Contract notice** (and design contest notice, qualification system notice and the notice for public contracts for social and other specific services and the notice for public service contract for public passenger transport by rail and by road): here, the flag would help identify both those procurements in which the procurer is specifically requesting innovation to be delivered (innovation required in the description of what is to be procured) and those procurements in which the procurer is open to receive offers with innovative solutions even without explicitly requesting them (use of specific techniques in call for tenders to encourage innovation in the procurement).
- 3) **Contract award notice** (and result of design contest notice): here, the flag would help identify procurements in which procurers have finally really purchased an innovative solution. A comparison with the potential PPIs identified via contract notices would give an indication

also on the amount of PPIs where the suppliers delivered innovative solutions on their own initiative in a regular procurement that was not designed to specifically request innovation or to be particularly open to innovation.

The flag system requires a dedicated development within the tendering portal (in TED and also in national tendering portals). In order to make it to distinguish TED notices for market consultations from other prior information notices and to distinguish TED notices that concern innovation procurements from those that do not deal with innovation, the European Commission has announced in its e-Forms policy guidance framework that it will make available in the coming years a dedicated TED notice for preliminary market consultations and that it will include an identifier / flag in all the above TED notices¹³⁵. This flag will enable public buyers to indicate if a notice concerns an innovation procurement. The way it is foreseen in the e-Forms policy guidance framework, is that the flag is however still an 'optional' field in the notices, meaning that it is not mandatory for procurers to fill it in.

In order for the flag system to become a useful and reliable way of identifying calls for tenders that concern the purchase of innovative solutions, it requires that in the future all European countries accept this "flag" to become a mandatory element to be filled in in all notices and it requires also that public procurers understand what innovative solution means in order to correctly flag PPI procurements. In this context it would be useful to provide on all the national and European procurement portals an "innovation checklist", aiming to explain to procurers, standardise and simplify the identification of public procurements of innovative solutions. In this respect, a possible good practice to be investigated is the Estonian approach, consisting of a real-time assessment that enables to directly "identify and flag" on the e-Procurement portal the potentially innovative procurements.

Since a large number of notices (e.g. below EU thresholds) are not published on TED and not published on national public portals, the methodology shall consider the flag system not as the only source of information to quantify the amount of PPI investments but as an 'add-on' input that can complement a broader and more comprehensive methodology (an additional way to cross-check and improve the reliability of the methodology).

8.3 Incorporate the collected information in other EU scoreboards

This final section presents a series of recommendations on how to integrate the information from the benchmarking of national policy frameworks and investments on innovation procurement into existing European scoreboard and indexes.

8.3.1 Including ICT related information in the DESI and EDPR

The European Digital Economy and Society Index (DESI) is a composite index that includes a number of indicators – updated every year – that assess quantitatively the digital performance of EU Member States. The quantitative evidence from DESI is combined with the European Digital Progress Report (EDPR) that provides country-specific qualitative policy insights in a set of country profiles.

The DESI and the EDPR are structured around five key sections, each with its own methodologies for data collection and analysis:

- 1) Connectivity
- 2) Human Capital
- 3) Use of the Internet and Privacy
- 4) Digitisation of Enterprises
- 5) Digital Public Services

Additional thematic sections have been developed and published recently, such as the Women in Digital Scoreboard, the R&D in ICT or the International DESI (I-DESI) to compare EU Member States with other countries.

In line with this trend, the results of the benchmarking of national policy frameworks and investments on innovation procurement could directly complement the DESI and the EDPR, either by creating a new Section 6 or by adding a new indicator inside Section 5 devoted to innovation procurement of ICT

¹³⁵ E-forms policy guidance framework: <https://op.europa.eu/en/publication-detail/-/publication/73a78487-cc8b-11ea-adf7-01aa75ed71a1>

based solutions (this section could also be called more broadly “digital transformation / modernisation of public services”). More specifically, the DESI could include the quantitative evidence on the amount of ICT based PPI investments made in each country, in particular:

- The **total amount of public procurement of innovative ICT-based solutions** that was spent in each country in that year, and the **distance from reaching the ambition level** that is needed to achieve full speed digital transformation / modernisation of the public sector;
- The breakdown of this **total amount of public procurement of ICT-based solutions across the 10 sectors of public sector activity** (general public services, public administration, economic and financial affairs; health and social services; public transport; construction and housing; energy; environment; water; postal services; public order, safety, security and defence; education, recreation, culture and religion).

This would enable the DESI to quantitatively monitor the progress across different countries in using ICT-based solutions to modernise public services, both in the whole public sector in that country and more specifically in each of the 10 domains of public sector activity.

The EDPR country profiles could include the following qualitative evidence on the benchmarking of national policy frameworks for innovation procurement in each country:

- 1) The **score for indicator 3 (ICT policies)** from the benchmarking of national innovation procurement policy frameworks for each country in that year;
- 2) **The total score of the country** from the benchmarking of national innovation procurement policy frameworks in each country.

The first point would enable the EDPR to qualitatively monitor the progress of different countries in setting innovation procurement as a strategic priority in their national ICT policies and in defining national strategies for procuring/deploying specific innovative ICTs in the public sector (e.g. AI, blockchain etc.). The second point would enable the EDPR to qualitatively monitor the progress of different countries in deploying a mix of policy measures that are needed to strengthen the enabling framework for ICT procurers to procure and deploy more innovative ICT solutions (such as an action plan, spending target, incentives, monitoring and capacity building measures, an innovation friendly procurement market with clear definitions and regulatory framework for innovation procurement etc.).

8.3.2 Including innovation procurement expenditure information in the European Innovation Scoreboard

The European Innovation Scoreboard is an annual comparative assessment of how EU Member States and selected third countries perform in research and innovation. It is built upon a composite index, consisting of the average performance across the following 27 indicators.

Table 119. Measurement framework of the European Innovation Scoreboard

Types of indicators	Dimensions of indicators	Indicators
Framework conditions	Human resources	1.1.1 New doctorate graduates
		1.1.2 Population aged 25-34 with tertiary education
		1.1.3 Lifelong learning
	Attractive research systems	1.2.1 International scientific co-publications
		1.2.2 Top 10% most cited publications
		1.2.3 Foreign doctorate students
Innovation-friendly environment	1.3.1 Broadband penetration	
	1.3.2 Opportunity-driven entrepreneurship	
Investments	Finance and support	2.1.1 R&D expenditure in the public sector
		2.1.2 Venture capital expenditures
	Firm investments	2.2.1 R&D expenditure in the business sector
		2.2.2 Non-R&D innovation expenditures

Types of indicators	Dimensions of indicators	Indicators
		2.2.3 Enterprises providing training to develop or upgrade ICT skills of their personnel
Innovation activities	Innovators	3.1.1 SMEs with product or process innovations
		3.1.2 SMEs with marketing or organisational Innovations
		3.1.3 SMEs innovating in-house
	Linkages	3.2.1 Innovative SMEs collaborating with others
		3.2.2 Public-private co-publications
		3.2.3 Private co-funding of public R&D
	Intellectual assets	3.3.1 PCT patent applications
		3.3.2 Trademark applications
		3.3.3 Design applications
Impacts	Employment impacts	4.1.1 Employment in knowledge-intensive activities
		4.1.2 Employment fast-growing enterprises of innovative sectors
	Sales impacts	4.2.1 Medium and high-tech product exports
		4.2.2 Knowledge-intensive services exports
		4.2.3 Sales of new-to-market and new-to-firm product innovations

Source: Author's elaboration based on European Innovation Scoreboard Methodology Report

A continued benchmarking of innovation procurement expenditure could directly contribute to the creation of a new indicator, to further enrich dimension “Investments – Finance and support” and the dimension entitled “Impacts – Sales impacts”.

The first, i.e. “Investments – finance and support”, analyses inputs/investments at the start of the innovation chain, in the R&D phase. For this reason, it is informed by two indicators which measure public and private aspects as further detailed in the table below.

Table 120. Current indicators under the “Investments – Finance and support” dimension of the European Innovation Scoreboard

Indicator	2.1.1 R&D expenditure in the public sector (percentage of GDP)
Numerator	All R&D expenditures in the government sector (GOVERD) and the higher education sector (HERD)
Denominator	Gross Domestic Product
Interpretation	R&D expenditure represents one of the major drivers of economic growth in a knowledge-based economy. As such, trends in the R&D expenditure indicator provide key indications of the future competitiveness and wealth of the EU. Research and development spending is essential for making the transition to a knowledge-based economy as well as for improving production technologies and stimulating growth.
Data source	Eurostat
Indicator	2.1.2 Venture capital expenditures (percentage of GDP)
Numerator	Venture capital expenditures is defined as private equity being raised for investment in companies. Management buyouts, management buy-ins, and venture purchase of quoted shares are excluded. Venture capital includes early-stage (seed + start-up) and expansion and replacement capital.
Denominator	Gross Domestic Product
Interpretation	The amount of venture capital is a proxy for the relative dynamism of new business creation. In particular for enterprises using or developing new (risky) technologies, venture capital is often the only available means of financing their (expanding) business.
Data source	Venture capital data from Invest Europe. GDP data from Eurostat

Source: Author's elaboration based on European Innovation Scoreboard Methodology Report

In the public sector, indicator 2.1.1 (i.e. R&D expenditure in the public sector) captures only R&D expenditures in the public sector that are implemented through subsidies/grants allocated by R&D programs of R&D ministries/agencies. It is therefore suggested to create an additional indicator that looks also at R&D expenditures implemented through public procurements allocated by public buyers

across all domains of public sector activity (e.g. by public buyers in health, transport, energy etc.). This additional indicator (i.e. indicator 2.1.3) could have the following features:

Table 121. Suggested additional indicator to be included under the “Investments – Finance and support” dimension of the European Innovation Scoreboard

Indicator	2.1.3 Public procurement of R&D expenditure in the public sector (as a percentage of total public procurement)
Numerator	Amount of public procurement of R&D expenditure in the public sector
Denominator	Gross Domestic Product or Amount of public procurement expenditure in the public sector
Interpretation	R&D procurement expenditure is a key driver of economic growth as it drives forward public sector modernisation and simultaneously opens up from the public demand side new areas for companies to gain competitive advantage. It reflects the contribution that public sector in all its domains of activity (e.g. health, transport, energy etc) makes through public procurement to encourage the research and development of innovative solutions.
Data source	Can be derived from the same public procurement datasets collected by the study methodology and public procurement data from Eurostat

Source: Author's elaboration

The second dimension, i.e. “Impacts - Sales Impacts”, measures the economic impact of companies' innovation activities. It includes three indicators, namely (i) exports of medium and high-tech products, (ii) exports of knowledge-intensive services, and (ii) sales due to innovation activities. The recommendation of the Study team is to break down the last indicator into:

- “Sales to the public sector due to innovation activities” and
- “Sales to the private sector due to innovation activities”.

This additional breakdown would enable to track to what extent companies' efforts to invest in innovation activities are having an impact not only on increasing their sales to private sector customers but also to public sector customers. The data for this new indicator could be collected through the supply-side approach explained in section 8.2.3.1 and the data concerning sales to public sector customers should be cross-checked with the amount of PPI investment estimated by the study methodology. More details of the suggested additional indicator are presented in the table below.

Table 122. Suggested additional indicator to be included under the “Impact– Sales” dimension of the European Innovation Scoreboard

Indicator	4.2.3 Sales of new-to-market and new-to-firm innovations
Numerator	Total amount of sales of new-to-market and new-to-firm innovations, split into: 1) Amount of sales of new-to-market and new-to-firm innovations to public sector customers 2) Amount of sales of new-to-market and new-to-firm innovations to private sector customers
Denominator	Total amount of sales, split into: 1) Amount of sales to public sector customers 2) amount of sales to private sector customers
Interpretation	Sales of innovative solutions determines companies' growth potential and competitiveness, they also determine the speed of adoption of innovative solutions on the market. The breakdown enables to track to what extent companies' efforts to invest in innovation activities are having an impact not only on increasing their sales to private sector customers but also to public sector customers.
Data source	Amount of R&D procurement expenditure that can be derived from the same public procurement datasets collected by the study methodology and public procurement data from Eurostat

Source: Author's elaboration

The criteria envisaged by the European Innovation Scoreboard to determine whether a new indicator may be incorporated into the scoreboard are presented in the following table.

Table 123. Criteria for the selection of additional indicators for the European Innovation Scoreboard

Area	Criterion
Relevance for policy-making	Rapidly changing innovation megatrends, practices, and framework conditions
Quality	Analytical soundness
	Reliability
	Transparency
	Comparability across countries

	Comparability over time
	Timeliness

Source: Daniel W. Bloemers, European Commission, GROW-F1, Workshop "The Strategic Use of Innovation Procurement", 7 September 2017

The methodology of the present study can be considered to produce data that fulfil all the above-mentioned criteria, with the exception of the criterion "comparability over time". However, this last criterion will be eventually met in the future, should the methodology be replicated over several years, resulting in the construction of a time series of comparable results.

8.3.3 Including information on PPI expenditure in other scoreboards

The results of the investment benchmarking could also be included in other scoreboards and reports, such as the following:

- EU Public sector Innovation Scoreboard¹³⁶
- ERA progress report¹³⁷ (this should track national R&D procurement investments)
- EU single market scoreboard (in particular the public procurement scoreboard part of it)
- EU Economic semester scoreboard (in particular the European competitiveness report)

In addition to the aggregate figures on PPI expenditure, the study has also estimated PPI in the 10 different domains of public sector activity. This sectorial breakdown could thus contribute to various EU scoreboards with a sectorial focus, as presented in the following table:

Table 124. EU sectorial scoreboards

Scoreboard	Link	Additional notes
EU health policy indicators	https://ec.europa.eu/health/indicators/policy_en	Under "other health indicators" a "modernisation of public healthcare systems / innovation procurement in health" indicator could be added.
EU Transport Scoreboard	https://ec.europa.eu/transport/facts-fundings/scoreboard_en	Indicator "energy union and innovation" has a sub-indicator "private expenditure/investment in R&D in transport", but no "public investment in R&D/innovation in transport sector". This could be added.
Energy Union Progress tracker	https://ec.europa.eu/energy/en/news/track-energy-unions-progress-new-webtool https://ec.europa.eu/energy/en/data-analysis/energy-union-indicators	It has an indicator "research, innovation and competitiveness" and a sub-indicator "research and innovation" where "public R&D funding" is a sub-sub-indicator. R&D procurement and PPI is missing and could be added.
Environmental implementation review	https://ec.europa.eu/environment/eir/index_en.htm	Possibility of adding a GPP indicator
GPP monitoring framework	http://ec.europa.eu/environment/eir/index_en.htm	Still under construction
Strategic environmental assessment framework	http://ec.europa.eu/environment/eia/sea-legalcontext.htm	Some subareas under environment have their own scoreboards
EU eco-innovation scoreboard	https://ec.europa.eu/environment/ecoap/scoreboard_en	The first indicator is "gov environmental and energy R&D appropriations and outlays", to which "government R&D/innovation procurements" could be added.
EU justice scoreboard	http://ec.europa.eu/justice/effectiv-justice/files/justice_scoreboard_2016_en.pdf	There is an indicator "efficiency of justice system" where modernisation of justice system with more efficient innovative systems could be added (there is already ICT use as sub-indicator, but not innovation procurement in general)
EU education/culture scoreboard	http://ec.europa.eu/education/policy/strategic-framework_en http://ec.europa.eu/education/policy/multilingualism/evidence-based-policy_en	This contains an objective "increasing the quality and efficiency of education and training" and an objective "enhancing creativity and innovation", to be potentially complemented.
EU construction/housing scoreboard	https://ec.europa.eu/growth/sectors/construction/observatory_en	Contains indicators on innovation, so PPI could be included in the construction domain of public sector activity.

¹³⁶ Available at: https://ec.europa.eu/growth/industry/innovation/policy/public-sector_en

¹³⁷ Available at: http://ec.europa.eu/research/era/eraprogress_en.htm

Scoreboard	Link	Additional notes
	https://ec.europa.eu/growth/sectors/construction/competitiveness_en	
Postal Statistics	https://ec.europa.eu/growth/sectors/postal-services/statistics_en	Contains data on postal services such as postal traffic.

Source: Author's elaboration

Finally, a summary of lessons learned, and recommendations is provided in the following table.

Table 125. Summary of lessons learned and recommendations

Category	Description
Measuring progress on policy measures that foster innovation procurement	
Data collection and calibration	For data gathering, cleaning and aligning, it is recommended to make use of an online survey with collection of tangible evidence and complemented by in-depth interviews. To identify and engage the most suitable survey respondents, it is recommended to collect information from multiple sources per country and to establish a list of dedicated national respondents. As regards the timing of the different steps of the benchmarking, it is recommended to align it with the timing of other EU scoreboards.
Address and overcome data quality problems	The survey should include the collection of supporting evidence such as links and attachments, and the possibility of a second survey should be taken into account.
Set-up of an IT tool to collect information	Develop an ad hoc IT tool (e.g. web portal) for the centralisation of the data collection based on smart crowdsourcing approach, enabling experts to provide directly the information on a web platform. Solutions to be used as inspiration include the Regional Innovation Scoreboard, the eGovernment action plan evaluation, the Open Science Monitor, the Co-VAL Dashboard, and the Startup manifesto tracker.
Collecting quantitative data on the volume of public procurement of innovative solutions	
Data collection and calibration	Make arrangement with the unit within DG GROW responsible for the management of the TED database in order to be granted access to all available variables. Conduct extensive desk research to map all available (public and private) sources of tender data in all countries, devoting a substantial amount of time for the interactions with national data providers, ensuring that a minimum set of variables is provided in accordance with pre-defined technical standards. Try to gain direct access to the national e-procurement portals repositories in order to facilitate the collection of data. For each country combine multiple datasets from different data sources. Carry out an evaluation of the suitability of the sources for future data provision.
Address and overcome data quality problems	Consider the possibility of retrieving the missing value of a certain calls for tenders from the corresponding contract award notice, through the use of a dedicated code that allows to track back the original call for tenders, together with the use of historical data. Consider the possibility of replacing the currently used Purchasing Power Parity with other rates calculated on baskets of publicly procured supplies, services and works (rather than consumer goods). Devote time and effort to the manual retrieval of the CPV codes of calls for tenders.
Suggestions to improve the current methodology	Consider the possibility to use a supply-side methodology, to be implemented by collecting information on the amount of sales of innovative solutions by suppliers across Europe to the public sector. Consider carrying out a European-wide survey to a representative set of public procurers across all sectors of public sector activity. Create a flagging system requiring public procurers to indicate whether the notice they are publishing requests an innovative solution or not.
Incorporate the collected information in other EU scoreboards	
Expand existing indexes such as DESI and EDPR	The study could directly complement the DESI and the EDPR, either by creating a new section or by adding a new indicator devoted to innovation procurement of ICT based solutions.
Include PPI expenditure information in the European Innovation Scoreboard	The findings of the study on PPI expenditure could directly contribute to the creation of a new indicator, to further enrich dimension "Investments – Finance and support" and the "Impact - Sales" dimension in the European Innovation Scoreboard.
Include PPI expenditure information in other scoreboards	In addition to the aggregate figures on PPI expenditure, the study has also estimated PPI expenditure in the 10 different domains of public sector activity. This sectorial breakdown could thus contribute to various EU scoreboards with a sectorial focus.

Source: Author's elaboration

9 Annexes

9.1 Annex I – Country Profiles

This Annex contains 30 country profiles. Each country profile provides in-depth information about the position, strengths and weaknesses of that country in the three benchmarkings developed by the study:

- The benchmarking of national innovation procurement policy frameworks across Europe
- The benchmarking of PPI investments across Europe
- The benchmarking of ICT-based PPI investments across Europe

There are 30 country profiles in this Annex:

- Country Profile for Austria
- Country Profile for Belgium
- Country Profile for Bulgaria
- Country Profile for Cyprus
- Country Profile for Croatia
- Country Profile for Czech Republic
- Country Profile for Denmark
- Country Profile for Estonia
- Country Profile for Finland
- Country Profile for France
- Country Profile for Germany
- Country Profile for Greece
- Country Profile for Hungary
- Country Profile for Ireland
- Country Profile for Italy
- Country Profile for Latvia
- Country Profile for Lithuania
- Country Profile for Luxembourg
- Country Profile for Malta
- Country Profile for Norway
- Country Profile for Poland
- Country Profile for Portugal
- Country Profile for Romania
- Country Profile for Slovenia
- Country Profile for Slovakia
- Country Profile for Spain
- Country Profile for Sweden
- Country Profile for Switzerland
- Country Profile for The Netherlands
- Country Profile for the United Kingdom

Austria



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Austria, the EU Directives 2014/23/EU, 2014/24/EU and 2014/25/EU have been transposed into national legislation¹³⁸ in August 2018. The Austrian public procurement regulation on defence and security¹³⁹ transposed the EU Directive 2009/81/EC.

Although public procurement is carried out at all different levels of government, an important share of purchases of the federal government is centralized by the Federal Procurement Agency (BBG). In the country there are more than 5600 contracting authorities.

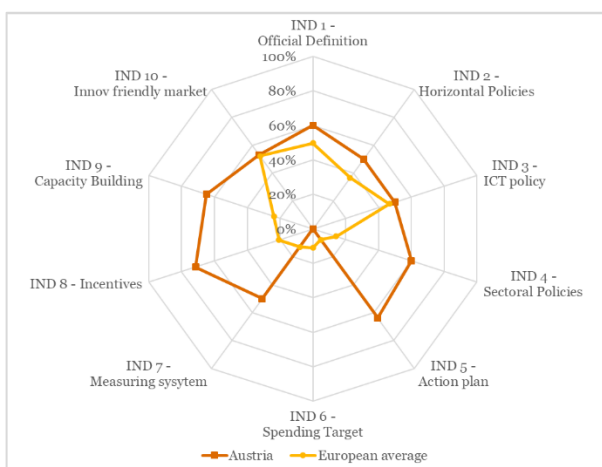
Innovation procurement in Austria is supported and implemented by the **Austrian Action Plan on Public Procurement Promoting Innovation (PPPI)**, adopted in 2012 by the Austrian Federal Government. The Action Plan is linked to the “Austrian Strategy for Research, Technology and Innovation”.

The key actors are the Ministry for Digital and Economic Affairs (**BMDW**) and the Ministry for Transport, Innovation and Technology (**BMVIT**), supported by the Austrian Federal Procurement Agency (**BBG**) and the Austrian Institute of Technology (**AIT**). The two Ministries are responsible for the political commitment, the strategic governance, and they finance the initiatives of the Action Plan, as well as the **PPPI Service Centre**. The PPPI Service Centre, established in 2013 within the BBG, acts as point of single contact for PPPI issues in Austria, initiates and conducts innovation procurement pilot projects, offers services like general advice, case-by-case assistance, further education and training and manages a PPPI online platform. The **AIT** supports the other key actors providing scientific support and carrying out several monitoring activities.

The **PPPI Service Centre** is complemented and supported by a network of competence centres and contact points which have different thematic or sectorial focuses (e.g. the Austrian Research Promotion Agency – FFG – as general competence centre for PCPs; the Austria Wirtschaftsservice – AWS – as general competence centre for PPIs; the Austrian Association for Transport & Infrastructure – GSV – as sectorial competence centre for Mobility; the Federal Real Estate – Bundesimmobiliengesellschaft – BIG – as sectorial competence centre in Building Construction, and the Austrian Energy Agency, as sectorial competence centre for Energy).

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Austria is at the 2nd position** of the overall ranking with a **total score of 52.3%**. From the 30 countries analysed, Austria is among the good performer countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 52.3% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Austria to reach its full 100% potential.



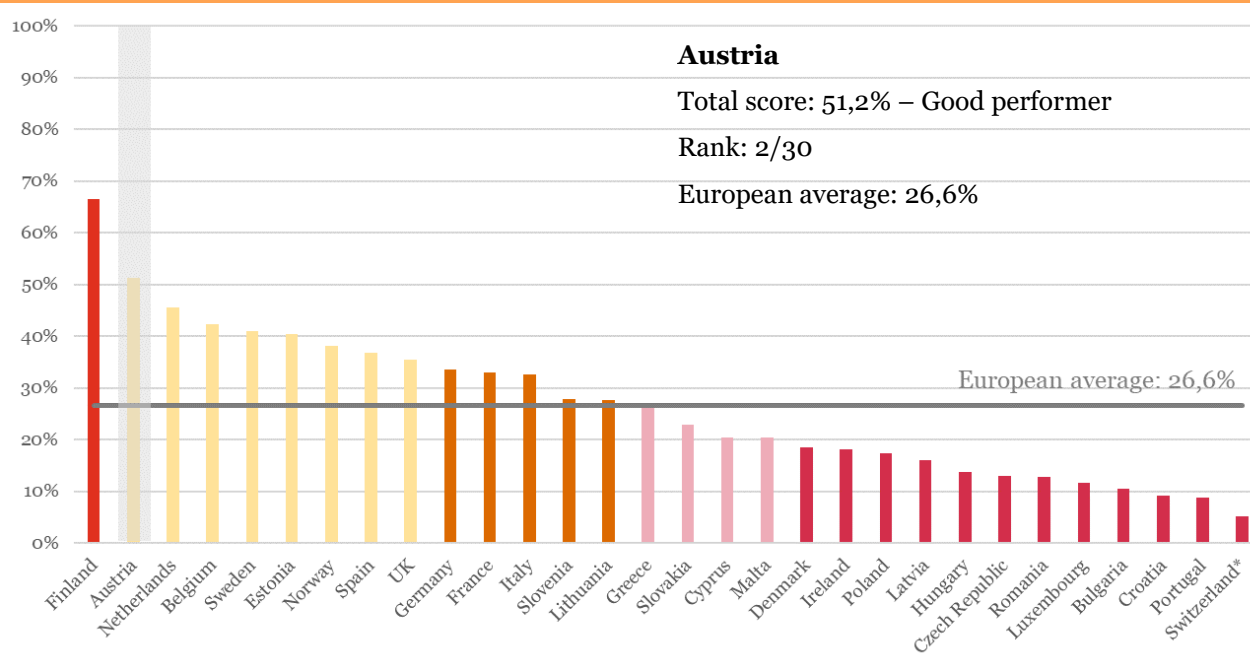
Strengths: Austria has one of the most detailed and well-defined action plans for innovation procurement. The country has well-structured monitoring and incentives schemes.

Weaknesses: Underinvestment in concrete measures to ensure implementation of the politically proposed spending target, capacity building and financial incentives not yet fully mainstreamed, measurement system to be further refined and implemented on regular basis, innovation procurement not yet recognised/implemented strategically in several sectors, not yet exploiting the full potential support of other horizontal policies. Lack of IPR policy in public procurement that encourages innovation.

¹³⁸ <https://www.ris.bka.gv.at/eli/bgbl/I/2018/65/2018o820>

¹³⁹ <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007693>

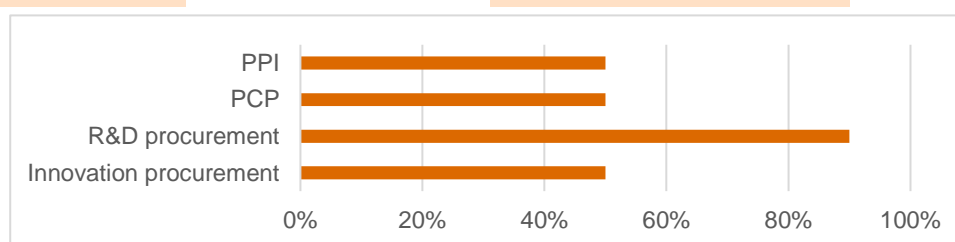
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 60% European Average 50%



In the Austrian public procurement legal framework, there is a clear official definition for innovation and R&D procurement, while innovation procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI) are defined in guidance documents. These definitions are partly in line with the European definitions and are applicable countrywide. The total score of the indicator “Official definition” is therefore 60%.

In national legislation there is no definition of **innovation procurement**, however the federal procurement law (Bundesvergabegesetz 2018) embeds the definition of “Innovation” in §2, which is applicable to all public procurers in the country and in line with the EU definition.¹⁴⁰ A definition of innovation procurement is available in the Austrian Action Plan on Public Procurement Promoting Innovation (PPPI).¹⁴¹ According to the plan, the definition of PPPI encompasses four levels:

1. Procurement of new research and/or development of goods and services for the requirements of the procuring organisation - *development initiator*;
2. First up-take (procurement of goods and services of which the public institution knows it is the first organisation having bought this good; the public institution serves as a reference) - *first buyer*;
3. Diffusion (procurement that fosters further market penetration of innovative goods and services that are already available on the market (the procurer refers to already existing references) but the procurement was not a regular case yet in the organisation (early adopter) - *diffusion accelerator*.
4. The use of new innovative approaches in the procurement process itself (e.g. improving the procurement process through e-procurement, reducing the time to payment for companies etc.)

This definition is applicable to all public procurers in the country but is not completely in line with the EU definition, as level 4 is not included in the EU definition. Without level 4 the remaining definition remains also only partly in line with the EU definition because the boundary of where level 3/diffusion stops considers early adoption at the level of the procuring organisation, not at the level of the supply of the solution on the market as a whole (even the last procurer on

¹⁴⁰ https://www.parlament.gv.at/PAKT/VHG/XXVI/I/I_00069/index.shtml

¹⁴¹ https://www.ioeb.at/fileadmin/ioeb/Dokumente/IOEB_allgemein/IOEB_-_1_-_IOEB-Leitkonzept.pdf

the market that buys a solution which are already regularly sold to all other customers on the market is still considered PPPI). As a result, the total score of this sub-indicator is 50%.

There is a full sentence definition of **R&D** in the national public procurement legislation for the defence sector¹³⁹. Article § 3 Z. 18 of the Austrian federal public procurement law for defence and security defines research and development as "all activities that involve basic research, applied research and experimental development. Experimental development may include the production of technological demonstration systems, which are devices for demonstrating the performance of a new concept or technology in a relevant or representative environment." This definition is in line with the EU definition of R&D in the EU. Article § 9 (1) 15 of the Austrian federal public procurement law for defence and security excludes from the scope of the regulation R&D services, except when the results of the R&D services are the sole property of the client for its use in the performance of its own activities and the services are fully remunerated by the client. There is no full sentence definition for the notion of **Research and Development** in the Austrian Public Procurement legislation for the classical and utilities sectors¹³⁸. Article 9(1) 12 only identifies R&D by referring to CPV codes for fundamental research, applied research and industrial development. Thus, the total score for this sub-indicator is 90%.

No definitions of **PCP** and **PPI** exist in the national legal framework. However, the legal basis for the implementation of both type of innovation procurements are available in the federal public procurement law. The legal basis for the implementation of PCP is provided in article § 9 (1) 12 while § 20 para. 7 provides the legal basis for implementing PPI. In addition, the definitions of PCP and PPI exist in the Austrian action plan for PPPI. According to the action plan *there are two types of instruments for innovation-promoting public procurement (PPPI). On the one hand, there is the pre-commercial procurement of research and development services by the public sector (pre-commercial procurement, PCP) and, on the other hand, the commercial procurement of innovation as part of the usual procurement of goods and services by the public procurement (public procurement of innovative solutions, PPI). PCP refers to the pre-market research and development phase before the market introduction of a final product. Several companies apply similar to an ideas competition and develop new solutions tailored to the buyer. Pre-commercial procurement is excluded from the scope of the Federal Procurement Act (R&D exemption). In contrast, PPI refers to goods and services that already marketable or close to the market. It can do so by means of the possibilities provided by the Federal Procurement Law such as "functional specifications" (as opposed to "constructive tender specifications"), "negotiated procedures" or "competitive dialogue"*. The Austrian PCP definition is applicable to all public procurers in the country, but not completely in line with the EU definition. It does not recognise that the purchase of a limited volume of prototypes or final end-solutions can also be part of a PCP (as long as the total value of the "supplies" in the contract remains below 50%). Therefore, the score of this sub-indicator is 50%. Similarly, the definition of PPI is applicable to all public procurers in the country but is only partly in line with the EU definition. Therefore, the total score for both sub-indicators is 50%.

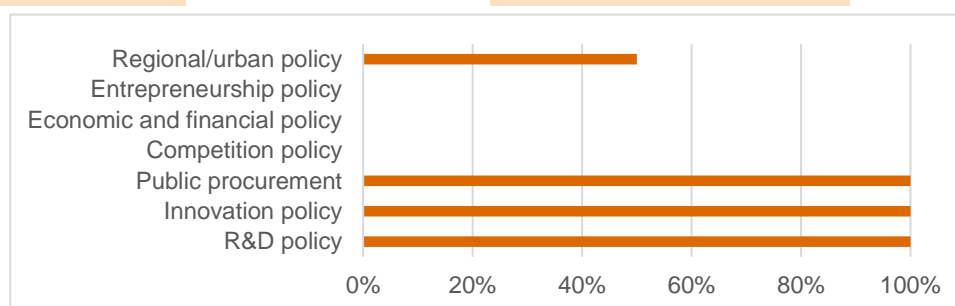
Indicator 2 – Horizontal policies

Total score

50%

European Average

36%



Innovation procurement is included in four horizontal policies. The total score of this sub-indicator is 50%.

The Government Programme 2017-2022 “Together. For our Austria”¹⁴² puts as objective that "the State should play a model role in innovation promoting public procurement, using it as a strategic tool to improve the efficiency and effectiveness of public services by acting as a reference market for the adoption and diffusion of new technologies". To expand innovation procurement at federal level, the government programme sets a target of 2% of the procurement volume of the so-called central contracting authority, as defined in the national procurement law (incl. all Federal Ministries, the Federal Procurement Agency (BBG), AIT Austrian Institute of Technology, the Austrian Federal Computing Centre (BRZ); not to be confused with “Central Purchasing Body”).

In the field of R&D and innovation policy, the **Strategy for research, technology and innovation of the Austrian Federal Government**¹⁴³ recognizes the pivotal role of innovation procurement in increasing “the demand for innovative products and knowledge-intensive services”. The Strategy requires a “strategic bundle of measures that go beyond a narrowly defined technological, supply-side innovation policy: it includes demand-side measures, such as public procurement and a competition policy that stimulates innovation”. The strategy also fixes the objective of “[...] enhance domestic value creation by encouraging research intensive industries and knowledge intensive services. In the process,

¹⁴² <https://www.oevp.at/download/Regierungsprogramm.pdf>

¹⁴³ <https://era.gv.at/directory/158>

we want to stimulate innovations through a strong emphasis on demand-side instruments in public procurement, regulation and standardization".¹⁴⁴

In the field of **public procurement policy**, innovation has been a secondary procurement objective in the Austrian federal public procurement law since 2013 and remains to be so under the "Bundesvergabegesetz 2018" (see § 20 (7) and § 193 (7)) and the R&D services exemption that forms the legal basis to implement PCPs in Austria also remains.¹⁴⁵ Innovation procurement is not a specific objective of the country's regional policy, but at regional and urban level, it is worth mentioning that Vienna's RTI strategy "**Innovative Vienna 2020**"¹⁴⁶ recognizes innovation procurement among the instruments to be used to foster the innovative development of the city.

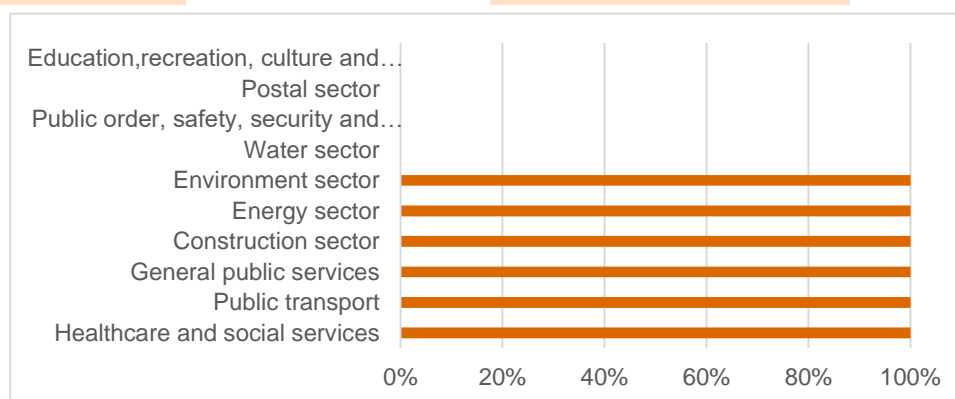
Indicator 3 – ICT policies

Total score	50%	European Average	47%
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In the field of ICT, not the overall country's Digital Roadmap strategy but two parts of it, namely the *Internetoffensive Österreich* and the creative industries strategy (*Kreativwirtschafts-strategie*), recognize the importance of public procurement as a strategic tool to foster the competitiveness of national industries, especially also for SMEs and Start Ups. "The Commitment of the public sector to the nationwide implementation of "innovation oriented public procurement" can contribute to the spread of innovative business models and the creation of new startups." Therefore, the overall score of this indicator is 50%.

Indicator 4 – Sectorial policies

Total score	60%	European Average	14%
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Innovation procurement is treated as strategic priority in the following sectors: environmental, energy, construction, general public services, transport and healthcare and social services. Hence, the total score for this indicator is 60%.

The climate and energy strategy, Mission 2030,¹⁴⁷ and **The energy research and innovation strategy**¹⁴⁸ both recognize that innovation procurement needs to be used more as the demand-side instrument to foster the market introduction of innovations in the sectors of Energy, Mobility and Transport and Environment. Specific measures are encouraged in e-mobility (e.g. e-fleet, e-logistics and e-mobility infrastructure on road and rail) and energy (energy efficient buildings, new energy and traffic systems of the future).

The Strategy for clean energy in transport (*Strategierahmen saubere Energie im Verkehr*)¹⁴⁹ concedes a pioneering role to the public sector and to innovation procurement in the reconstruction and modernization of the transport system. The strategy foresees several measures and objectives, as for example switching to low-emission vehicles for federal ministries and other institutions and considering the introduction of the Austrian compulsory analysis of the Total Cost of Ownership (TCO) on procurement of public vehicles fleets to compensate for the disadvantage of alternatively powered vehicles with exclusive consideration of the purchase costs.¹⁵⁰

In the Health sector, **The life sciences strategy**¹⁵¹ sees innovation procurement as one of the most important tools to modernize the delivery of public service. Specific pilot procurement projects are encouraged with the aim of introducing new and highly efficient medical devices.¹⁵²

¹⁴⁴ Ibid. Pag. 27

¹⁴⁵ https://www.parlament.gv.at/PAKT/VHG/XXVI/I/I_00069/index.shtml

¹⁴⁶ <https://www.wien.gv.at/english/research/pdf/innovative-vienna-2020.pdf>

¹⁴⁷ <https://mission2030.info/>

¹⁴⁸ https://nachhaltigwirtschaften.at/resources/e2050_pdf/E-Forschung_Kurzfassung_englisch_v2.pdf

¹⁴⁹ <https://www.bmvit.gv.at/verkehr/elektromobilitaet/downloads/strategierahmen.pdf>

¹⁵⁰ See pg. 31 in <https://www.bmvit.gv.at/verkehr/elektromobilitaet/downloads/strategierahmen.pdf>

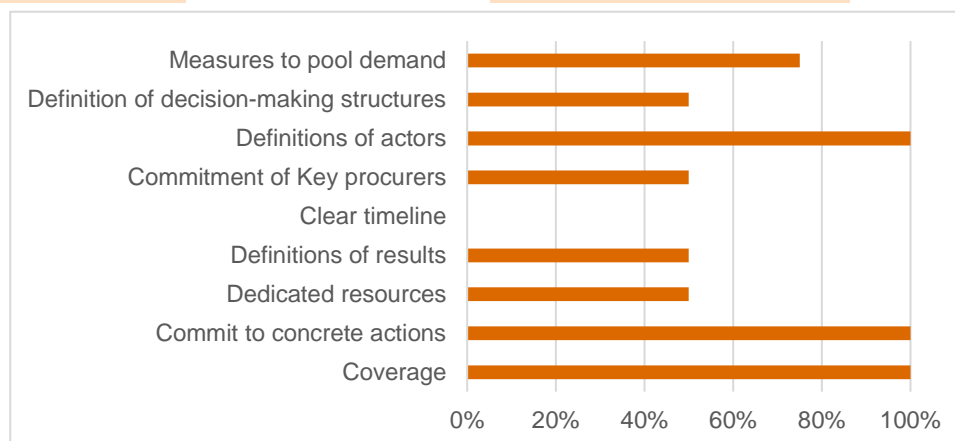
¹⁵¹ <http://www.lifescienceaustria.at/en/life-science-in-austria/>

¹⁵² Life Science Strategy, available at: https://www.bmdw.gv.at/Innovation/Publicationen/Documents/Life_Science_Strategie_barrierefrei.pdf

Finally, in the construction sector, **The Austrian federal Guidelines for Building culture and stimulus Programme** (2017) views Public Procurement Promoting Innovation as an instrument for ensuring the quality and innovativeness of selected projects and designers.¹⁵³

Indicator 5 – Action plan

Total score 64% European Average 8%



The **Action Plan on Public Procurement Promoting Innovation (PPPI)** was adopted in 2012 by the Austrian Federal Government as a follow up of the “Austrian Strategy for Research, Technology and Innovation” (2011). It aims at making PPPI an element of demand side innovation policy, complementing supply side measures, and increasing the share of public procurement volume used for innovation. The action plan covers all types of innovation procurement, is applicable across the country and to all public procurers in all sectors and administrative levels and aims at mainstreaming innovation at a large scale. Therefore, the score of the sub-indicator “coverage” is 100%.

The action plan identifies **concrete actions** (e.g. the management of a PPPI platform) and defined a **clear timeline** to implement these actions in the time period 2012-2013. However, the timeline in the action plan is not up-to-date any more (there are no actions defined with target completion date beyond 2013). Therefore, the score for sub-indicator timeline is 0%. The defined actions and activities are linked to a set of specific objectives which translate the overall strategic objectives and the mission of the action plan. The specific objectives include (i) raising awareness on innovation through public procurement; (ii) fostering dialogue between demand and supply; (iii) qualifying decision makers and procurers for PPPI; (iv) introducing and fostering new approaches for PPPI; (v) establishing a monitoring and benchmarking system; (vi) integrating PPPI actions in sectorial strategies and in different administrative levels. The score for sub-indicator “concrete actions” is therefore 100%.

The action plan is **financed** by the Ministry for Digital and Economic Affairs (BMDW) and the Ministry for Transport, Innovation and Technology (BMVIT). Actions, objectives and dedicated resources are implemented for all types of innovation procurement, but not for all key actors in the country (committed resources to achieve the objectives are clear for the competence center but not for other ministries and key procurers in the country, the expected results from other actors besides the competence center are defined less clearly) and do not enable to achieve mainstreaming of innovation procurement at a large scale. Therefore, the score of the sub-indicators “dedicated resources” and “definition of results” is 50%.

In terms of governance, the action plan **defines actors** to achieve different objectives. For example, the key procurement organisation involved in the implementation of the action plan is the PPPI Service Centre.¹⁵⁴ Its services cover three main objectives: raising awareness for PPPI, matching public procurers and potential suppliers of innovative solutions, and increasing the overall share of procurement budgets used for PPPI. Therefore, the score of this sub-indicator is 100%.

The Service Centre operates under the roof of the Austrian Federal Procurement Agency and on behalf of the two ministries responsible for the implementation of the action plan (i.e. the BMDW and the BMVIT). While covering all types of innovation procurement widely across the country, the activities implemented by the Service Centre have not reached yet the stage of being able to mainstream innovation at large scale. As suggested in the evaluation of the PPPI action plan “the necessary political backing exists, it is expressed in several strategic documents but has not reached a sufficient level”.¹⁵⁵ It is recognised that a number of “preparatory actions” took place on how to implement PPI in different public sector organisations (including ministries), but they have not been defined in a strategic plan yet. Consequently, a systematic dedication of procurement budgets for the purpose of PPPI activities is currently only observable in the context of PPPI “pilot projects”. Hence, the score of the sub-indicator “**commitment of key procurers**” is 50% as there is no commitment from procurers across all levels and sectors and therefore no widespread mainstreaming either.

¹⁵³ The Austrian Federal Guidelines for Building Culture and Stimulus Programme Adopted by the Austrian Council of Ministers on August 22nd, 2017. Available at: https://www.kunstkultur.bka.gv.at/documents/340047/394470/Baukultur_Leitlinien_EN.pdf/ea8781a5-d550-45a5-8685-2a6c761cddf7 (in English)

¹⁵⁴ <http://www.ioeb.at/>

¹⁵⁵ https://repository.fteval.at/331/1/1%C3%96B-Evaluierung_Kurzfassung%20EN_barrierefrei.pdf

With regard to **decision-making structures**, again the interaction between the competence centre and its funding ministries BMDW and BMVIT are clear but the action plan does not define a clear decision-making structure with other ministries and key procurers to ensure implementation of the objectives. The PPPI Service Centre participates in regular joint meetings with the two ministries including meetings of the so-called PPPI steering group that includes representatives of the higher levels of the ministerial hierarchy. Amongst others, during these meetings the plans of the Service Centre activities for the coming year are discussed and defined. The evaluation of the PPI Action Plan implementation raised some concerns related to the governance structure, including the absence of a clear distribution of tasks and roles among ministries (currently based on non-binding agreements) and the challenges faced by actively managing the Action Plan especially with regard to other ministries. Therefore, the overall score of the sub-indicator “definition of decision-making structures” is 50%.

Finally, through the involvement of the national central purchasing body BBG the action plan defines concrete **measures to pool demand** among public and private procurers across the whole country and for all types of innovation procurement, however not at a scale to scale up innovation procurement widely yet. Therefore, the score of this sub-indicator “measures to pool demand” is 75%.

Based on the evidence collected, the total score for the indicator action plan is 64%.

Indicator 6 – Spending target

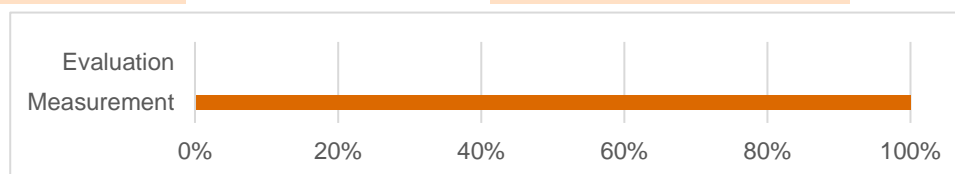
<i>Total score</i>	0%	<i>European Average</i>	11%
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In Austria there are no specific spending targets for innovation procurement. The introduction of mandatory targets and sanctions to incentivise procurers to use innovation procurement has been discussed at the political level in Austria. However, rather than a “command & control” approach, the “empowerment” approach is nowadays the guiding principle to promote innovation procurement in the country. This includes a set of basic services, such as capacity building, awareness raising and financial incentives.

The coalition agreement (Government programme 2017-2022¹⁴²) expressed the ambition to expand public procurement promoting innovation (PPPI) at the federal level to 2% of the public procurement expenditure of central/national government contracting authorities. Although this coalition agreement did not officially adopt a quantitative 2% target yet, it set out the ambition and willingness to do so (but not a mandatory target) during the 2017-2022 government period.

Indicator 7 – Monitoring system

<i>Total score</i>	50%	<i>European Average</i>	13%
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Austria has developed a structured system to measure the amount of innovation procurement spending. The total score for the sub-indicator “measurement” is 100%.

Since 2013, Austria has been developing a comprehensive innovation procurement monitoring system. The “Action Plan on Public Procurement Promoting Innovation PPPI” provides the context for the monitoring and measurement activities, which consists of four dimensions, i.e. **‘reporting’, ‘assessing’, ‘measuring’, and ‘learning’**¹⁵⁶. All these dimensions provide a general overview on the activity carried out by all the actors involved in the system.

In particular, the **‘Measuring’ activity** is based on the development and testing of a PPPI metric and it currently consists of two pilot surveys. The first one indicates the share of innovation procurement as part of the total procurement volume on the organizational level of public authorities. It was conducted by Statistics Austria in 2014/2015 by sending questionnaires to public authorities. The second survey aims at the identification of innovation procurement at the project level, including the indication of the share of innovation as part of the total project volume as well. The start of its execution it was scheduled for December 2017 by integrating respective questions in e-tendering portals.

The design of the metric follows the notion that public authorities can promote innovation in various ways, according to the ‘role’ or ‘function’ of the public authority in the innovation cycle:

- 1) Development initiator: Goods or services which have been newly developed for your organization (including R&D services, excluding standard analyses)
- 2) First buyer: Goods or services of which you know that you are the first buyer (supplier or somebody else was development initiator; your organization may provide a reference case for others)

¹⁵⁶ https://www.ait.ac.at/fileadmin/mc/innovation_systems/projekte/IOEB/201709_PPPI_Policy_Note_Monitoring_Measurement.pdf and http://www.statistik.at/web_de/frageboegen/oeffentliche_einrichtungen/innovations_foerdernde_beschaffung/index.html

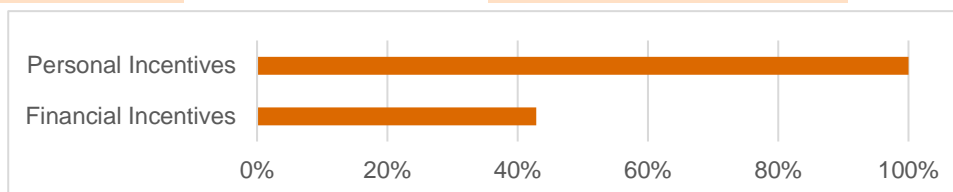
- 3) Diffusion accelerator: Goods or services which are new on the market and new for your organization (your organization may learn from already existing reference case/s)

On the basis of a response rate of more than two thirds in the government sector (68%) Statistics Austria estimates the share of innovation procurement of the total procurement volume as being between 2.3% and 3.3%.

A comprehensive **evaluation of the implementation of the Action Plan on Public Procurement Promoting Innovation in Austria** has been finalized in May 2018.¹⁵⁷ This is a qualitative evaluation of the policy. An evaluation of the impact of innovation procurements completed in the country is ongoing, results are expected in autumn 2019. Therefore, according to what is investigated in this sub-indicator, evaluation system scores 0%.

Indicator 8 – Incentives

Total score 71% European Average 22%



Austria has set up **financial incentives** to encourage public procurers country-wide to undertake more innovation procurements.¹⁵⁸ In Austria, financial support by the Ministries and financial/practical support by the PPPI Service Centre is provided for several sectors, depending on concrete needs of public procurers in the respective fields.

In particular, there are **grants** for procurers that co-finance the cost of coordination activities to prepare and manage the procurement and/or the procurement cost, financial support for PCP and innovation partnership procurements (€2 million across all sectors in 2018), and other financial incentives via the "PPPI project competition" that is implemented by the PPPI Service Centre.

The "**PPPI project competition**" awards financial vouchers to public procurers for PPPI support such as technology consulting, legal advice or project management support. The budget for 2017 was €100.000 and the total funding allocated between 2014 and 2017 accounted for approximately €280.000 for projects. The total procurement volume was €18 million. The vouchers are available for all types of innovation procurements and are also applicable countrywide.

Both types of funds are based on national funding (they are not dependent on any EU funding). However, they are not designed to foster large scale implementation of innovation procurement and not all the financial incentives are open to all types of sectors and types of innovate procurement (in particular the ministry grants). As a result, the score of this sub-indicator is 43%.

In terms of **personal incentives** for innovation procurement, Austria awards a yearly prize to the winner of the PPPI project competition¹⁵⁹. In addition, the "Österreichische Verwaltungspreis 2019" (Austrian public sector award) will include a PPPI category¹⁶⁰. The score for the sub-indicator personal incentives is therefore 100%.

The total score of this indicator is 71%.

Indicator 9 – Capacity building and assistance measures

Total score 65% European Average 24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all aspects and types of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	✓		✓	✓	✓	✓	83%
Good practices	✓		✓	✓	✓	✓	83%
Trainings/workshops	✓	✓	✓	✓	✓	✓	100%
Handbooks/guidelines	✓		✓	✓	✓		67%
Assistance to public procurers	✓		✓	✓	✓	✓	83%

¹⁵⁷ https://repository.fteval.at/331/1/1%C3%96B-Evaluierung_Kurzfassung%20EN_barrierefrei.pdf

¹⁵⁸ <https://rio.jrc.ec.europa.eu/en/file/11727/download?token=Pv6uIx8J>

¹⁵⁹ <https://www.eu2018.at/calendar-events/political-events/BMNT-2018-11-26-VA3-ECOVATION-2018.html>

¹⁶⁰ https://www.oeffentlicherdienst.gv.at/verwaltungsinnovation/wettbewerbe/oesterreichischer_verwaltungspreis/Verwaltungspreis_2019.html

Template tender documents							0%
Coordination/pre-approval							0%
Networking of procurers	✓		✓	✓	✓	✓	83%
One-stop-shop /competence centre	✓	✓	✓	✓	✓		83%

Austria carries out seven out of the nine above measures to build up public procurers' know-how on innovation procurement.

The key actor carrying out capacity building activities is the **PPPI Service Centre (IÖB Servicestelle)**, the organization appointed to operate as **national competence center/one-stop-shop the central website** on innovation procurement in the country¹⁶¹, widen the network and provide financial assistance, counselling, cooperation opportunities, networking opportunities, awareness events, trainings and seminars.¹⁶²

The PPPI Service Centre is complemented and supported by a **network of competence centres and entities which have different thematic or sectorial focuses** (the Austrian Research Promotion Agency – FFG – as general competence centre for PCPs; the Austria Wirtschaftsservice – AWS – as general competence centre for PPIs; the Austrian Association for Transport & Infrastructure – GSV – as sectorial competence centre for Mobility; the Federal Real Estate – Bundesimmobiliengesellschaft – BIG – as sectorial competence centre in Building Construction, and the Austrian Energy Agency, as sectorial competence centre for Energy).

An important tool for capacity building is the **PPPI online platform**¹⁶³, where innovation procurement stakeholders (public authorities and procurers, research institutions, enterprises, citizens, etc) can interact increasing the likelihood of a match between public needs of innovation and the market supply. The platform is designed to allow procurers to specify a challenge, and suppliers to present their innovative solutions.

The PPPI Service center also **networks** individual procurers with the **national purchasing body BBG** to explore opportunities to achieve large scale multiplier effects with innovation procurements. As there is no systematic networking organised to enable Austrian procurers, apart from the PPI Service Centre, to network with procurers from other countries, the score for the sub-indicator networking is 83%.

The PPPI Service Centre prepares bi-annual reports with **good practice examples**.¹⁶⁴

There are several Austrian **guidelines** on innovation procurement, such as the “Procure Inno guideline” (2007) and the Austrian “PPPI guidelines”¹⁶⁵.

In cooperation with the Federal Academy of Public Administration the PPPI Service Centre carries out **training activities** that deliver a certification of achieving PPPI competence at different levels (basic, advanced)^{166, 167}.

Finally, support by the PPPI Service Centre is provided both on a more general basis (legal framework, providing information and advice on tools that can be used) and as **case-by-case assistance** (tailor-made workshops, support in setting up innovation procurement projects/project development, providing support via the PPPI online platform - e.g. challenges). There is no limitation in terms of days of assistance provided.

The PPPI Service Centre, as the **Austrian national competence center for innovation procurement**, participates in the EU-funded project “*Procure2Innovate - European network of competence centres for innovation procurement*” to reinforce its activities on innovation procurement support and exchange experiences with competence centers in other EU countries.

There are no national template tender documents for innovation procurement. There is no national pre-approval of innovation procurements. There is also no coordination of innovation procurements to foster cooperation between national procurers on implementing innovation procurements together. References to recent EU initiatives (e.g. European assistance for innovation procurement, European initiative to benchmark national policy frameworks for innovation procurement across Europe, recent EU funded projects e.g. Horizon 2020 funded PCP and PPI projects) are missing. Resources dedicated to the PPPI competence center are not yet at the level for mainstreaming innovation procurement at large scale. On the basis of the evidence collected, the total score for this indicator is 65%.

¹⁶¹ <http://www.ioeb.at>

¹⁶² <http://www.ioeb.at/projektdatenbank/>

¹⁶³ <http://www.innovationspartnerschaft.at/>

¹⁶⁴ <http://www.ioeb.at/de/projektdatenbank/>

¹⁶⁵ https://www.ioeb.at/fileadmin/ioeb/Dokumente/FINAL_IO_B_Leitfaden_200x250mm_24-10.pdf

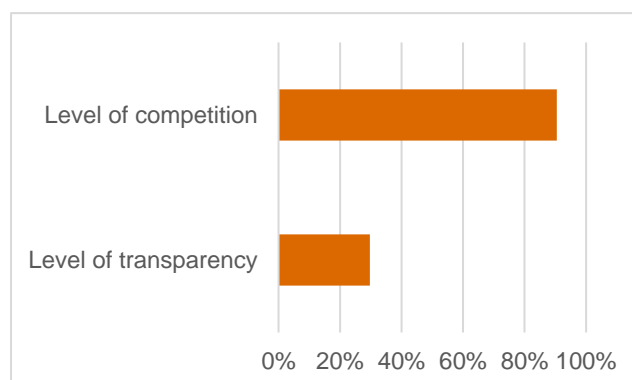
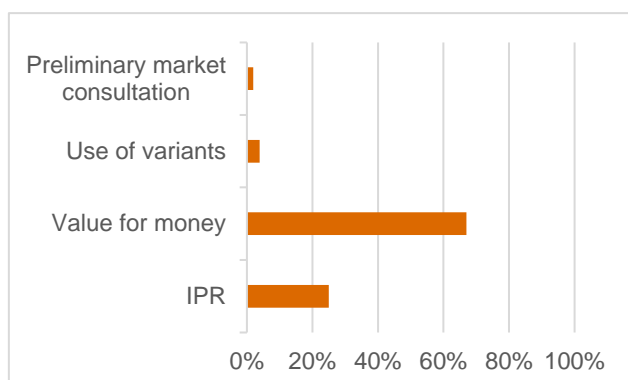
¹⁶⁶ <https://ppe.bbg.gv.at/> (English) and other training at <http://www.ioeb.at/leistungen/training-und-weiterbildung/> (in German)

¹⁶⁷ <https://www.ioeb.at/leistungen/fuer-oeffentliche-auftraggeber/trainings-weiterbildung/>

Indicator 10 – Innovation friendly public procurement market**Total score** 42%**European Average** 44%

I - Specific techniques to foster innovation in public procurement

II - Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market in Austria encourages the implementation of innovation procurement. It is composed of two sub-indicators that reflect:

- I. The use of specific techniques to foster innovation in public procurement in the country
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Austria shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the European average of 38%, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Austria. The Austrian law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Austrian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Austrian public procurement law foresees that public procurers can require in the tender specifications a transfer of IPR rights between (sub)contractors and the procurer. However according to the Austrian copyright act¹⁶⁸, copyrights (moral right) cannot be transferred by the creator to another party, even when the creator is commissioned by the procurer (as contractor) or employed (e.g. by a subcontractor) to work on the procurement contract. If the procurer wants to use copyrights created by (sub)contractors in his procurement he must require in the tender specifications a license to the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. It is worth noting that the Austrian action plan on IPPP mentions that, there is a lack of know-how in Austria on how to implement the possibility to leave IPR ownership right with the suppliers in public procurement contracts while keeping usage and licensing rights for the public procurer. It mentions also that this lack of know-how is hindering this option from being used and EU guidance on this topic is welcome.
- b. **Use of value for money award criteria:** Based on the EU single market scoreboard, 67% of the procedures were not awarded on the basis of the lowest price only.¹⁶⁹ This is moderately above the European average of 42% but still not reaching the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Austria has allowed the use of variants in 4% of the procedures. This percentage is in line with the European average.
- d. **Preliminary Market Consultations:** Austria has used Preliminary Market Consultations in the 2% of the procedures. In this case, the percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 24% which is slightly above the European average of 23%. This is mainly due to the below average performance both on IPR default regime and in the limited use of Preliminary Market Consultation.

For the sub-indicator II, Austria shows the following evidence (based on the EU Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 91%, which is above the European average 84% and just approaching the 93% satisfactory level set by the EU single market scoreboard. This positive performance is driven mainly by the high portion of procurement procedures where a call for bid was used (98%).
- f. **Level of transparency:** The level of transparency of the public procurement market accounts for 30%, which is below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard.

¹⁶⁸ http://www.wipo.int/wipolex/en/text.jsp?file_id=124839#JD_AT091EN_A40b

¹⁶⁹ http://ec.europa.eu/internal_market/scoreboard/performance_per_policy_area/public_procurement/index_en.htm

This performance is mainly driven by the high amount (97%) of missing buyer registration numbers in published tenders, which is crucial to understand who is buying.

Based on this evidence, the score for sub-indicator II is 60% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly driven by the low level of transparency.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 42% which is close to the European average of 44%. The score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is slightly above European average but below the satisfactory level and the openness of the Austrian public procurement market to innovations from across the EU single market is below the European average and below the satisfactory level. Indeed, Austria has not yet adopted a default IPR regime in public procurement that fosters innovation and the use of value for money criteria is still not mainstreamed in public procurements. In addition, although the national public procurement market shows an above average level of competition, there is a clear lack of transparency.

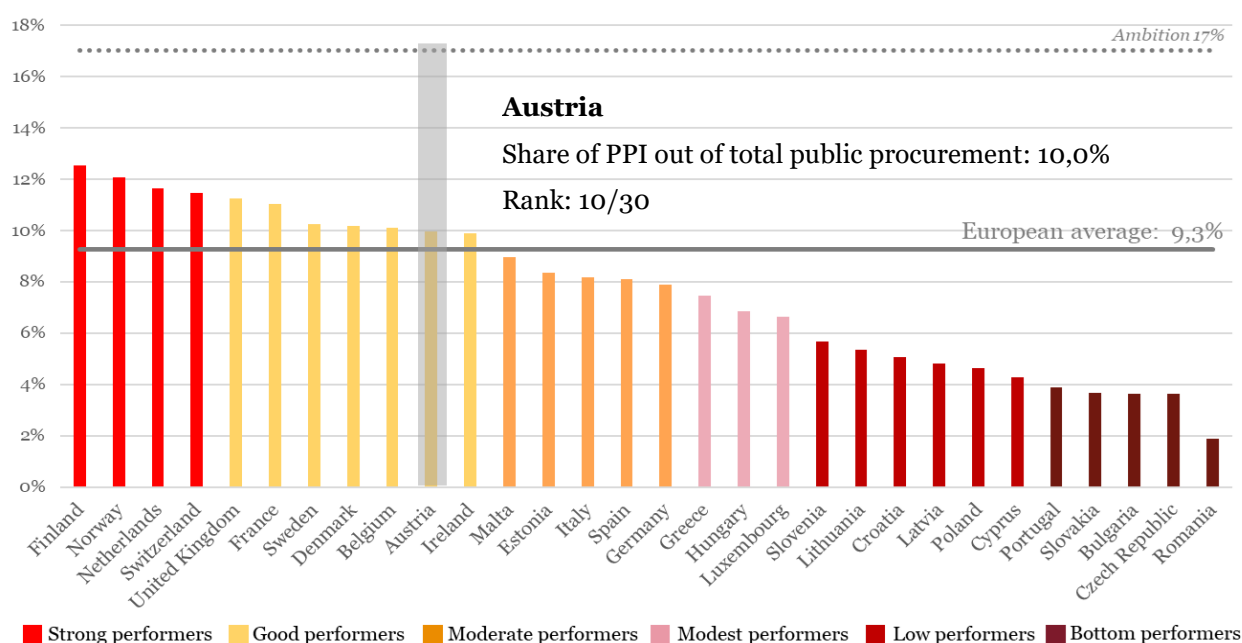
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Austrian investments on public procurements of innovative solutions (PPI) and the benchmarking of all Austrian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 10,0% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 7,1 bn), **Austria ranks 10th** in the benchmarking of investments on public procurement of innovative solutions (PPI)¹⁷⁰ across Europe. Austria falls within the group of **good performers**, slightly above the European average of 9,3%.¹⁷¹ However, **a significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Austrian public sector.¹⁷² When taking into account also PPI in the defence sector Austria still remains in the 10th position.



The **main factors**¹⁷³ explaining Austria's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on **transformative innovations** in Austria (57%) is considerably below the European average (84%). This may be due to the fact that the share of PPI investments that is devoted to the adoption of innovative solutions that are 'new to the market' is still low (23%). The largest portion of PPI investments (34%) is devoted to 'significantly improved' solutions. The share of **incremental innovations** (43%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions' is significantly above the European average (16%). As the share of PPI investments going to 'new to

¹⁷⁰ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

¹⁷¹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

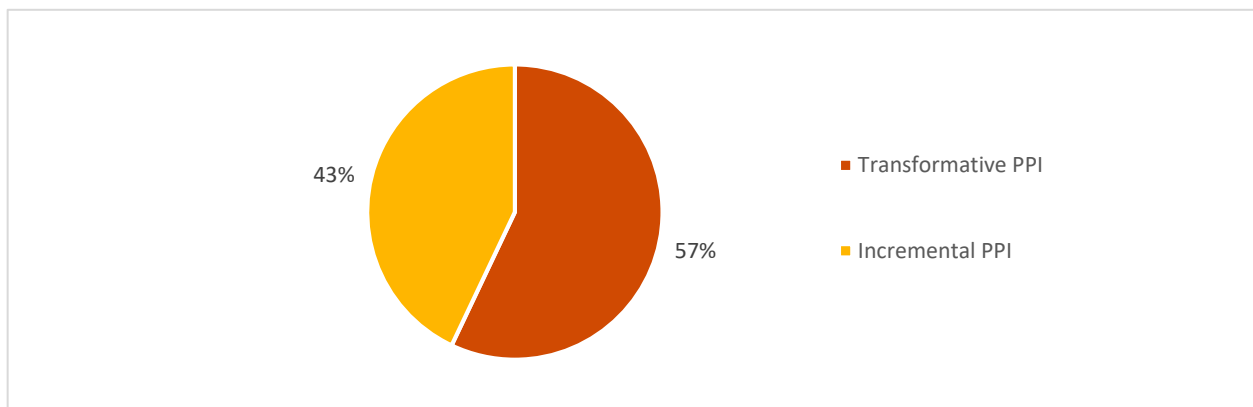
¹⁷² It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

¹⁷³ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

the market 'solutions is much higher in leading countries, further effort to improve this point may be important for improving the position of the Austria in the future.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Austria is not yet at the level of PPI investments that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Every domain of public sector activity¹⁷⁴ in Austria purchased innovation solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. Austrian investments do not deviate more than 3 percentage points (pp) from the European average in 8 out of 11 sectors. At the same time, the share of PPI investments by Austrian procurers in the **'Other'** domain is significantly above the European average (+23 pp). Conversely, PPI investments made by procurers in the **'Public transport'** and **'Public order, safety and security'** domains are the farthest below the European average (-6 pp and -7 pp respectively).

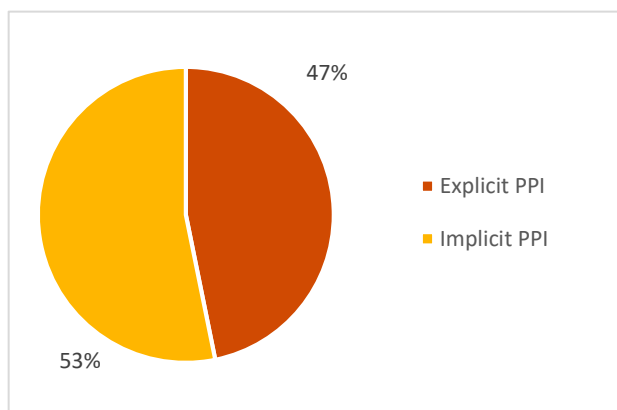
PPI investments by domains of public sector activity

Domain of public sector activity	Austria	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	35%	35%	-1
Public transport	4%	10%	-6
Healthcare and social services	19%	21%	-2
Energy	4%	6%	-2
Environment	5%	3%	+2
Construction, housing and community amenities	2%	4%	-2
Education, recreation, culture and religion	2%	5%	-3
Water	1%	4%	-3
Public order, safety and security	1%	8%	-7
Postal services	1%	1%	0
Other	26%	3%	+23
Total PPI investments	100%	100%	-

¹⁷⁴ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposals

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

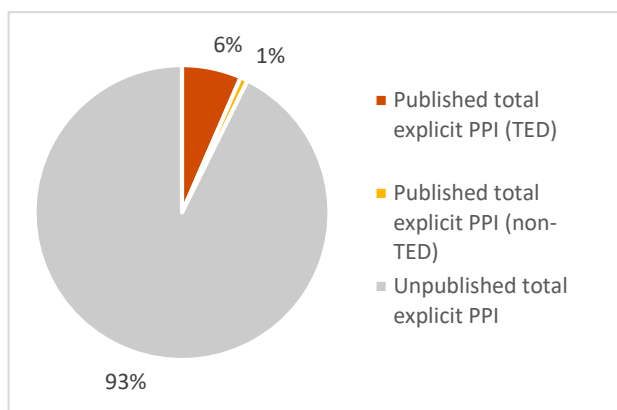


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is consistently higher in Austria (47%) compared to the European average (29%). This indicates that Austrian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Austria (53%) compared to the European average (71%). This indicates that Austrian procurers tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

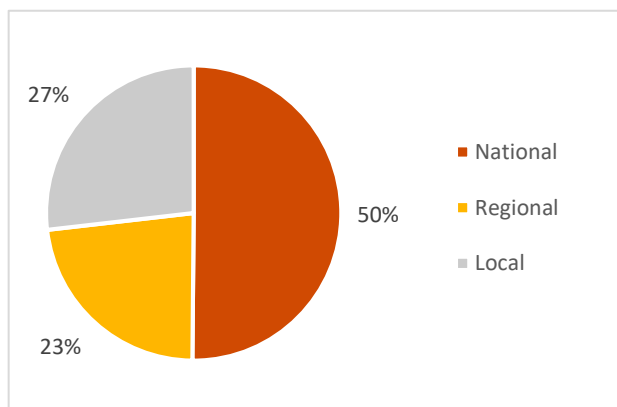


The share of Austrian PPI investments for which call for tenders are published, is small (7%) and significantly below the European average (22%). Both the portion that is **published at European level** in the TED database (6%) and the portion that is **published at national level** (1%) are below European average (respectively 18% and 5%). The portion of PPI investments for which no call for tender is published in TED or nationally is huge (93%)

By not publishing call for tenders for PPI investments widely, **Austria is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Austrian and other European innovative suppliers that are not informed about the Austrian PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

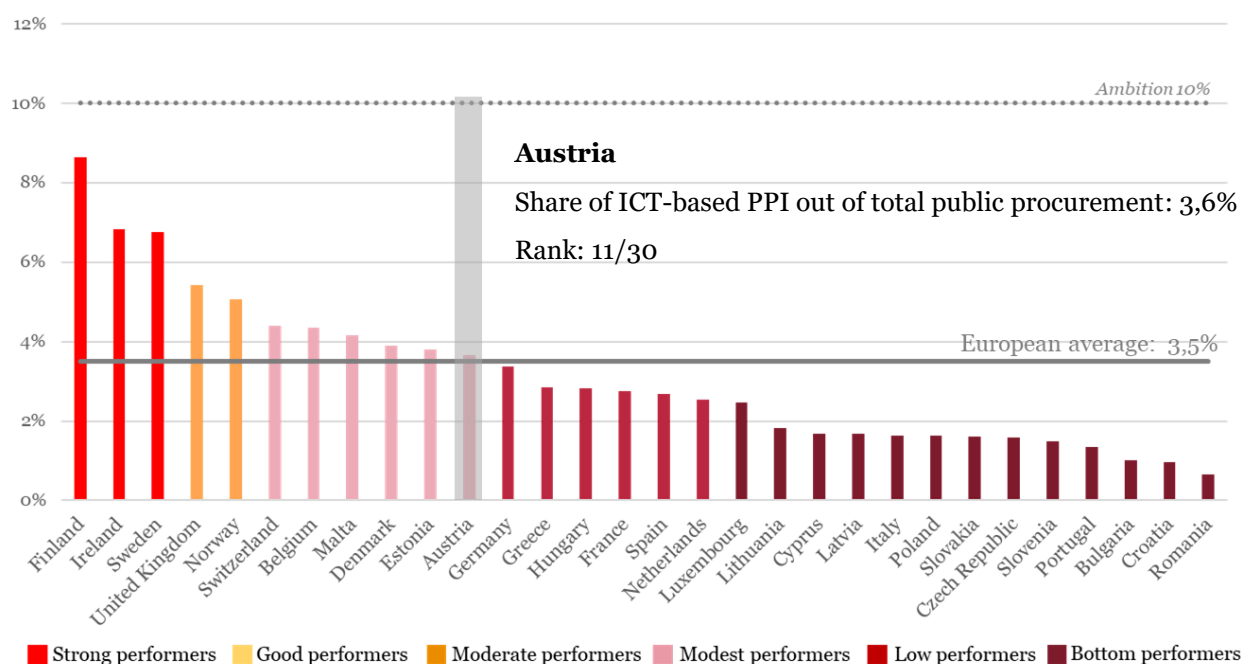


Half of total PPI investment in Austria is carried out by **large-scale entities at national level** (50%), such as ministries and ICT integrators of governments departments. This is slightly above the European average (47%).

Procurers at regional level account for lower share of PPI investments (23%), yet close to the European average (24%). **Procurers at local level** account for almost one third of PPI investments (27%), slightly below the European average (29%). This may indicate a lack of awareness and/or engagement of subnational buyers on PPI procurement.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Austrian public sector shows a **modest level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 3,6% of total public procurement invested in innovative ICT-based solutions, **Austria ranks 11th** in the benchmarking of ICT-based PPI investments, slightly above the European average (3,5%). Conversely, in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-solutions (36,7%), Austria performs below European average (38%). Thus, **a significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Austria to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.¹⁷⁵

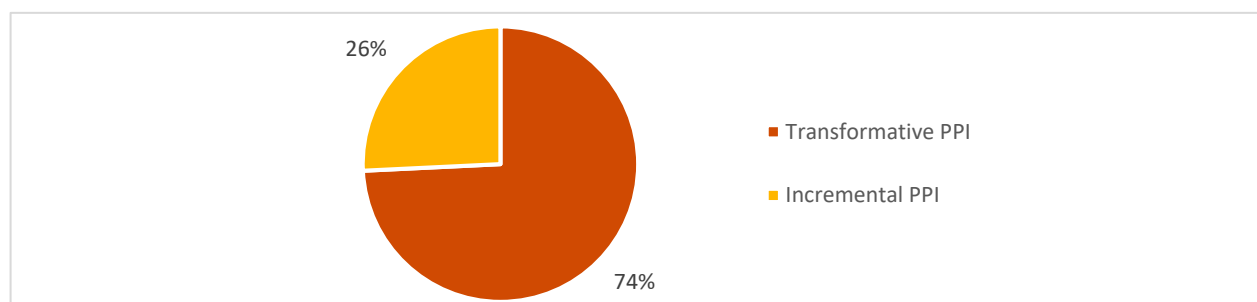


The **main factors**¹⁷⁶ explaining Austria's modest performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of PPI investments that is spent on the adoption of **transformative ICT-based innovations** adopted in Austria (74%) is slightly below the European average (79%). This may derive from the fact that only a marginal portion of ICT-based PPI investments were spent on the adoption of innovative solutions that are 'new to the market' (5%). The lion share (70%) went to 'significantly improved solutions'. The share of ICT-based PPI investments that was spent on **incremental ICT-based innovations**¹⁷⁷ (26%) is slightly above the European average. However, given that the total ICT-based PPI investment level is still modest, Austria needs to step up efforts on both transformative and incremental ICT-based innovations. As the share spent on 'new to the market' solutions is much higher in leading countries, further efforts to improve in particular this point may be important for improving the position of Austria in the future.

ICT-based PPI investments by type of innovation



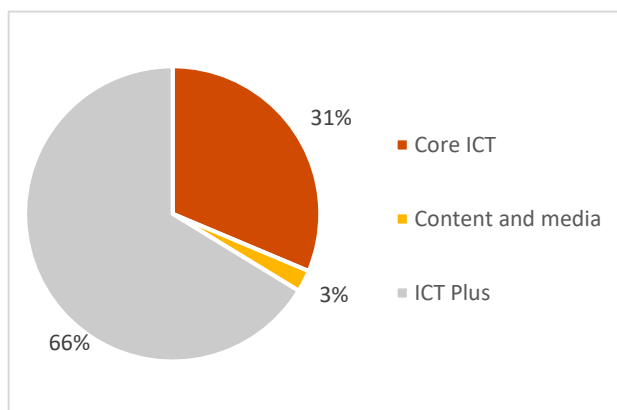
¹⁷⁵ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI- or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

¹⁷⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

¹⁷⁷ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Austria invested mainly in the adoption of innovations from the **'ICT Plus' sub-sector**¹⁷⁸ (66%), significantly above the European average (44%).

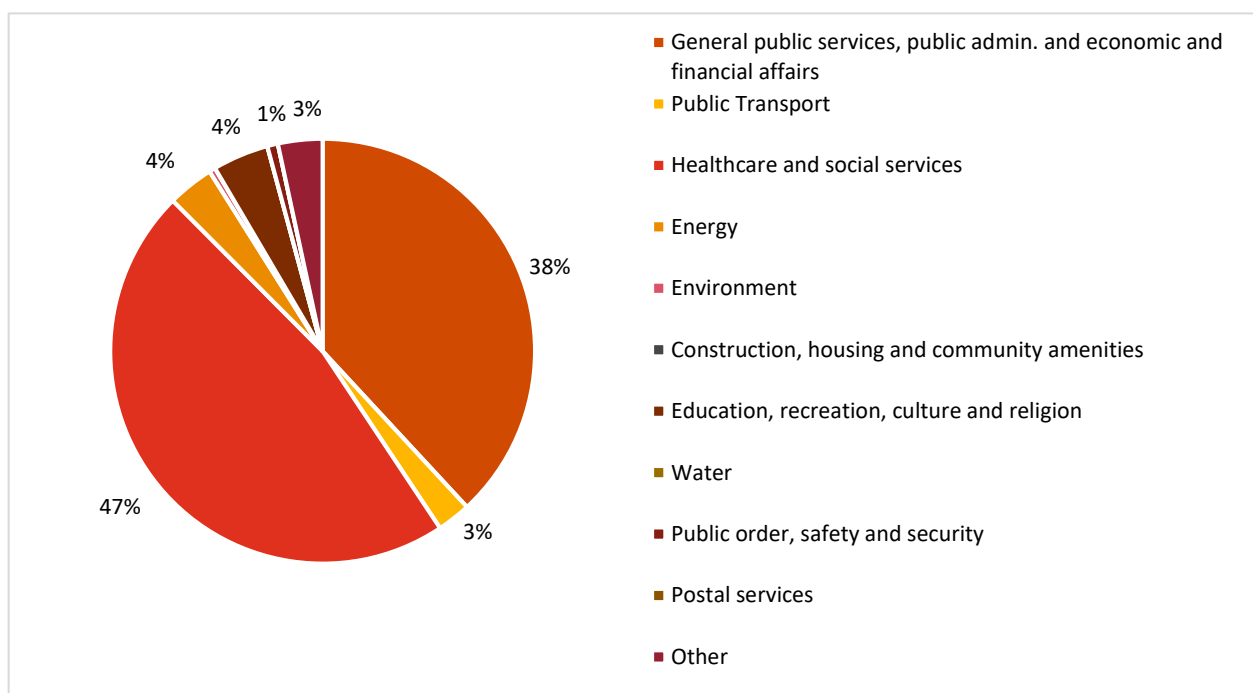
Austria invested to a lesser extent in adopting innovations from the **'Core ICT' sub-sector** (31%), below the European average (54%).

Investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (3%) but slightly above the European average (1%).

Investment readiness across different domains of public sector activity

Most domains of public sector activity in Austria purchased innovative ICT-based solutions, with the exception of **'Construction, housing and community amenities'**, **'Water'** and **'Postal services'** with zero ICT-based PPI investments. In particular, the highest share of ICT-based PPI investments was made by procurers that operate in the domain of **'Healthcare and social services'** (47% against a 30% European average) followed by procurers in the **'General public services, public administration and economic and financial affairs'** domain (38% which is significantly above the European average of 16%).

ICT-based PPI investments by domains of public sector activity

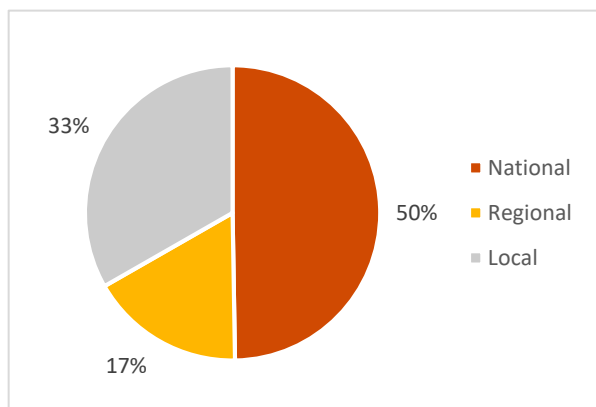


¹⁷⁸ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 50% of ICT-based PPI investments, which is below the European average (69%).

Procurers at regional level account for the lowest share of the ICT-based PPI investments at sub-national level (17%), which is below the European average (21%). To the contrary, **local procurers** account for more than one third of ICT-based PPI investments (33%), which is considerably above the European average (10%).

Belgium



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Belgium, public procurement is regulated by the national Public Procurement Act¹⁷⁹, which came into force first 17 June 2016 (with some later additions). It regulates the public procurement procedures for all types of public procurers and transposes into national legislation all the EU public procurement Directives 2014/24/EU, 2014/25/EU, 2014/23/EU and 2009/81/EC.

Belgium is a federal state with decentralised authority, including over procurement, shared among the central government and the three regions: Wallonia, Flanders, and the Brussels-Capital Region. Public procurement is regulated at the federal level by a procurement law, and each region has a certain level of flexibility for interpreting and implementing the legislation.

Belgian federal system disperses procurement authority across approximately 5,000 contracting authorities spread among the three regions, the provinces, the municipalities, and other public entities.

The key institutions in the federal public procurement system are the **Federal Public Service Chancellery of the Prime Minister**, the **Central Procurement Body for the Federal Services**, and the **Purchasing Advice and Policy Unit (ABA-CPA)**. The Federal Public Service Chancellery of the Prime Minister is responsible for the preparation, coordination, and monitoring of public procurement legislation, as well as the development of e-procurement. In particular, the Chancellery acts as a secretariat of the Commission for Public Procurement which is a specialised advisory body composed of representatives from the federal authority, federated entities, public corporations, supervision bodies, and representatives of businesses and trade unions.

The Central Procurement Body for the Federal Services (CMS-FOR) negotiates contracts on behalf of the federal state. It is composed of 11 sector specific units specialising in insurance, fuel, hygiene, IT, furniture, office supplies, telecommunication, drinks and snacks, cars, and light commercial vehicles. The ABA-CPA gives support to the federal staff and accompanies them through the contracting process by providing advice to purchasing departments.¹⁸⁰ Finally, the **Federal Public Service Policy and Support (BOSA)** pools the support services in several areas, including public procurement, and manages the Public Procurement portal.¹⁸¹

With regards to innovation procurement, there is no dedicated policy, action plan or initiatives yet at **national level**, although there are signals that the federal level is preparing itself to create a national competence centre on innovation procurement.

At the regional level, the largest region in Belgium, the Flemish region, has an advanced policy and legal framework for innovation procurement. Its Government adopted a structured and comprehensive program - **Programme for Innovation Procurement (PIO)** - to finance innovation procurement, support local authorities and rise competences. The Walloon region has identified the importance of innovation procurement but has not setup dedicated activities yet. The Brussels region has also started to experiment with its first innovation procurements since 2018.

At the local level, the cities of Ghent and Antwerp are the most active and have set a target to spend 10% of their ICT public procurement budget on innovation procurement.

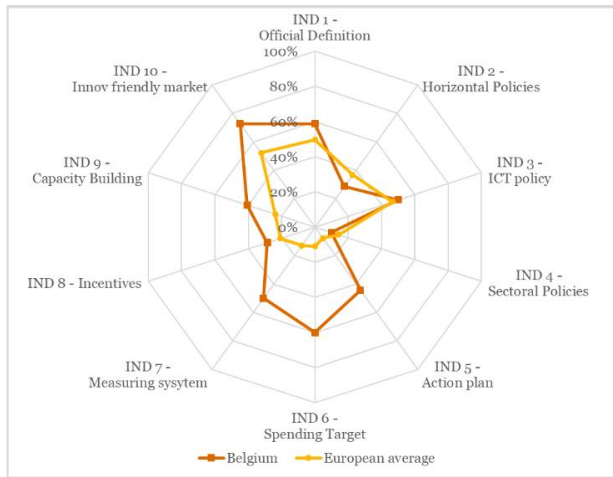
Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Belgium is at the 4th position** of the overall ranking with a **total score of 42,4%**. From the 30 countries analysed, Belgium is among the good performer countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 42,4% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Belgium to reach its full 100% potential.

¹⁷⁹ http://www.publicprocurement.be/sites/default/files/documents/2013_06_17_loi_recours_wet_verhaal_vers_2018.pdf

¹⁸⁰ http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/be.pdf

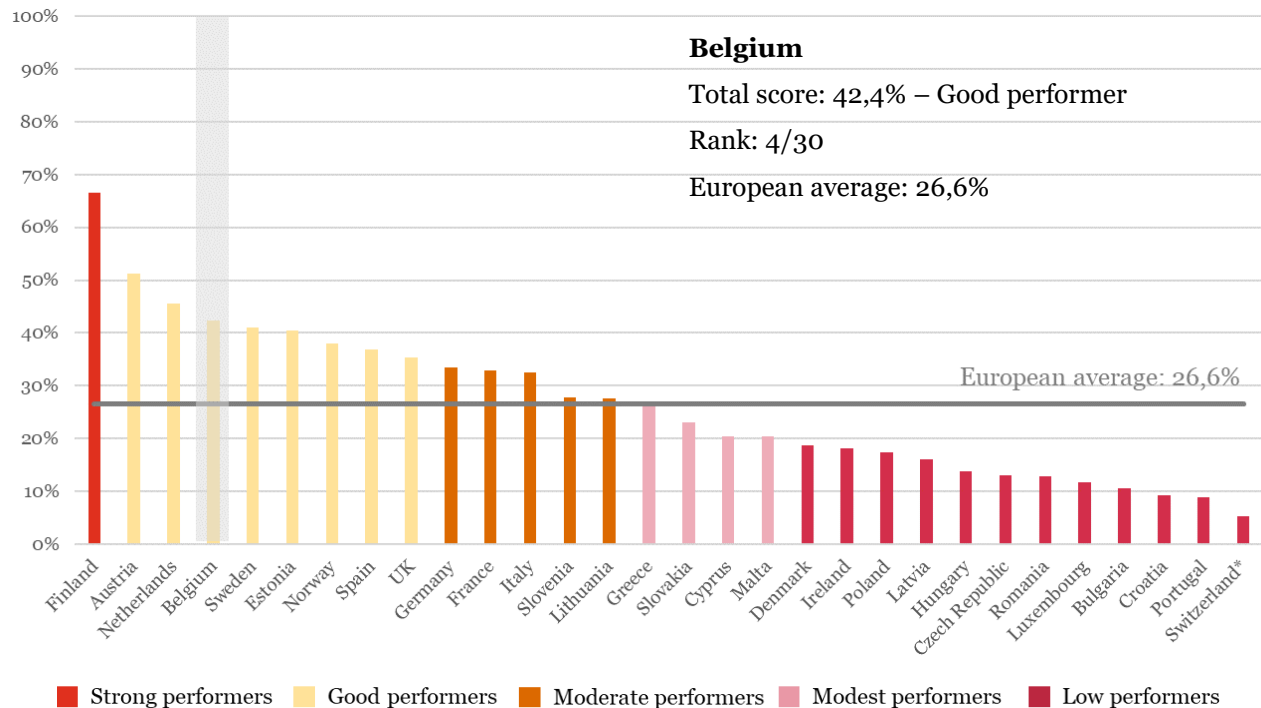
¹⁸¹ <http://www.publicprocurement.be/fr>



Strengths: The Flemish region has a structured innovation procurement policy which can be a good practice example for developing it also in other Belgian regions and at federal level. The federal/national level clearly anchored a default IPR regime into public procurement law that promotes innovation.

Weaknesses: At federal level and in other Belgian regions than Flanders, innovation procurement policy is at a very early stage, with no active support to procurers to increase the use of innovation procurement (lack of national competence centre, action plan / spending target, capacity-building activities, etc.).

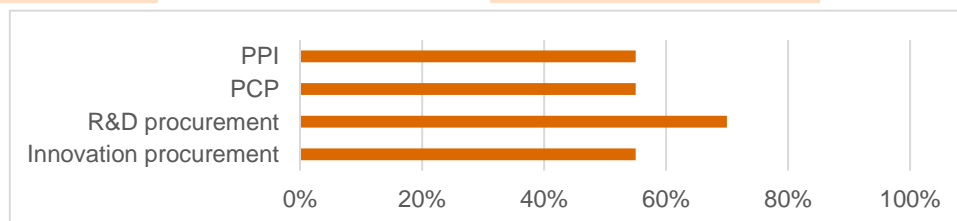
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 59% European Average 50%



In the Belgian public procurement legislation, there are clear official definitions for innovation but not for innovation procurement, R&D, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). The Belgian Public Procurement Act identifies research and development by listing the CPV codes that correspond to R&D, but there is no full sentence definition for R&D or for the R&D categories that match these CPV codes. Regarding PCP, the Belgian

Public Procurement Act provides a clear legal basis for implementing PCP (although without giving an explicit definition for PCP). The definitions of Innovation procurement, R&D, PCP and PPI are also provided by the Flemish action plan for innovation procurement. These definitions are compliant with the EU official definitions, but they are only applicable at regional level. Therefore, the total score of this the indicator is 59%.

Art 2(32) of the Belgian Public Procurement Act has literally transposed the **definition of Innovation** from the EU public procurement directive as "*the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations inter alia with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth*". This definition is applicable to all types of public procurers across the whole country. Hence, the score for this sub-indicator is 55%.

Although there is no full sentence definition for the notion of **Research and Development** in the Belgian Public Procurement Act, Article 32 of the Act identifies R&D as activities that have the CPV codes for fundamental research, applies research and industrial development. This article also transposes the exclusion for R&D services, which forms the **legal basis for implementing PCP** in Belgium. Art 32 defines that the Act is only applicable to public service contracts for "*research and development services which are covered by CPV codes 73000000-2 to 73120000-9, 73300000-5, 73420000-2 and 73430000-5 provided that both of the following conditions are fulfilled: (a) the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, and (b) the service provided is wholly remunerated by the contracting authority.*" Art 108(4) of the Belgian Public Procurement Act defines that the exclusion for public procurements of R&D services that do not meet those two conditions simultaneously applies to all types of public procurers in Belgium, thereby providing a clear legal basis for all types of public procurers in Belgium to implement pre-commercial procurement. R&D procurement is also defined in the Flemish PIO guidance in line with EU definition.

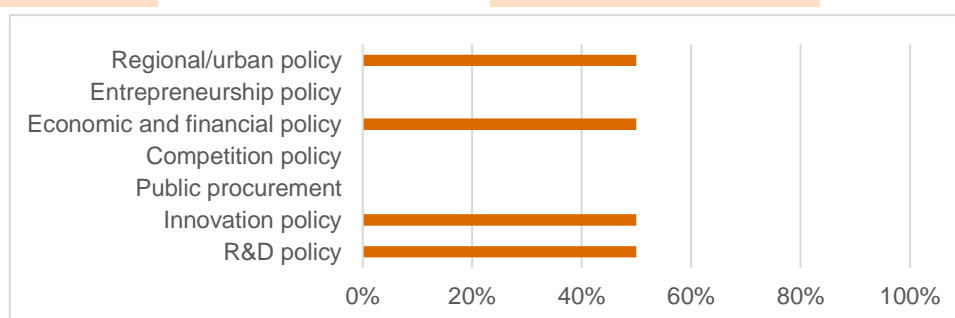
The definitions of all types of innovation procurement are presented in the Flemish action plan for innovation procurement published on the website of PIO, the **Innovative Public Procurement Program of the Flemish Region**.¹⁸²

In particular, **PPI is defined** as follows: "*In public procurement for innovation, the contracting authority purchases innovative solutions. We speak of innovative solutions when the products or services have already (fully or partially) developed but are not yet widely distributed (<20% market share). A government contract for innovation can follow a pre-commercial purchase process. The purchase of the innovative solution developed in the R&D phase is then proceeded. However, the purchase of the developed innovative solution involves a separate, new procedure. It is also possible that the supplier of the innovative solution in the PPI is not the entrepreneur who was involved in the PCP project. A validation phase can be linked to a government contract for innovation.*" Hence, the score for this sub-indicator is 55%.

While it **defines PCP** as: "*PCP stands for 'Pre-Commercial Procurement'. Pre-commercial purchases concern the purchase of research and development services (R & D services). The R & D services to be purchased are application-oriented. This could involve devising concrete innovative solutions and feasibility studies, the development and testing of prototypes and possibly the development of a limited series of products or services for testing purposes. Excluded are commercial activities such as volume production, customization and routine improvements to existing products or services. Typically, the purchasing government and the executive company (s) share both the costs and the results (the intellectual property) of the R & D. Unless otherwise stipulated, the company receives the intellectual property, while the purchasing authority obtains usage and / or license rights. Provided that the purchase process guarantees maximum competition, transparency, fairness and pricing to market conditions, the purchase of R & D falls outside the Public Procurement Act.*" Therefore, the score for this sub-indicator is 55%.

Indicator 2 – Horizontal policies

Total score 29% European Average 36%



At national level, no horizontal policy recognises the role of innovation procurement. However, innovation procurement is recognised as a strategic tool in four horizontal policies at regional level. Therefore, the total score of this indicator is 29%.

¹⁸² <http://www.innovatieoverheidsopdrachten.be/gids-voor-innovatieve-overheidsopdrachten>; <http://www.innovatieoverheidsopdrachten.be/begrippenkader>

The **Coalition Agreement 2014-2019 of the Government of Flanders**¹⁸³ gives a significant boost in this regard. Under innovation and R&D policy, for instance, the Flemish STI policy (Science, Technology and Innovation) lists innovation procurement among its strategic objectives.¹⁸⁴

The Brussels-Capital region integrated in its 2012 "**Regional Plan for Innovation**"¹⁸⁵ the objective of developing innovation procurement schemes by 2013-2014 and other short-term and longer-term measures to be undertaken. Longer-term measures (2014-2020) connected to innovation procurement include: sensibilisation of Brussels public procurers to integrate innovation into their procurements; development of a new permanent instrument for supporting innovation procurement; informing Brussels procurers/enterprises about the specificities of innovation procurement; creating cooperation between innovation procurement projects at Belgian and European level.

In addition, the "**Walloon and Brussels joint Strategy for Research 2011-2015**"¹⁸⁶ indicates that public procurement will support the demand for R&D services. The health, transport and energy sectors and alignment with initiatives at European level are identified as particularly important. There is however no concrete innovation procurement action plan yet in Wallonia.

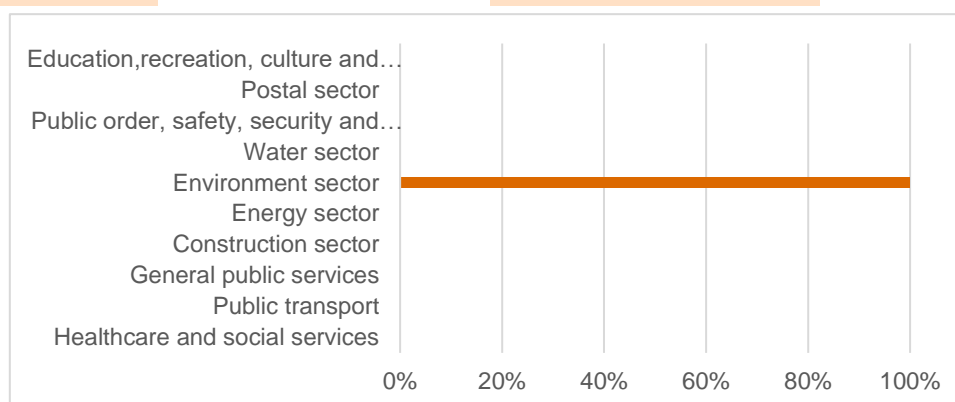
Indicator 3 – ICT policies

Total score	50%	European Average	47%
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The **2015-2020 Digital Belgium strategy**¹⁸⁷ does not specifically encourage innovation procurement but recognises it indirectly through the importance of procuring new technologies to improve government efficiency. Under priority 3 "digital government", action 4 "operational efficiency" of the strategy states that "government management will be encouraged to carefully follow up ICT government contracts and to create efficiencies by further digitizing services and processes. The government will also utilise new technologies, such as social media and big data, and shall do so with a clear objective: providing better services at lower cost."

Indicator 4 – Sectorial policies

Total score	10%	European Average	14%
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At national level, only the environmental strategy embeds innovation procurement. The score of this indicator is 10%.

From 2009 onwards the federal government's **action plan for Green Public Procurement**¹⁸⁸ and later circulars regarding the action plan encourage public procurers to consider in their purchasing decision not only solutions that are innovative in terms of green aspects but also solutions that are innovative in terms of non-green aspects (innovative solutions are referred to as solutions that don't exist yet and still need to be developed)¹⁸⁹. As the federal government has set a target of 50% in green procurement, this could also boost green innovation procurements.

¹⁸³ http://financeflanders.be/sites/default/files/atoms/files/coalition_agreement_2014-2019.pdf

¹⁸⁴ https://www.ewi-vlaanderen.be/sites/default/files/bestanden/sti_in_flanders_2017_chapter_1.pdf

¹⁸⁵ <http://www.innovativebrussels.irisnet.be/fr/accueil/plan-regional/mise-a-jour-du-plan-regional-pour-l-innovation-1>

¹⁸⁶ <http://www.recherchescientifique.be/index.php?id=1236>

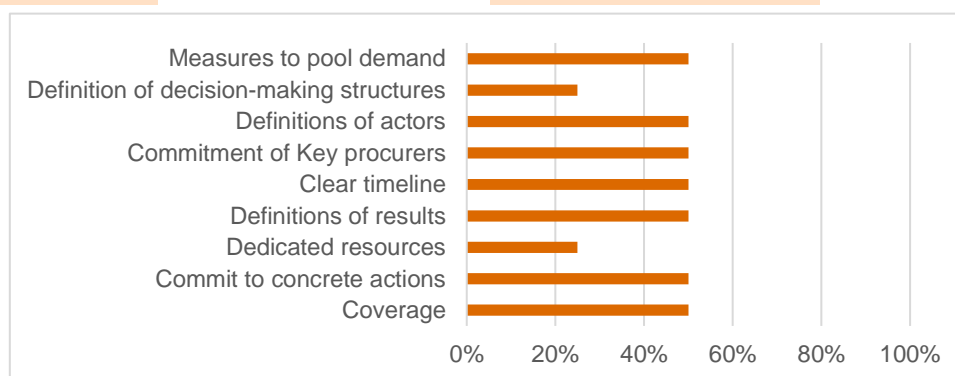
¹⁸⁷ <http://digitalbelgium.be/en/5-priorities/digital-government/>

¹⁸⁸ https://gidsvoorduurzameaankopen.be/sites/default/files/file/20090307_Plan_D_Overheidsopdrachten_FINAL_NL.pdf

¹⁸⁹ http://www.publicprocurement.be/sites/default/files/documents/2014_05_16_circ_cl_soc_dd_omzend_soc_cl_do.pdf

Indicator 5 – Action plan

Total score 44% European Average 8%



At national level there is no dedicated action plan for innovation procurement, while there is one at regional level, in the Flemish region. The total score for most of the sub-indicators is 50%, as the action plan does not cover the whole country. The score for definition of results and definition of resources is 25% because these aspects are clear for the Flemish government and the PIO programme but are not clearly defined for other key actors/public procurers in the Flemish region covered by the action plan. Therefore, the total score for the indicator is 44%.

Flanders has an action plan¹⁹⁰ for innovation procurement and innovative procurement that aims to promote innovation in public procurements of all public procurers in all sectors across the region. In this context innovation procurement covers all types of innovation procurement (both R&D procurement, incl. PCP, and PPI).

The Flemish government has adopted the **Innovative Public Procurement Program (PIO)**¹⁹¹ to promote innovation procurement in the Flemish region. The first round of PIO has been running from 2009 to 2015, the second from 2016 to 2019. Thanks to this program, all Flemish government and public sector organizations that fall under the Belgian Public Procurement Act can contact PIO for information, advice, guidance and co-financing for innovative purchasing projects. PIO has well-defined action plan with expected results, clear timeline and budget (5 Million per year from the Flemish government).

PIO is supported by the **Flemish Ministry of Economy, Science and Innovation**, which is also its manager.

PIO has a number of strategic goals:

- 1) To establish a knowledge centre on innovation procurement;
- 2) To reach 3% of the Flemish Government's budget for public procurement for innovation procurement;
- 3) To draft a portfolio of projects and good practices as examples in order to raise awareness about innovation procurement;
- 4) To stimulate public organisations to participate in EU opportunities of innovation procurement (such as Horizon2020).

In Flanders, there are also some examples of action plans at local level, like the Municipality of Ghent, which has its own innovation procurement strategy since 2014¹⁹².

Indicator 6 – Spending target

Total score 60% European Average 11%

At the national level there is no spending target for innovation procurement. Below the national level, only the Flemish region and the cities of Ghent and Antwerp have set a spending target for innovation procurement. The target is set for all types of innovation procurement (including R&D procurement, PCP, and PPI). Thus, the score for this indicator is 60%.

The Government of Flanders region has set a spending target to devote **3% of the total public procurement budget of the Flemish Government** to innovation. The target includes not only innovation procurements but also innovative procurements (where the only innovation is in the procurement/contracting procedure, not in what is actually being procured). This objective is backed by operational commitments from the Flemish ministries to invest in innovation procurement and by commitments from some key procurers (e.g. Digipolis which procures ICT for city of Ghent and Antwerp) but unfortunately there are no formal commitments of "all" the purchasing authorities in their policy domains. Each of the 13 policy domains of the Flemish government has a target to reach the 3%, but each policy domain can divide this via agreements over all public procurers depending from its policy domain (not only over the relevant ministry but also agencies and advisory boards depending from the policy domain). Via these agreements, each public procurer reports back every year to the ministry in its policy domain about the actual amounts spent that count towards the target.

¹⁹⁰ <http://www.innovatieveoverheidsopdrachten.be/over-pio/plan-van-aanpak>

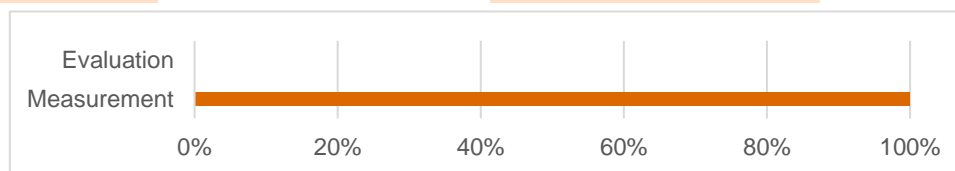
¹⁹¹ <http://www.innovatieveoverheidsopdrachten.be/gids-voor-innovatieve-overheidsopdrachten>

¹⁹² http://www.ecoprocura.eu/fileadmin/editor_files/images/Ghent_sustainable_procurement_strategy_and_innovation_charter.pdf

At local level, the city of Ghent and Antwerp have also set a spending target - at 10% of the budget for ICT – to procure innovative products and services (including R&D and consultancy) or to use innovative procurement methods¹⁹³.

Indicator 7 – Monitoring system

Total score	50%	European Average	13%
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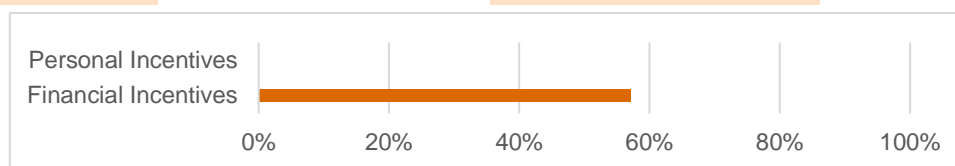
At the national level a structured measurement system for tracking innovation procurement spending is being conceived, but there is no evaluation strategy to evaluate the impacts achieved by completed innovation procurements. Hence the score is 50% for this indicator.

Under the PIO program, a measurement system has been set up, to be applied in the Belgian **e-Procurement platform** and the regional contract management system (**e-Delta**) through an indicator. The aim is flagging out the innovative tenders from the “normal” procurements. The first round of measuring innovation procurement spending has recently started, and first statistics are expected in 2019.

On the state of play of the Belgian innovation procurement policy framework, a qualitative analysis was conducted in 2017: “Barometer Innovative Public Procurement in Belgium” (De Coninck, Viaene, Leysen, Van der Auwera)¹⁹⁴.

Indicator 8 – Incentives

Total score	29%	European Average	22%
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At national level there are no incentives to encourage public procurers to start more innovation procurements, while there are some at regional level. The 29% score for this indicator results from the fact that the available incentives are not available/applicable to all procurers in the country and therefore not enabling large scale mainstreaming of innovation procurement across the country. There is also no mobilisation of available ESIF funds in Belgium for innovation procurement.

The Flemish region has set up financial incentives to encourage public procurers to undertake more innovation procurements. The score of this indicator reflects the fact that financial incentives don't cover all procurers in the country and personal incentives for public procurers are not foreseen.

The Flemish financial support for innovation procurement is backed by the Flemish legislative framework for co-financing R&D in the context of public procurement¹⁹⁵. The PIO programme (the Programme for Innovation Procurement of the Flemish government) takes on part of the costs for the organization of market consultations, the hiring of external expertise, the purchase of research and development services, or the implementation of validation or test phases of the solutions to be purchased. PIO has 5 Million EUR budget annually, and finances:

- 1) up to 30,000 euros for the deployment of external expertise, implementation of market consultations, organization of user surveys, etc.;
- 2) up to 1,000,000 euros for the co-financing of the R&D procured in pre-commercial procurement projects;
- 3) up to 50,000 euros for the costs involved in setting up a validation or testing phase, prior to the purchase of an innovative solution. No co-financing for the purchase of the innovative solution itself.

Funds are directed to public procurers.

¹⁹³ [Ibid.](#)

¹⁹⁴ <https://www.vlerick.com/~media/corporate-marketing/our-expertise/pdf/20170927BarometerInnovativePublicProcurementpdf.pdf>

¹⁹⁵ <http://www.innovatieveoverheidsopdrachten.be/en/about-pip/regulatory-framework-co-financing-research-and-development-services>

Indicator 9 – Capacity building and assistance measures**Total score**

41%

European Average

24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all aspects and types of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	√		√	√			50%
Good practices	√	√	√	√			67%
Trainings/workshops	√	√	√	√			67%
Handbooks/guidelines							0%
Assistance to public procurers	√	√	√	√			67%
Template tender documents							0%
Coordination / Pre-approval							0%
Networking of procurers	√	√	√	√			67%
One-stop-shop / competence centre	√		√	√			50%

At national level there are currently only very limited amount of capacity building measures. The BOSA¹⁹⁶ informs procurers about innovation procurement as part the general information measures on the public procurement, and it promotes networking between procurers via meetings and events. The BOSA is currently contemplating setting up more dedicated capacity building measures for innovation procurement.

The Flemish region foresees seven out of the nine measures generally adopted to build up the know-how of public procurers on innovation procurement. The Flemish **PIO programme** (see Dimension 4) acts as the **one-stop-shop** / competence centre for Flanders that offers almost all kind of capacity building measures, such as information sharing, advice, guidance and assistance during the entire purchase process. The one-stop-shop is not in a systematic way interconnected with competence centres on innovation procurement in other countries and its services are limited to Flanders and not scaled up to mainstream innovation procurement widely across the whole country. This explains the score for sub-indicator one-stop-shop is 50%.

In the **PIO website**, the central website in Flanders dedicated to innovation procurement, furthermore, a **Guide for innovation procurement**¹⁹⁷ is announced (still under preparation) and some **tender procedures tips**¹⁹⁸ for public procurers and **good practices examples**¹⁹⁹ are provided. Apart from references to the new 2014 public procurement directives, information on other key EU initiatives on innovation procurement are missing on the website. The score for sub-indicator central website is also 50%.

PIO organises also **trainings**, mainly for public procurers in the Flemish government²⁰⁰. **Networking of procurers** is also typically limited to Flemish procurers. Under the impulse of ZENIT, the region North Rhine-Westphalia signed a cooperation agreement with the Netherlands and the Flemish region (Belgium) to network public procurers of their different countries to stimulate cross-border innovation procurements. As this does not concern all procurers in Belgium, the score on the sub-indicators training and networking is for both 67%.

There are no national template tender documents for innovation procurement. There is no national pre-approval of innovation procurements. There is also no central coordination of innovation procurements to foster cooperation between national procurers on implementing innovation procurements together. References / interconnection to recent EU initiatives (e.g. eafip, procure2innovative European network of competence centres, study SMART 2016/0040 that is benchmarking national policy frameworks for innovation procurement across Europe, EU guidance on innovation procurement, EU funding opportunities for innovation procurements (e.g. H2020, ESIF, EIB) and recent EU funded projects (e.g. Horizon 2020 funded projects) however often still missing. All measures performed by PIO do not receive a 100% score because they are offered at regional level, and not at central government level, therefore they are not applicable to all procurers in the country. Resources dedicated to capacity building are not yet at the level for mainstreaming innovation

¹⁹⁶ <https://bosa.belgium.be/fr>

¹⁹⁷ <http://www.innovatieveoverheidsopdrachten.be/gids-voor-innovatieve-overheidsopdrachten>

¹⁹⁸ <http://www.innovatieveoverheidsopdrachten.be/gids-voor-innovatieve-overheidsopdrachten/innovatievriendelijke-aanbestedingsprocedures>

¹⁹⁹ <http://www.innovatieveoverheidsopdrachten.be/lopende-projecten>

²⁰⁰ Links to different trainings organised.

<http://www.innovatieveoverheidsopdrachten.be/evenementen/infosessie-derde-pio-oproep>

<http://www.innovatieveoverheidsopdrachten.be/evenementen/infosessie-innovatieve-overheidsopdrachten-tweede-oproep>

<https://www.ewi-vlaanderen.be/evenementen/infosessie-innovatieve-overheidsopdrachten>

procurement at large scale and the creation of a national Belgian competence centre is being contemplated but not implemented yet.

On the basis of the evidence collected, the total score for this indicator is 41%.

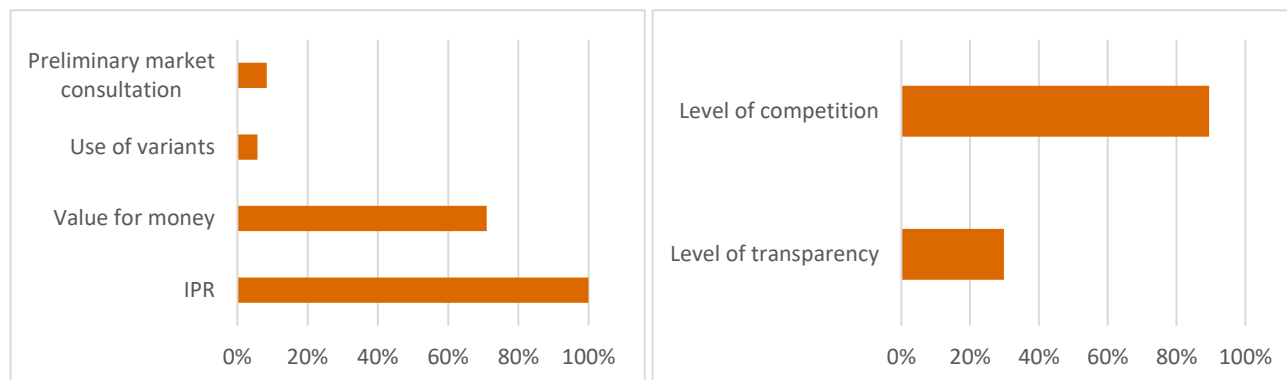
Indicator 10 – Innovation friendly public procurement market

Total score 53%

European Average 44%

I - Specific measures to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of innovation procurement. The indicator is composed of a number of sub-indicators that show evidence on:

- I. the use of specific techniques to foster innovation in public procurement;
- II. the openness of the national public procurement market to innovations from across the EU single market.

With regard to sub-indicator I, Belgium shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 100% because the Belgian public procurement legislation clearly defines a default regime for the allocation of IPRs that stimulates innovation while enabling the public procurer to use the results of the procurement in the execution of its public tasks: contractors retain the IPR developed by them, notwithstanding that they grant the necessary licenses to the public procurer to use the results and if required to ensure licensing of the results to third parties.²⁰¹ The Belgian law also clearly recommends procurers to only deviate from the default IPR regime in limited justified cases: when the contractor is not allowed to reuse the results (e.g. a sensitive/confidential study such as an internal evaluation) or when the contractor is not able to reuse the results (e.g. a unique communication campaign such as a design of a logo made specifically for the procurer). Deviation from the default regime is in any case only possible within the boundaries of applicable IPR/copyright law. The Belgian public procurement law foresees that public procurers can require in the tender specifications the transfer of IPR rights to the procurer. However according to the Belgian copyright act²⁰², copyrights (moral rights) cannot be transferred to another party (the procurer), even when the creator is commissioned by the procurer (as contractor) or employed (e.g. by a subcontractor) to work on the procurement contract. If the procurer wants to use the copyright protected work, he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases.

²⁰¹ Art 53 §1 of the Belgian Public Procurement Act has transposed the provisions from the following EU public procurement directives: "The technical specifications can determine whether the transfer of intellectual property rights will be required". This provision refers to transfer of IPR rights to the public procurer. However, according to the Royal Decree of 14 January 2013 that lays down the general implementing rules for public contracts and concessions for public works, the principle applies that the public procurer does not automatically acquire ownership of the intellectual rights that are created, used or developed. To balance in an optimal way the price to be paid for the contract, the rights for the public procurers to use the results of the contract and the rights of companies to commercialize the results, the Royal Decree defines that the default scenario is that the contractors retain the IPR developed during the execution of public procurement contracts, notwithstanding that they grant the necessary licenses to the public procurer to enable it to use the results. This usage can include (to be defined in the tender specifications) internal use, reproduction, adaptation, translation, publication to the public etc. Only in case the public procurement procured R&D related to the object of the tender, the tender specifications can determine that a financial compensation is to be paid by the contractor to the public procurer in case the contractor exploits the results of the contract. The Royal Decree only allocates IPR by default to the public procurer for drawings, distinctive emblems and domain names created during a public procurement contract. In principle, a public procurer can deviate from this default IPR allocation scenario by requiring in the tender specifications that the intellectual property rights resulting from the contract are transferred to himself instead of to the contractor (as described in Art 53 §1 of the Belgian Public Procurement Act), but the procurer is recommended to do so only in specific cases where this is justified. This is because such a transfer is by definition never necessary as a usage license is sufficient for the procurer. A transfer of IPR to the public procurer can be justified for example when the result of a procurement is not reusable by the contractor but only by the procurer, for example a sensitive/confidential study (e.g. an internal evaluation) or a unique communication campaign for the public procurer (e.g. the design of a logo).

²⁰² http://www.wipo.int/wipolex/en/text.jsp?file_id=125150

- b. **Use of value for money award criteria:** According to the Single Market Scoreboard 71% of the procedures were awarded using not only the lowest price criteria. This is moderately well the European average of 42% but still below the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Belgium has allowed the use of variants in the 6% of the procedures. This percentage is above the European average of 4%.
- d. **Preliminary Market Consultations:** Belgium has used Preliminary Market Consultations in the 8% of the cases, which is almost in line with the European average of 9%.

Based on this evidence, the score for sub-indicator I is 46% which is well above the European average of 23%. This is mainly due to the above average performance on IPR default regime but improvement that still needs to be made to obtain a satisfactory level of wide scale use of value for money award criteria.

With regard to sub-indicator II, Belgium shows the following evidence (according to the Single Market Scoreboard):

- e. **Level of competition:** The level of competition on the public procurement market accounts for 90%, which is above the European average 84% and just approaching the 93% satisfactory level set by the EU single market scoreboard. This positive performance is mainly due to the high percentage of procurement procedures where a call for bids was used (98%).
- f. **Level of Transparency:** The level of transparency of the public procurement market is only 30% which is below the European average 45% and the 66% satisfactory level set by the EU single market scoreboard. This performance is mainly affected by the below average percentage of tenders that do not miss call for bids information (74%) and the high amount of call for bids with missing buyer registration numbers (88%) which makes it hard for potential bidders to understand who is buying what.

Based on this evidence, the score for sub-indicator II is 60% which is below the European average 65% and below the satisfactory level 79% set in the EU single market scoreboard. This is mainly due to the low level of transparency which tempers the contribution of the good level of competition to the total result.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 53% which is the one of the highest among the 30 countries analysed. The score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is above European average and reaching the satisfactory level, but the openness of the Belgian public procurement market to innovations from across the EU single market is below the European average and below the satisfactory level. Indeed, Belgium is leader in adopting an innovation friendly IPR default regime and value for money criteria are becoming more widely used in public procurements. However, although the national public procurement market shows a good level of competition, there is a clear lack of transparency.

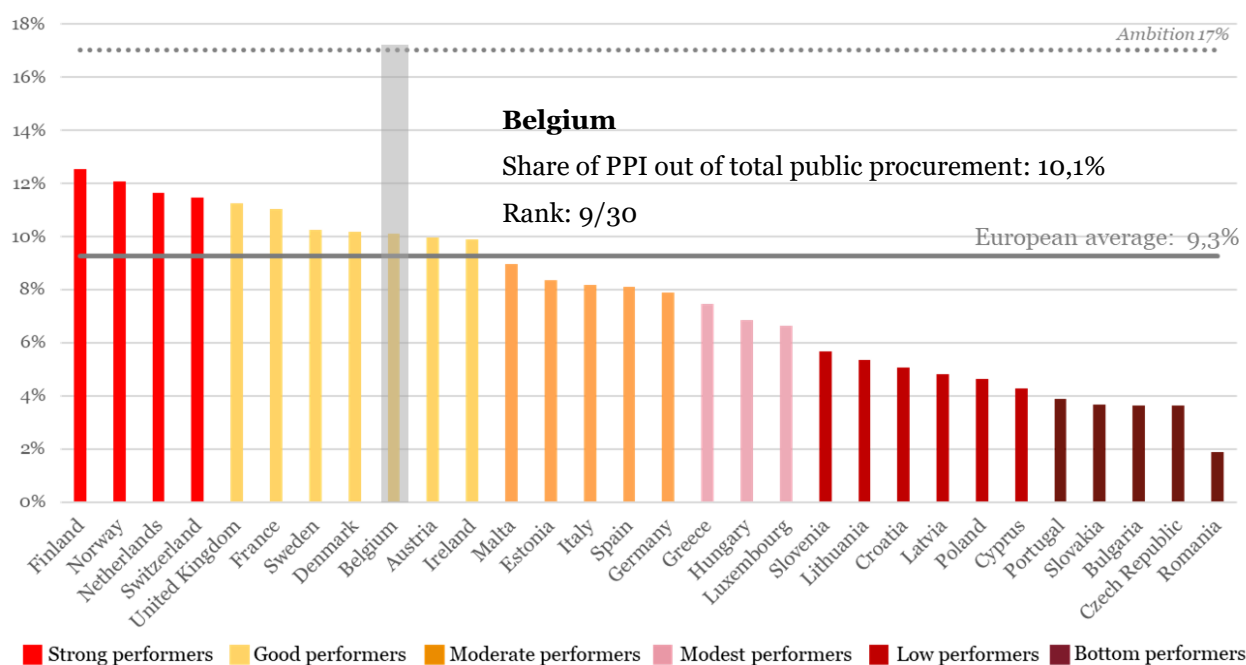
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Belgian investments on public procurements of innovative solutions (PPI) and the benchmarking of Belgian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, except when explicitly mentioned, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 10,1% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 7,5 bn), **Belgium ranks 9th** in the benchmarking of investments on public procurement of innovative solutions (PPI)²⁰³ across Europe. Belgium falls within the group of **good performers**, slightly above the European average of 9,3%.²⁰⁴ Despite this, **a significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Belgian public sector.²⁰⁵ When taking into account the amount of PPI in the defence sector, Belgium still remains in the 9th position.



The **main factors**²⁰⁶ explaining Belgium's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Belgium (84%) is in line with the European average (84%). This may be due to the fact that the largest portion of PPI investments is devoted to 'significantly improved' solutions (49%) followed by innovative solutions that are 'new to the market' (35%). The share of PPI procurement invested in transformative innovations is also considerably higher compared to the share invested

²⁰³ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

²⁰⁴ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

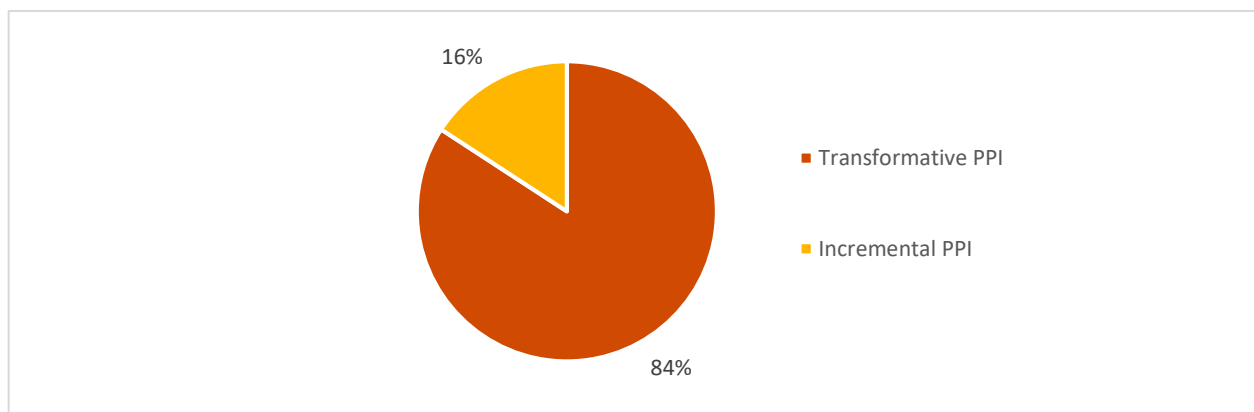
²⁰⁵ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

²⁰⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

in **incremental innovations** (16%), which consist of ‘existing solutions being used in a new way or in a new sector’ or ‘innovative combinations of existing solutions’.

Despite that, Belgium’ total amount of PPI investments is not yet at the level of that would allow a full-speed modernisation of the public sector. This may be due to **underinvestment in the adoption of innovative ICTs**, which have a high impact on public sector modernisation and economic growth. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly all domains of public sector activity²⁰⁷ in Belgium purchased innovative solutions, except in the category ‘Other’. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. The difference between the investments made by Belgian procurers does not shift by more or less than 3 percentage points (pp) from the European average in 8 out of 11 sectors. At the same time, it emerges that PPI by Belgian procurers in the ‘**Healthcare and social services**’ and ‘**General public services, public administration, economic and financial affairs**’ domains significantly deviate from the European average (+23 pp and -18 pp respectively). Also, PPI made by procurers in the ‘**Public order, safety and security sector**’ are below the European average (-8 pp).

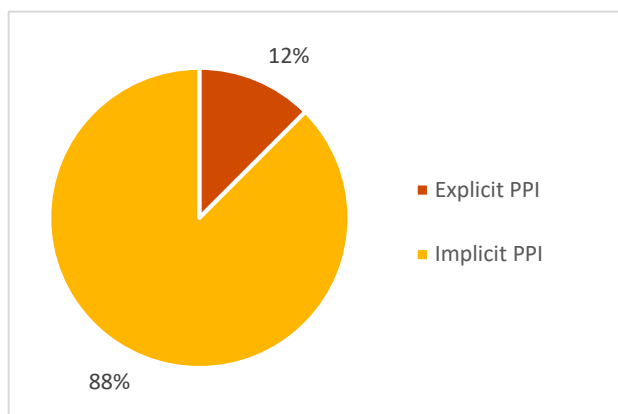
PPI investments by domains of public sector activity

Domain of public sector activity	Belgium	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	17%	35%	-18
Public transport	12%	10%	+2
Healthcare and social services	44%	21%	+23
Energy	8%	6%	+2
Environment	6%	3%	+3
Construction, housing and community amenities	4%	4%	0
Education, recreation, culture and religion	5%	5%	0
Water	2%	4%	-2
Public order, safety and security	1%	8%	-7
Postal services	1%	1%	0
Other	0%	3%	-3
Total PPI investments	100%	100%	-

²⁰⁷ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposals

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

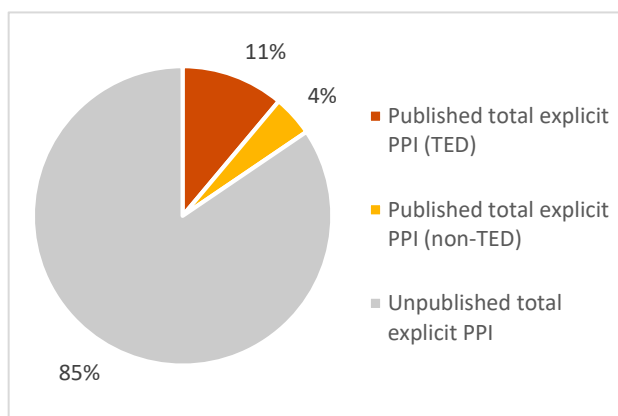


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly lower in Belgium (12%) compared to the European average (29%). This indicates that Belgian procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is higher in Belgium (88%) compared to the European average (71%). This indicates that Belgian procurers tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

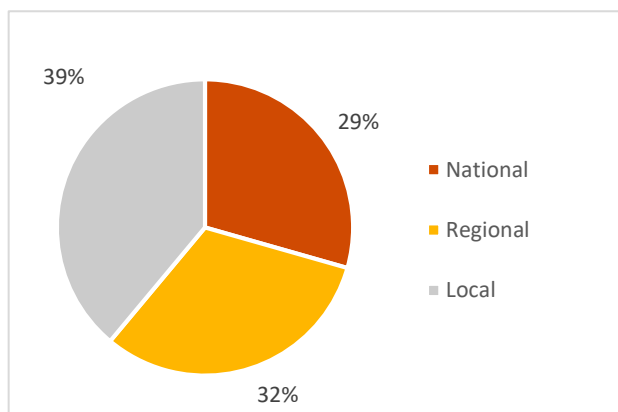


The share of Belgian PPI investments for which call for tenders are published is modest (15%) and significantly below to the European average (22%). Both public procurement **published at European level** in the TED database (11%) and **published at national level** (4%) are below the European average (respectively 18% and 5%). Hence, the share of PPI that is not published in TED or at national level is very large (85%).

By not publishing call for tenders for PPI investments widely, **Belgium is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Belgian and other European innovative suppliers that are not informed about the Belgian PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

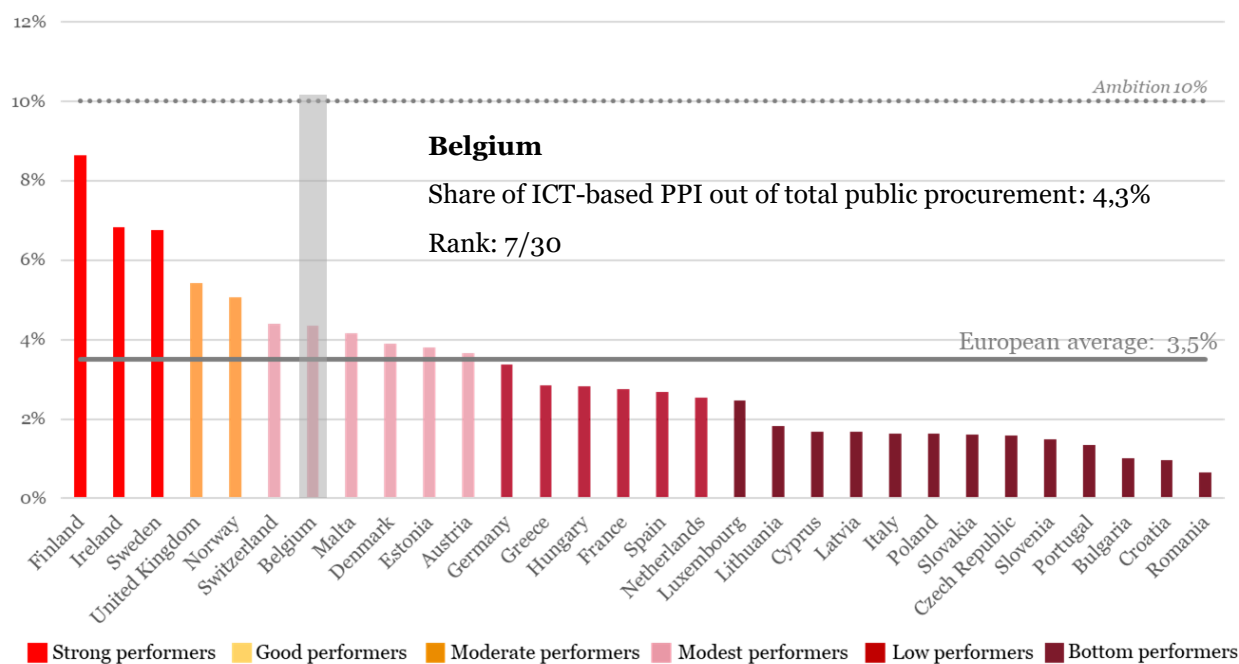


Less than one third of the total PPI investments in Belgium is carried out by **large-scale entities at national level** (29%), such as ministries and ICT integrators of governments departments. This is below the European average (47%).

Procurers at regional level account for a similar share of PPI investments (32%), but this time well above the European average (24%). **Procurers at local level** account for the highest fraction of PPI investments (39%), above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Belgian public sector shows a **modest level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 2,8 bn or 4,3% of total public procurement invested in innovative ICT-based solutions, **Belgium ranks 7th** in the ICT-based PPI investment ranking, above the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (43%), Belgium performs slightly above the European average (38%). However, **a significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Belgium to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.²⁰⁸

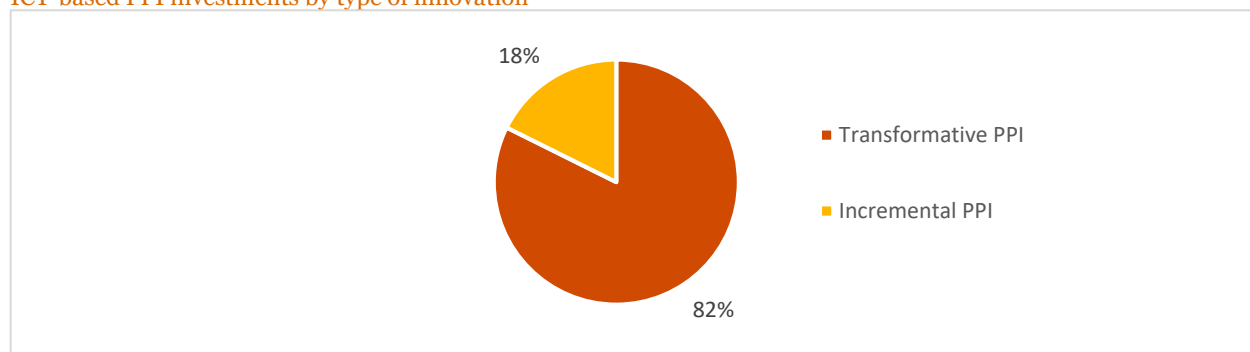


The **main factors**²⁰⁹ explaining Belgium's modest performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Belgium (82%) is slightly above the European average (79%). This may derive from the fact that the largest share of ICT-based PPI (70%) represents the adoption of 'significantly improved solutions' followed by innovative solutions that are 'new to the market' (20%). The share spent on **incremental ICT-based innovations**²¹⁰ (18%) is slightly below the European average (21%). As the total ICT-based-PPI investment level in the country is still modest, a significant increase in the adoption of transformative and incremental ICT-based innovations is still needed.

ICT-based PPI investments by type of innovation



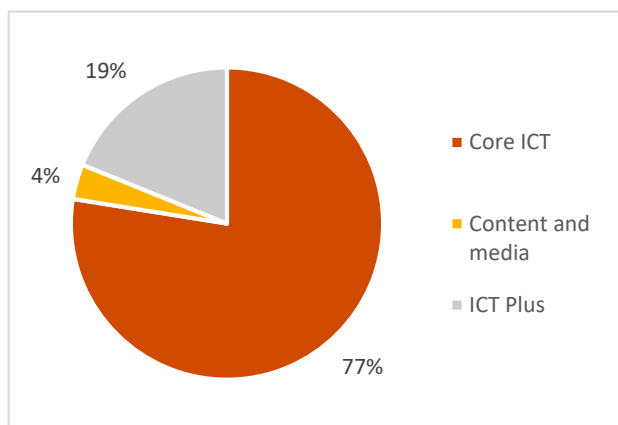
²⁰⁸ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI- or 10% of total public procurement - should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

²⁰⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

²¹⁰ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investment by ICT sub-sector



Belgium invested mainly in the adoption of innovations from the **'Core ICT' sub-sector**²¹¹ (77%), which is above the European average (54%).

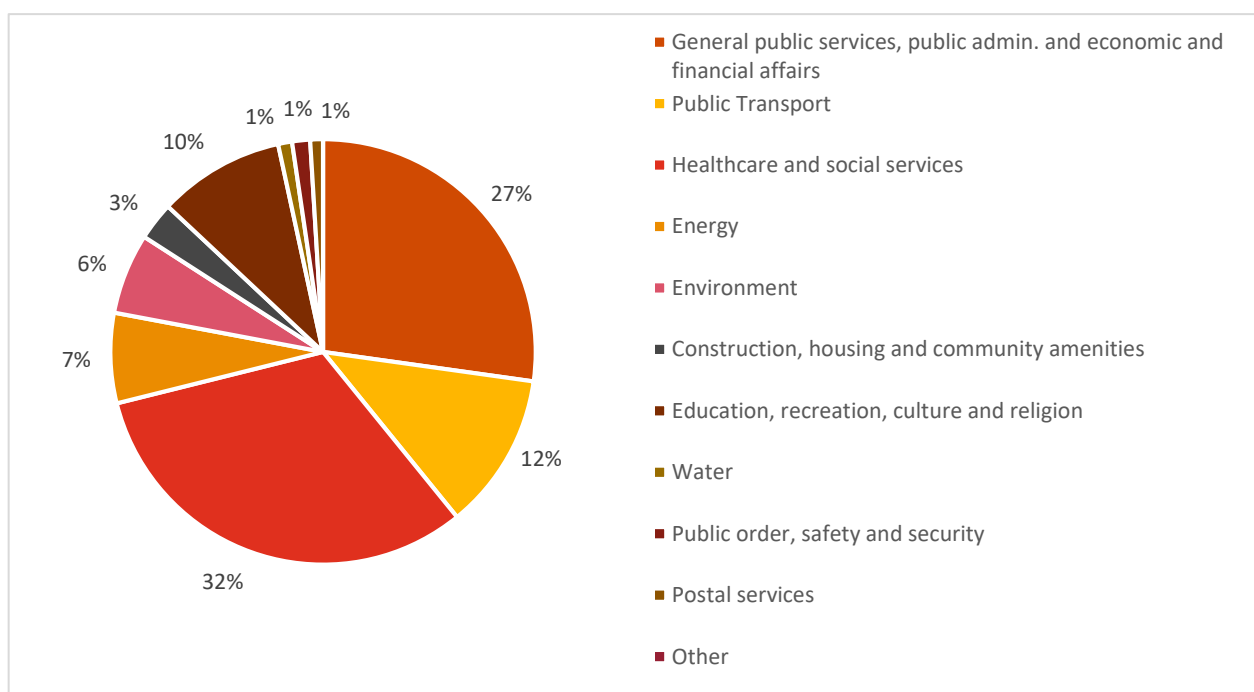
Belgium invested to a lesser extent in adoption of innovations from the **'ICT Plus' sub-sector** (19%), which is below the European average (44%).

Investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (4%), but above the European average (1%).

Investment readiness across different domains of public sector activity

Nearly all the domains of public sector activity in Belgium purchased innovative ICT based solutions except for the **'Other'** category with zero ICT-based PPI procurement. In particular, the highest share of ICT-based PPI is made by procurers that operate in the domain of **'Healthcare and social services'** (32% against a 30% European average) followed by procurers in the **'General public services, public administration and economic and financial affairs'** domain (27% which is significantly above the European average of 16%).

ICT-based PPI investments by domains of public sector activity

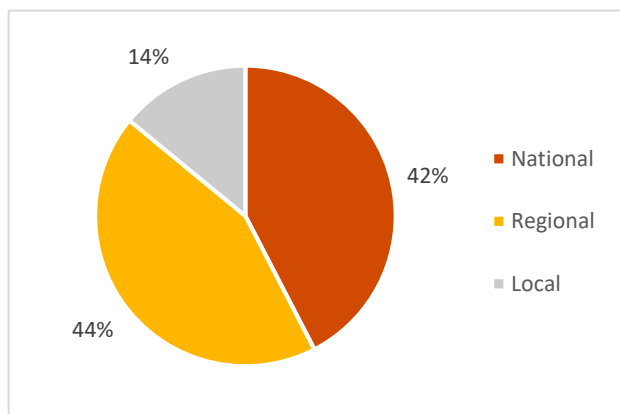


²¹¹ For the purpose of this study, the three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 42% of ICT-based PPI, quite below the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI at sub-national level (44%), more than double the European average (21%). To the contrary, **local procurers** account for only a modest fraction of ICT-based PPI (14%), which is still above the European average (10%).

Bulgaria



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and Legal Framework

In Bulgaria, public procurement is regulated by the Public Procurement Act. The Act was introduced into national legislation in 2016 and came into force as of 15 April 2016. It regulates the procedures for all type of public procurement contracts and transposes into national legislation the EU Directives 2014/24/EU, 2014/25/EU and 2009/81/EC. The Directive 2014/23/EU was implemented by the Concession Act, which entered into force in January 2018.

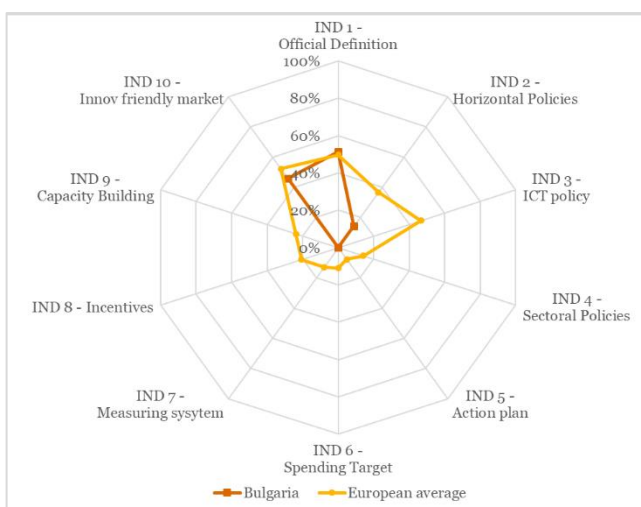
The key institutions in the national public procurement system are the **Ministry of Finance**, which is responsible for the implementation of the public procurement policy, and the **Public Procurement Agency**, the body through which the Ministry acts in this field. The Agency, thus, implements the State policy in the field of public procurement, developing strategic and operational documents, drafting legislation, disseminating good practices and offering methodological support, doing external ex-ante control on public procurement and monitoring specific procedures, coordinating standardization process and publication of approved standard documents, administering the Public Procurement Register, monitoring the award of public procurement contracts and cooperating with other bodies at national and EU level.²¹²

The Agency ensures the efficiency of the system and its compliance with the principles of transparency, free and fair competition and equal opportunities. The Agency's structure and operational rules are defined in its statutes.²¹³ Finally, the Public Financial Inspection Agency (PFIA), within the Ministry of Finance, is the supervisory body in the field of public procurement.

The **Public Financial Inspection Agency and the National Audit Office** perform external ex-post control over the implementation of the procurement legislation including the implementation of public contracts and framework agreements. With regard to innovation procurement, Bulgaria does not have dedicated schemes or initiatives for PPI, PCP or R&D procurement, while public procurement of innovative solutions is used to a limited extent (i.e. some tenders including criteria that can indirectly trigger innovation such as life-cycle analysis). The Ministry of Environment and Water (MOEW) has indirectly addressed the issue of public procurement of innovative solutions in the context of wider European funded projects.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Bulgaria is at the 27th position** of the overall ranking with a **total score of 10,5%**. From the 30 countries analysed, Bulgaria is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on 9 of the 10 indicators. Having implemented only 10,5% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is clearly still a very strong reinforcement of the policy framework for innovation procurement needed in Bulgaria to reach its full 100% potential.



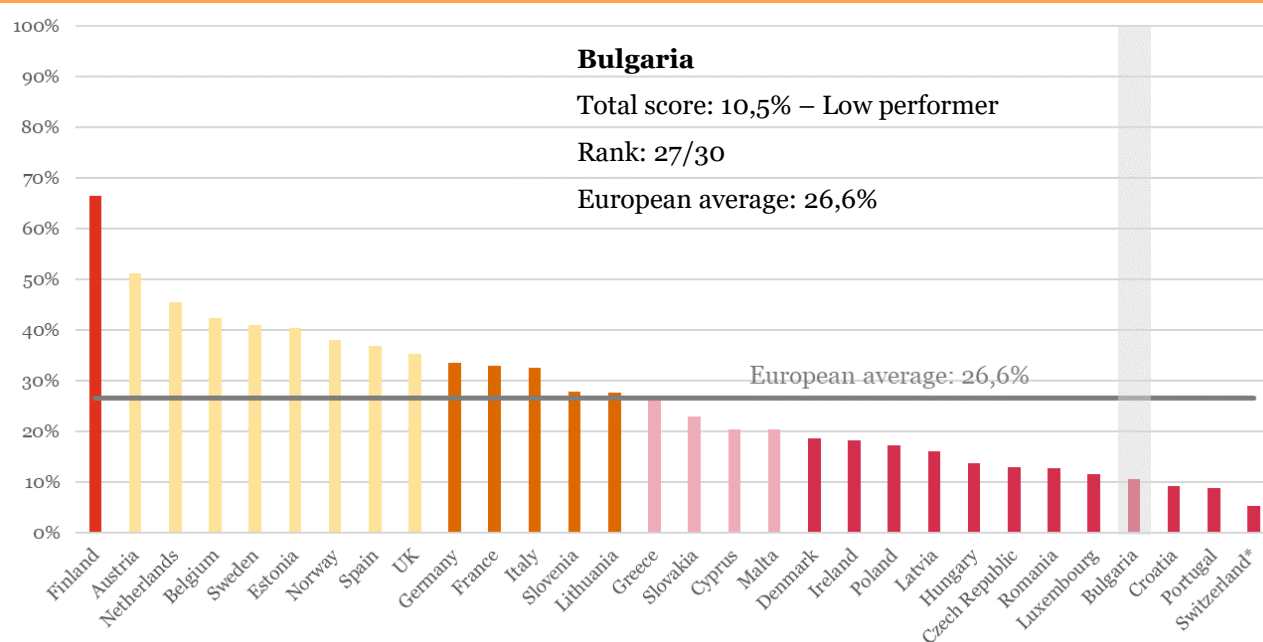
Strengths: The implementation of the EU public procurement Directives provides a basis to start building up a policy framework in the area of innovation procurement.

Weaknesses: A structured innovation procurement policy in Bulgaria is still not developed, thus important elements to foster its development are still missing (e.g. introduction of innovation procurement as a strategic priority in horizontal and sectorial policies, national competence centre, dedicated action plan, spending target, monitoring system for innovation procurement etc.). Lack of IPR policy in public procurement that encourages innovation.

²¹² <http://pubdocs.worldbank.org/en/296421525762408268/EN-Bulgaria-Veselina-Atanasova.pdf>

²¹³ <http://www.aop.bg/fckedit2/user/File/en/Normativna%20baza/uspr.pdf>

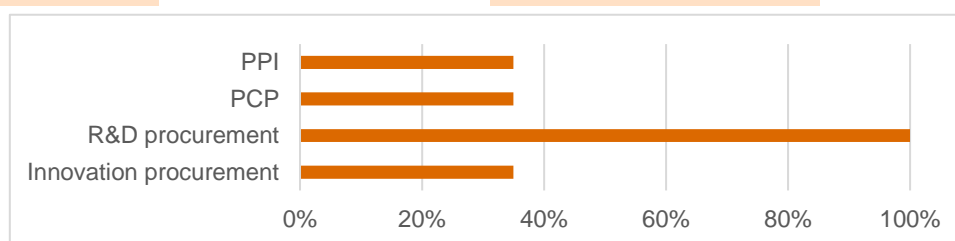
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 51% European Average 50%



The Bulgarian public procurement law provides an official definition of innovation and of R&D. These definitions are compliant with the EU official definitions and applicable to all types of public procurers in the country. Conversely, there are no official definitions of innovation procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI) in national legislation nor in official national guidance documents. Bulgarian public procurement law provides a clear legal basis for implementing Pre-Commercial Procurement (although without giving an explicit definition for PCP). Therefore, the total score of this indicator is 51%.

Even though there is no specific definition of innovation procurement in Bulgaria, the **definition of innovation** in the context of public procurement is included in §2, p. 18 of the Supplementary provisions section of the Public Procurement Act ("PPA"). The Act defines innovation as "the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth". This definition is in line with the EU definition, and it is country-wide applicable.²¹⁴ Hence, the total score for this sub-indicator is 35%.

Research and Development is also defined in §2, p. 24 of the Supplementary provisions of the PPA as "activities which cover fundamental research, applied research and experimental development; experimental development may include the realization of technological demonstrators, i.e. devices demonstrating the performance of a new concept of a new technology in a relevant or representative environment". This definition is also in line with the EU definition, and it is country-wide applicable to all types of public procurers. Hence, the total score for this sub-indicator is 100%.

Even though there is no definition of **PCP** in the PPA, 13 (1)(15), p. 29 has transposed the exclusion which forms the legal basis for implementing PCP: "The Bulgarian PPA shall not apply to public procurements for research and development services where one of the following conditions is not fulfilled: (a) the benefits accrue exclusively to the contracting entity for its use in the conduct of its own affairs (b) the service provided is wholly remunerated by the contracting entity".

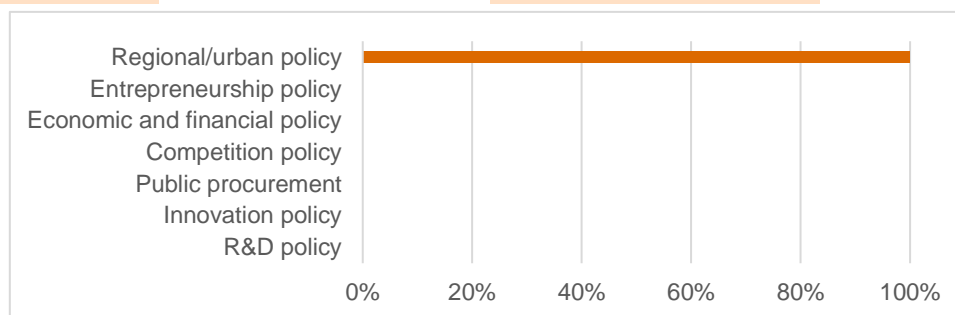
²¹⁴ http://www.aop.bg/fckedit2/user/File/en/Normativna%20baza/PPAct_16032018.pdf

Although there is no specific definition of pre-commercial procurement in Bulgarian public procurement law, through the above provisions for R&D services the law provides the legal basis for all types of procurers in Bulgaria to implement PCP procurements. The total score for this sub-indicator is 35%.

The Bulgarian legislative framework does not provide an official definition of **PPI**. However, in the PPA, § 47(1) forms the legal basis for implementing the PPI at national level. According to this article “*contracting entities may include in the requirements for the performance of the procurement special conditions relating to economic or social aspects of the performance, innovations, environmental management, or to employment.*” This legal basis is applicable countrywide and to all public procurers. Therefore, the total score for this sub-indicator is 35%.

Indicator 2 – Horizontal policies

Total score	14%	European Average	36%
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In Bulgaria, innovation procurement is explicitly recognised as a tool of strategic importance in the regional and urban policy, and Public Procurement. Therefore the total score of the indicator “Horizontal policy” is 14%.

In particular, the **Innovative Strategy for smart specialization for the period 2014-2020**²¹⁵, recognizes the role of innovation procurement to modernize the public sector. The document focuses especially in the sectors of waste, water, and energy (cf. Indicator sectorial policies). The S3 strategy is implemented mainly by Bulgarian regions. Therefore, the total score of the indicator Regional and urban policy is 100%.

Under the framework of the **National Strategy for Development of the Public Procurement Sector 2014-2020**²¹⁶, Bulgaria has transposed the European procurement legislation into the national public procurement act, and is now committed to set up a strong public procurement system focused on value for money, where innovation procurement can have a crucial role in the future. However, innovation procurement is not yet recognized as a pivotal element of the public procurement policy of the Country.

Indicator 3 – ICT policies

Total score	0%	European Average	47%
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Innovation procurement is not mentioned as a tool to stimulate innovation in the ICT sector.

Indicator 4 – Sectorial policies

Total score	0%	European Average	14%
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In Bulgaria, innovation procurement is not embedded as strategic priority in any sectorial policy.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Bulgaria does not have a stand-alone action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Bulgaria there is no specific spending target for innovation procurement.

²¹⁵ https://www.mi.government.bg/files/useruploads/files/innovations/ris3_26_10_2015_bg.pdf

²¹⁶ <https://rio.jrc.ec.europa.eu/en/file/7352/download?token=OGh7UDQM>

Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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Bulgaria does not have structured measurement and evaluation systems of innovation procurement, while it has developed monitoring mechanisms for Green procurement.

Indicator 8 – Incentives

Total score	0%	European Average	22%
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In Bulgaria there are no financial or other types of incentives specifically designed to encourage public procurers to undertake more innovation procurements.

Indicator 9 – Capacity building and assistance measures

Total score	0%	European Average	24%
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On the basis of the evidence collected, the total score of this indicator is 0%. Bulgaria is still lacking a structured approach to capacity building on innovation procurement across the country. There is information dissemination on some innovation related aspects in public procurement, but is only provided within wider training sessions and workshops on public procurement. There are no dedicated trainings on innovation procurement. The activities current usually provide an understanding of what is meant with innovation procurement, present different techniques and procedures potentially available under the new legal framework. It is worth mentioning that a possible evolution might also be facilitated by the above-mentioned Innovative Strategy for smart specialization for the period 2014-2020²¹⁷, as it foresees the creation of a Smart Growth Board with coordinating functions in the implementation of the strategy, including in the area of public procurement.

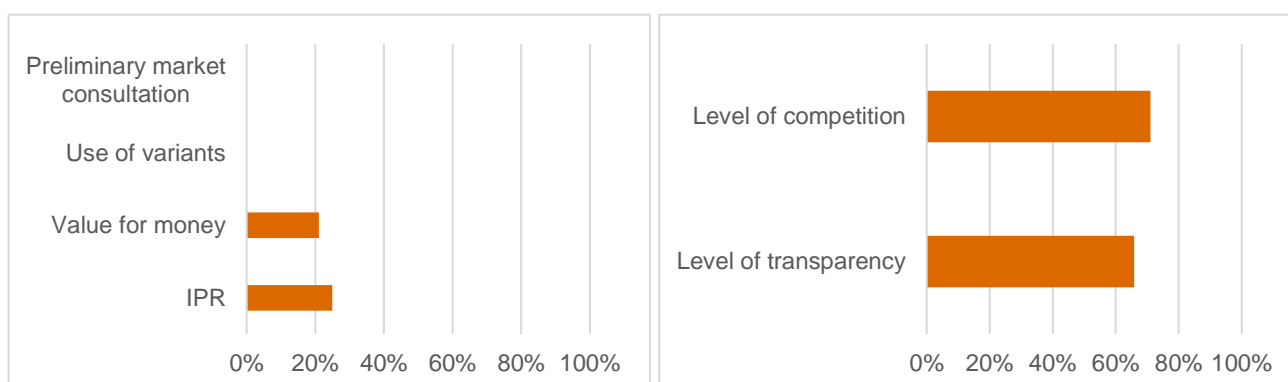
The participation in EU funded projects in this area is also expected to have a positive impact in the future. For example, the Public Procurement Agency is currently developing, in the context of a project funded under the Swiss-Bulgarian Cooperation Programme, a handbook on GPP. The handbook however does not provide dedicated detailed guidance on the implementation of innovation procurement.²¹⁸

Indicator 10 - Innovation friendly public procurement market

Total score	40%	European Average	44%
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I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market in Bulgaria encourages the implementation of innovation procurement. It is composed of two sub-indicators that reflect

- I. the use of specific techniques to foster innovation in public procurement;
- II. the openness of the national Bulgarian public procurement market to innovations from across the EU single market.

With regards to sub-indicator I, Bulgaria shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the European average of 38%, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Bulgaria. Bulgarian law, general terms and conditions for government contracts and guidelines on public procurement do not define how IPR allocation is best dealt with in procurement contracts. It is left to the individual responsibility

²¹⁷ https://www.mi.government.bg/files/useruploads/files/innovations/ris3_26_10_2015_bg.pdf

²¹⁸ <http://swiss-contribution.bg/en/projects/green-procurements/methodological-support-for-the-development-of-green-public-procurement-in-bulgaria> and <http://www.aop.bg/fckedit2/user/File/bg/novini/NOVINA-20.2.2019-1.pdf>

of each Bulgarian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Bulgarian public procurement law foresees that procurers can require in the tender specifications the transfer of IPR rights to the procurer. However as copyright (moral rights) cannot be fully transferred by the creator to another person under the Bulgarian Copyright act²¹⁹, the act defines as default scenario that in public procurements (commissioned work) copyright belongs to the creator of the work (copyright shall be owned by the creator) and that the procurer only keeps the right to use copyrighted work for the purposes for which it was commissioned (e.g. for usage, licensing, publication, modification, reproduction). Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases.

- b. **Value for Money:** According to the EU single market scoreboard, only 20% of the public procurement procedure have been awarded using criteria different from the lowest price. This is seriously below the European average and below the satisfactory level 80% set in the EU single market scoreboard. The country shows an over-reliance of lowest price criteria in procurement procedures.
- c. **Use of variants:** Bulgaria has allowed the use of variants in procurement procedures only in 0,04% of the cases. This percentage is below the European average.
- d. **Preliminary Market Consultations:** Bulgaria has not used Preliminary Market Consultations in any procurement procedure in 2018.

Based on this evidence, the score for sub-indicator I is 12% which is significantly below the 23% European average. This is mainly due to the below average performance on IPR default regime, the underutilisation of value for money award criteria, the absence of Preliminary Market Consultation and a close-to-zero use of variants in procedures.

With regard to sub-indicator II, Bulgaria shows the following evidence (according to the EU single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market accounts for 71% which is below the European average 84% and below the 92% satisfactory level set by the EU single market scoreboard. This performance is due to both below average performance on the amount of call for tenders that received more than one bid (68%) and the percentage of contracts awarded to companies with a call for bids (74%).
- f. **Level of Transparency:** The level of transparency of the public procurement market accounts for 66% which is above the European average 45% and reaches the 66% satisfactory level set by the EU single market scoreboard. The level of information provided by the public authorities on the procurement procedure is above the European average on all the sub-indicators: percentage of tender with no missing call for bids information (99%) and availability of buyer registration numbers (99%) and publication rate (6%).

Based on this evidence, the score for sub-indicator II is 68% which is above the 65% European average but still below the 79% satisfactory level derived from the EU single market scoreboard. This is mainly due to the below average performance on competition, although the level of transparency is above European average and satisfactory.

Based on the scores for sub-indicators I and II, the total score the indicator "innovation friendly public procurement market" is 40% which is below the European average. The score is explained by the fact that the use of specific techniques to foster innovation in the country is below European average, while the openness of the Bulgarian public procurement market to innovations from across the EU single market is satisfactory. Indeed, Bulgaria has not yet adopted a default IPR regime in public procurement that fosters innovation and the use of value for money criteria is still significantly below European average. The level of competition lies below European average even though transparency is above European average. Moreover, the total score is affected by the fact that no procedure has included a Preliminary Market Consultation and in almost all the procedures analysed in 2018 the use of variants has not been allowed.

²¹⁹ http://www.wipo.int/wipolex/en/text.jsp?file_id=237956#LinkTarget_1424

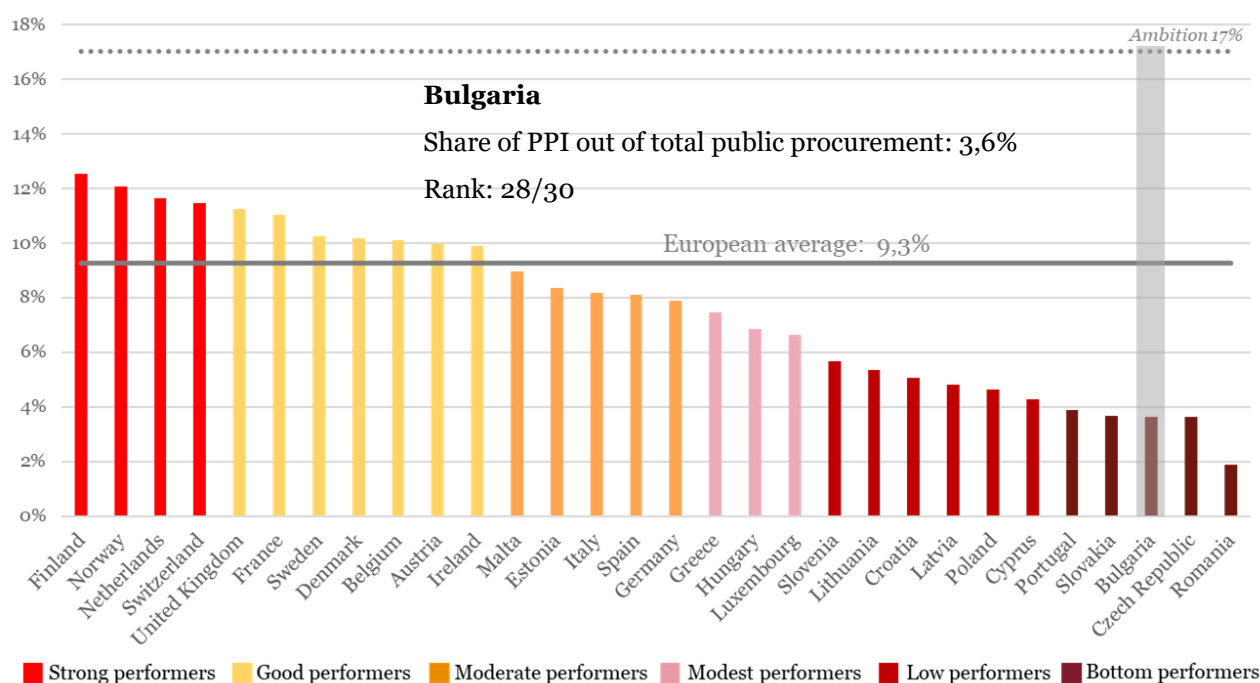
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Bulgarian investments on public procurements of innovative solutions (PPI) and the benchmarking of Bulgarian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, except when explicitly mentioned, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 3,6% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,3 bn), **Bulgaria ranks 28th** in the benchmarking of investments on public procurement of innovative solutions (PPI)²²⁰ across Europe. Bulgaria falls within the group of **bottom performers**, below the European average of 9,3%.²²¹ Therefore, **a considerable increase of investments in PPI is needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Bulgarian public sector.²²² When taking into account also PPI in the defence sector Bulgaria moves up to the 26th position.



The **main factors**²²³ explaining Bulgaria's bottom-level performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that was spent on the adoption of **transformative innovations** in Bulgaria (39%) is considerably below the European average (84%). The share of PPI investments devoted both to the adoption of 'significantly improved' solutions (26%) and to the adoption of innovative solutions that are 'new to the market' (13%) are still very low. PPI investments in Bulgaria depend much more (61%) than in other European countries (16%) on **incremental innovations**. This includes the purchase of existing solutions that are used in a new way or in a new

²²⁰ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

²²¹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

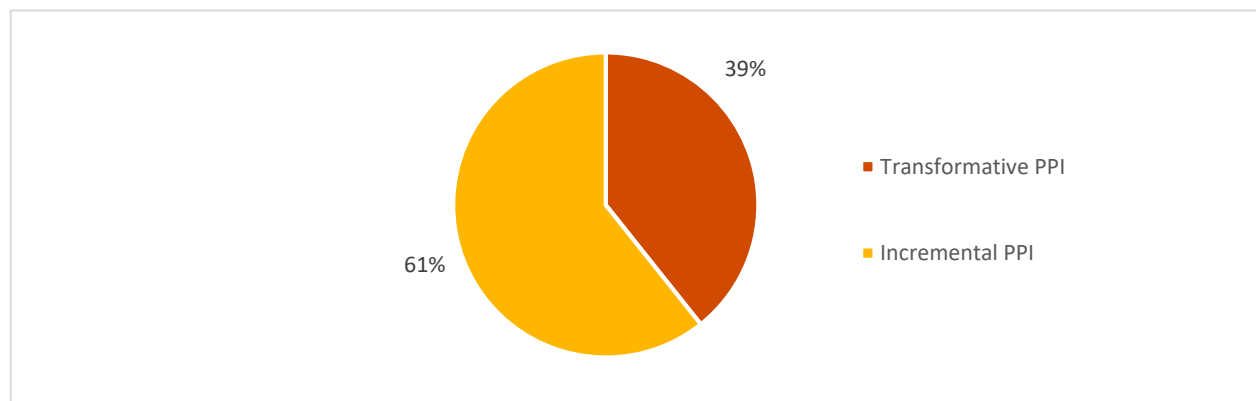
²²² It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

²²³ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

sector as well as innovative combinations of existing solutions. As the total amount of investments in innovative solutions in Bulgaria is low, the country still needs to step up considerably its investments in the adoption of both transformative and incremental innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Bulgaria is not yet at the level of PPI investments that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Despite the low level of overall investment in public procurement of innovative solutions in the country, **all domains of public sector activity purchased innovative solutions²²⁴ in Bulgaria purchased some innovative solutions**. However, the shares of PPI investment made by several public sector domains out of total PPI investment in the country is **not aligned with the European average**. The highest divergences are in the ‘**Healthcare and social services**’ and ‘**General public services, public administration, economic and financial affairs**’ domains: the former in negative (-11 pp), the latter in positive (+15 pp) compared to the European average.

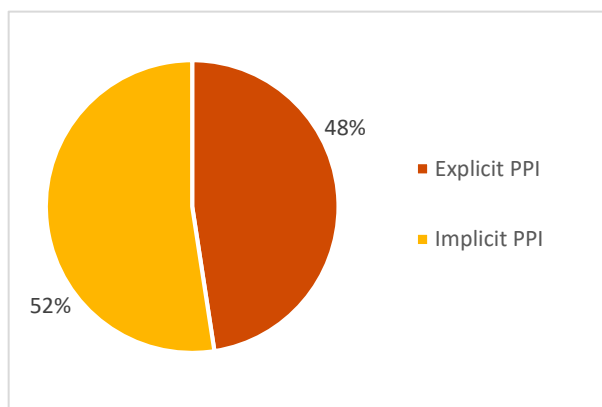
PPI investments by domains of public sector activity

Domain of public sector activity	Bulgaria	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	50%	35%	+15
Public transport	2%	10%	-8
Healthcare and social services	10%	21%	-11
Energy	9%	6%	+3
Environment	4%	3%	+1
Construction, housing and community amenities	10%	4%	+6
Education, recreation, culture and religion	9%	5%	+4
Water	2%	4%	-2
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

²²⁴ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

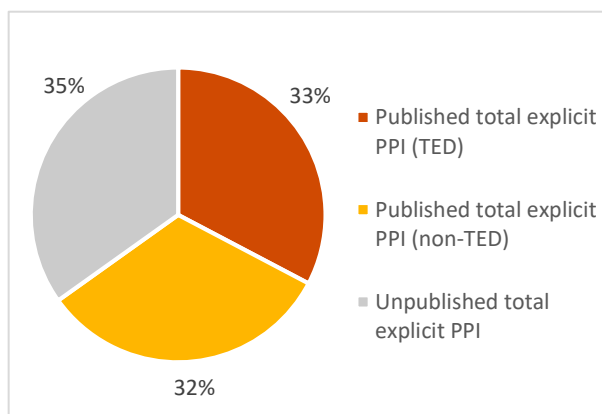


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is consistently higher in Bulgaria (48%) compared to the European average (29%). This indicates that Bulgarian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Bulgaria (52%) compared to the European average (71%). This indicates that Bulgarian procurers tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

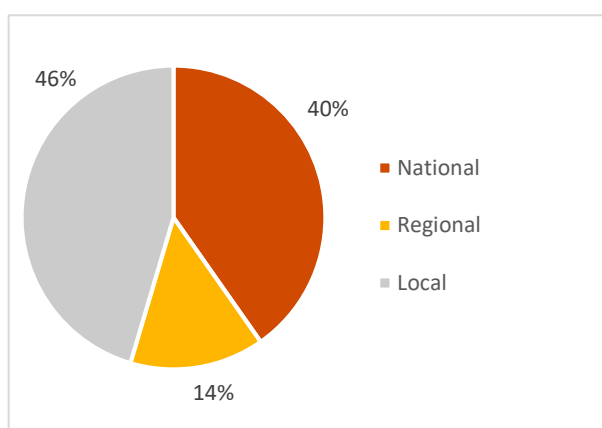


The share of Bulgarian PPI investments for which call for tenders are published is considerably higher (65%) than the European average (22%). Both the portion that is **published at European level** in the TED database (33%) and **published at national level** (32%) are above European average (respectively 18% and 5%). The share of PPI that are not published in TED or at national level still accounts for more than one third (35%).

By publishing the largest part of PPI call for tenders, Bulgaria is **expanding the opportunities to purchase potential innovative solutions** that could speed up public sector modernisation, both from Bulgarian and other European innovative suppliers.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

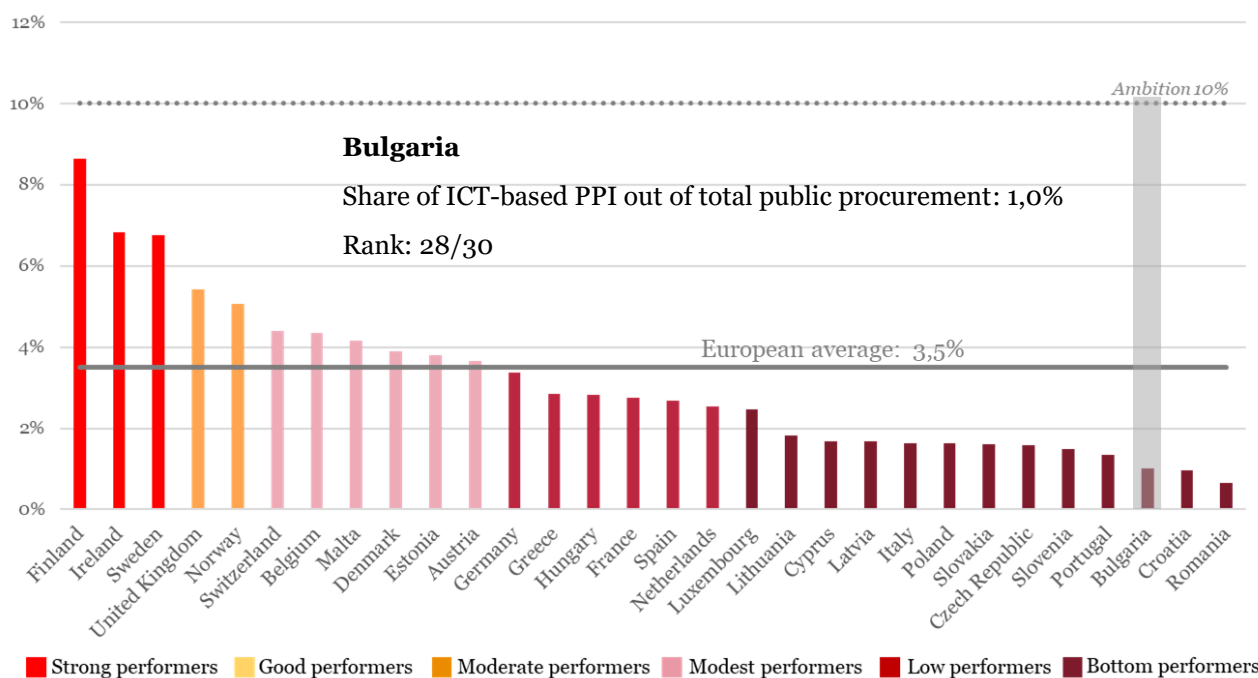


A considerable share of the total PPI investments in Bulgaria is carried out by **large-scale entities at national level** (40%), such as ministries and ICT integrators of governments departments. However, this is below the European average (47%).

Procurers at regional level account for the smallest amount of share of PPI investments (14%), below the European average (24%). **Procurers at local level** account for the highest fraction of PPI investments (46%), largely above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Bulgarian public sector shows a **bottom level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI). With € 0,03 bn or 1% of total public procurement invested in innovative ICT-based solutions, **Bulgaria ranks 28th** in the ICT-based PPI investment benchmarking, considerably below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (28%), Bulgaria performs significantly below the European average (38%). As a result, **a considerable increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Bulgaria to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.²²⁵

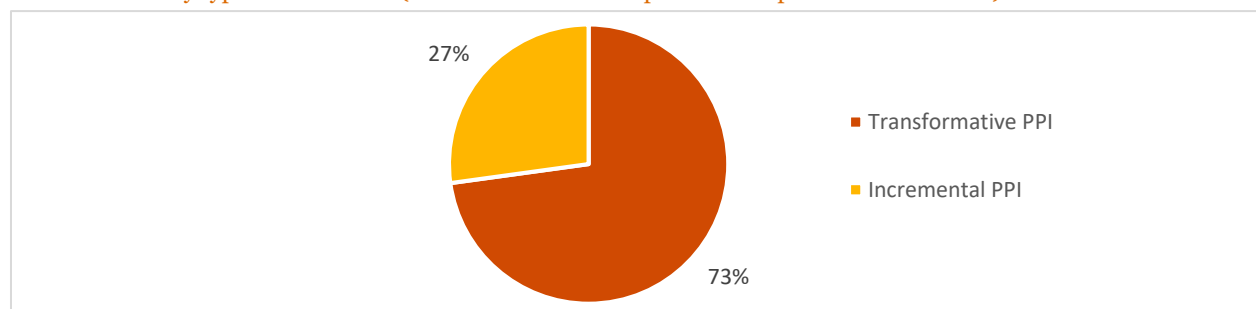


The **main factors**²²⁶ explaining Bulgaria's bottom-line performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is invested in the adoption of **transformative ICT-based innovations** (73%) is below the European average (79%). This may derive from the fact that the share of ICT-based investments spent on the adoption of innovative solutions that are 'new to the market' is still low (24%). A considerable share (48%) goes to the adoption of 'significantly improved solutions'. PPI investments in Romania depend much more than in other European countries (16%) on **incremental innovations** (27%). This includes the purchase of existing solutions that are used in a new way or in a new sector as well as innovative combinations of existing solutions. As the total amount of investments in innovative solutions in Bulgaria is very limited, the country still needs to step up considerably its investments in the adoption of both transformative and incremental innovations.

ICT-based PPI by type of innovation (as % of the amount of published explicit ICT-based PPI)

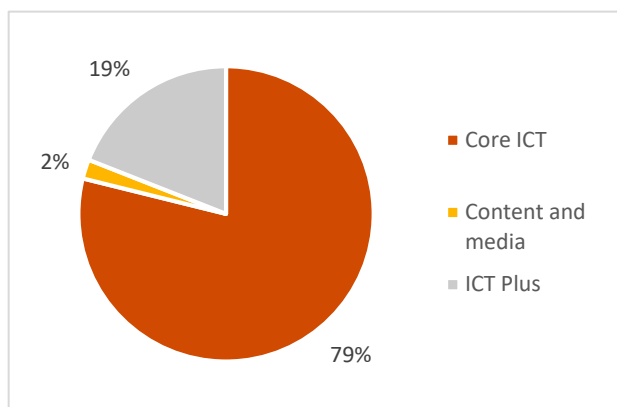


²²⁵ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

²²⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Bulgaria invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector²²⁷ (79%), well above the European average (54%).

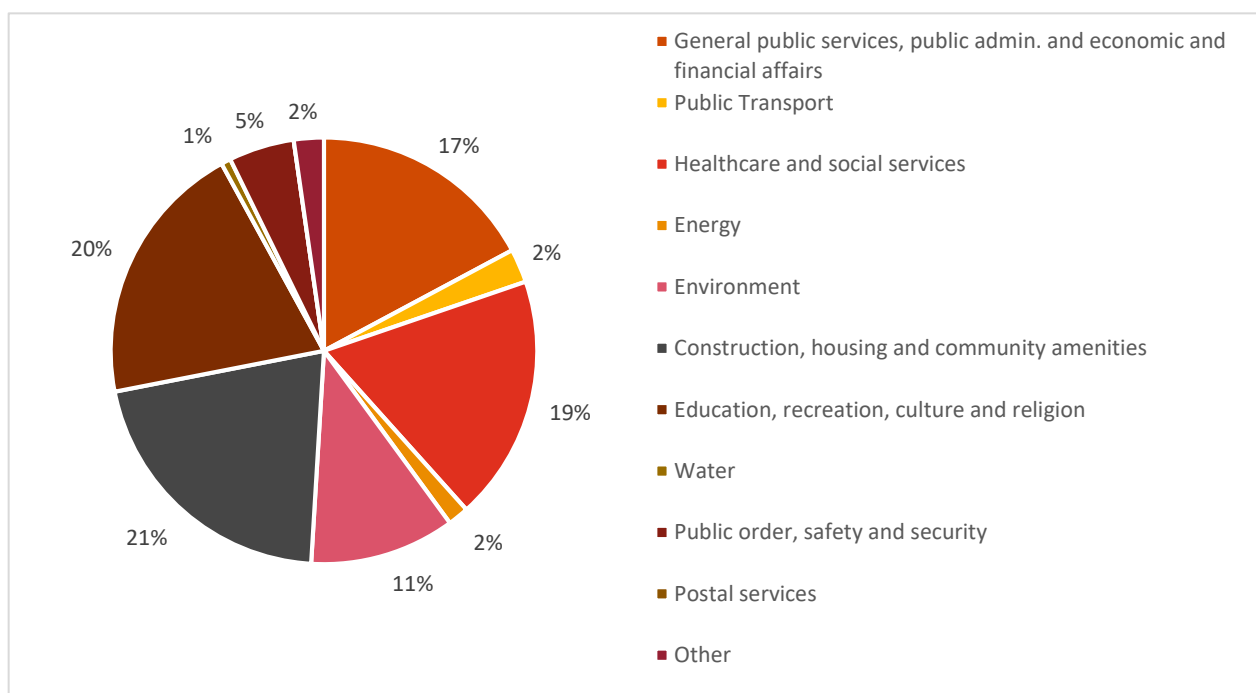
Bulgaria invested to a lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (19%), which is significantly below the European average (44%).

Investments in adopting innovations from the '**Content & Media**' sub-sector were marginal (2%) but in line with the European average (1%).

Investment readiness across different domains of public sector activity

Despite the low overall level of ICT-based PPI investment in the country, **nearly all the domains of public sector activity purchased some innovation ICT-based solutions**, with the exception of the '**Postal services**' category with zero ICT-based PPI. In particular, the highest share of ICT-based PPI investments is made by procurers that operate in the domain of '**Construction, housing and community amenities**' (21% against a 2% European average) followed by procurers in the '**Education, recreation, culture and religion**' domain (20% which is significantly above the European average of 9%).

ICT-based PPI investments by domains of public sector activity

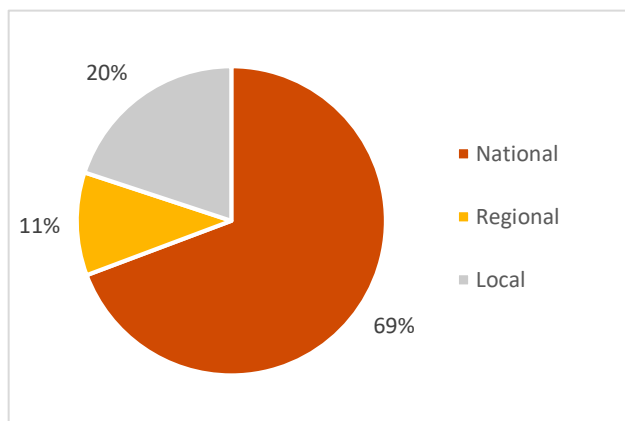


²²⁷ For the purpose of this study, the three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 69% of ICT-based PPI investments, in line with the European average (69%).

Procurers at regional level account for the lowest share of the ICT-based PPI investments at sub-national level (11%), which is below the European average (21%). To the contrary, **local procurers account** for a higher fraction of ICT-based PPI investments (20%), which doubles the European average (10%).

Cyprus



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The field of public procurement in Cyprus is regulated by the **Law for the adjustment of procurement procedures and related subjects** (N. 73(I)/2016)²²⁸ and the Law on procurement by entities operating in the water, energy, transport and postal services sectors (N.140(I)/2016)²²⁹ transposing the Directives 2014/24 and 2014/25/EU respectively. Law 173 (I)/2011²³⁰ regulates the procedures for the award of **public contracts** in the defence and security sectors transposing the EU **Directive** 2009/81/EU.

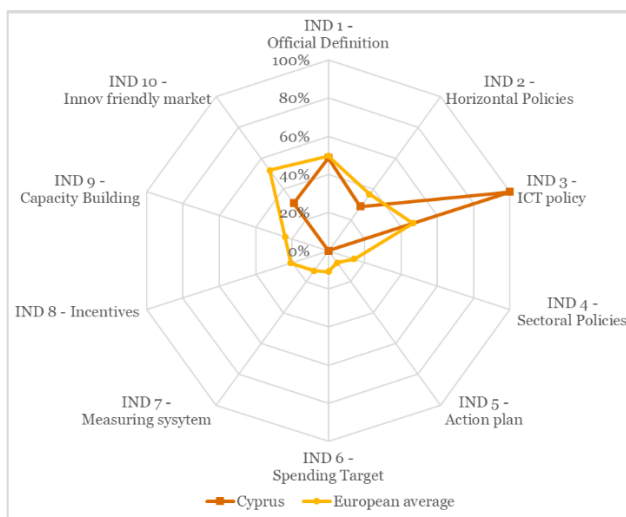
The public procurement system has a decentralized approach since contracting authorities/entities are responsible for their own tenders, even though the Competent Authority for Public Procurement and review body are centralized at the State level.

Cyprus has a decentralised public procurement system with a single administrative body at the State level and around 700 contracting authorities/entities at the State and local levels.

The Public Procurement Directorate (PPD) of the Treasury of the Republic of Cyprus is the single Competent Authority for Public Procurement responsible for all matters regarding public procurement in Cyprus. It is responsible for drafting public procurement legislation and ensuring its proper implementation. It is also entitled to carry out checks upon contracting authorities/entities to ensure compliance with procurement law. Additionally, it is competent for policy-making in the field of public procurement, and it provides assistance to contracting authorities for proper implementation of the procurement rules through guidance and training.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Cyprus is at the 17th position** of the overall ranking with a **total score of 20,4%**. From the 30 countries analysed, Cyprus is among the group of modest performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 20,4% of the policy measures to roll-out a comprehensive policy framework for innovation procurement implemented, there is still a very strong reinforcement of the policy framework for innovation procurement needed in Cyprus for it to reach its full 100% potential.



Strengths: In Cyprus there is a first awareness to the topic of innovation procurement, mostly through the commitment of some horizontal policies and of the digital strategy. This can be a good ground for building a future innovation procurement policy.

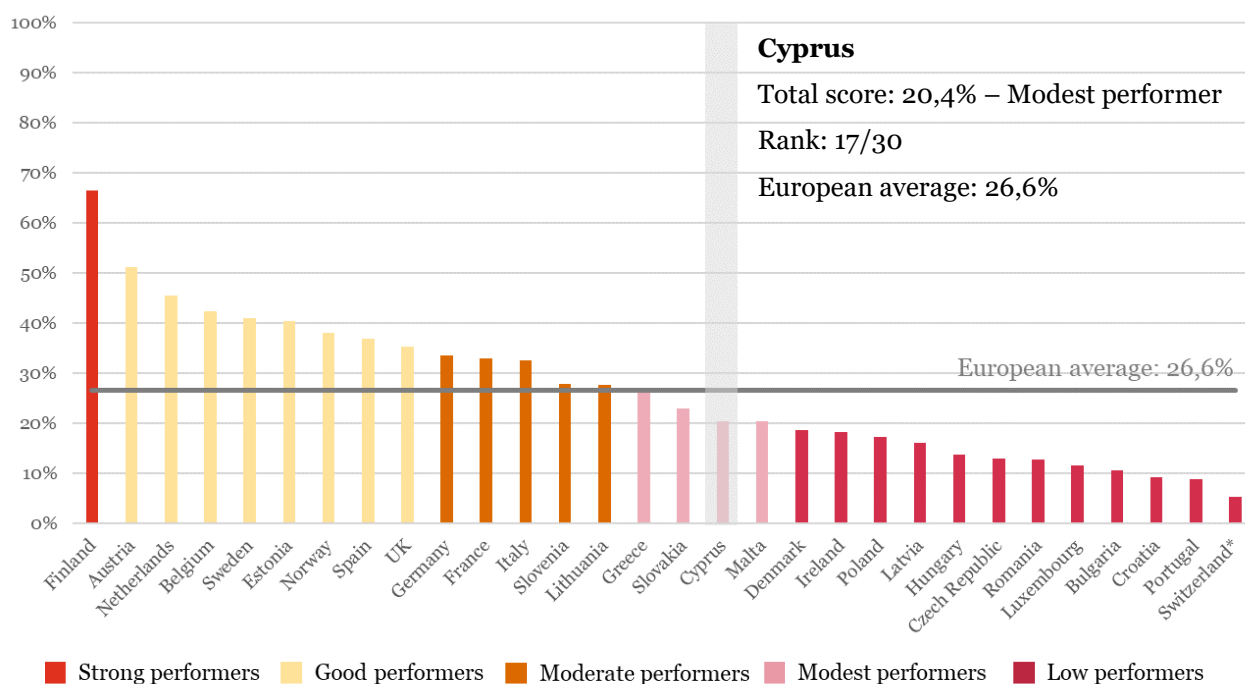
Weaknesses: Innovation procurement policy framework is at an early stage, and most important elements to foster its development are still missing (e.g. structured policy framework, national competence centre, capacity building activities, action plan, spending target, monitoring system, etc.). Lack of IPR policy in public procurement that encourages innovation.

²²⁸ <http://www.treasury.gov.cy/treasury/treasurynew.nsf/All/35C9186BC3AD4E21C2257FB000228197?OpenDocument>

²²⁹ <http://www.treasury.gov.cy/treasury/treasurynew.nsf/All/7F902C49A4A09C11C225809C00326E68?OpenDocument>

²³⁰ [http://www.treasury.gov.cy/treasury/treasurynew.nsf/All/3FACD5ED6A088329C2257F08004A4ED5/\\$file/N_173\(I\)_2011.pdf](http://www.treasury.gov.cy/treasury/treasurynew.nsf/All/3FACD5ED6A088329C2257F08004A4ED5/$file/N_173(I)_2011.pdf)

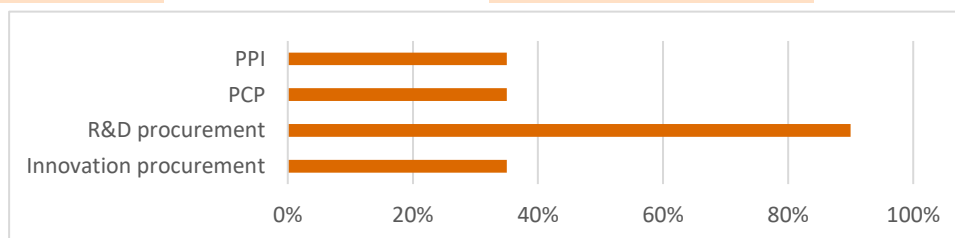
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 49% European Average 50%



In Cyprus, there is an official definition for R&D procurement, while the legal framework only provides a legal basis for “innovation procurement”, “Pre-Commercial Procurement” (PCP) and “Public Procurement of Innovative solutions” (PPI). Therefore the total score of this indicator is 49%.

There is no definition of “innovation procurement” in Cyprus. However, *the Law for the adjustment of procurement procedures and related subjects of 2016* defines **innovation** in its introductory provisions (Chapter 1, Article 2.1) as “*the realisation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, new marketing methods or new organizational methods to business practices, workplace organization or external relations , inter alia, to contribute to addressing societal challenges or supporting the Europe 2020 Strategy for smart, sustainable and inclusive growth*”. This definition is applicable countrywide and coherent with the EU definition, therefore the score for this sub-indicator is 35%.

A definition of R&D is only provided in the Law 173 (I)/2011 that transposes the Defence and security Directive 2009/81/EU. Part I (Introductory provisions) provides a definition of **Research and development** “*as all the activities involved basic research, applied research and experimental development, where the latter may include the implementation of technological demonstration projects, that is to say devices that will demonstrate the performance of a new method or technology to relevant or representative environment*”. This definition is only applicable in the defence sector (i.e. not countrywide) and is in line with the EU definition, therefore the total score of this sub-indicator is 90%.

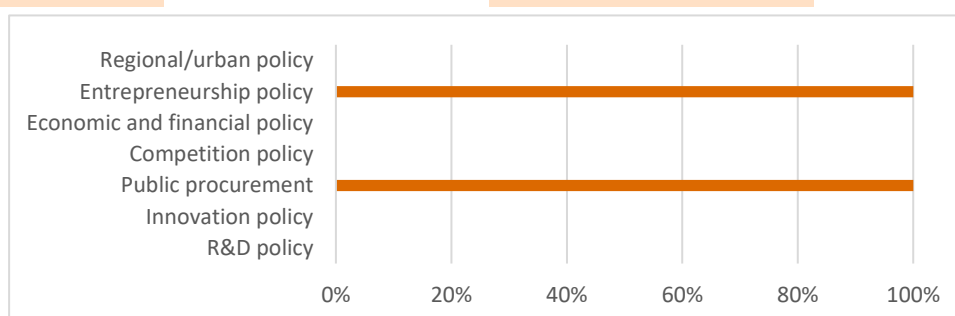
The Law for the adjustment of procurement procedures and related subjects of 2016 identifies in Chapter 3, article n. 18 (Special cases section) R&D as “*activities that have the CPV codes for fundamental research, applied research and industrial development*”. This article also transposes the exclusion for R&D services, which forms the legal basis for implementing in PCP, namely: “*the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the*

service is wholly remunerated by the contracting authority”. Therefore, no definition exist, but there is a legal basis which is applicable to all public procurers in the country, resulting in a total score for this indicator of 35%.

A PPI definition is not available in the legal framework, and neither present in any policy document or guideline. However, the *Law for the adjustment of procurement procedures and related subjects* (2016) provides the legal basis to implement PPI (allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria). In particular, article 76 (2) states that “contracting authorities may take into account the need to safeguard it quality, continuity, accessibility, affordability, accessibility availability and completeness of services, the specific needs of the various categories of users, including disadvantaged and vulnerable groups, involvement and empowerment of users and innovation”. Therefore, no definition exist, but there is a legal basis which is applicable to all public procurers in the country, resulting in a total score for this indicator of 35%.

Indicator 2 – Horizontal policies

Total score 29% European Average 36%



Public procurement and entrepreneurship policies are the areas in which is currently present a reference to innovation procurement. As a result, the total score of this Indicator is 29%.

The Public Procurement Directorate of the Treasury of the Republic of Cyprus in line with its role which involves the formulation of a public procurement policy and the provision of guidance to Contracting Authorities and Contracting Entities, published a Public Procurement Best Practice Guide. This Guide is structured around 7 chapters one of which refers to the strategy on **public procurement**. In this chapter promotion of innovation is included as one of the objectives of public procurement.²³¹

The **Policy Statement on the reinforcement of the Entrepreneurial Ecosystem** in Cyprus (2017) includes one concrete activity on Innovation Procurement. In particular activity 3.1.2 of the axis on Entrepreneurial Innovation refers to the promotion of Innovation Partnerships as they are defined in the EU Directive 2014/24. The establishment of the regulatory framework on Innovation Partnerships and training programs to raise awareness on the benefits and the way this procedure works are described as concrete activities in the framework of the above mentioned action.²³² The first progress report that was published in January 2017 mentions that these activities have already been completed.²³³

Indicator 3 – ICT policies

Total score 100% European Average 47%

The **Digital Cyprus Strategy**²³⁴ foresees under the Objective *Entrepreneurship, Measure entrepreneurship* (goal 5, action 17.4) a concrete action on Pre-Commercial Procurement. In particular it foresees a new funding Programme to support Pre-Commercial Procurements in the ICT sector launched by public organizations where innovative companies or research organizations could participate.

Indicator 4 – Sectorial policies

Total score 0% European Average 14%

In Cyprus no sectorial policy explicitly recognises the role of innovation procurement within its strategy.

²³¹ <http://www.publicprocurementguides.treasury.gov.cy/OHS-EN/HTML/index.html>

²³² <https://issuu.com/presidency-reform-cyprus/docs/55aa3532f9b3b9>

²³³ https://issuu.com/presidency-reform-cyprus/docs/2016_progress_report

²³⁴ [http://www.mcw.gov.cy/mcw/dec/digital_cyprus/ict.nsf/3700071379D1C658C2257A6F00376A80/\\$file/Main%20document%20digital%20strategy.pdf](http://www.mcw.gov.cy/mcw/dec/digital_cyprus/ict.nsf/3700071379D1C658C2257A6F00376A80/$file/Main%20document%20digital%20strategy.pdf)

Indicator 5 – Action plan

<i>Total score</i>	0%	<i>European Average</i>	8%
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Cyprus has not a dedicated/stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

<i>Total score</i>	0%	<i>European Average</i>	11%
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In Cyprus there is no specific spending target for innovation procurement

Indicator 7 – Monitoring system

<i>Total score</i>	0%	<i>European Average</i>	13%
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The Country does not have structured monitoring and evaluating systems of innovation procurement.

Indicator 8 – Incentives

<i>Total score</i>	0%	<i>European Average</i>	22%
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In Cyprus there are no financial or other types of incentives to encourage public procurers to undertake more innovation procurements

Indicator 9 – Capacity building and assistance measures

<i>Total score</i>	0%	<i>European Average</i>	24%
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Cyprus has not put in place systematic targeted measures to improve procurers' know-how and increase the adoption of innovation procurement. The score on this indicator is therefore 0%.

The Public Procurement Directorate (PPD) of the Treasury of the Republic is the single Competent Authority for Public Procurement responsible for all matters regarding public procurement in Cyprus. Among its responsibilities, it is competent for policy-making in the field of public procurement, and it provides assistance to contracting authorities for proper implementation of the procurement rules through guidance and continuous training. However, training and assistance measures are not specifically tailored for innovation procurement.

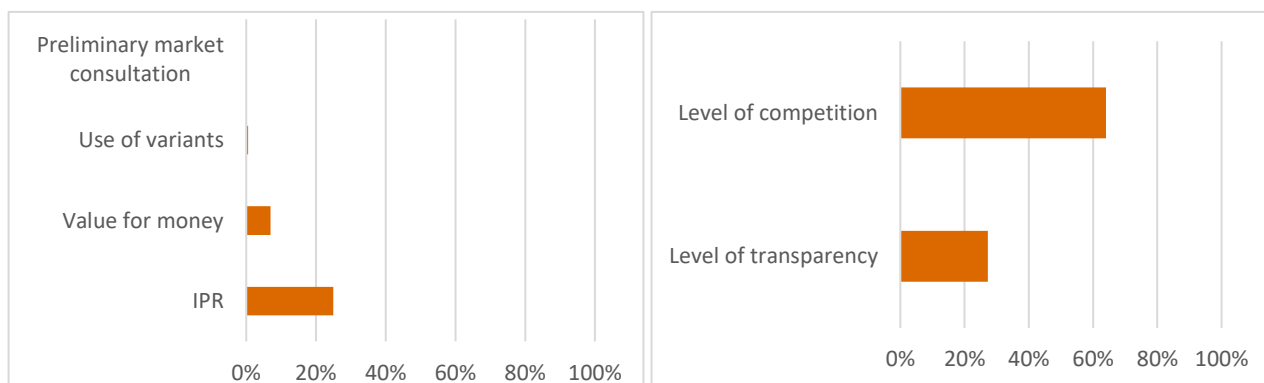
Cyprus is still lacking a structure approach to capacity building on innovation procurement across the country. Apart from some limited awareness raising sessions that are not specifically tailored for innovation procurement, no dedicated capacity building measures for innovation procurement have been implemented in a systematic, regular way.

Indicator 10 – Innovation friendly public procurement market

<i>Total score</i>	27%	<i>European Average</i>	44%
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I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market in Cyprus encourages the implementation of innovation procurement. The indicator is composed of two sub-indicators that show evidence on:

- I. the use of specific techniques to foster innovation in public procurement in Cyprus
- II. the openness of the national public procurement market to innovations from across the EU single market

With regard to indicator I, Cyprus shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no predefined default scenario on distribution of IPR rights between procurers and suppliers in Cyprus. The Cypriot law, general terms and conditions and guidelines on public procurement do not define how IPR allocation is best dealt with in public procurement contracts. It is left to the individual responsibility of each Cypriot procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Cypriot public procurement law foresees that public procurers can require in the tender specifications the transfer of IPR rights between the contractor and the procurer. However, according to Cypriot copyright law 59/1976²³⁵, copyright (moral rights including the right to remuneration) belongs in an inalienable way to the creator. Only economic rights can be transferred, assigned or licensed by the creator to another person/entity. If the procurer wants to use copyrighted material produced by (sub)contractors he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases.
- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, only 7% of the procedures were awarded based on value for money award criteria (93% of public procurements still awarded based on lowest price only). This 7% score is significantly below the 42% European average and far below the 80% satisfactory level set by the EU single market scoreboard. Cyprus is among the Member States that is underperforming the most on the use of value for money award criteria.
- c. **Use of variants:** Cyprus has allowed the use of variants in less than 1% of the procedures (0,5%). This percentage is well below the European average.
- d. **Preliminary Market Consultation:** Cyprus has not used Preliminary Market Consultations in procurement procedures in 2018.

Based on this evidence, the score for sub-indicator I is 8%, which is significantly below the 23% European average.

With regard to sub-indicator II, Cyprus shows the following evidence (according to the Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 64%, which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This result is mainly driven by the below-average performance on all sub-indicators: proportion of procurements with more than one bidder (58%) and without a call for bids (70%).
- f. **Level of Transparency:** The level of transparency of the public procurement market is 27%, which is below the European average 45% and the 66% satisfactory level set by the EU single market scoreboard. This result is mainly driven by the below-average performance on all sub-indicators: low publication rate (2%), proportion of procurements that lack information about the call for bids (20%) and miss buyer registration numbers (100%) making it very difficult for companies to find out which buyer wants to buy what.

Based on this evidence, the score for sub-indicator II is 46% which is below the 65% European average and below the 79% satisfactory level set by the EU single market scoreboard. This is due to low level of transparency and competition.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 27% which is significantly below the European average. From the 30 countries analysed, Cyprus has the lowest score for this indicator. This score is explained firstly by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Cypriot procurement market to innovations from across the EU single market are significantly below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation, value for money criteria are seriously underused in public procurements and both the level of competition and transparency is significantly below the European average and satisfactory level of the EU single market scoreboard. Secondly, use of variants has been rarely allowed and Preliminary Market Consultations have not been held.

²³⁵ <http://www.wipo.int/wipolex/en/details.jsp?id=920>

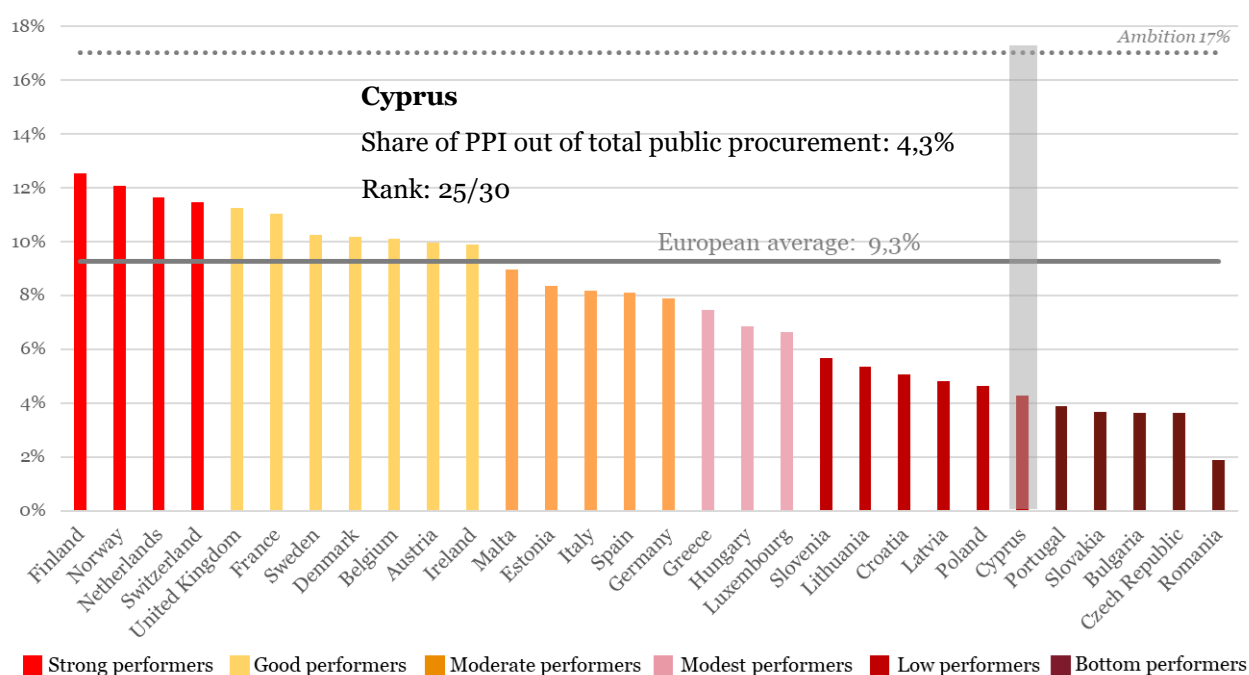
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Cypriot investments on public procurements of innovative solutions (PPI) and the benchmarking of Cypriot investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 4,3% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,1 bn), **Cyprus ranks 25th** in the benchmarking of investments on public procurement of innovative solutions (PPI)²³⁶ across Europe. Cyprus falls within the group of **low performers**, consistently below the European average of 9,3%.²³⁷ **A considerable increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Cypriot public sector.²³⁸ When taking into account also PPI in the defence sector Cyprus moves up to the 24th position.



The **main factors**²³⁹ explaining Cyprus's low performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Cyprus (29%) is very much below the European average (84%). This is due to the fact that the share of PPI investments spent on the adoption of 'new to the market' solutions' is still extremely low (1%) and the share spent on adopting 'significantly improved' solutions is also still low (28%). Cypriot PPI investments still rely to a much larger extent (71%) than on average across Europe (16%) on the adoption of **incremental innovations**, which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. As the total amount

²³⁶ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

²³⁷ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

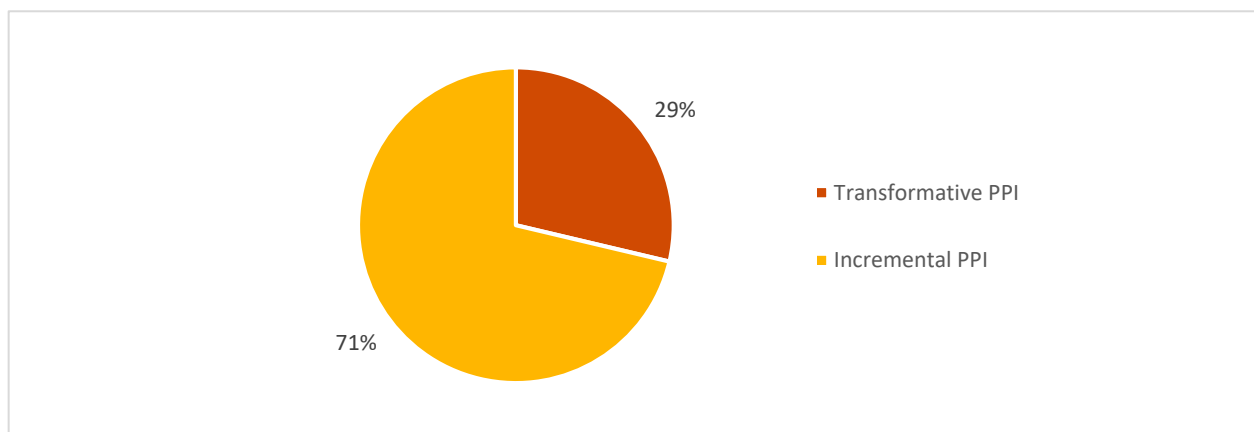
²³⁸ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

²³⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

of investments in innovative solutions in Cyprus is low, the country still needs to step up considerably its investments in the adoption of both transformative and incremental innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Cyprus is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Several domains of public sector activity²⁴⁰ in Cyprus did not purchase innovative solutions: this is the case in the domains of ‘**Water**’, ‘**Public order, safety and security**’ and ‘**Postal Services**’. In several domains of public sector activity, the amount of PPI investment is **not aligned with the European average**. All investments made by Cypriot procurers deviate more than 3 percentage points (pp) from the European average. The share of PPI investments made by procurers in ‘**Healthcare and social services**’ (55%) is significantly above the European average (21%), while the share of PPI investments made by procurers in ‘**General public services, public administration and economic and financial affairs**’ (11%) is significantly below the European average. The share of investments from procurers in the ‘**Environment**’ domain was very small (0,1%)

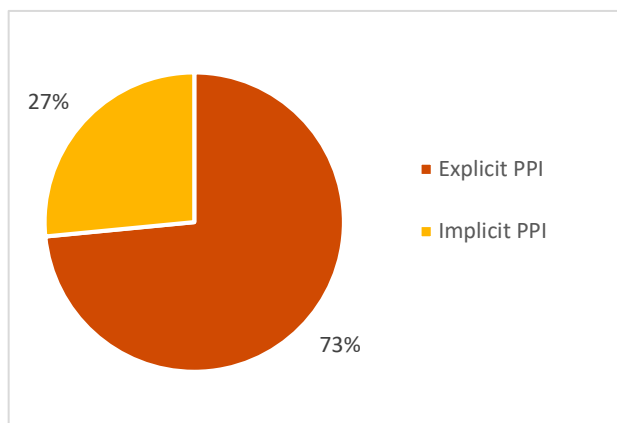
PPI investments by domains of public sector activity

Domain of public sector activity	Cyprus	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	11%	35%	-24
Public transport	3%	10%	-7
Healthcare and social services	55%	21%	+34
Energy	2%	6%	-4
Environment	0% (0,1%)	3%	-3
Construction, housing and community amenities	13%	4%	+9
Education, recreation, culture and religion	8%	5%	+3
Water	0%	4%	-4
Public order, safety and security	0%	8%	-8
Postal services	0%	1%	-1
Other	9%	3%	+6
Total PPI investments	100%	100%	-

²⁴⁰ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

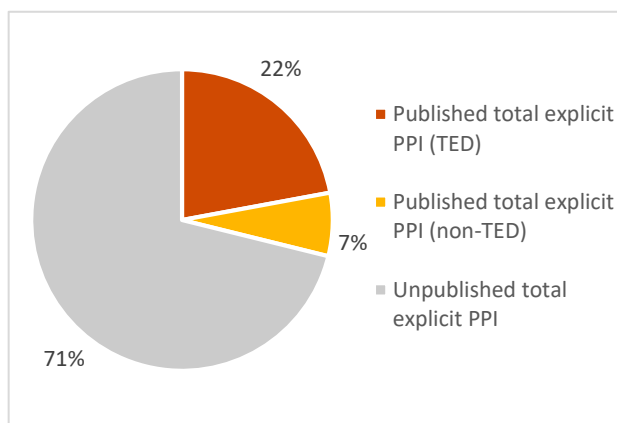


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is considerably higher in Cyprus (73%) compared to the European average (29%). This indicates that Cypriot procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is much lower in Cyprus (27%) compared to the European average (71%). This indicates that Cypriot procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

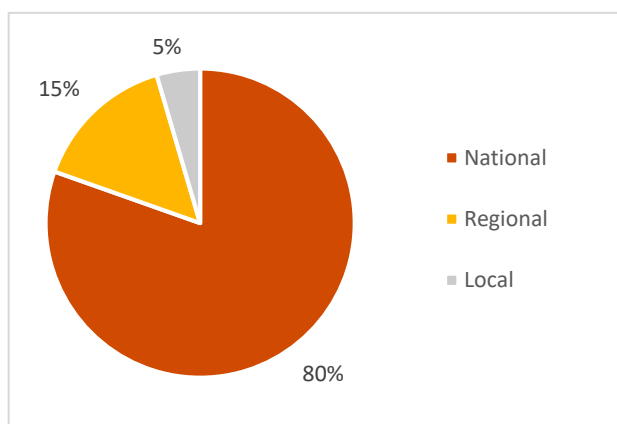


The share of Cypriot PPI investments for which no call for tenders published is very large (71%) even through the share that is published (29%) is slightly above the European average (22%). Both the portion that is **published at European level** in the TED database (22%) and the portion that is **published at national level** (7%) are slightly above the European average (respectively 18% and 5%).

By not publishing call for tenders for PPI investments widely, **Cyprus is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Cypriot and other European innovative suppliers that are not informed about the Cypriot PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

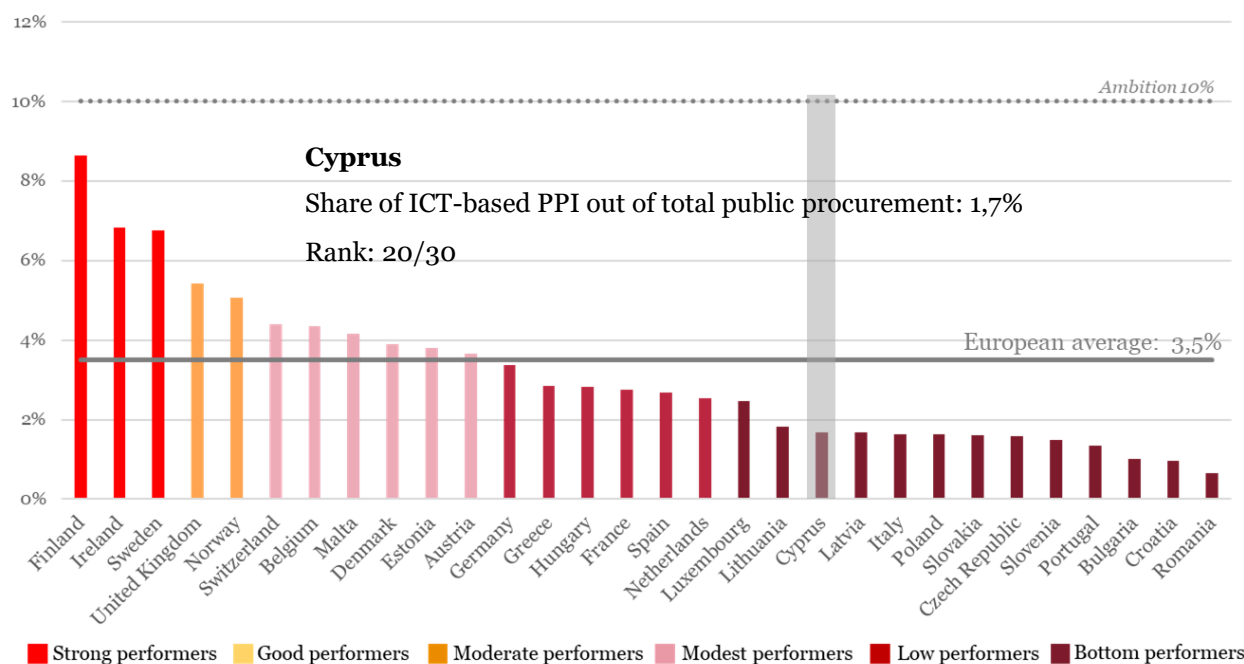


The vast majority (80%) of the total PPI investments in Cyprus are carried out by **large-scale entities at national level**, such as ministries and ICT integrators of governments departments. This is almost double the European average (47%).

Procurers at regional level account for a low share of PPI investments (15%). The share of PPI investments that is carried by **procurers at local level** is even more marginal (5%). Both are well below the European average (respectively 24% and 29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Cypriot public sector shows a **low level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With just € 9 mn or 1,7% of total public procurement invested in the adoption of innovative ICT-based solutions, **Cyprus ranks 20th** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (39%), Cyprus is in line with the European average (38%). **A considerable increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Cyprus to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.²⁴¹

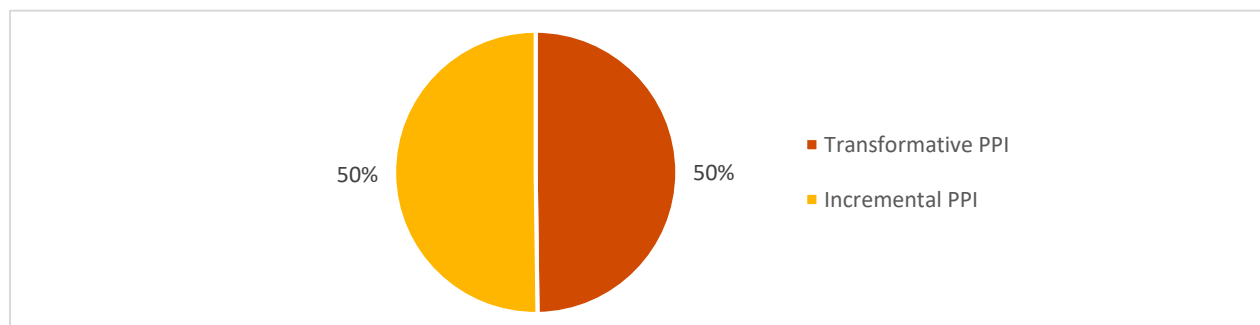


The **main factors**²⁴² explaining Cyprus's low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** (50%) in Cyprus is considerably below the European average (79%). This may derive from the fact that the adoption of innovative solutions that are 'new to the market' is still very low (1% of ICT-based PPI investments). ICT-based PPI investments in Cyprus depend to a considerably larger extent (50%) than on average across Europe (21%) on the adoption of **incremental ICT-based innovations**²⁴³. As the total amount of investment in innovative ICT-based solutions in Cyprus is low, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI by type of innovation



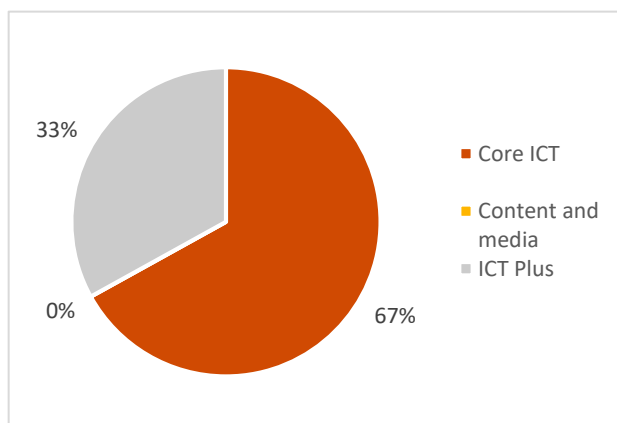
²⁴¹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

²⁴² The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

²⁴³ See definitions above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Cyprus invested mainly in the adoption of innovations from the so-called **'Core ICT' sub-sector**²⁴⁴ (67%), above the European average (54%).

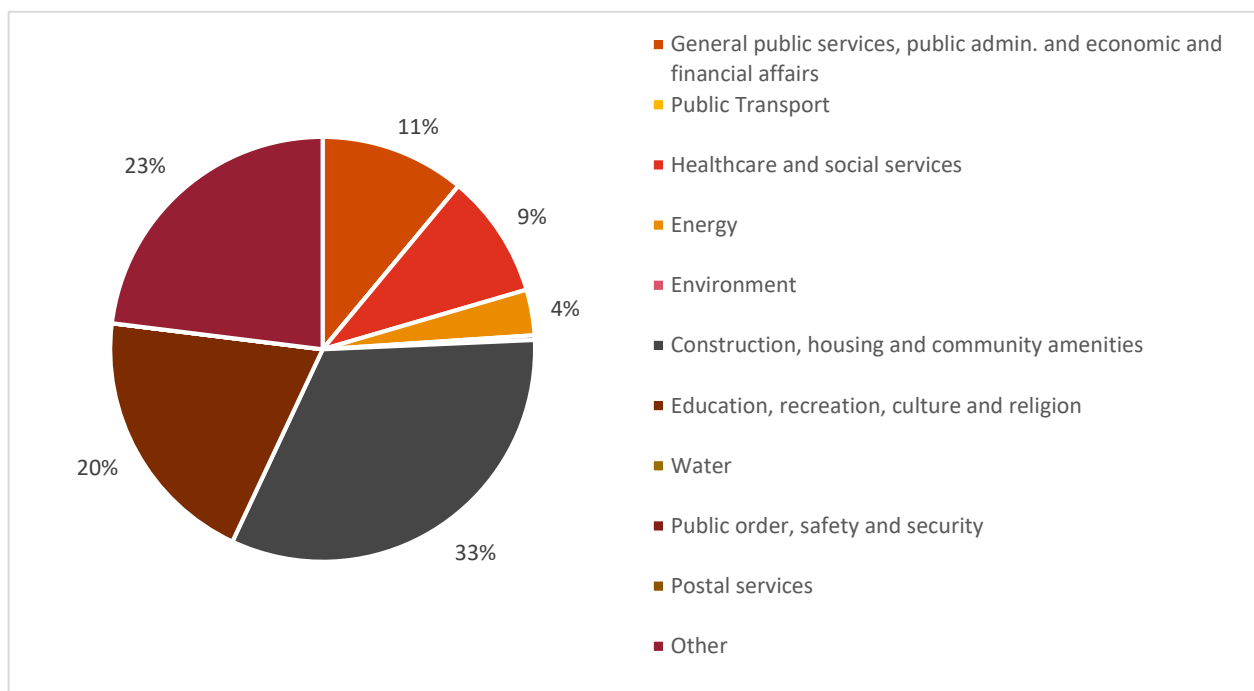
Cyprus invested to a lesser extent in the adoption of innovations from the **'ICT Plus' sub-sector** (33%), below the European average (44%).

No investment has been made in adopting innovations from the **'Content & Media'** sub-sector.

Investment readiness across different domains of public sector activity

Several domains of public sector activity in Cyprus did not purchase innovative ICT-based solutions: this is the case for **'Public Transport', 'Water', 'Public order, safety and security'** and **'Postal services'**. The highest share of ICT-based PPI investments is made by procurers that operate in the domain of **'Construction, housing and community amenities'** (33% against a 2% European average). Investments by procurers in the **'Healthcare and social services'** domain are the farthest below the European average (9% against a 30% European average).

ICT-based PPI investments by domains of public sector activity

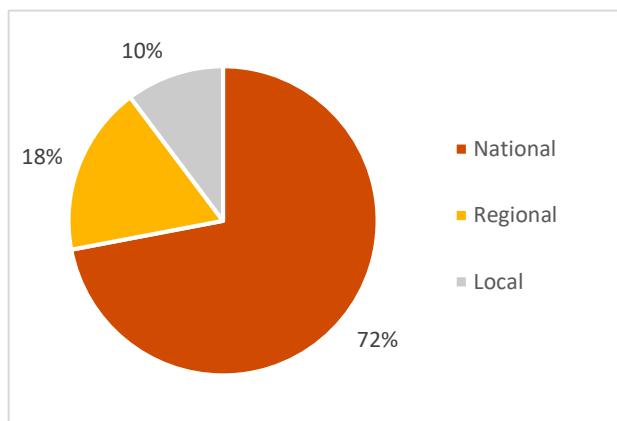


²⁴⁴ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 72% of ICT-based PPI, slightly above the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI at sub-national level (18%), which is slightly below the European level (21%). **Local procurers** account for only a modest fraction of ICT-based PPI (10%), which however equals the European average (10%).

Croatia



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and Legal Framework

The field of public procurement in Croatia is regulated by the Public Procurement Act (Zakon o javnoj nabavi NN 120/16)²⁴⁵, which was published in December 2016 and came into force at the beginning of 2017. The Act describes the procedures for all categories of contracts and transposes in the national legal framework the three EU Directives on Public Procurement, namely 2014/23/EU, 2014/24/EU and 2014/25/EU. The Croatian regulation on defence and security purposes²⁴⁶ transposes the EU public procurement directive 2009/81/EC.

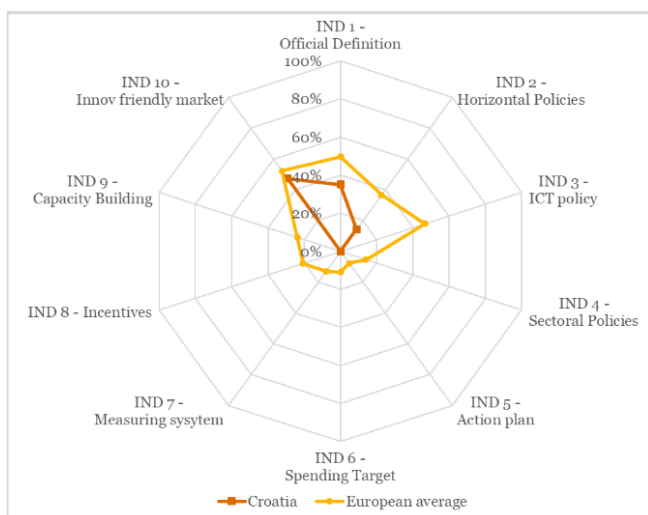
In Croatia, 15% of public procurement takes place at national level, 14% at regional and national level, while 54% is procured by bodies governed by public law and 17% by other types of public procurers. The key institution in creating the national public procurement system is the **Directorate for the Public Procurement Policy (DPPP)** within the **Ministry of Economy, Entrepreneurship and Crafts (MoEEC)**. It is in charge of the development, coordination and improvement of the public procurement system, harmonising the Croatian legal framework with EU legislation, as well as addressing any identified irregularities. The Ministry also issues opinions, instructions, and provisions of legal assistance linked to the PPA.

In terms of implementation of public procurement policies and laws, the **Central State Office for Central Public Procurement (CPO)** acts as central purchasing body for all national ministries and carries out (some) monitoring and analysis activities. Its aim is to achieve savings by implementing a systematic approach to public procurement.

In the country there are a number of initiatives to improve public services that indirectly or sporadically foster the innovation procurement ecosystem. In particular, it is worth mentioning the Interreg project “*PPI2Innovate*” Interreg EU²⁴⁷ that is aimed at building capacities of public procurers at regional and local level to encourage Public Procurement of Innovative Solutions. The key actor in the field of innovation is the **Croatian Agency for SMEs, Innovations and Investments (HAMAG-BICRO)**²⁴⁸ which is fostering innovation in general and it is taking a leading role in the field of innovation procurement. The agency will also develop an action plan for the establishment and functioning of a competence centre and it is currently active in building the know-how of innovation procurement with workshops and trainings.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Croatia ranked 28th**, with a **total score of 9,3%**. From the 30 countries analysed, Croatia is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on all indicators. Having implemented only 9,3% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is clearly still a very strong reinforcement of the policy framework for innovation procurement needed in Croatia to reach its full 100% potential.



Strengths: Croatia has transposed the new EU public procurement directives and thus has the basic legal basis to start building up a policy framework for innovation procurement.

Weaknesses: Innovation procurement in Croatia is at an early stage, and the most important elements to foster its development are still missing (e.g. strategic anchorage of innovation procurement in several horizontal and most sectorial policies, national competence centre, dedicated capacity building, action plan, spending target, monitoring system for innovation procurement, etc.). Lack of IPR policy in public procurement that encourages innovation.

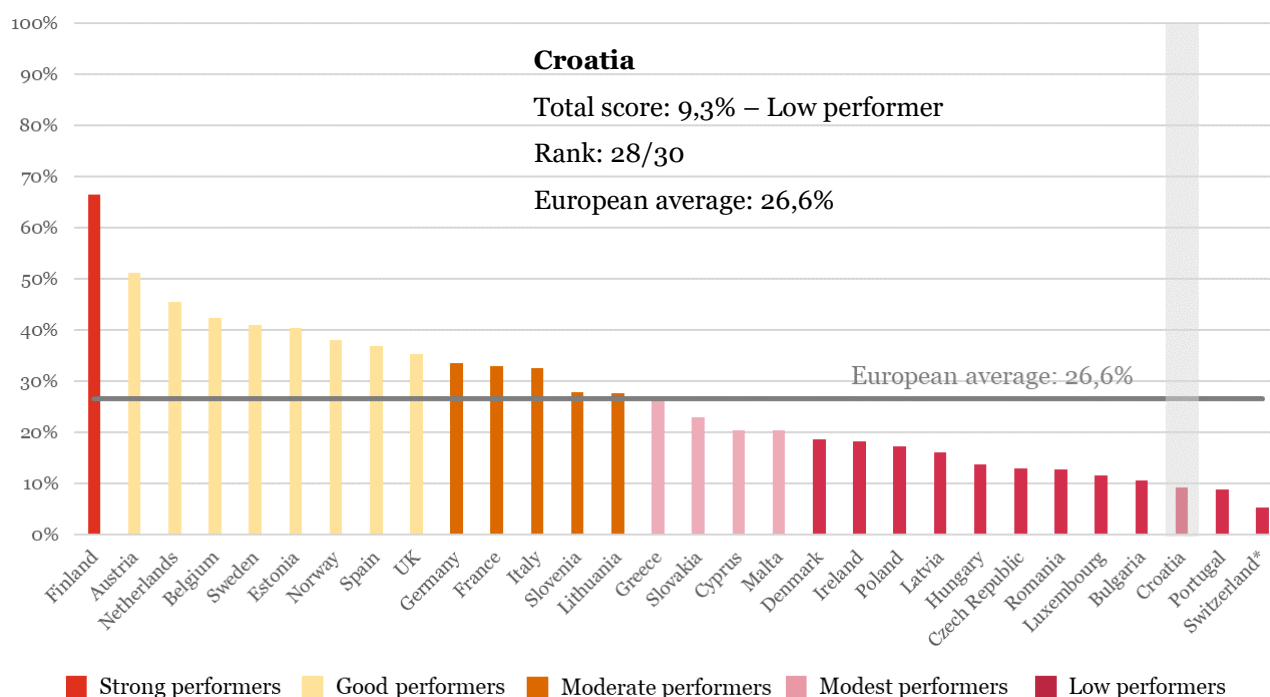
²⁴⁵ https://narodne-novine.nn.hr/clanci/sluzbeni/2016_12_120_2607.html

²⁴⁶ <http://www.javnabava.hr/>

²⁴⁷ <https://www.interreg-central.eu/Content.Node/PPI2Innovate.html>

²⁴⁸ <http://www.investcroatia.hr/about-us/>

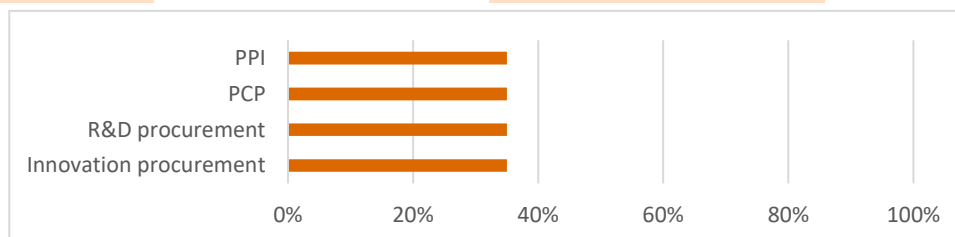
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 35% European Average 50%



The Croatian public procurement law for public authorities and utilities provides an official definition of innovation but no definition of innovation procurement or Public Procurement of Innovative solutions (PPI). In addition, the public procurement legislation for all types of public procurers identifies research and development by listing the CPV codes that correspond to R&D - without giving a full sentence definition for R&D or for the R&D categories that match these CPV codes - and provides also a clear legal basis for implementing Pre-Commercial Procurement, without giving an explicit definition for PCP. The total score of this indicator is therefore 35%.

Innovation is defined in article (3)(9) in the Public Procurement Act (Zakon o javnoj nabavi NN 120 16) as “the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is in line with the EU definition, and it is countrywide applicable. Thus, the total score for this sub-indicator is 35%.

The CPV codes that compose **R&D** are indicated both in the public procurement law for public authorities and utilities and the regulation for defence/security procurers, but there is no fully written out definition of R&D or of the R&D categories that match the CPV codes. Therefore, the total score for both sub-indicators is 35%.

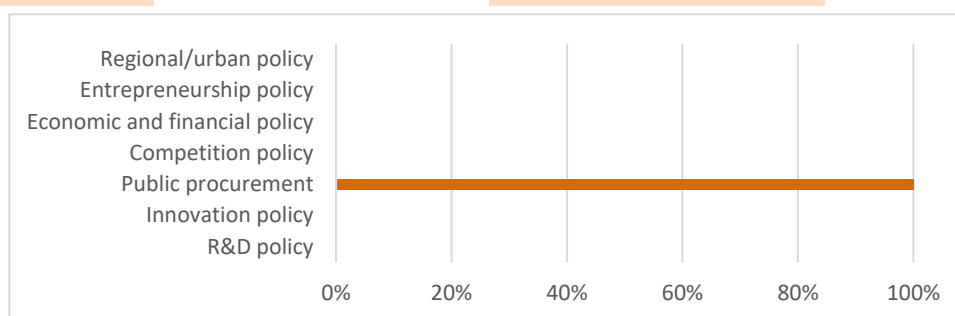
Although there is no full sentence defining research and development in the Croatian Public Procurement Act, Article 30(1) (17) in the Public Procurement Act identifies R&D as activities that have the CPV codes for fundamental research, applies research and industrial development. This article also transposes the exclusion for R&D services, which forms the legal basis for implementing **PCP** in Croatia: “This Act shall not apply to public contracts for: services of research and development covered by the CPVs 73000000-2 to 73120000-9, 73300000-5, 73420000-2 and 73430000-5 if the benefit of them is not solely the contracting authority for their use in the performance of its own affairs and does not fully remunerate the provision of these services.” The legal basis is applicable to all public procurers in the country. Similarly, the Croatian regulation on public procurement for defence and security purposes uses the same CPV codes to delineate the scope of R&D

as in the main Public Procurement Act and foresees the negotiated procedure without publication for the procurement of R&D services. Although there is no specific definition of PCP in Croatian public procurement law, through the above provisions for R&D services the law provides the legal basis for all types of procurers in Croatia to implement PCP procurements. Therefore, the total score for this sub-indicator is 35%.

In national legislation or official guidance documents there is no definition, but the legislation allows procurers to implement **PPI** (awarding and monitoring performance based on innovative solution characteristics). In particular, Article 218 of the Public procurement act states that “1) A public contracting authority may impose special terms relating to the performance of a contract, provided that they are related to a procurement object within the meaning of Article 285, paragraph 2 of this Act and are listed in the call for tenders or procurement documentation. (2) The conditions in paragraph 1 of this Article may include economic, environmental, social or innovation-related or employment-related features.” These legal provisions are applicable to all public procurers in the country and in line with the provisions of the EU public procurement directives. Therefore, the total score of the sub-indicator PPI is 35%.

Indicator 2 – Horizontal policies

Total score	14%	European Average	36%
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Croatia has only recently started recognising the strategic importance of innovation procurement. So far, therefore, innovation procurement is mentioned only in the Public Procurement Policy. Therefore, the total score of the indicator is 14%.

The growing importance of innovation procurement in the country is reflected by the participation to HAMAG-BICRO in the EU funded transnational *Interreg* project entitled *PPI2Innovate Interreg CE – Building Capacities to Encourage Public Procurement of Innovative Solutions in Central Europe*. As part of the project the Croatian Agency will take a leading role of “national administrator” in the field of innovation procurement and has committed to develop an action plan for the establishment of a specific Competence Centre in the field of innovation procurement.

Indicator 3 – ICT policies

Total score	0%	European Average	47%
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The **e-Croatia 2020 strategy**²⁴⁹ has an overall vision “Public administration which serves citizens, business and scientific entities by using contemporary ICT technologies and innovative solutions, and as the basis of the transformation of the Republic of Croatia into a knowledge-based society.” and puts as objective “Opening up space for ICT-based innovations in public administration through the cooperation of public administration, scientific and business entities” but does not mention innovation procurement or the role of public procurement in this context as tool to stimulate such innovation.

Indicator 4 – Sectorial policies

Total score	0%	European Average	14%
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In the Croatian procurement system innovation procurement is still at its early stages. As a result, no sectoral policy recognises innovation procurement as a priority in any sectoral action plan or strategic framework.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Croatia does not have a stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Croatia there is no specific spending target for innovation procurement.

²⁴⁹ <https://uprava.gov.hr/UserDocsImages//Istaknute%20teme/e-Hrvatska//e-Croatia%202020%20Strategy%20-final.pdf>

Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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Croatia does not have structured monitoring and evaluating systems of innovation procurement.

Indicator 8 – Incentives

Total score	0%	European Average	22%
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In Croatia there are no financial or other types of incentives specifically designed to encourage public procurers to undertake more innovation procurements.

Indicator 9 – Capacity building and assistance measures

Total score	0%	European Average	24%
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Croatia still lacks a structured framework for capacity building on innovation procurement across the country. There are no structured, regular capacity building measures dedicated to innovation procurement in the country. Only some sessions in the context of wider trainings and workshops on public procurement are in place in Croatia, therefore, the total score of this indicator is 0%.

In the framework of the *PPI2Innovate* project, the HAMAG-BICRO Agency is conducting awareness raising activities on innovation procurement practices to contracting authorities. In particular, the agency has developed three training modules for public buyers (cities, counties, ministries, funds, entrepreneurial infrastructure institutions, hospitals etc.) which have a focus on the different innovation procurement techniques and procedures available under the new legal framework.²⁵⁰

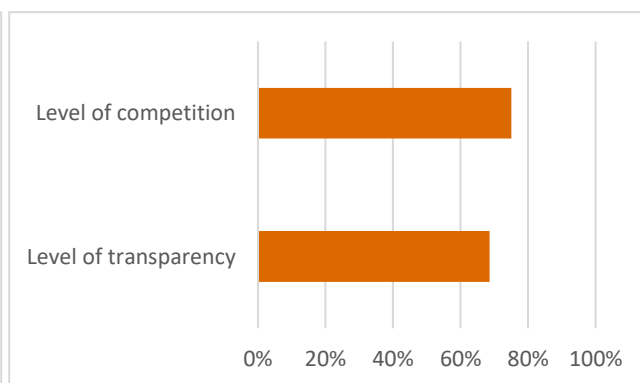
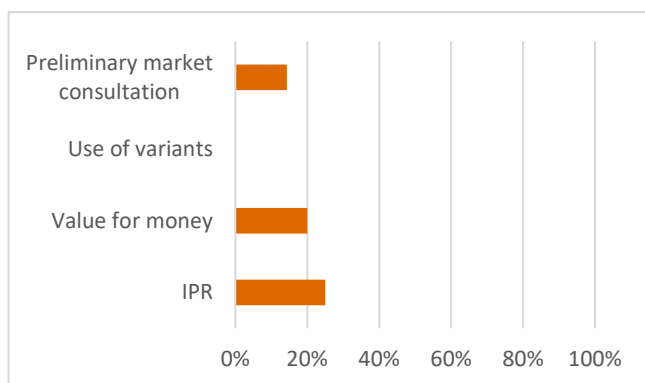
The participation to this EU funded project is expected to strengthen capacity building and assistance measures on innovation procurement. As part of this process, the development of a competence centre for innovation procurement and the publication of public procurement guides for innovative solutions in the field of Health, ICT and Energy - SMARTHealth, SMART ICT, SMARTEnergy - is expected to have a positive impact.

Indicator 10 - Innovation friendly public procurement market

Total score	43%	European Average	44%
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I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



²⁵⁰ <https://www.interreg-central.eu/Content.Node/PPI2Innovate.html>

This indicator synthesises to what extent the national public procurement market encourages the implementation of innovation procurement. The indicator is composed of a number of two sub-indicators that show evidence on:

- I. The use of specific techniques to foster innovation in public procurement in Croatia
- II. The openness of the national public procurement market to innovations from across the EU single market

With regards to sub-indicator I, Croatia shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the European average of 38%, because there is no predefined default scenario on distribution of IPR rights between procurers and suppliers in Croatia. Croatian law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Croatian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Croatian public procurement law foresees that procurers can require in the tender specifications the transfer of IPR rights to the procurer. However, according to Croatian copyright law²⁵¹ each person that has contributed to the creation of a commissioned work shall retain copyright in his own contribution. Thus, if a procurer wants to obtain specific economic rights (e.g. usage, licensing, publication, modification, reproduction rights) on commissioned works, he needs to require in the tender specifications the licensing, assignment or transfer of those economic rights that he needs. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. For computer programs and databases, the Croatian copyright act includes an exception which provides that the procurer shall have in any case economic rights.
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 20% of the public procurements have been awarded using criteria different from the lowest price. The country shows an over-reliance of lowest price criteria in procurement procedures. This is significantly below the European average of 42% and below the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Croatia has not allowed the use of variants in 2018 procurement procedures
- d. **Preliminary Market Consultation:** Croatia has used Preliminary Market Consultations in the 14% of the procedures. This percentage is significantly above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 15% which is significantly below the European average of 23%. This is mainly due to the below average performance on both IPR default regime and the scarce use of value for money award criteria. Although Preliminary Market Consultations have been held in a significant percentage of procedures, the use of variants has never been allowed in 2018.

With regards to sub-indicator II Croatia shows the following evidence:

- e. **Level of competition:** The level of competition of the national public procurement market accounts for 75%, which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This result is mainly driven by the scarce percentage of contracts awarded with more than one bidder (56%) because the percentage of contracts awarded to companies with a call for bids (94%) is above average and reaching the 92% satisfactory level set by the EU single market scoreboard.
- f. **Level of Transparency:** The level of transparency of the national public procurement market is 69%, which is above the 45% European average and reaching the 66% satisfactory level set by the EU single market scoreboard. This result is due to the above average values for all sub-indicators: publication rate (7%), percentage of call for tenders without missing call for bids information (99%) and without missing buyer registration number (100%).

Based on this evidence, the score for sub-indicator II is 72%, which is above the European average of 65% but still below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to a below average level of competition.

Based on the scores for sub-indicators I and II, the total score the indicator "innovation friendly public procurement market" is 43% which is below the 44% European average. This score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is significantly below European average and the openness of the Croatian public procurement market to innovations from across the EU single market is slightly above the European average, although also below the satisfactory level set by the EU single market scoreboard. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are significantly underused in public procurements. Secondly, use of variants has been allowed in no procedure in 2018. In addition, although the national public procurement market shows a satisfactory level of transparency, the level of competition is below average.

²⁵¹ <http://www.wipo.int/wipolex/en/details.jsp?id=10056>

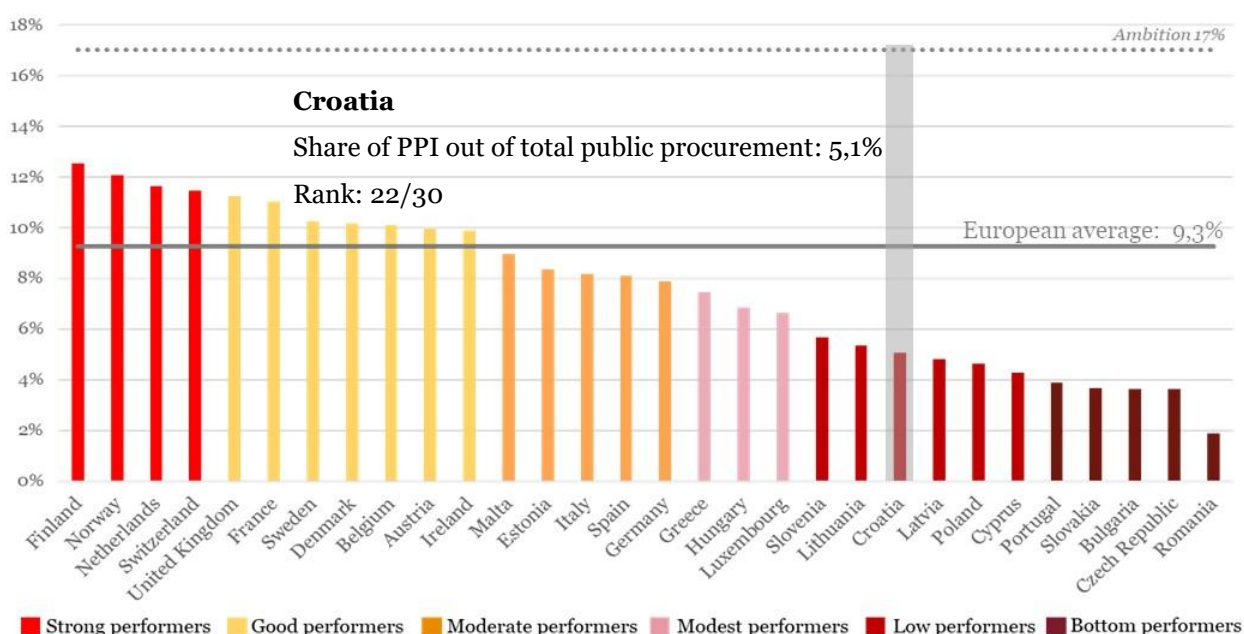
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Croatian investments on public procurements of innovative solutions (PPI) and the benchmarking of Croatian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 5,1% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,5 bn), **Croatia ranks 22nd** in the benchmarking of investments on public procurement of innovative solutions (PPI)²⁵² across Europe. Croatia falls within the group of **low performers**, significantly below the European average of 9,3%.²⁵³ **A large increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Croatian public sector.²⁵⁴ When taking into account also PPI in the defence sector Croatia drops down to the 25th position.



The **main factors**²⁵⁵ explaining Croatia's low performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** (86%) is in line with the European average (84%). This consists in the adoption of 'significantly improved' solutions (57% of PPI) as well as innovative solutions that are 'new to the market' (29% of PPI). The share of PPI investments spent on the adoption of **incremental innovations** (14%), which includes 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions' is close to the European average (16%). However, as the total amount of investments in innovative solutions in Croatia is low, the country is still lagging behind considerably in the adoption of both transformative and incremental innovations.

²⁵² Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

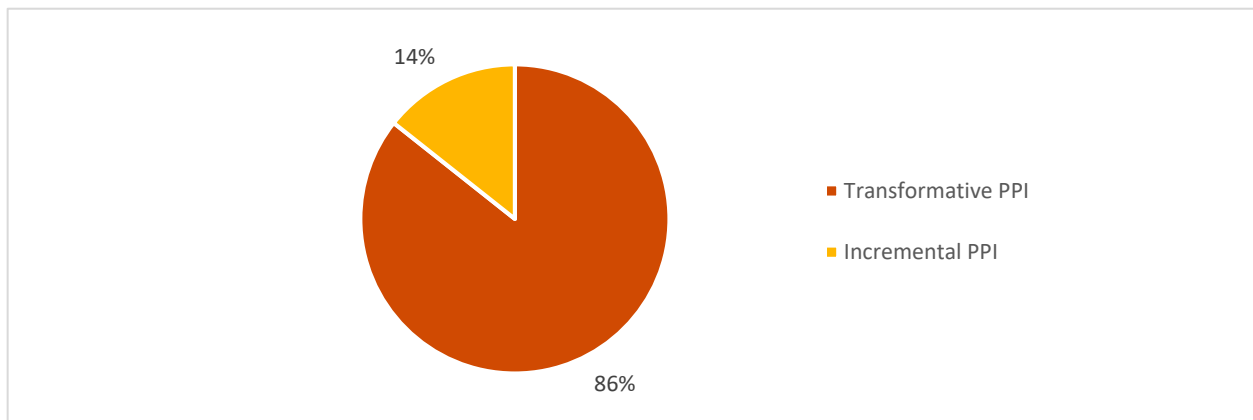
²⁵³ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

²⁵⁴ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

²⁵⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Croatia is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly all domains of public sector activity²⁵⁶ in Hungary purchased innovative solutions, except 'Postal Services' with zero PPI investment. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages** (in 7 out of 11 sectors). PPI investments made by Croatian procurers operating in the 'Energy' domain are well above the European average (+16 pp). However, PPI investments made by Croatian procurers operating in the 'General public services, public administration and economic and financial affairs' and 'Public order, safety and security' domains are significantly below the European average (respectively -7 pp and -8 pp).

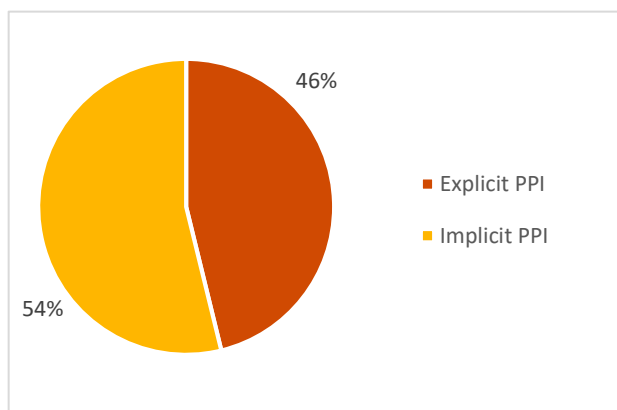
PPI investments by domains of public sector activity

Domain of public sector activity	Croatia	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	41%	35%	+6
Public transport	3%	10%	-7
Healthcare and social services	20%	21%	-1
Energy	22%	6%	+16
Environment	3%	3%	0
Construction, housing and community amenities	3%	4%	-1
Education, recreation, culture and religion	4%	5%	-1
Water	2%	4%	-2
Public order, safety and security	0% (0,2%)	8%	-8
Postal services	0%	1%	-1
Other	2%	3%	-1
Total PPI investments	100%	100%	-

²⁵⁶ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

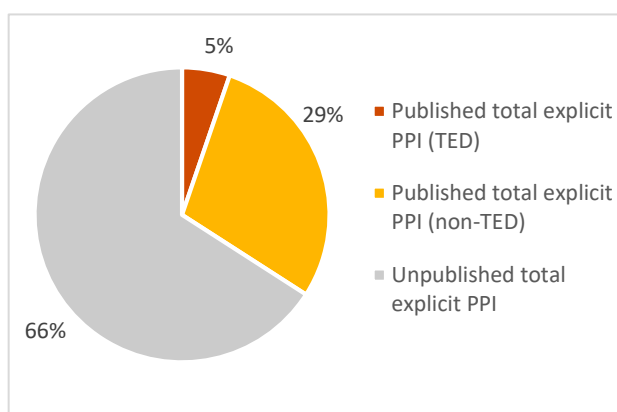


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is slightly higher in Croatia (33%) compared to the European average (29%). This indicates that Croatian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Croatia (67%) compared to the European average (71%). This indicates that Croatian procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

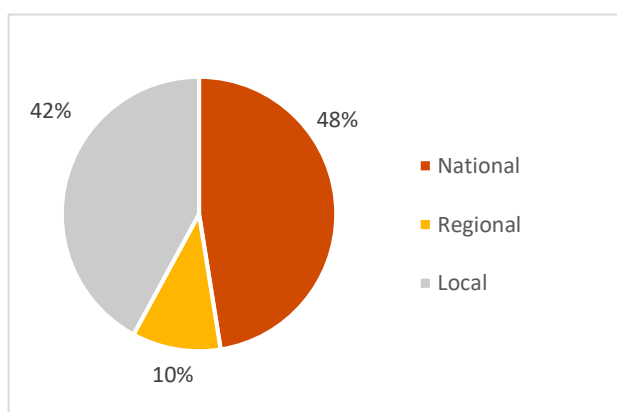


The share of Croatian PPI investments for which calls for tenders are published is higher (34%), the European average (22%). The portion that is **published at European level** in the TED database (5%) is really low, also compared to the European average (18%). The portion that is **published only at national level** (29%) is well above the European average (5%). However, the share of PPI investments for which no call for tenders are published in TED or at national level is still large (66%).

By not publishing PPI call for tenders widely, **Croatia is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Croatian and other European innovative suppliers that are not informed about the Croatian PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

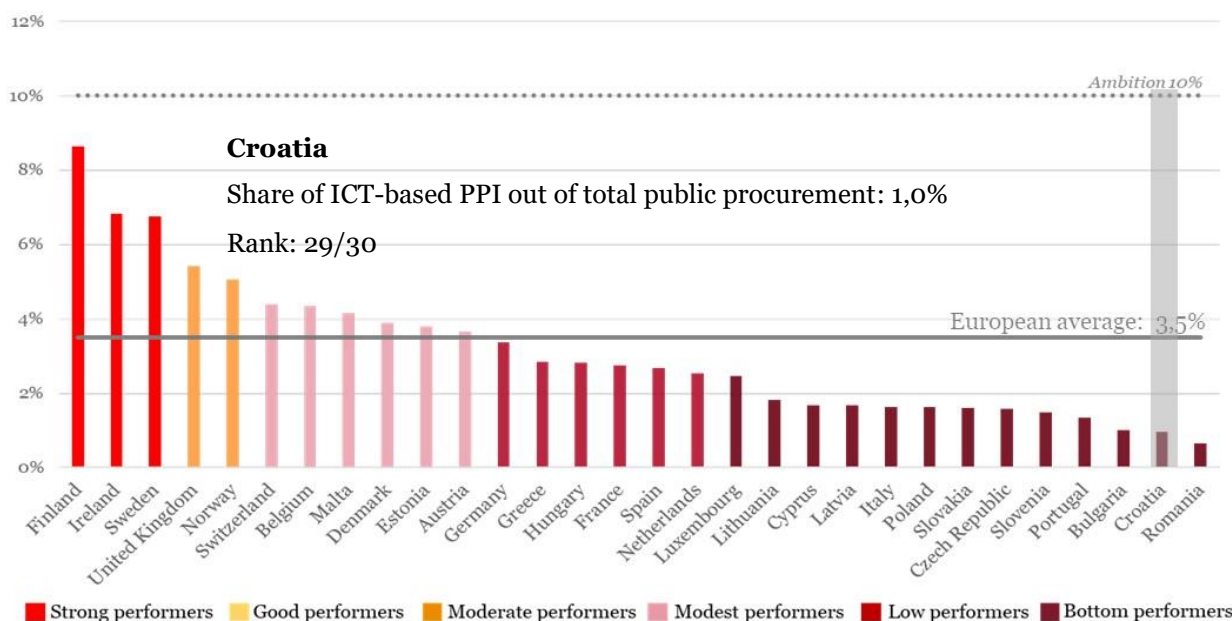


More than half of the total PPI investments in Croatia is carried out by **large-scale entities at national level** (48%), such as ministries and ICT integrators of governments departments. This is in line with the European average (47%).

Procurers at local level account for the highest share of PPI investments at sub-national level (42%), almost doubling the European average (24%). **Procurers at regional level** account for a marginal share of PPI (10%), below the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Croatian public sector shows a **bottom level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI). With € 0,02 bn or 1% of total public procurement invested in innovative ICT-based solutions, **Croatia ranks 29th** in the benchmarking of ICT-based investments, considerably below the European average (3,5). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (19%), Croatia performs significantly below the European average (19%). **A large increase of investments in buying innovative ICT-based solutions is needed** to reach the level of devoting 10% of total public procurement or 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Croatia to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.²⁵⁷

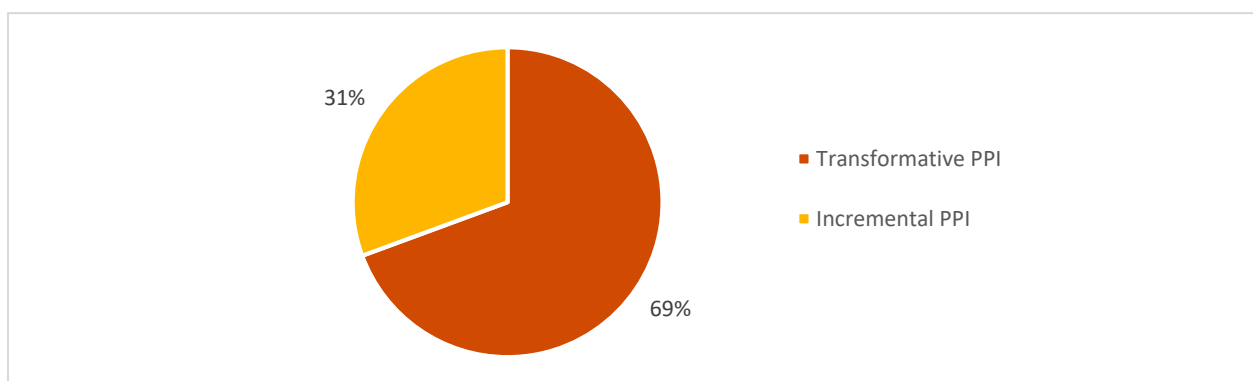


The **main factors**²⁵⁸ explaining Croatia's bottom performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations**²⁵⁹ in Croatia (69%) is still significantly below the European average (79%). It consists of adoption of innovative solutions that are 'new to the market' (43% of PPI) and 'significantly improved' solutions (26% of PPI). The share of **incremental ICT-based innovations** adopted in Croatia (31%) is higher than the European average (21%). However, as the total amount of investments in ICT-based innovative solutions in Croatia is very low, the country is still lagging behind considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



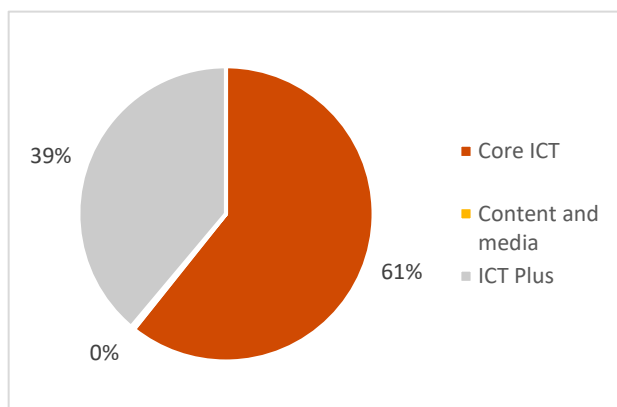
²⁵⁷ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

²⁵⁸ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

²⁵⁹ See definitions above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Croatia invested mainly in the adoption of innovations from the **'Core ICT' sub-sector**²⁶⁰ (61%), above the European average (55%).

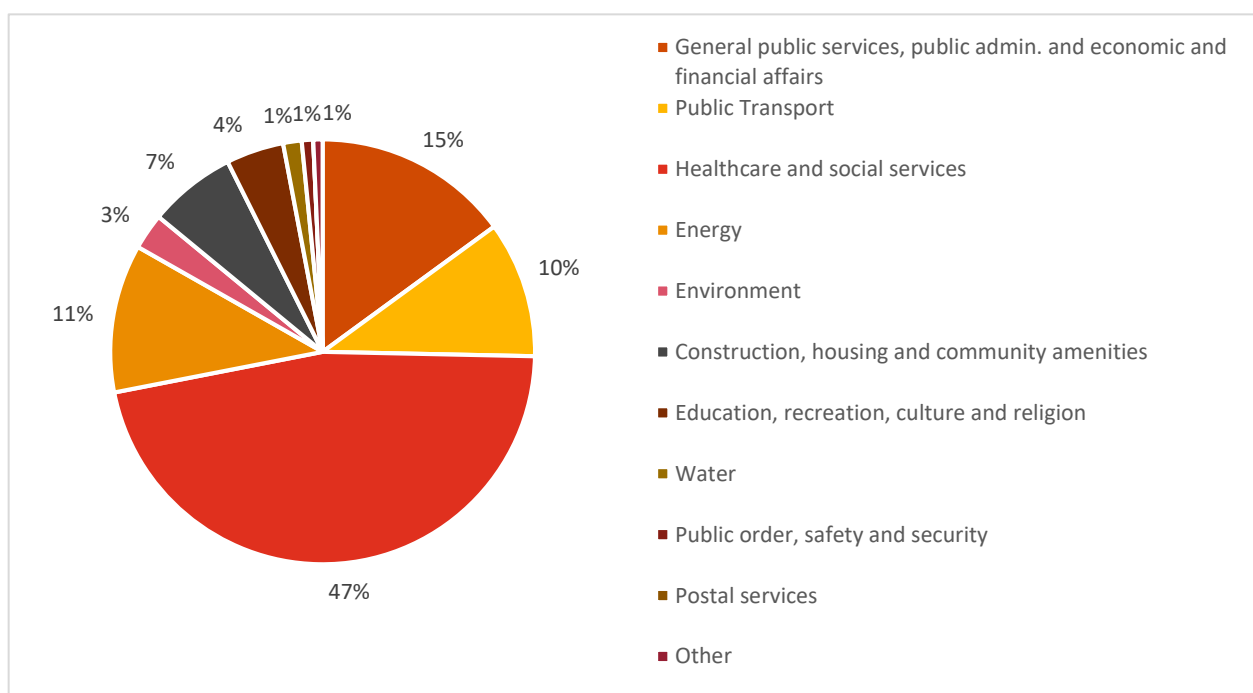
Croatia invested to a lesser extent in innovations from the so-called **'ICT Plus' sub-sector** (39%), below the European average (45%).

Croatia did not invest in the adoption of innovations from the **'Content and Media' sub-sector**.

Investment readiness across different domains of public sector activity

Despite the low level of overall ICT-based PPI investment in the country, **nearly all domains of public sector activity in Croatia purchased some ICT-based innovative solutions**, except from the **'Postal services'** domain with zero ICT-based PPI investments. In particular, the highest share of ICT-based PPI investments is made by Croatian procurers that operate in the domain of **'Healthcare and social services'** (47% against a 30% European average). At the same time, ICT-based investments made by Croatian procurers in **'Public order, safety and security'** are significantly below the European average (1% against a 19% European average).

ICT-based PPI investments by domains of public sector activity

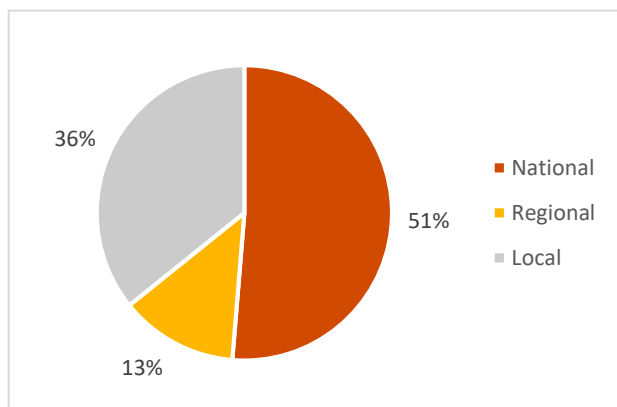


²⁶⁰ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 51% of ICT-based PPI investments, below the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (36%), and considerably above the European average (10%). To the contrary, **regional procurers** account for only a modest fraction of ICT-based PPI investments (13%), which is below the European average (21%).

Czech Republic



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In the Czech Republic, public procurement is primarily regulated by the Public Procurement Act (PPA),²⁶¹ i.e. Act. No. 134/2016 Coll., which transposed all the EU public procurement directives 2014/24/EU, 2014/23/EU, 2014/25/EU and 2009/81/EC.

Responsibilities are decentralised, with contracting authorities processing their own procurement at all levels of government without central coordination. Also, while there is no central purchasing body at national level, there is a move to increase aggregation of procurement demand through joint purchasing, e.g. at the Ministry level. 25% of public procurement takes place at national level, 25% at regional/local level, 24% by bodies governed by public law and 26% by other types of public procurers.

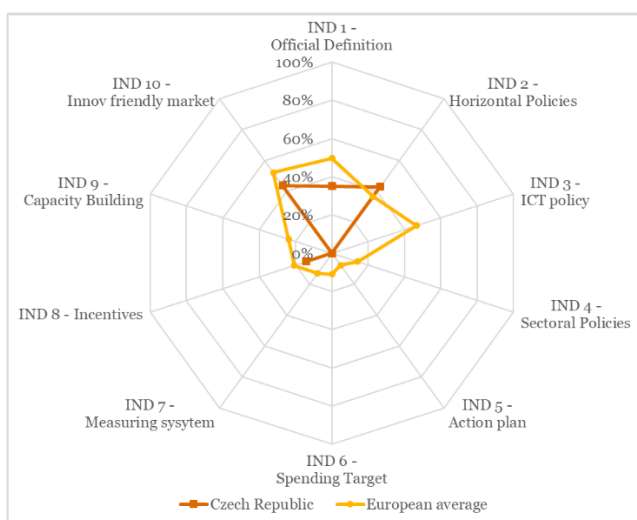
The Czech Republic has a much-decentralised public procurement system, with no central coordination. Contracting authorities at all levels (i.e. central government, self-governing regions and municipalities) are in charge of their own public procurement processes. However, there are measures and regulations facilitating contracting authorities to group for joint purchasing.

The most important institution in creating the public procurement system is the **Ministry for Regional Development (MoRD)**. It is in charge of promoting legislative changes and implementing public procurement regulations. In addition, the Ministry provides support and guidance to contracting authorities. Finally, it is responsible for the Information System on Public Procurement.

An important actor in the field of innovation procurement is the **Technology Agency of the Czech Republic (TACR)**²⁶², a [government agency](https://www.tacr.cz/index.php/en/about-tacr.html), founded in 2009 to enhance and encourage cooperation between research organizations supported by the state and the business sector. The Agency acts as the agency for the implementation of the support for RDI, preparing and implementing research programs and R&D procurement.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Czech Republic is at the 24th position** of the overall ranking with a **total score of 13,6%**. From the 30 countries analysed, Czech Republic is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on 9 out of 10 indicators. Having implemented only 13,6% of the policy measures to roll-out a comprehensive policy framework for innovation procurement implemented, there is a strong reinforcement of the policy framework for innovation procurement needed in Czech Republic to reach its full 100% potential.



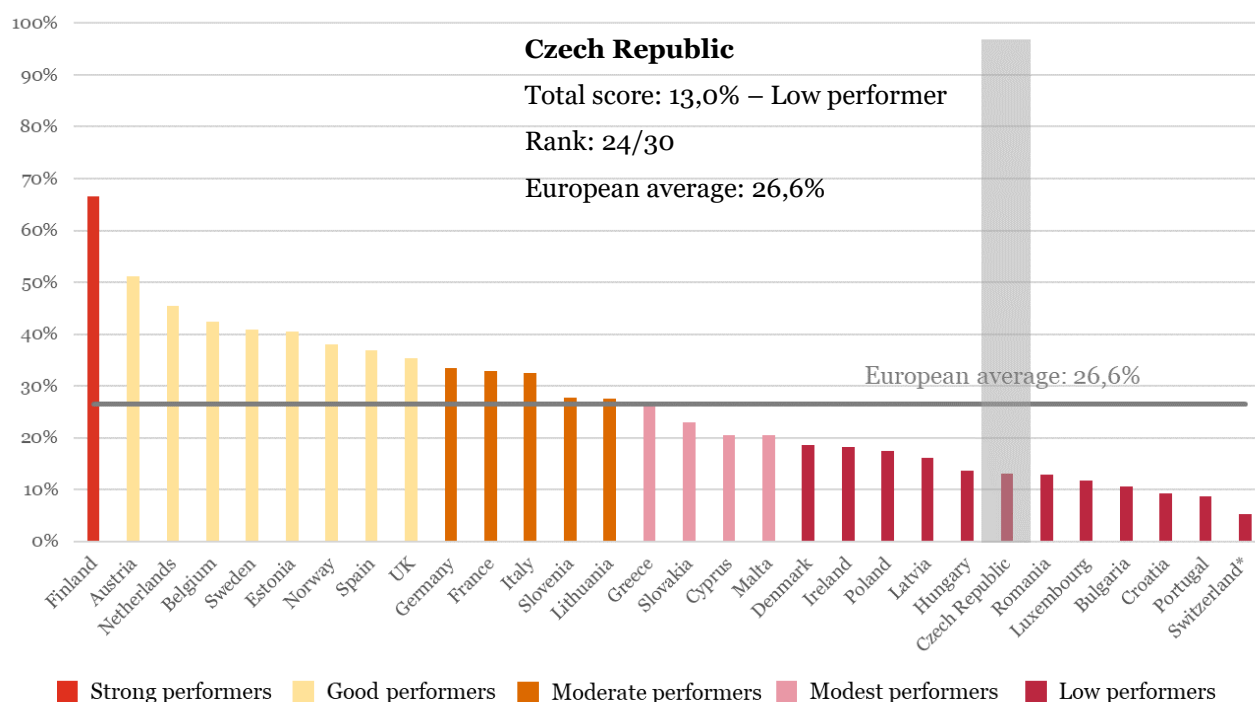
Strengths: Several horizontal policies foresee innovation procurement among their strategic objectives or policy tools.

Weaknesses: Absence of a structured innovation procurement policy, a dedicated action plan, target and monitoring system, incentives and a national competence centre to implement capacity building activities. Lack of IPR policy in public procurement that encourages innovation.

²⁶¹ Zákon č. 134/2016 Sb., o zadávání veřejných zakázek. Available at: <https://www.zakonyprolidi.cz/cs/2016-134>

²⁶² <https://www.tacr.cz/index.php/en/about-tacr.html>

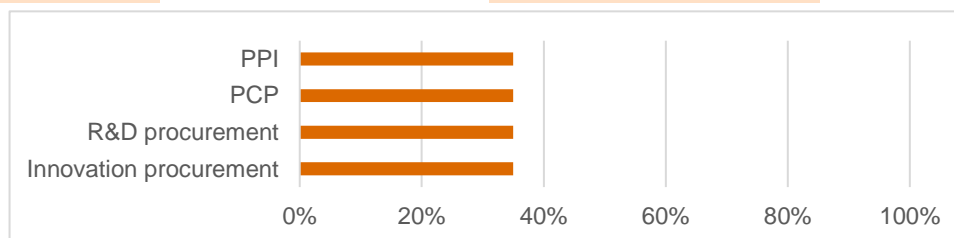
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score	35%	European Average	50%
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The Czech public procurement legal framework provides an official definition of innovation that is compliant with the EU official definition and applicable to all types of public procurers in the country, but not for innovation procurement. The PPA Act identifies research and development by listing the CPV codes that correspond to R&D, but there is no full sentence definition for R&D or for the R&D categories that match these CPV codes. The PPA Act provides a clear legal basis for implementing PCP and PPI (although without giving an explicit definition for Pre-Commercial Procurement (PCP) or Public Procurement of Innovative solutions (PPI) in national legislation nor in official national guidance documents.). The total score of the indicator “Official definition” is 35%.

The PPA Act (Section *Definition*) defines **innovation** as “the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. The total score of this sub-indicator is 35%.

Although there is no full sentence defining R&D, the Annex 1 of the PPA Act identifies **Research and Development** as activities that have the CPV codes for fundamental research, applied research and experimental development. The total score for this sub-indicator is 35%. Section 29(r) and also transposes the exclusion for R&D services, which forms the legal basis for implementing **pre-commercial procurement** in Czech Republic: “The contracting authority is not obliged to award a public contract (meaning to follow the PPA Act)... for a public service contract involving research and development services if: the prize for carrying out research and development is paid exclusively by the Contracting Authority and the result of such research and development is used exclusively by the contracting authority for its activities.” The total score for this sub-indicator is 35%.

Article 37(1)(d) of the PPA Act provides the necessary **legal basis for implementing Public Procurements of Innovative Solutions** in Czech Republic, as it allows the public procurer to use innovation as part of the award and performance criteria in any type of public procurement procedure for buying innovative products or services: “The conditions of participation in the award procedure may be specified by the contracting authority as (d) specific conditions for the performance of a public contract, in particular in the field of the environmental impact of the subject-matter of

the public contract, the social consequences arising from the subject of a public contract, economic area or innovation." Also in this case the total score of this sub-indicator is 35%.

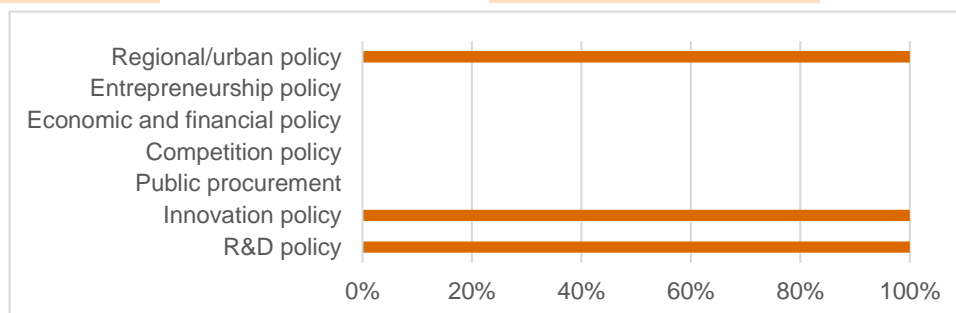
However, even without official definitions embedded in the legal framework, the Country has extensively used the innovation procurement instruments and procedures by referring to the EU definitions. For example, in the Technology Agency of the Czech Republic (TACR) in its financing programme (such as BETA II) use the European Commission's definition of PCP and R&D procurement.

Indicator 2 – Horizontal policies

Total score 43%

European Average

36%



The R&D and innovation policy and regional/urban policy are the only areas that recognise the strategic importance of innovation procurement. Therefore the total score of this indicator is 43%.

In the field of R&D and innovation policy, The **National Research, Development and Innovation Policy of the Czech Republic 2016–2020**²⁶³ recognises the crucial role of the state in the creation of demand for innovative solutions and it gives an important role to public procurement (especially R&D procurement and PCP) for enhancing innovation. It encourages the development of adequate framework conditions to this end. Concerning this policy, an important actor is the **Technology Agency of the Czech Republic (TA CR)**²⁶⁴, an organizational unit of the state with its own budget allocation, which acts as the agency for the implementation of the support for RDI, preparing and implementing research programs, RDI tenders.

In addition, the **National Research and Innovation Strategy for Smart Specialisation** also recognises the role public Pre-commercial Procurement as strategic type of activities that can contribute to achieve the specific objective of strengthening the R&D capacities of the companies in Czech Republic.²⁶⁵ The strategy is implemented by regional and local authorities which have their own RIS3 strategy. For example, the Regional Innovation strategy of the Prague has among its objectives the acceleration of innovations and development of new solutions through the strategic use of public procurement.²⁶⁶

Indicator 3 – ICT policies

Total score 0%

European Average

47%

The **Digital Czech Republic V2.0 strategy**²⁶⁷ identifies that "measures aimed at supporting the construction of communication infrastructure need to be complemented by broader initiatives to support demand, to motivate customers to use ICT services and incorporate them in day-to-day life". The strategy also identifies public administrations as demand side actors but does not make the link with stimulating innovation procurement to reach the above objective.

Indicator 4 – Sectorial policies

Total score 0%

European Average

14%

In the Czech Republic, no sectorial policy explicitly recognises the role of innovation procurement within its strategy.

Indicator 5 – Action plan

Total score 0%

European Average

8%

The Czech Republic does not have a dedicated/stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

²⁶³ <http://www.vyzkum.cz/FrontClanek.aspx?idsekce=782691>

²⁶⁴ <https://www.tacr.cz/index.php/en/about-tacr.html>

²⁶⁵ <https://www.vyzkum.cz/FrontClanek.aspx?idsekce=753765>

²⁶⁶ <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/policy-document/strategic-plan-prague>

²⁶⁷ <https://www.mpo.cz/assets/dokumenty/50381/57162/612104/priloha001.pdf>

Total score	0%	European Average	11%
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In the Czech Republic there is no specific spending target to dedicate a specific percentage of the country's total public procurement expenditure to innovation procurement.

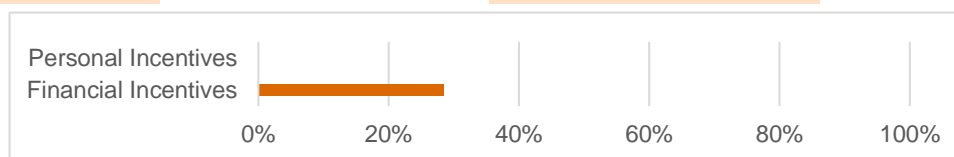
Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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The Czech Republic does not have a comprehensive and structured system for measuring innovation procurement expenditure across the whole country or for evaluating the impacts of completed innovation procurement across the country. Only in the context of the Beta II programme there is a monitoring/evaluation system for that specific programme.

Indicator 8 – Incentives

Total score	14%	European Average	22%
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In the Czech Republic there is **financial support** provided to public procurers by the **Czech Pre-commercial Public Procurement Programme**, i.e. a programme funded from the European Structural and Investments Funds under the Operational Programme "Enterprise and Innovation for Competitiveness (2014-2020)". It provides grants to public procurers to procure the development of innovative solutions to address societal challenges that cannot be resolved using the existing solutions. The Pre-commercial Public Procurement Programme is part of Specific Objective 1.1, which has a specific budget of CZK 30.5 billion.

Innovation procurement is also indirectly supported by the **BETA II programme** (approved by the Czech Government Resolution No. 278 on the 30th of March 2016) aimed at supporting applied research and innovation to meet the needs of government authorities. The programme, launched by the TACR, assigned competitively public procurement in RDI for the needs of public administration bodies, the recipients of which may (or not) be research performers in the public sector. The research had to contribute to the fulfilment of at least one of the specific objectives of the programme or specific objectives set by the relevant governmental body.²⁶⁸

The financial incentives in the Czech Republic are not designed to incentivize large scale implementation of innovation procurement and are not directed to all types of innovation procurement (only PCP and R&D). In addition, the Country does not incentivize innovation procurement with national funds, but only with European structural and investments funds. Therefore the total score of the sub-indicator "financial incentives" is 29%.

Whereas, due to the **lack of personal incentives** the total score of the indicator "incentives" is 14%.

Indicator 9 – Capacity building and assistance measures

Total score	0%	European Average	24%
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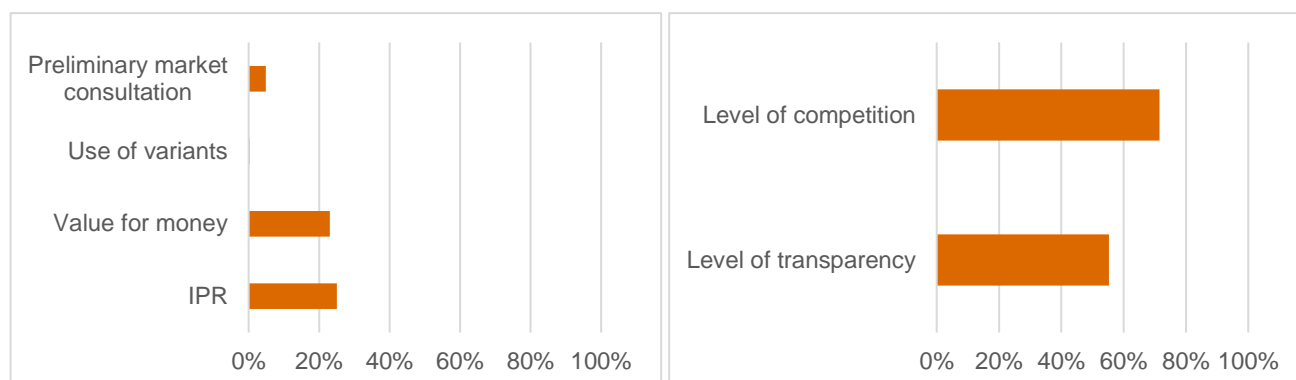
The Czech Republic does not put in place targeted capacity building and assistance measures to enhance the adoption of innovation procurement.

²⁶⁸ <https://www.tacr.cz/index.php/en/programmes/beta-programme.html>

Indicator 10 – Innovation friendly public procurement market**Total score** 38%**European Average** 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market in Czech Republic encourages the implementation of innovation procurement. It is composed of two sub-indicators that reflect:

- I. The use of specific techniques to foster innovation in public procurement in the country
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, the Czech Republic shows the following evidence:

- a. **IPR default regime:** The total score of this sub-indicator is 25%, which is below the 38% European average, because there is no predefined default scenario on distribution of IPR rights between procurers and suppliers in the Czech Republic. The Czech Republic law, general terms and conditions for government contracts and guidelines on public procurement do not define how IPR allocation is dealt with in procurement contracts. It is left to the individual responsibility of each Czech procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Czech public procurement law foresees that procurers can require in the tender specifications the transfer of IPR rights to the procurer. However, the Czech copyright act²⁶⁹ assigns copyright to the creator and determines that the copyright (moral right) cannot be transferred by the creator to another party, even when he is commissioned by the procurer (the contractor) or employed by a contractor (e.g. as a subcontractor) to work on the procurement contract. As the economic rights are also not transferrable under Czech law, if the procurer wants to use the commissioned work, he cannot require a transfer of those rights, but he can only require in the tender specifications to obtain a non-exclusive license to the economic rights (e.g. for usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. For computer programs and databases produced on order there is an exception in the Czech copyright act which provides that the procurer shall have in any case economic rights.
- b. **Use of value for money award criteria:** Based on the EU single market scoreboard, only 23% of the public procurement procedure have been awarded using criteria different from the lowest price. This is below the European average (42%) and below the satisfactory level for this indicator set by the EU single market scoreboard (80%). The country shows an over-reliance of lowest price criteria in procurement procedures.
- c. **Use of variants:** Czech Republic has allowed the use of variants in less than 1% of the procedures (0,28%). This percentage is well below the European average.
- d. **Preliminary Market Consultations:** Czech Republic has used Preliminary Market Consultations in the 4,85% of the procedures. This percentage is significantly below the European average of 8,97%.

Based on this evidence, the score for sub-indicator I is 13,28%, which is significantly below the European average of 23,23%. This is due to the below average performances in all the four evidences analysed in the sub-indicator I.

With regard to the sub-indicator II, the Czech Republic shows the following evidence (based on the EU single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 72% which is below the European average 84% and the 92,5% satisfactory level set by the EU single market scoreboard. This result is both driven by the below average percentage of procurements with more than one bidder (53%) and implemented with a call for bid (90%).
- f. **Level of Transparency:** The level of transparency of the national public procurement market is 55% which is above the European average 45% but below the 66% satisfactory level set by the EU single market scoreboard. This result is due to the below European average publication rate (3,8%) and below European average percentage of

²⁶⁹ http://www.wipo.int/wipolex/en/text.jsp?file_id=137175

procurements without missing call for bids information (66%) although the percentage of procurements that include buyer registration numbers is above average and satisfactory (96%).

Based on this evidence, the score for sub-indicator II is 63%, which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is due to below average competition and unsatisfactory level of transparency.

Based on the scores for sub-indicators I and II, the total score the indicator "innovation friendly public procurement market" is 38% which is below the 44% European average. This score is explained firstly by the fact that both the use of specific techniques to foster innovation in the country is and the openness of the Czech public procurement market to innovations from across the EU single market are below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation, value for money criteria are still significantly underutilized in public procurements. Secondly, the country has shown a significantly below-average openness to the use of variants and Preliminary Market Consultation in the procurement procedures. In addition, although the national public procurement market shows an above average level of transparency and the level of competition as well as transparency are below European average.

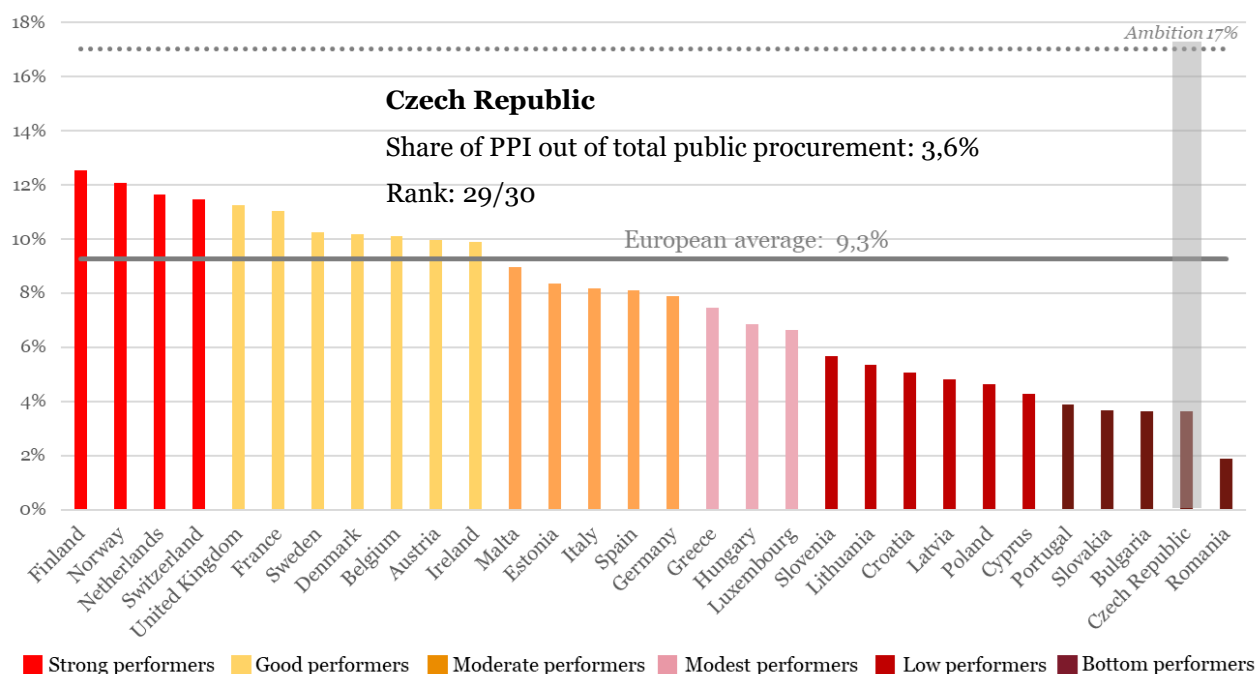
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Czech investments on public procurements of innovative solutions (PPI) and the benchmarking of Czech investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 3,6% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 1,4 bn), **Czech Republic ranks 29th** in the benchmarking of investments on public procurement of innovative solutions (PPI)²⁷⁰ across Europe. Czech Republic falls within the group of **bottom level performers**, significantly below the European average of 9,3%.²⁷¹ **A considerable increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Czech public sector.²⁷² When taking into account also PPI in the defence sector Czech Republic moves up to the 28th position.



The **main factors**²⁷³ explaining Czech Republic's bottom level performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Czech Republic (49%) is significantly below the European average (84%). Both the adoption of 'significantly improved' solutions and the adoption of innovative solutions that are 'new to the market' are low (respectively 29% and 20% of PPI). PPI investments in Czech republic rely to a much larger extent (51%) than on average across Europe (16%) on the adoption of **incremental innovations**, which includes the purchase of 'existing solutions that are used in a new way or in a new

²⁷⁰ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

²⁷¹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

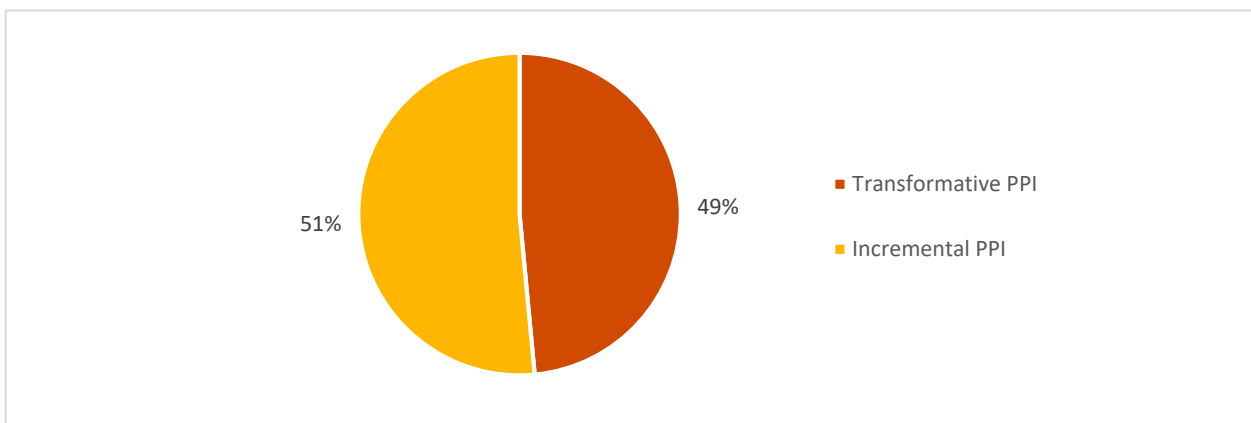
²⁷² It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

²⁷³ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

sector' as well as 'innovative combinations of existing solutions'. Given Czech Republic's bottom level performance for what regards the total amount of investments in innovative solutions, the country still needs to step up considerably its investments in the adoption of both transformative and incremental innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Czech Republic is not yet at the level of PPI investments that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Despite the overall all low level of PPI investment in the country, **every domain of public sector activity²⁷⁴ in Czech Republic purchased some innovation solutions**. The shares of PPI investments by different public sector domains out of total PPI investments in the country are mostly **in line with the European averages**. Czech investments do not deviate more than 3 percentage points (pp) from the European average in 5 out of 11 sectors. At the same time, the share of PPI investments by Czech procurers in the 'General public services, public administration and economic and financial affairs' is significantly below (-19 pp) the European average. Conversely, the share of PPI investments by procurers in 'Education, recreation, culture and religion' (+13 pp) and 'Healthcare and social services' (+6 pp) is well above the European average.

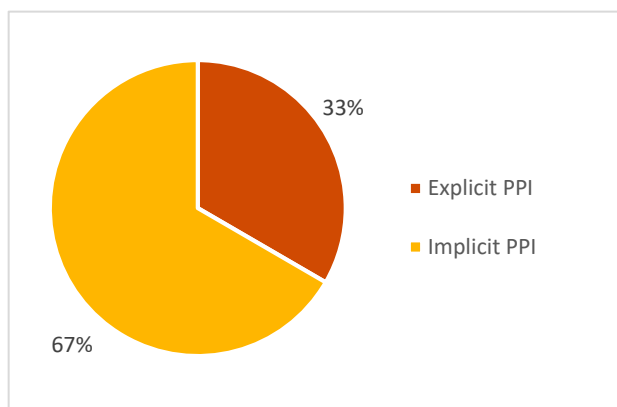
PPI investments by domains of public sector activity

Domain of public sector activity	Czech Republic	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	16%	35%	-19
Public transport	7%	10%	-3
Healthcare and social services	27%	21%	+6
Energy	7%	6%	+1
Environment	6%	3%	+3
Construction, housing and community amenities	10%	4%	+6
Education, recreation, culture and religion	18%	5%	+13
Water	0,1%	4%	-4
Public order, safety and security	8%	8%	0
Postal services	0% (0,1%)	1%	-1
Other	2%	3%	-1
Total PPI Investments	100%	100%	-

²⁷⁴ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI Investments (as % of the total amount of PPI)

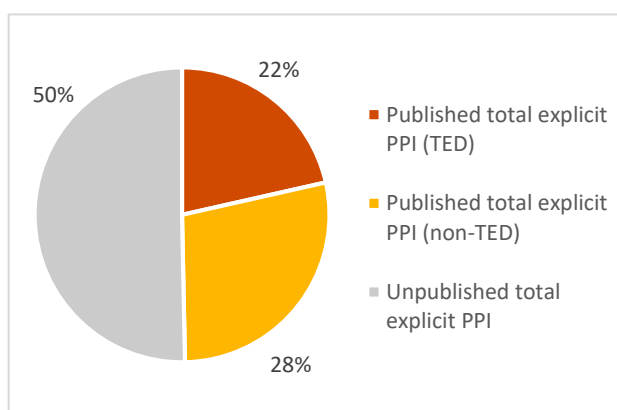


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is slightly higher in Czech Republic (33%) compared to the European average (29%). This indicates that Czech procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is slightly lower in Czech Republic (67%) compared to the European average (71%). This indicates that Czech procurers may be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

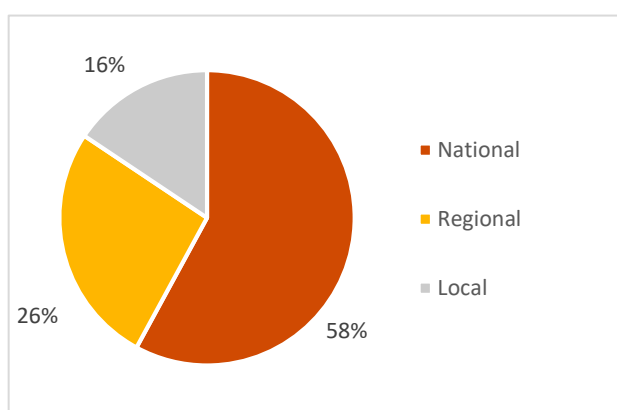


The share of Czech PPI investments for which call for tenders is published is relatively high (50%) compared to the European average (22%). Both the portion that is **published at European level** in the TED database (22%) and the portion that is **published at national level** (28%) are above European average (respectively 18% and 5%). Nonetheless for half of the Czech PPI investments (50%) no call for tender is published in TED or national level. This is still a large share.

By not publishing calls for tenders for PPI investments more widely, **Czech Republic is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Czech and other European innovative suppliers that are not informed about the Czech PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

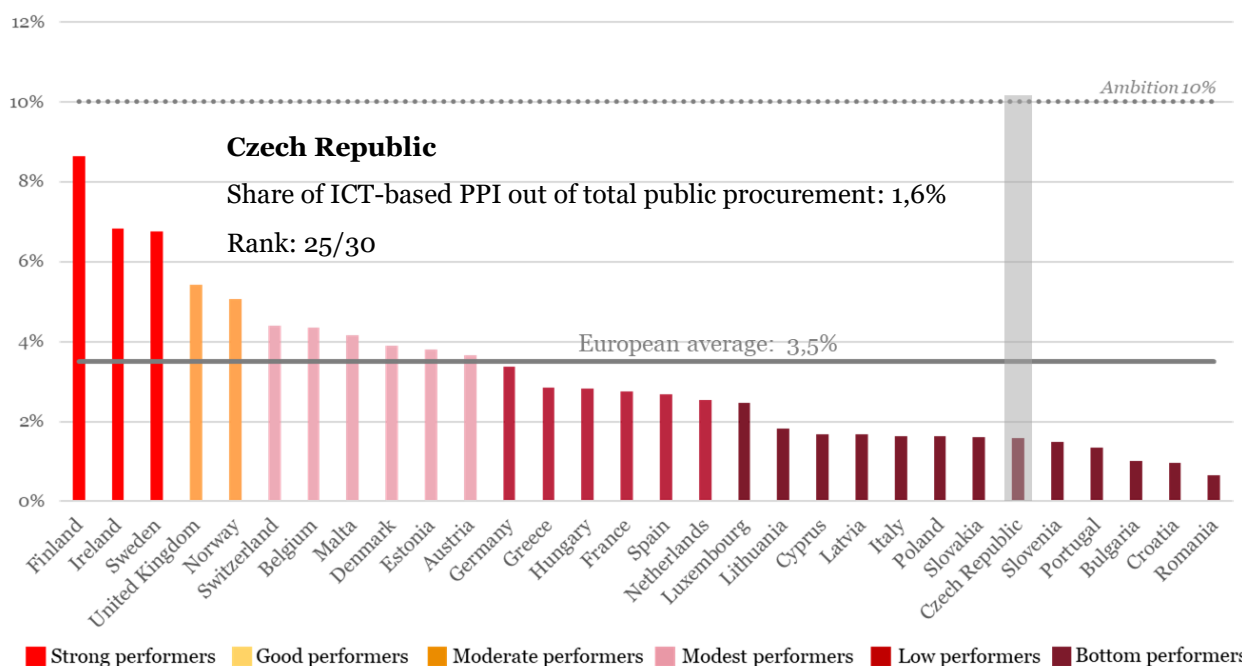


More than half of the total PPI in Czech Republic is carried out by **large-scale entities at national level** (58%), such as ministries and ICT integrators of governments departments. This is above the European average (47%).

Procurers at regional level account for the highest share of PPI at sub-national level (26%), slightly above the European average (24%). **Procurers at local level** account for the smallest fraction of PPI (16%), below the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Czech public sector shows a **bottom level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 1,6% of total public procurement invested in innovative ICT-based solutions, **Czech Republic ranks 25th** in the ranking of ICT-based PPI investments, well below the European average (3,5%). In terms of the share of public procurement of innovative solutions that is invested in ICT-based solutions (44%), Czech Republic performs slightly above the European average (38%). **A considerable increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Czech Republic to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.²⁷⁵

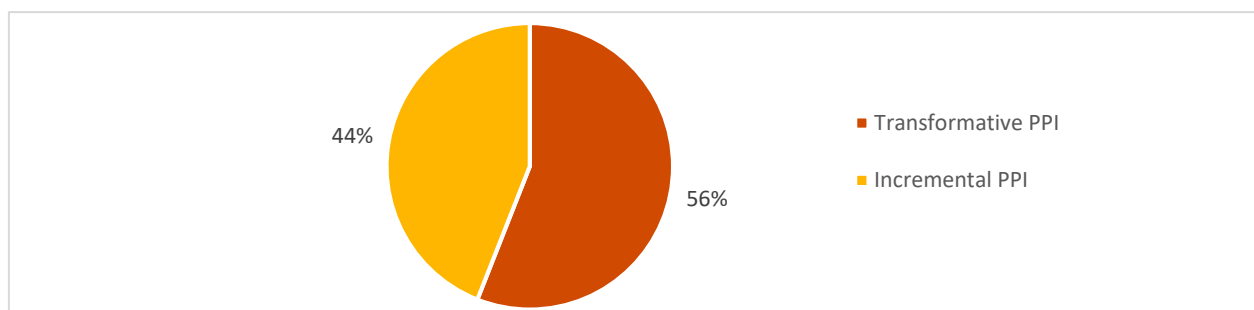


The **main factors**²⁷⁶ explaining Czech Republic's bottom performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Czech Republic (56%) is below the European average (79%). This may be due to the fact that the adoption of 'significantly improved solutions' and innovative solutions that are 'new to the market' is still low (28% of ICT-based PPI each). The adoption of innovative ICT- solutions in Czech Republic relies still to a significantly larger extent (44%) than on average across Europe (21%) on the adoption of **incremental ICT-based innovations**²⁷⁷. Given the low total amount of ICT-based PPI investments in Czech Republic, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



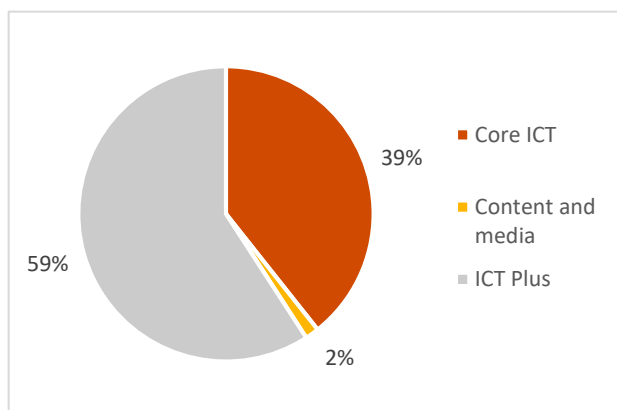
²⁷⁵ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI- or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

²⁷⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

²⁷⁷ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Czech Republic invested mainly in the adoption of innovations from the **'ICT Plus' sub-sector**²⁷⁸ (59%), significantly above the European average (44%).

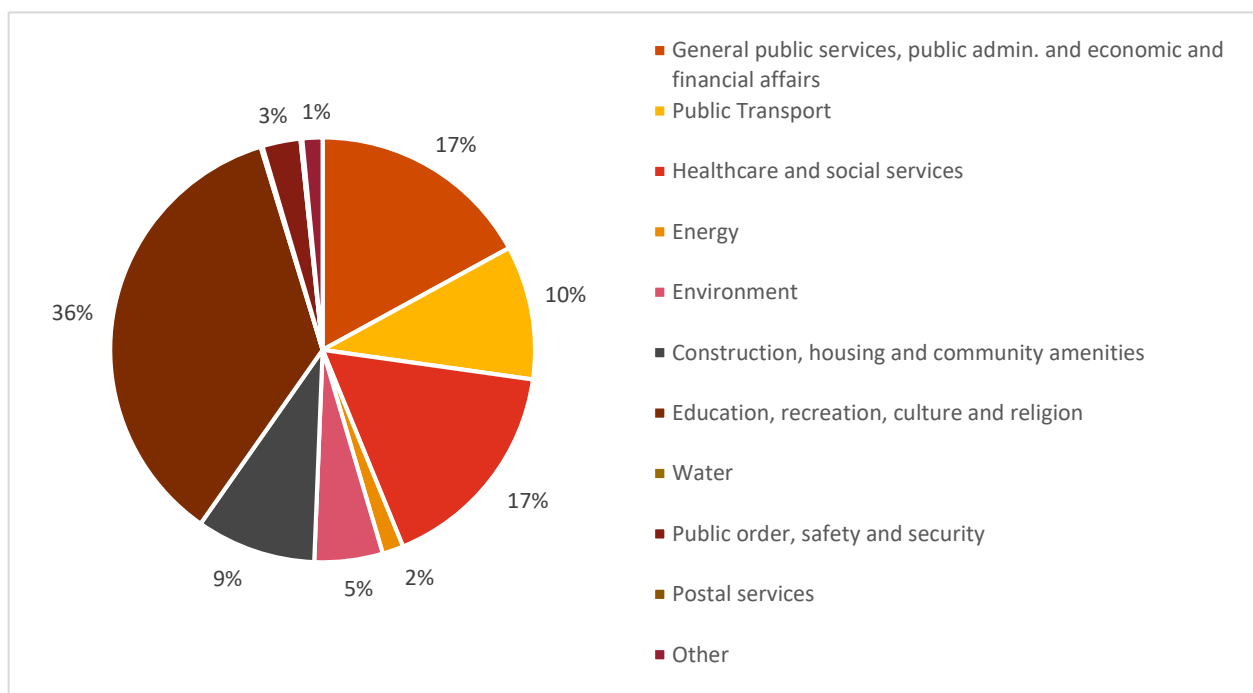
Czech Republic invested to a lesser extent in the adoption of innovations from the so-called **'Core ICT' sub-sector** (39%), significantly below the European average (54%).

Czech investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (2%), but slightly above the European average (1%).

Investment readiness across different domains of public sector activity

Despite the low overall level of ICT-based PPI investments in the country, **every domain of public sector activity in Czech Republic purchased some innovative ICT-based solutions**. The shares of ICT-based PPI investments by different public sector domains out of total ICT-based PPI investments in the country are **mostly in line with the European averages**. The highest share of total ICT-based PPI investments is made by procurers in **'Education, recreation, culture and religion'** (36% against 9% European average) followed by procurers in **'General public services, public administration and economic and financial affairs'** (17% against 16% European average) and **'Healthcare and social services'** (17%, which is significantly below the European average of 30%).

ICT-based PPI investments by domains of public sector activity

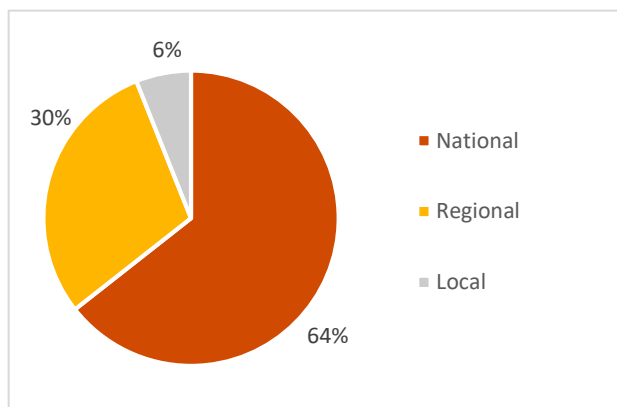


²⁷⁸ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 64% of ICT-based PPIs, below the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI at sub-national level (30%), and above the European average (21%). To the contrary, **local procurers** account for only a modest fraction of ICT-based PPI (6%), which is below the European average (10%).

Denmark



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Denmark, the Public Procurement Act (Act No. 1564 of 15 December 2015) regulates the public procurement procedures in Denmark and transposes the EU Directive 2014/24/EU into national legislation. During the same period, the Directives 2014/25/EU and 2014/23/EU were transposed in the national legal framework by the *Consolidation Act on processes of procurement in the water, energy, transport and postal services* No. 1624 of December 2015 and *Consolidation Act on the awarding of concession contracts* No. 1625 of December 2015, respectively. Finally, the EU Directive 2009/81/EU was enshrined into national legislation by the *Consolidation Act on contracting entities' awarding of certain construction, supply and service contracts in the defence and security area*, Nr 892 (August 2011). In Denmark, public procurement is conducted primarily at the local level, whereas the central government and the regions have a lower share of procurement.²⁷⁹

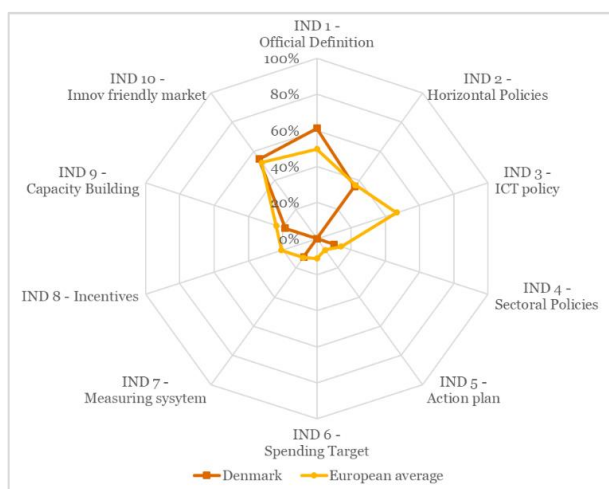
Concerning public procurement governance, the main actors are the **Danish Competition and Consumer Authority**, which is responsible for supervision, guidance and support, and the **Agency for Modernization of Public Services**, within the Ministry of Finance, which is in charge of procurement policy and of the aggregation of procurement needs for government bodies. It is responsible for procurement policy law, policy, monitoring, and compliance, and it also acts as a central purchasing body, managing joint procurement on behalf of the government. Another key actor is **SKI**, a publicly-owned company which acts, together with the Agency for Modernization, as central purchasing body and aims at becoming the leading research centre for public tenders and procurement in the country.²⁸⁰

In the field of innovation procurement, the key actor is the **Danish Business Authority**, which manages the Market Development Fund²⁸¹. The fund has provided grants to public procurers to prepare and implement PCP or PPI, but it stopped this activity in 2015.

With the help of the Market Development Fund, there are cities and regions which became frontrunners in the innovation procurement practices. For example, Copenhagen and Tårnby city are doing a PCP on how to better manage high quantities of rain water in urban areas. Also a group of regional healthcare authorities from the Central and Northern Jutland, South Denmark, Zealand and Capital regions is doing two PCPs to reduce the spread of infections in hospital bathroom wards and for automation of sterilisation centres in their hospitals. A group of Danish water utilities is doing a PCP to optimise the use of resources in wastewater treatment.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Denmark is at the 19th position** of the overall ranking with a **total score of 18,6%**. From the 30 countries analysed, Denmark is among the group of low performer countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 18,6% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is a strong reinforcement of the policy framework for innovation needed in Denmark to reach its full 100% potential.



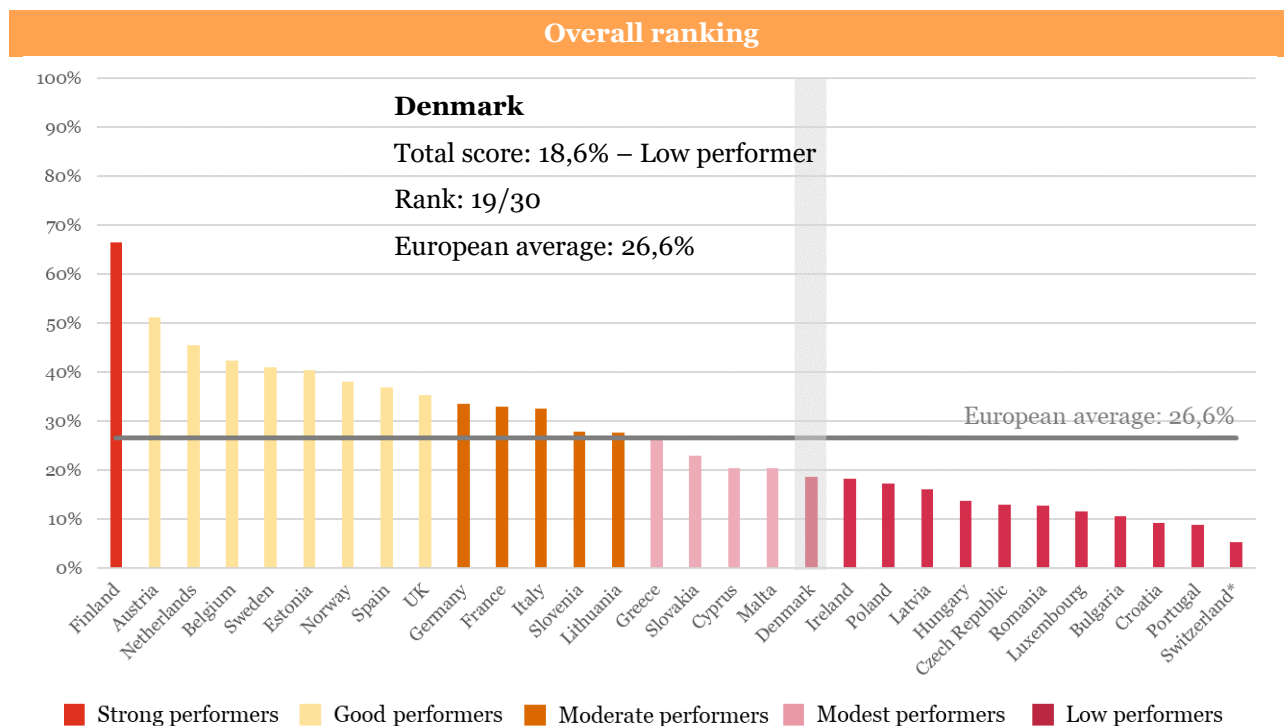
Strengths: The “Strategy for intelligent public procurement” and the “Innovation strategy 2012- 2020” represent a solid framework under which a series of innovation procurement initiatives have found their basis

Weaknesses: Absence of a structural approach to mainstream innovation procurement, which shows in the lack of national competence centre for capacity building, centralised monitoring system, action plan and spending target for innovation procurement. It moreover lacks support from key sectors of public interest to innovation procurement. Lack of IPR policy in public procurement that encourages innovation.

²⁷⁹ http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/dk.pdf

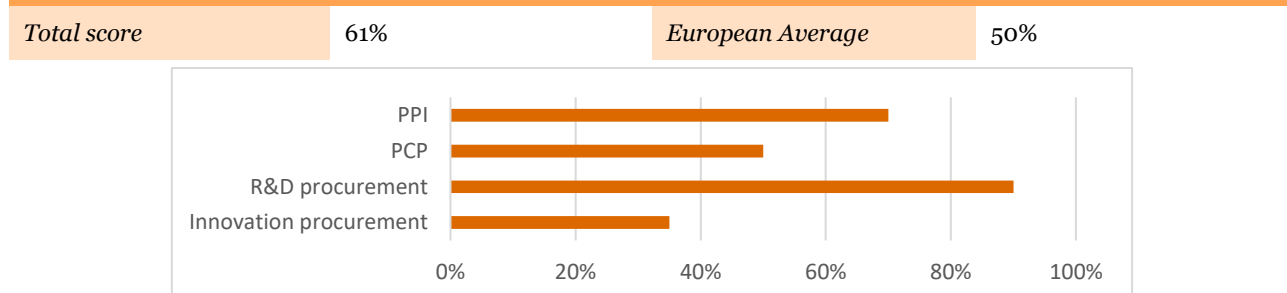
²⁸⁰ <https://www.ski.dk/Viden/Sider/Facts-about-SKI.aspx>

²⁸¹ <https://markedsmodningsfonden.dk/prae kommercielle-indkoe b-pcp-o>



Overview per indicator

Indicator 1 – Official definition



In Danish public procurement legislation there is no official definition for innovation procurement, but there are definitions for innovation and R&D, which are in line with the EU definition. However the R&D definition is only applicable to defence sector procurers. An official definition of Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI) is not available in national legislation but in national guidance documents. Whereas the PPI definition is in line with the EU definition, the PCP one is not completely. Therefore the total score of this indicator is 61%.

Although there is no definition of **innovation procurement**, innovation is defined in the Public Procurement Act § 17 as the “introduction of new or significantly improved supplies, services or processes including production or works activities, a new marketing method or a new organizational method in the fields of business practice, workplace organization or external relations”. This definition is applicable countrywide and coherent with the EU definition, therefore the score for this sub-indicator is 35%.

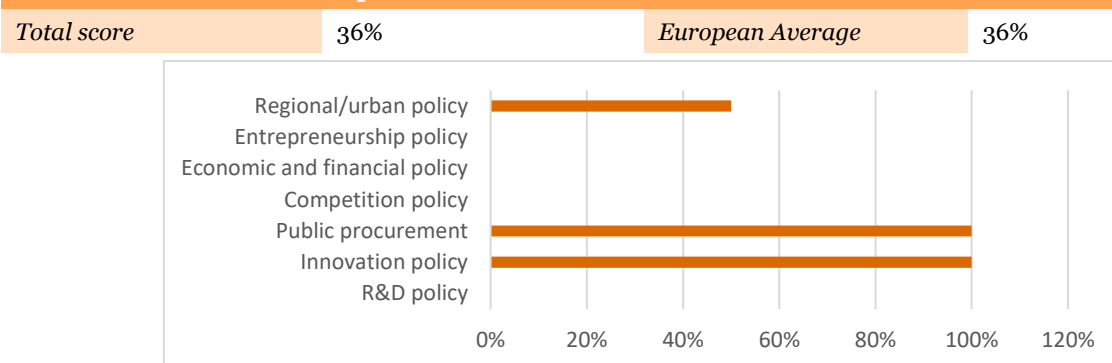
A definition of R&D is only provided in the Consolidation Act on contracting entities’ awarding of certain construction, supply and service contracts in the defense and security area, Nr. 892 (August 2011) that transposes the Defence and security Directive 2009/81/EU. The Annex I, by reporting the directive, refers provides a definition of **Research and Development** “as all the activities involved basic research, applied research and experimental development, where the latter may include the implementation of technological demonstration projects, that is to say devices that will demonstrate the performance of a new method or technology to relevant or representative environment[...]”. This definition is only applicable in the defence sector (i.e. not countrywide) and is in line with the EU definition, therefore the total score of this sub-indicator is 90%.

The Act No. 1564 of 15 December 2015 identifies in the Part 2, Section 22 R&D as the activities that have the CPV codes for fundamental research, applied research and industrial development. This article also transposes the exclusion for R&D services, which forms the legal basis for implementing in **PCP**, namely: “the law only applies to R&D services procurements following the cumulative conditions of (a) benefits belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. In addition, the Guidance published under the framework of the Market Development Funds provides a definition of PCP which is

applicable to all public procurers in the country but is not completely in line with the EU definition (it does not recognise that the purchase of non-commercial volumes of solutions can be part of the PCP). Therefore, the total score of the sub-indicator PCP is 50%.

A PPI definition is not available in the legal framework. However, the Act No. 1564 of 15 December 2015 provides the legal basis to implement PPI (allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria). In particular, article 162 3.1 states that “When the award criteria best price-quality ratio is used, cf. (1) (3), the tender shall be based on sub-criteria such as qualitative, environmental and social aspects. The sub-criteria may include 1) quality, including technical value, aesthetic and functional characteristics, availability, design for all users, social, environmental and innovation characteristics [...]”. In addition the Guidance published by the Danish market development fund provides a definition of PPI which is applicable to all procurers in the country and in line with the EU definition. Therefore, total score for this sub-indicator is 70%.

Indicator 2 – Horizontal policies



In Denmark, innovation procurement is included as a strategic priority in three horizontal policies, namely Public Procurement, Innovation, and Regional and Urban policy. Therefore the total score of the indicator is 36%.

The strategy for intelligent procurement²⁸², approved by the Danish Government in October 2013, recognises innovation procurement as an important instrument to modernise the public sector. “It is the government’s goal that public demand is used to a higher degree to promote innovation and to support welfare technology and green change. There is also a great potential in using public demand to foster innovation and sustainability... With the Intelligent Public Procurement Strategy, the Government sets out the objective “Innovation and quality development” for public procurement: based on innovation and market demand, including through the development of new solutions that support growth and job creation. Intelligent public procurement must thus ensure efficiency, innovation and quality development as well as sustainability.”

The strategy describes a variety of innovation friendly procurement tools, e.g. pre-commercial procurement and institutionalised partnerships for innovation, to consider the use of functional requirements to make room for innovative offers, and foresees a number of actions aimed at supporting its development: financial support to pre-commercial procurement initiatives, providing guidance on how to use functional requirements in public procurement and providing examples of innovation in public procurement. These actions have stopped once the first pilots, guidance and examples were launched by 2015. The new 2016 government coalition did not foresee the continuation of specific measures to foster innovation procurement.

The **National Innovation Strategy 2012-2020**²⁸³ contains a number of initiatives directly focussing on innovation-oriented public procurement: “Restructuring the business innovation fund into the Market development fund. By using more tenders with functional requirements or pre-commercial procurement the Market Maturation fund could as an example, support the public sector to encourage the development of innovative business solutions via its procurement process.” It shall be mentioned that innovation procurement is currently not considered a strategic priority and that more recent innovation strategies (2016) do not mention innovation procurement anymore.

At **regional level**, ESIF funds are used to finance initiatives at regional and rural level under the Market development funds. There are cities and regions which are frontrunners in the innovation procurement practices. For example, Copenhagen and Tarnby city started a PCP on how to better manage high quantities of rain water in urban areas. However, there is no central strategy on regional development which includes innovation procurement among its strategic objectives and/or tools. Therefore, the score of this sub-indicator is 50%.

²⁸² <https://www.regeringen.dk/tidligere-publikationer/strategi-for-intelligent-offentligt-indkoeb/>

²⁸³ <https://www.ufm.dk/en/publications/2012/files-2012/innovation-strategy.pdf>

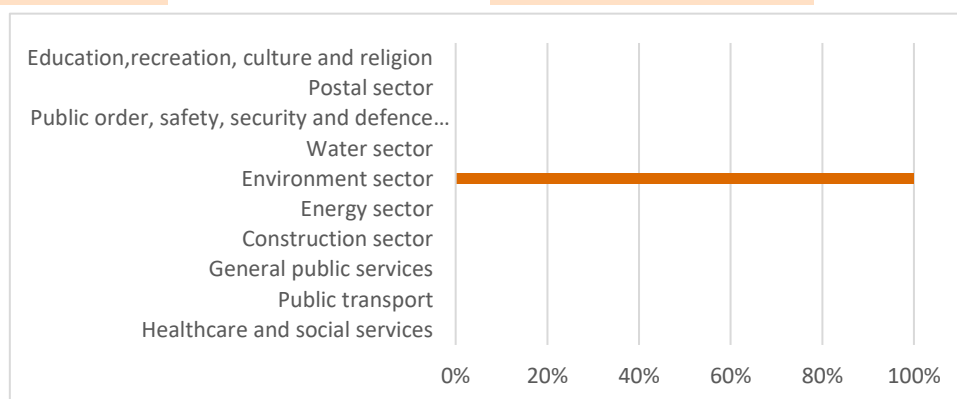
Indicator 3 – ICT policies

Total score	0%	European Average	47%
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The **2018 strategy for Denmark's digital growth**²⁸⁴ and the **2015 Danish growth plan for digitization**²⁸⁵ mention the need for improving the quality and making more efficient government services but they do not mention innovation procurement or public procurement and do not identify lack of public sector demand for innovative solutions as an issue.

Indicator 4 – Sectorial policies

Total score	10%	European Average	14%
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In Denmark, innovation procurement is not explicitly recognized as a strategic objective or tool in any national sectorial policy framework or action plan. However, green public procurement policies encourage buying innovative solutions. As a result, the overall score of this indicator is 10%.

The notion of buying new innovative green solutions has been encouraged in the Green Public Procurement Policies introduced in Denmark since 1990s. Today, the Ministry of Environment implements three initiatives promoting green purchasing which may impact the development of innovation procurement in the environmental sector in the country (**Danish eco-innovation program**)²⁸⁶ These initiatives are:

- The Forum on Sustainable Procurement (a national network which is a knowledge sharing forum where procurers from both public and private organizations)
- The Partnership for Green Public Procurement (a collaboration between frontrunner municipalities, regions and other public organizations)
- The Responsible Procurer (a webpage where procurers can find green criteria ready to copy paste into tender documents)

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Denmark does not have a dedicated action plan on innovation procurement. However, the Danish government's "**Strategy for intelligent public procurement**" (2013)²⁸⁷ defines seven guiding principles for public procurement that identify a series of actions to support innovation procurement practices. In addition the strategy also foresees dedicated resources for innovation procurement.

The guiding principles are:

- 1) Make sure that public procurers have sufficient competences and strategic focus to gain from centralization, synergies and economies of scale.
- 2) Use dialogue to gain knowledge of the market and user needs and to be sure to support market competition in both the short and the long run.
- 3) Choose the tendering form that is best suited to the specific situation and that reduce total costs of ownership
- 4) Always consider using functional requirements to support innovation and development of more efficient solutions
- 5) Always consider using total costs of ownership to use more efficient resources
- 6) Support green growth by using energy and environmental requirements

²⁸⁴ <http://em.dk/english/news/2018/01-30-new-strategy-to-make-denmark-the-new-digital-frontrunner>

²⁸⁵ <http://em.dk/aftaler-og-udspil/15-02-26-aftale-om-vaekstplan-for-digitalisering>

²⁸⁶ <http://eng.ecoinnovation.dk/the-danish-eco-innovation-program/public-private-partnerships/>

²⁸⁷ http://naturstyrelsen.dk/media/nst/10636202/strategi_for_intelligent_offentligt_indk_b2.pdf

- 7) Prioritise implementing and monitoring contracts to make sure that potential gains of intelligent procurement are realised.

The strategy provides financial support to pre-commercial procurement initiatives in the framework of the Market development Fund (see indicator "Incentives").

Given that the above-mentioned strategy is not fully dedicated to innovation procurement, and some of the actions under the strategy are not actively funded any more (Market development fund support for innovation procurement) the score of this indicator is 0%.

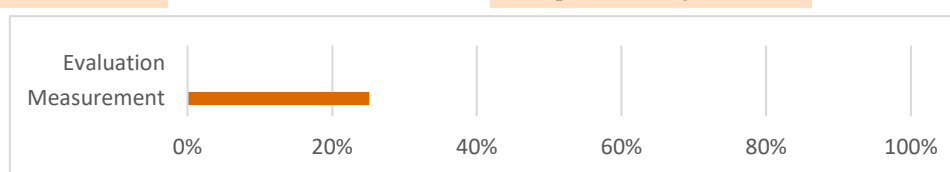
Indicator 6 – Spending target

<i>Total score</i>	0%	<i>European Average</i>	11%
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In Denmark there is no spending target for innovation procurement.

Indicator 7 – Monitoring system

<i>Total score</i>	13%	<i>European Average</i>	13%
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A study²⁸⁸ to measure the amount of innovation project in the country was carried out by the Public-Private Cooperation Council (ROPS), a body set up by the Danish Government in April 2013. According to this study, innovation projects were still limited with only 12% of the public buyers having carried out innovation procurement. Five barriers to innovative public procurements were identified:

- 1) Legislation
- 2) Diverging interests between public and private sector
- 3) Lack of knowledge sharing
- 4) Unclear responsibilities for coordinating initiatives at national level
- 5) Risk aversion of public procurers.

In addition, the initiatives launched and financed under the Market development Fund are regularly monitored by the **Danish Business Authority** under the provision of ESIF rules.

Thus, pilot studies to measure innovation procurement have been carried out in the country, as well as monitoring activities under the framework of ESI Funds. However, Denmark does not have a structured system in place to measure and evaluate regularly measure all types of innovation procurement widely across country. There is also no structured country wide system yet for **evaluating the impacts of completed innovation procurements**. Therefore, the total score for this indicator is 13%.

Indicator 8 – Incentives

<i>Total score</i>	0%	<i>European Average</i>	22%
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The main financing instrument is the Market Development Fund, which uses ESIF fund 2014-2020 to co-finance innovation procurement projects aimed at facilitating job creation and increasing growth among Danish companies. It aims at reducing barriers faced by Danish companies and create growth and employment opportunities in the country. In this context, a key initiative implemented to reduce demand-side market barriers is the initiative implemented to promote innovative procurement in the public sector. This initiative piloted 4 PCPs and 1 innovation partnership. Since 2015 there is no more budget in the Market development fund allocated to supporting innovation procurements.

Based on the evidence collected, it can be said that Denmark has in the past set up financial incentives, in the form of ESIF funded grants, to encourage public procurers to undertake more innovation procurements. However the financial incentives are not available any more, not directed to all types of innovation procurement, nor designed to incentivize large scale implementation of innovation procurement. Also, the country does not have incentives financed from national funds without EU support. Therefore the total score for the sub-indicator financial incentives is 0%.

Due to the fact that the country does not have a personal incentives, the total score for the indicator "incentives" is 0%.

²⁸⁸ http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/dk.pdf

Indicator 9 – Capacity building and assistance measures**Total score**

19%

European Average

24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices	√		√	√	√		67%
Trainings/workshops							0%
Handbooks/guidelines	√		√		√		50%
Assistance to public procurers							0%
Template tender documents	√		√		√		50%
Coordination / pre-approval							0%
Networking							0%
One-stop-shop/ competence centre							0%

In Denmark there is no structured system that aims at increasing the capacity and know-how of public procurers. In the past there have been some interesting initiatives under the “Strategy for intelligent public procurement” but there is a lack of political commitment and resources to continue and reinforce these efforts into a structured and coherent support to contracting authorities.

The market development fund developed a **guide on pre-commercial procurement** as well as **templates for the PCP call for tender and contract documents**²⁸⁹. The fund also published **good practice case examples** of innovation procurements on their website, however only of a few national pilot cases²⁹⁰.

However, the mandate of the ROPS and the budget for supporting innovation procurement from the market development fund expired in 2015 and today there are no other capacity building and assistance measures in place in the field of innovation procurement. References to and interconnection with recent EU initiatives on innovation procurement are missing. There is currently a lack of resources for mainstreaming innovation procurement at large scale in the country. The total score of the indicator is 19%.

Indicator 10 – Innovation friendly public procurement market**Total score**

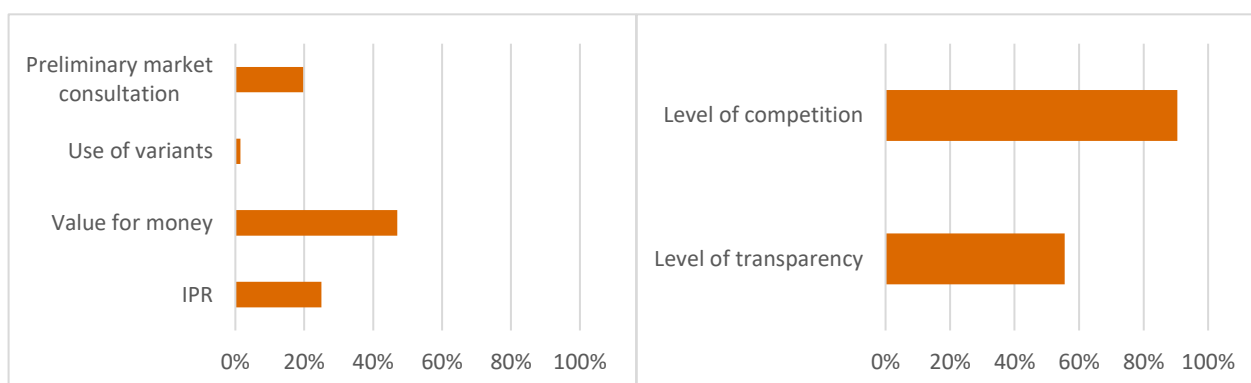
48%

European Average

44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators that reflect:

²⁸⁹ <https://markedsmodningsfonden.dk/pcp-paradigme-og-vejledninger>

²⁹⁰ <https://markedsmodningsfonden.dk/cases-innovative-offentlige-indkoeb> (PPI cases); <https://markedsmodningsfonden.dk/praekommercielle-indkoeb-pcp-o> (PCP cases)

- I. The use of specific techniques to foster innovation in public procurement in Denmark
- II. The openness of the national public procurement market to innovations from across the EU single market

With regards to sub-indicator I, Denmark shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no predefined default scenario on distribution of IPR rights between procurers and suppliers in Denmark. The Danish law, general terms and conditions for government contract and guidelines on public procurement does not define how IPR allocation is best dealt with in procurement contracts. It is left to the individual responsibility of each Danish procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The public procurement law foresees that public procurers can require in the tender specifications transfer of IPR rights to the procurer. However, the Danish copyright act²⁹¹ assigns copyright to the creator and determines that a copyright (moral rights) can only be waived to a limited extent by the creator (to a procurer) when the use of the work in question (by the procurer) is limited in nature and extent. If the procurer wants to use the commissioned work he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. With regards to PCP, the guidelines and model contracts for PCPs supported by the Danish Market Development Fund define that IPR ownership remains with the contractor and the procurer obtains usage and licensing related rights
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, 47% of the procedures were awarded on criteria different from of the lowest price.²⁹² This is moderately above the European average of 42% but still not reaching the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Denmark has allowed the use of variants in the 2% of the procedures. This percentage is below the European average.
- d. **Preliminary Market Consultation:** Denmark has used Preliminary Market Consultations in the 20% of the procedures. This percentage is significantly above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 23% which is in line with the European average of 23%. This is mainly due to the above average performance on used value for money award criteria and on preliminary Market Consultations.

With regard to second sub-indicator II, Denmark shows the following evidence (based on the Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 91%, which is above the European average 84% and just approaching the 93% satisfactory level set by the EU single market scoreboard. Both sub-indicators are above the European average however the positive performance is mainly driven by the low portion of procurement procedure where no call for bids was used (5%). The number of procurements with less than one bidder (86%) is above European average (75%) but still below the satisfactory level set (90%) by the EU single market scoreboard.
- f. **Level of transparency:** The level of transparency of the national public procurement market is 56% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. All the sub-indicators are above the European average: the publication rate (7%), the percentage of procurements without missing call for bids information (91%) and without missing buyer registration numbers (69%). However, the last two indicators are still below the satisfactory level set by the EU single market, which makes it hard for companies to understand which buyer wants to buy what.

Based on this evidence, the score for sub-indicator II is 73% which is above the European average of 65%.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 48% which is above the European average. This score is explained firstly by the fact that, the overall openness of the Danish public procurement market to innovations from across the EU single market is above the European average. Although the country has not yet adopted a default IPR regime in public procurement that fosters innovation, the use of value for money criteria and the use of preliminary Market Consultation are largely above the European average. However, although the national public procurement market shows an above average level of competition and transparency but the level of transparency is lower than the satisfactory level set by the EU single market scoreboard.

²⁹¹ <http://www.wipo.int/edocs/lexdocs/laws/en/dk/dk091en.pdf>
²⁹² [Single Market Scoreboard](#)

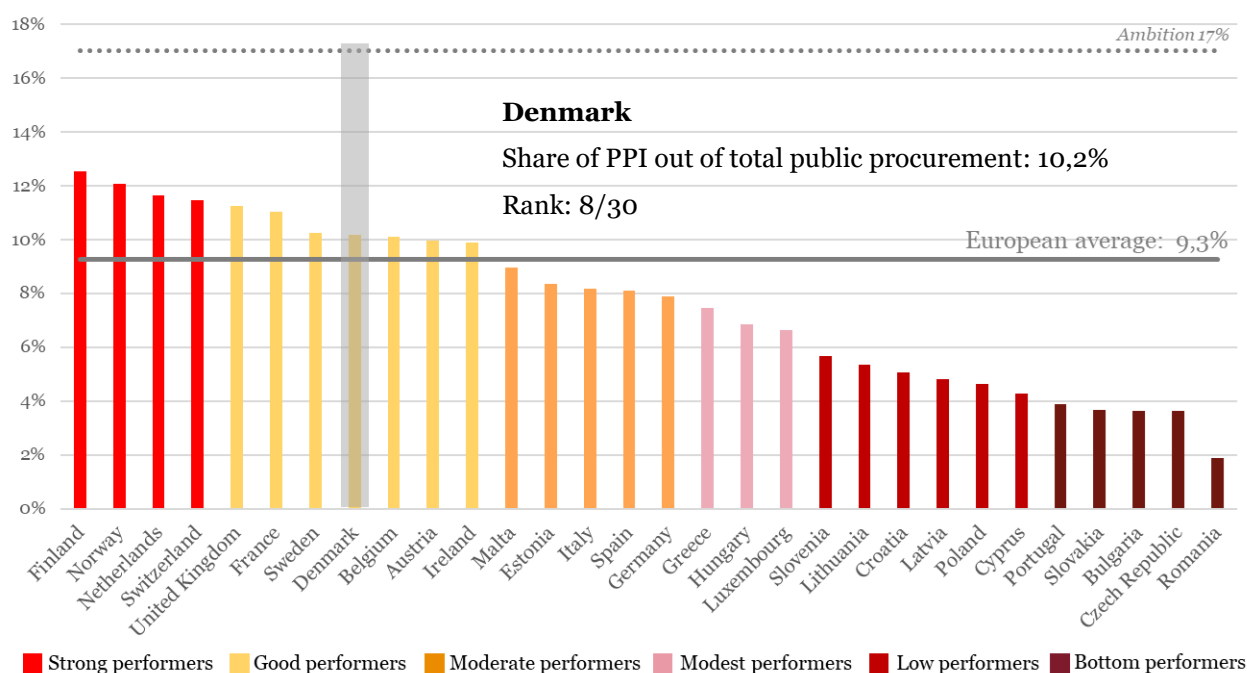
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Danish investments on public procurements of innovative solutions (PPI) and the benchmarking of Danish investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 10,2% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 4,4 bn), **Denmark ranks 8th** in the benchmarking of investments on public procurement of innovative solutions (PPI)²⁹³ across Europe. Denmark falls within the group of **good performers**, above the European average of 9,3%.²⁹⁴ However, **a significant increase of investments in PPI** is still needed to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Danish public sector.²⁹⁵ When taking into account also PPI in the defence sector Denmark still remains in the 8th position.



The **main factors**²⁹⁶ explaining Denmark's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Denmark (96%) is well above the European average (84%), thanks to a significant share of PPI investments that adopted innovative solutions that are 'new to the market' (69%) and, to a lesser extent, 'significantly improved' solutions (27%). The share of PPI investments that was spent on the adoption of **incremental innovations** (4%), which includes the purchase of existing solutions that are 'used in a new way or in a new sector' as well as 'innovative combinations of existing solutions', is significantly smaller than the European average (16%).

²⁹³ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

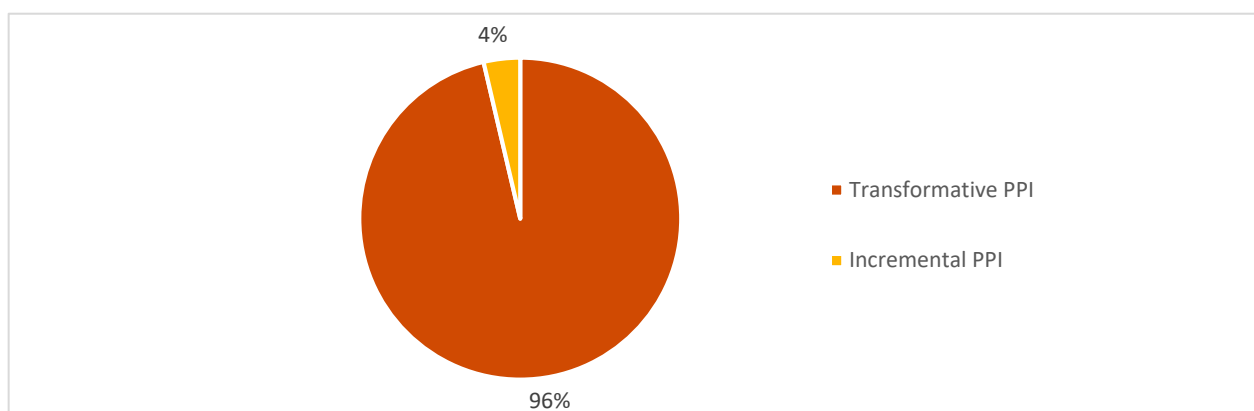
²⁹⁴ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

²⁹⁵ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

²⁹⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Further investment in the adoption of innovative ICTs** could be an important factor that would allow Denmark to achieve a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly very domain of public sector activity²⁹⁷ in Denmark purchased innovation solutions, except procurers from the domains of 'Water' and 'Postal services' where PPI investment is zero. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. Danish investments do not deviate more than 3 percentage points (pp) from the European average in 5 out of 11 sectors. At the same time, the share of PPI investments by Danish procurers in 'Healthcare and social services' (+33 pp), 'Education, recreation, culture and religion' (+7 pp) and 'Public order, safety and security' (+6 pp) are significantly above the European average. Conversely, PPI investments by procurers in 'General public services, public administration and economic and financial affairs' are significantly below (-21 pp) the European average. The shares of investments from the 'Other' domain was very small.

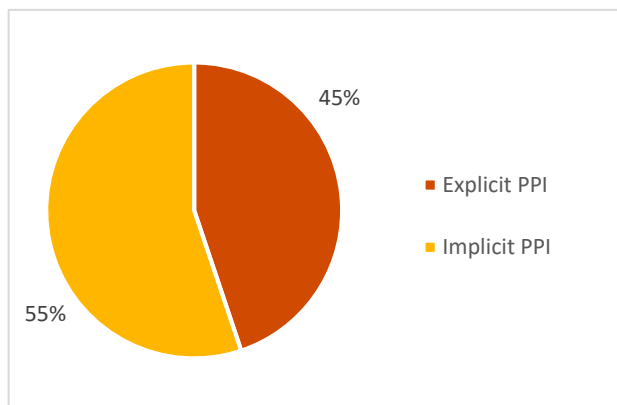
PPI investments by domains of public sector activity

Domain of public sector activity	Denmark	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	14%	35%	-21
Transport	1%	10%	-9
Healthcare and social services	54%	21%	+33
Energy	3%	6%	-3
Environment	3%	3%	0
Construction, housing and community amenities	0% (0,4%)	4%	-4
Education, recreation, culture and religion	12%	5%	+7
Water	0%	4%	-4
Public order, safety and security	14%	8%	+6
Postal services	0%	1%	-1
Other	0% (0,2%)	3%	-3
Total PPI investments	100%	100%	-

²⁹⁷ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

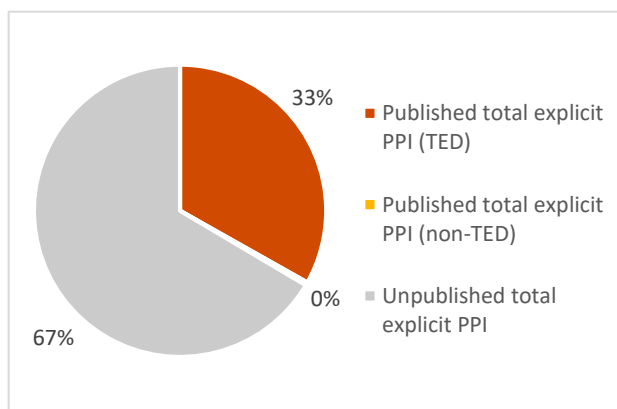


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is consistently higher in Denmark (45%) compared to the European average (29%). This indicates that Danish procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Denmark (55%) compared to the European average (71%). This indicates that Danish procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

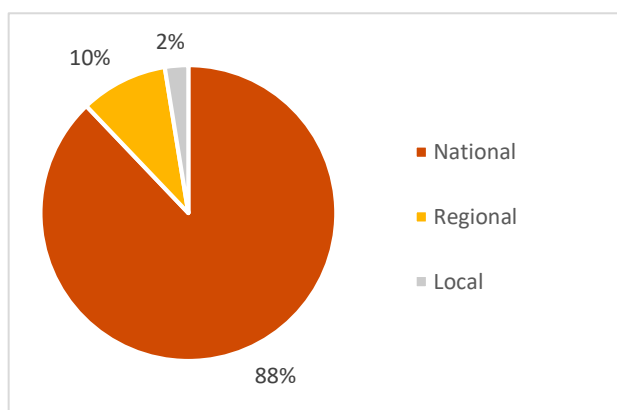


The share of Danish PPI call for tenders that is published is modest (33%), but above the European average (22%). Almost the totality is **published at European level** in the TED database (33%), which is above the European average. The portion that is **published at national level** (<1%) is marginal and below the European average (5%).

By not publishing PPI call for tenders widely, **Denmark is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Danish and other European innovative suppliers that are not informed about the Danish PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

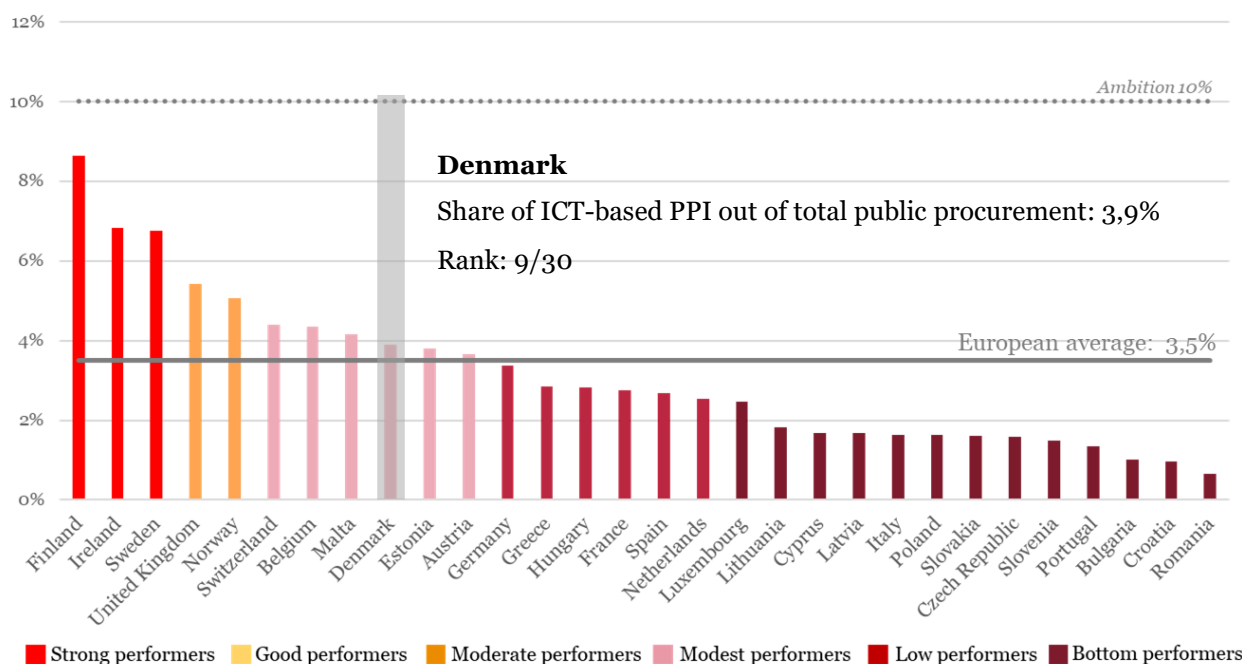


The lion's share of the total PPI investments in Denmark is carried out by **large-scale entities at national level** (88%), such as ministries and ICT integrators of governments departments. This is starkly above the European average (47%).

Procurers at regional level account for a small amount of share of PPI (10%), below the European average (24%). **Procurers at local level** account for a marginal fraction of PPI (2%) and below the European average (29%). This may indicate a lack of awareness and engagement of sub-national procurers in innovation procurement.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Danish public sector shows a **modest level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,3 bn or 3,9% of total public procurement invested in innovative ICT-based solutions, **Denmark ranks 9th** in the benchmarking of ICT-based PPI investments, slightly above the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions Denmark (slightly over 38%) performs in line with the European average (38%). **A significant increase of investments in buying innovative ICT-based solutions** is thus needed to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Denmark to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.²⁹⁸

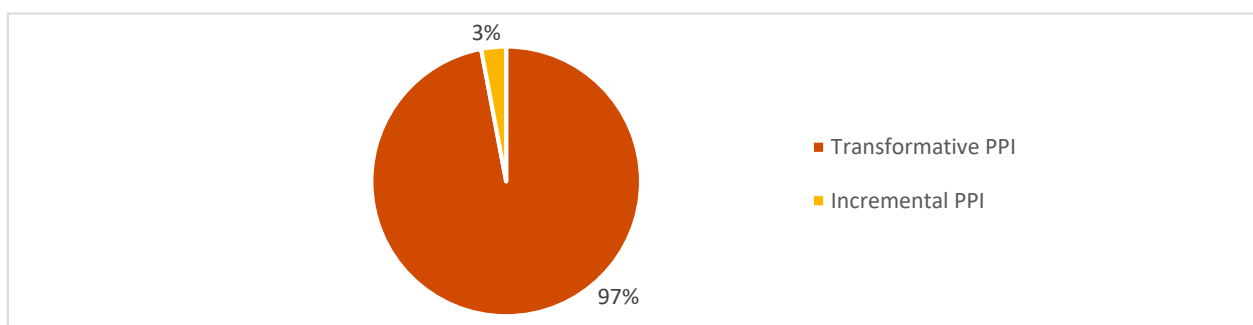


The **main factors**²⁹⁹ explaining Denmark's modest performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations**³⁰⁰ in Denmark (97%) is much higher than the European average (79%). This may derive from the fact that almost all purchases represent the adoption of innovative solutions that are 'new to the market' (51%) or 'significantly improved' solutions (46%). The share of ICT-based PPI investments that is spent on the adoption of **incremental ICT-based innovations** (3%) is marginal and considerably below the European average (21%). As the total amount of investments in ICT-based innovative solutions in Denmark is modest, the country still needs to step up significantly its investments in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



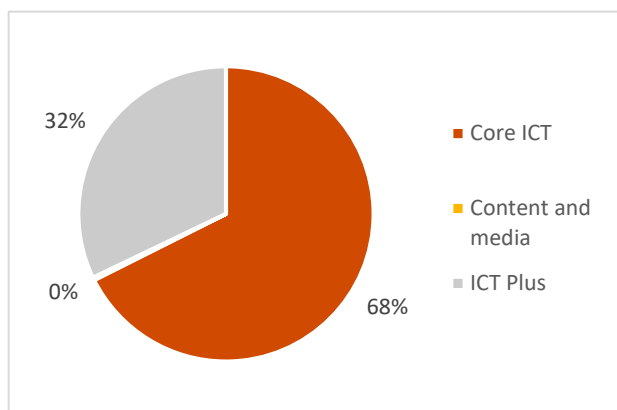
²⁹⁸ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

²⁹⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

³⁰⁰ See definition above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Denmark invested mainly in the adoption of innovations from the so-called **'Core ICT' sub-sector**³⁰¹ (68%), above the European average (54%).

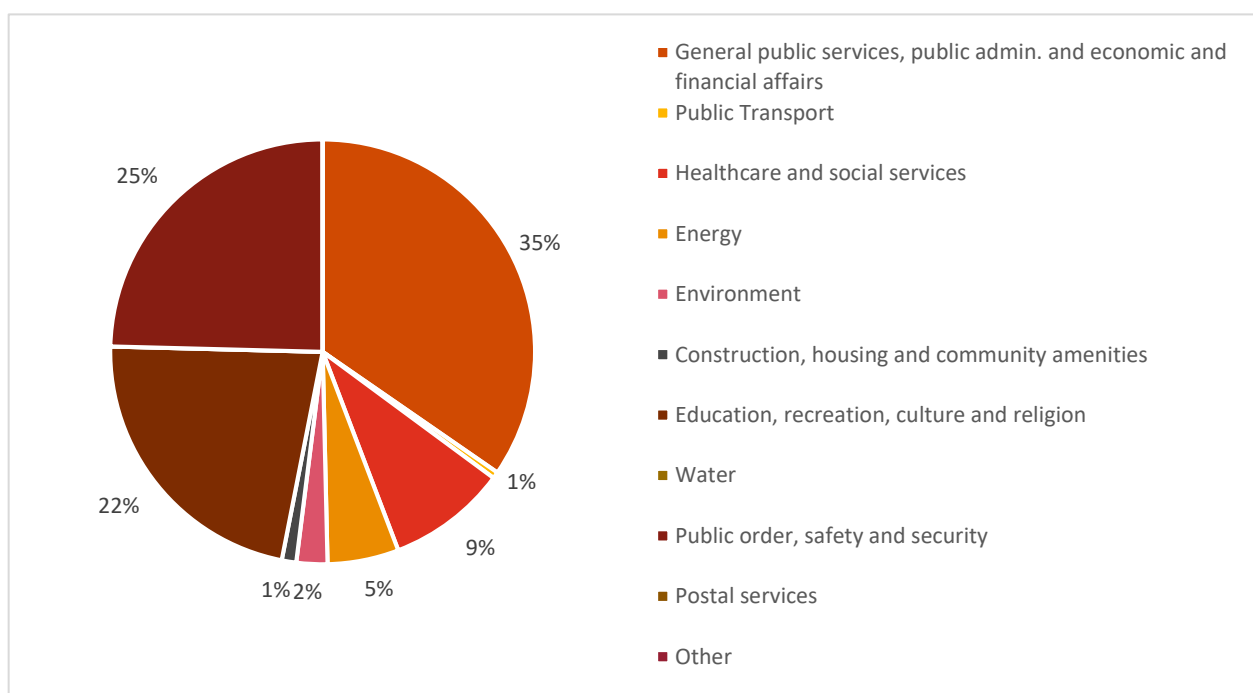
Denmark invested to a lesser extent in the adoption of innovations from the **'ICT Plus'** sub-sector (32%), below the European average (44%).

Danish investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (<1%), but in line with the European average (1%).

Investment readiness across different domains of public sector activity

Most domains of public sector activity in Denmark purchased innovative ICT-based solutions, except the **'Water', 'Postal Services'** and **'Other'** categories. In particular, the highest share of ICT-based PPI investments is made by procurers that operate in the domain of **'General public services, public administration and economic and financial affairs'** (34% against a 16% European average) followed by procurers in **'Public order, safety and security'** (27% which is clearly above the European average of 19%). ICT-based PPI investments the **'Education, recreation, culture and religion'** are also above European average (22% against 9% European average).

ICT-based PPI investments by domains of public sector activity

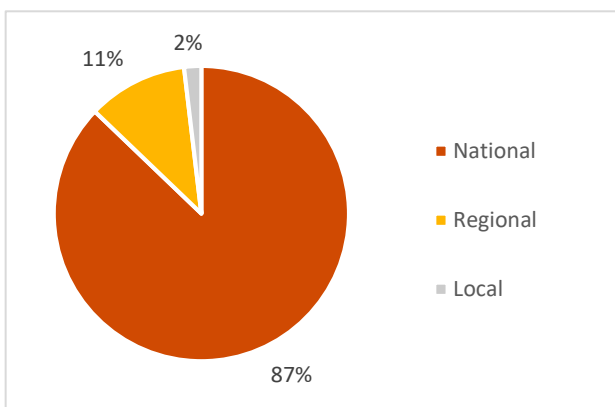


Investment readiness across levels of public sector activity

³⁰¹ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

ICT-based PPI investments by level of public sector activity



National level procurers account for 87% of ICT-based PPI, quite above the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI at sub-national level (11%), yet below the European average (21%). **Local procurers** account for only a modest fraction of ICT-based PPI (2%), which is below the European average (10%). This may indicate a lack of awareness and engagement of sub-national procurers in innovation procurement of ICT-based solutions.

Estonia



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Estonia the field of public procurement is regulated by the Public Procurement Act (PPA)³⁰², which transposed the EU procurement Directives (2014/23/EU, 2014/24/EU, 2015/25/EU) and the Directive on Defence Procurement (2009/81/EC). The PPA is supplemented with several regulations of the Government of Estonia.

Estonia has a highly centralised government system. The majority of the budget for public procurement is indeed spent by the central government, which is for the bulk of procurement. Estonia is frequently cited for its early and effective adoption of e-procurement.

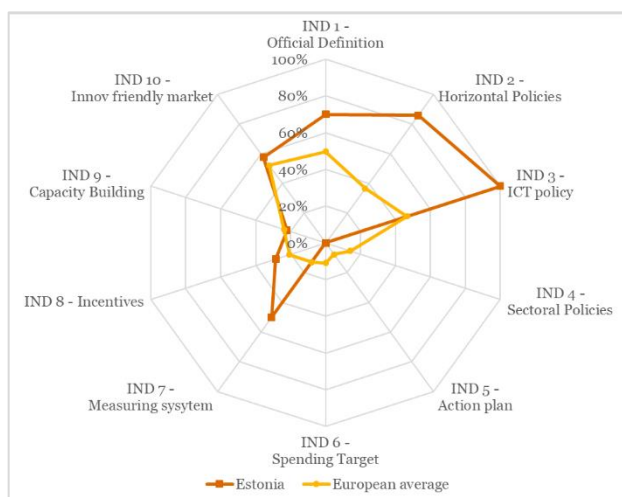
A key actor in the field of innovation procurement is the **Ministry of Economic Affairs and Communications**, which is the responsible institution for public procurement policy (drafting the law, providing supervision and consulting) and which introduced innovation procurement objectives within the '**Public sector as smart customer**' policy in its wider entrepreneurship and innovation strategy (Estonian Entrepreneurship Growth Strategy 2014-2020)³⁰³.

The Ministry is assisted by **Enterprise Estonia (EAS)**³⁰⁴, a public organisation promoting business and regional policy, that is in charge of a number of capacity-building activities in the field of innovation procurement and manages a financial support scheme³⁰⁵, set up in 2016, that co-finances Estonian public procurers to prepare and manage innovation procurements.

Estonia has three pivotal strategies "**Estonia 2020**", "**Sustainable Estonia 21**" and the already mentioned "**Estonian Entrepreneurship Growth Strategy 2014-2020**" which recognise the role of the State as a smart customer for innovation. Several national (sectorial or horizontal) development plans contributes either directly or indirectly to this objective, such as the Rural Development Plan managed by the Ministry of Agriculture, the Tourism Development Plan Ministry of Economic Affairs and Communication), Lifelong Learning Strategy run by the Ministry of Education and Research.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Estonia is at the 6th position** of the overall ranking with a **total score of 40,5%**. From the 30 countries analysed, Estonia is among the group of good performer countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 40,5% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Estonia to reach its full 100% potential.



Strengths: Estonia has started developing dedicated policy measures to foster innovation procurement, however still only at small scale. National guidelines promote an approach to IPR allocation that fosters innovation in public procurement

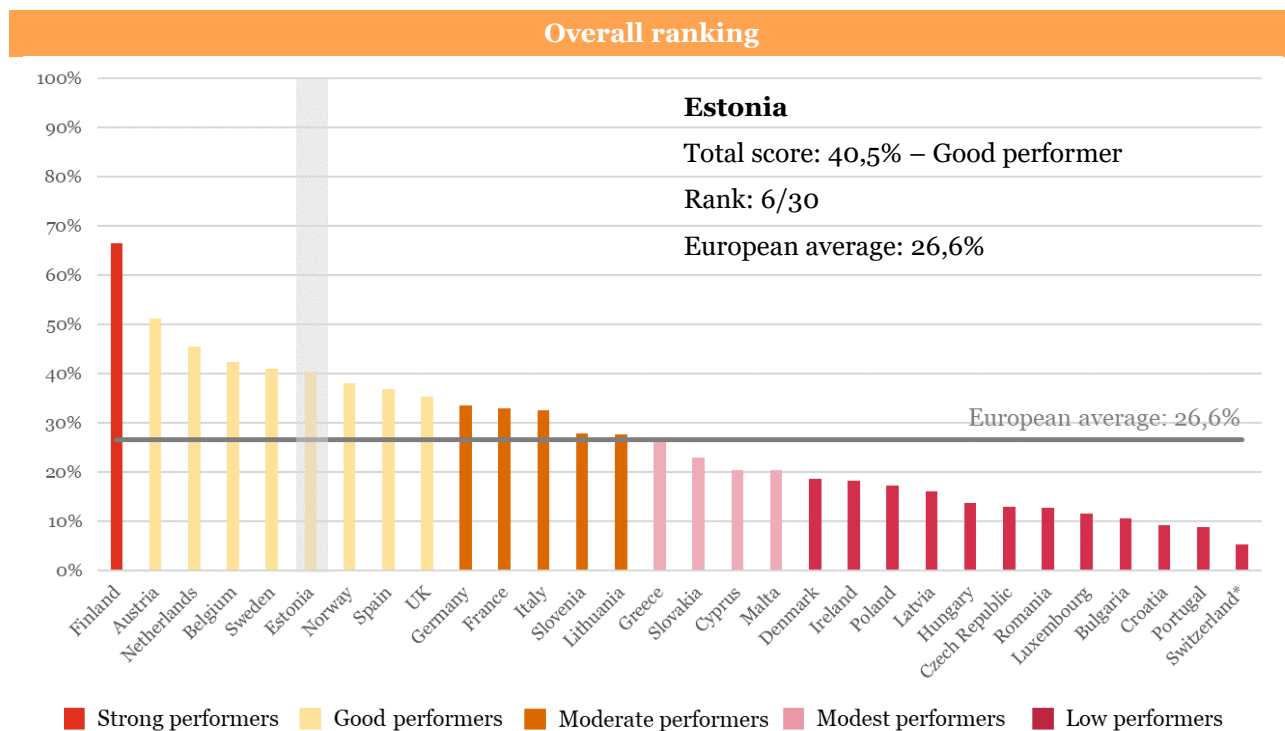
Weaknesses: Absence of an action plan covering all procurements in the country and a spending target for innovation procurement, measurement system is being setup but still lacks an impact evaluation dimension, no dedicated structured approach yet for capacity building

³⁰² <https://www.riigiteataja.ee/en/eli/505092017003/consolide>

³⁰³ <https://www.mkm.ee/en/objectives-activities/economic-development/entrepreneurship-and-innovation>

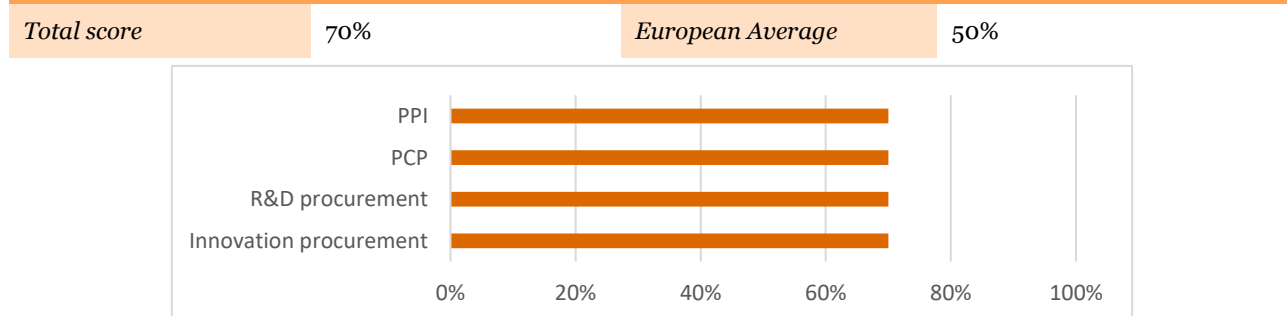
³⁰⁴ <https://www.eas.ee/eas/?lang=en>

³⁰⁵ <https://www.eas.ee/teenus/innovatsiooni-edendavate-hangete-toetamine/>



Overview per indicator

Indicator 1 – Official definition



The Estonian legal framework provides clear official definitions for innovation but not for innovation procurement, R&D, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). The Estonian public procurement act identifies research and development by listing the CPV codes that correspond to R&D, but there is no full sentence definition for R&D or for the R&D categories that match these CPV codes. Regarding PCP the Estonian Public Procurement Act provides a clear legal basis for implementing PCP (although without giving an explicit definition for PCP). The national guidance on innovation procurement published by EAS includes definitions for innovation procurement, PCP and PPI and R&D procurement, which are compliant with EU official definitions and applicable to all types of public procurers in the country. As a result, the total score for this indicator is 70 %.

The **innovation procurement** definition in the 2016 Guidance on innovation procurement published by Enterprise Estonia (EAS) applies to all public procurers in the country and is in line with the official EU definition. It builds on the **innovation** definition from the EU public procurement directives that was transposed into Estonian public procurement law: "*innovation means the implementation of a new or significantly improved product, service or process, including production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations*". As a result, the total score for this sub-indicator is 70%.

The definition of **R&D** procurement in the Guidance on innovation procurement is in line with EU official definition and is applicable country wide. In addition, article 11 number 19 of the Public Procurement Act identifies R&D as activities that have the CPV codes for fundamental research, applies research and industrial development. The total score for the sub-indicator R&D is 70%.

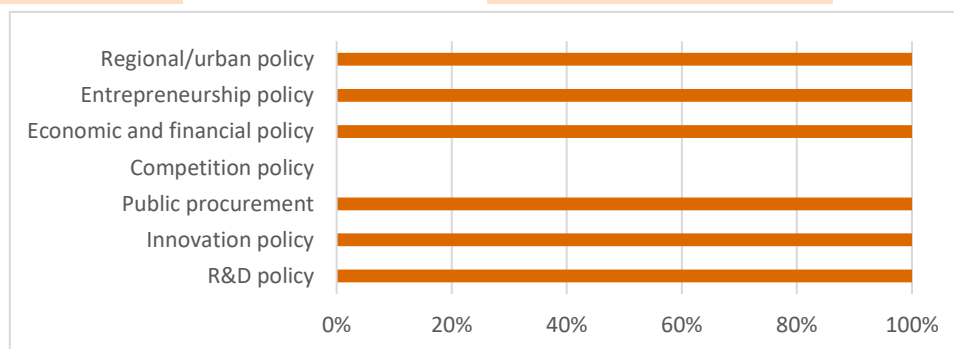
Article 11 also transposes the exclusion for R&D services, which forms the legal basis for the implementation of **PCP** in the country. The public procurement act does not apply to public service contracts in R&D "*unless the benefits accrue exclusively to the contracting authority or entity for its use in the conduct of its own affairs and the service provided is wholly remunerated by the contracting authority*". The Guidance on innovation procurement also provides a

definition of PCP which is applicable to all public procurers and is in line with the EU official definition. Therefore, the total score for this sub-indicator is 70%.

The Estonian legislative framework does not provide a legal definition for **PPI**. Article 85 number 8 of the Public Procurement Act provides a legal basis for the implementation of PPI by enabling procurers to include “innovative characteristics” as one of the additional qualitative criteria that could be used to award contracts. In addition, the national “Guidance on innovation procurement” also provides a definition of PPI which is in line with the EU definition and applicable country wide. Therefore, the total score of this sub-indicator is 70%.

Indicator 2 – Horizontal policies

Total score	86%	European Average	36%
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In Estonia, six horizontal policies recognise the strategic importance of innovation procurement, namely: entrepreneurship policy, regional and urban policy, economic and financial policy, public procurement policy, innovation and R&D policies. Therefore, the total score of this indicator is 86%.

The “**Estonian Entrepreneurship Growth Strategy 2014-2020**”³⁰⁶ is an umbrella strategy, set out by the Ministry of Economic Affairs and Communications, which covers and connects a range of horizontal and sectorial strategies covered by the ministry including economic policy, entrepreneurship policy, rural development and R&D&I policy. One of the activities on which the Strategy is based is the “development of demand-side policies”: in order to create a market for innovative products and services, Estonia aims at increasing the state’s capacity and readiness to act as a client for innovative solutions (i.e. through innovation procurements), ensuring to be an active innovation partner for entrepreneurs and a client for innovative solutions, while fostering the development and procurement of innovative solutions and implementation of demonstration projects. By doing so, it means to stimulate innovation activities, enhancing both the emergence of start-up companies as well as partnerships with foreign enterprises.

The **Estonian R&D&I strategy 2014-2020 “Knowledge-based Estonia”**³⁰⁷ sets as objective to “*Increase the role of the public sector as the leader of innovation in enterprises under the growth areas of smart specialisation, i.e. in commissioning and initiating RD and innovation. The innovations include innovative procurements*”.

The “**National Reform Programme Estonia 2020**”³⁰⁸, which aims at increasing the productivity and employment in the country, identifies public procurement as one of the instruments to boost innovation and sustainability and it states that “*if necessary, public procurement regulations should be transformed into an engine of development in fields important to the state (innovation, sustainability, design, creative industries and space technologies as well as the added value of local resources)*”. Therefore, public procurement is embedded within the strategy.

In the field of regional policy, the **Estonian operational programme for the structural funds 2014-2020**³⁰⁹ includes innovation procurement as strategic objective: “*The role of the state as the contracting authority for innovative solutions will be increased to create a market for innovative products and services. The state will be an active innovation partner for enterprises, contracting for innovative solutions, incl. encouraging the procurement of innovative solutions and the implementation of demonstration projects.*”

Indicator 3 – ICT policies

Total score	100%	European Average	47%
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In the area of ICT, the “**Digital Agenda 2020 for Estonia**” lists innovation procurement among the fundamental principles for the development of Estonian information society through “*the public sector’s active role in the uptake and procurement of innovative solutions and shaping the overall conditions for development*”. In particular, it states that “*Public sector will be a smart customer, ensuring that in public procurements as much freedom as possible is left for offering innovative solutions, thereby contributing to the development of the ICT sector*”.³¹⁰

³⁰⁶ <https://www.mkm.ee/en/objectives-activities/economic-development-and-entrepreneurship/innovation>

³⁰⁷ https://www.hm.ee/sites/default/files/estonian_rdi_strategy_2014-2020.pdf

³⁰⁸ <https://riigikantselei.ee/en/supporting-government/national-reform-programme-estonia-2020>

³⁰⁹ <https://www.strukturifondid.ee/eng/legislation/operational-programme-2014-2020>

³¹⁰ https://www.mkm.ee/sites/default/files/digital_agenda_2020_estonia_engf.pdf

Indicator 4 – Sectorial policies

<i>Total score</i>	0%	<i>European Average</i>	14%
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In Estonia there are no dedicated sectorial policies for innovation procurement

Indicator 5 – Action plan

<i>Total score</i>	0%	<i>European Average</i>	8%
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Estonia does not have a dedicated action plan for innovation procurement to all public procurers in all sectors and levels of government across the country. Therefore, the total score of the indicator is 0%.

Under the ESIF funding coordinated by EAS, Estonia has however developed a specific measure for fostering innovation procurement in Estonia under the Estonian Entrepreneurship and Growth strategy 2014-2020. This measure - “**State as a smart customer**” - allocates specific resources (20 million euro from the European Regional Development Fund per year), defines objectives to be achieved through a set of actions and a clear timeline. It is managed by assigning the task to **Enterprise Estonia (EAS)** under the supervision of **the Ministry of Economic Affairs and Communications**.³¹¹

Implemented activities under this measure include different forms of training, seminars and conferences, and the provision of guides and other reference materials. The measure provides both demand-side instruments to help eliminating systematic market failures and support to public sector contractors (grants - cf. Indicator Incentives). However, the budget dedicated to innovation procurement is limited to the funding of projects in specific sectors but does not seem sufficient to develop a holistic strategy to mainstream innovation procurement widely across the country. The lack of strategic vision is confirmed by the lack of specific commitments of key procurers and the lack of measures to boost public demand and scale up innovation procurement widely across the country.

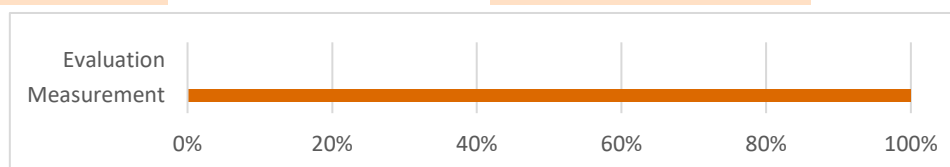
Indicator 6 – Spending target

<i>Total score</i>	0%	<i>European Average</i>	11%
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In Estonia there is no spending target for innovation procurement. The “Estonia 2020” Strategy, however, outlines a number of proposals to enhance innovation, including increasing the share of all public procurements that incorporate innovation to 3% by 2020³¹². This recommendation has not been followed by any concrete commitment.

Indicator 7 – Monitoring system

<i>Total score</i>	50%	<i>European Average</i>	13%
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Estonia has an effective and well-structured measurement system while it lacks an evaluation strategy able to measure the impacts of innovation procurements. Therefore, the total score of the indicator is 50%.

In Estonia an ex-post **survey-based mechanism** to monitor and measure innovation procurement was put in place in 2015³¹³ by Ministry of Economic Affairs and Communications.

The survey was carried out in three stages:

- 1) Analysis of policies and experiences of other countries;
- 2) Empirical analysis in the public procurement register;
- 3) E-questionnaire on potential innovation procurements.

The following definition of **innovation procurement** was used in the context of the measurement survey. The definition is included in a report published in 2017 entitled “*Innovation procurements – monitoring and proportion in all procurements in Estonia in 2015*”. This definition established 4 levels of innovation procurement:

- 1) Ordering research and development activities (R&D) (from R&D services to prototypes);
- 2) Procurement creating innovation (a new solution in the public and private sector);
- 3) Procurement promoting the distribution of innovation (new for the contracting authority or most market participants);

³¹¹ <https://www.mkm.ee/en/objectives-activities/economic-development-and-entrepreneurship/innovation#state-as-a-smart-customer10>

³¹² https://riigikantselei.ee/sites/default/files/content-editors/organisatsioon/failid/eesti_2020_vahearuanne.pdf

³¹³ https://www.mkm.ee/sites/default/files/inno_26_eng.pdf

- 4) Procurement impacting the extent and direction of innovation (innovations of process, organization etc. arising from the procurement in the organization of the contracting authority or the tenderer).

The questionnaire was carried out on the e-Procurement register through four yes/no questions for procurers:

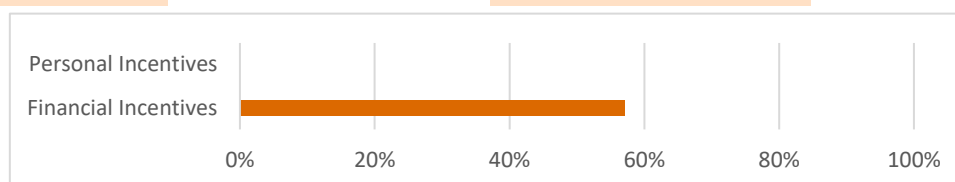
- Did you acquire research and development activity in the scope of this procurement?
- Was the object of the procurement novel for the contracting authority as well as for the whole market in general?
- Was the solution procured in the scope of this procurement novel for the contracting authority?
- Did the procured solution make the work processes at the facilities of the contracting authority more effective?

The system filtered out regular procurements from innovative procurements and it also marked procurements that are “potentially innovative”. 76 procurements turned out to be innovative procurements, 90% of which were various procurements in the field of IT. In total 0,7 – 1,2% of procurements carried out in 2015 were found out to be innovative.

A new measurement round has started in September 2017. It is based on a similar methodological approach, i.e. on a questionnaire submitted to public procurers when they publish the Contract Notice. The difference comparing to the measurement of 2015 is that this is a **real-time** assessment, not ex-post, which enables to directly “flag” out on the e-Procurement system the potentially innovative tenders from the “regular” ones.

Indicator 8 – Incentives

Total score	29%	European Average	22%
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Estonia has set up **financial incentives** to encourage public procurers to undertake more innovation procurements, but there are no national funds to this aim, only EU funds, and only a limited set of pilot projects are supported which does not enable to reach wide scale implementation. Therefore, the total score of the sub-indicator “financial incentives” is 57%.

In 2015 the Estonian **Ministry of Economic Affairs and Communications** strategically introduced the innovation procurement (‘the public sector as a smart customer’) into its wider Entrepreneurship Growth Strategy³¹⁴. It assigned to **Enterprise Estonia (EAS)** the task to setup and manage a € **20 mn** scheme - co-financed by ESIF – to support Estonian public procurers to undertake innovation procurements. The objective of this measure was to incite contracting authorities to change their procurement practices to support innovation³¹⁵. The € 20 mn support scheme was split in two large segments of activities:

- 1) Around 2 Million euro devoted to general awareness raising, knowledge sharing, workshops, consultations etc.
- 2) The remaining 18 Million euro provides co-financing for Estonian public procurers. Innovation procurements which meet the criteria receive financial support to a maximum of 50% of the project cost and a maximum of €500,000. All stages of the procurement are supported, from the identification of the need until the conclusion of the contract (procurement preparation and organization, like legal and sector-specific consultancy, and procurement process management and contract execution, purchase of procurement proceeds, including research and development).

In 2016 Enterprise Estonia opened the first calls for Estonian public procurers and 3 contracting authorities passed it successfully (Tartu City Government in cooperation with Harku Rural Municipality Government, the Ministry of Social Affairs and the Road Administration)³¹⁶. The second and the third rounds were concluded in 2017.

The overall score of this indicator (29%) reflects the fact that the Estonian procurement system does not foresee **personal incentives** for public procurers.

³¹⁴ <https://www.mkm.ee/en/objectives-activities/economic-development/entrepreneurship-and-innovation>

³¹⁵ <https://www.eas.ee/teenus/innovatsiooni-edendavate-hangete-toetamine/>

³¹⁶ https://www.mkm.ee/sites/default/files/inno_26_eng.pdf

Indicator 9 – Capacity building and assistance measures

Total score		European Average					24%
	Existence	Connection with relevant international /EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices	√		√		√		50%
Trainings/workshops	√		√	√	√		67%
Handbooks/guidelines	√	√	√	√	√		83%
Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of procurers							0%
One-stop-shop / competence centre							0%

Estonia foresees four out of the nine measures generally adopted to build up the know-how of public procurers on innovation procurement.

The Estonian Government does not coordinate the implementation of innovation procurements or pre-approve innovation procurement procedures in Estonia. It coordinates the allocation of ESIF funds to innovation procurements at small scale in a few sectors (e.g. pilot projects). The score for sub-indicator coordination/pre-approval is 0%.

Enterprise Estonia (EAS) is the organization appointed to provide **financial assistance, counselling, cooperation opportunities and training** for entrepreneurs, research institutions, and the public and non-profit sectors. However, its role is not specifically tailored for innovation procurement, and a structured strategy aimed at providing **assistance** to all types of public procurers in the country, not only those benefiting from ESIF funding, in the implementation of specific innovation procurement projects is still lacking. This is reflected in score 0% for assistance.

Target groups, such as researcher, enterprise organizations and contracting authorities, are regularly informed of the importance of innovation procurement. **Training and workshops** cover the different stages of innovation procurement, such as establishing the problem to be resolved, market analysis, legal procedures of the procurement, results of and lessons from successful innovation procurements previously conducted. The score of this sub-indicator is 67% because these trainings do not provide information of the relevant EU/WTO framework for innovation procurement nor how to mainstream innovation procurement at large scale, but only for some pilot actions.

Other awareness activities are also addressed at top managers of public institutions, e.g. the Conference on Innovation Procurement hosted in Tallinn in October 2017.³¹⁷ For the best result, the awareness activities and financial measures are conceived to correspond to each other in time, in order to enable the novel ideas and knowledge/skills to be formed into a successful procurement project with the help of the support.

EAS developed also **national guidelines** on innovation procurement³¹⁸. They cover all types of innovation procurement, explain the link with the relevant EU legal framework, are available free of charge, applicable to all types of public procurers in the country but don't provide any specific guidance on how to mainstream innovation procurement and the impacts this can achieve widely. The score of this sub-indicator is thus 83%

The Government publishes **good practices examples** of innovation procurement. Publications of good practice examples (e.g. in the above guidance document) are provided free of charge to public procurers. However, they don't cover all types of innovation procurement (no R&D / PCP procurement examples), they don't mention the relevant EU programs that funded some of the case examples and they are not demonstrating yet how to mainstream innovation procurement at large scale. The score of this sub-indicator is therefore 50%.

EAS is participating in the EU funded Procure2Innovate project (European network of national competence centres on innovation procurement) with the aim to expand EAS role beyond managing the current ESIF funded innovation procurement projects to become the **national competence centre for innovation procurement**. However, as this is currently still under construction, the score for one-stop-shop / competence centre is still 0%.

On the basis of the evidence collected, the total score of this indicator is 22%. Only four out of the nine measures investigated are in place: there is currently no national competence centre and central website. Assistance to public procurers, networking and coordination activities to foster cooperation between national procurers on implementing

³¹⁷ http://eafip.eu/events/conference_on_innovation_procurement/

³¹⁸ https://www.rahandusministeerium.ee/sites/default/files/Riigihangete_poliitika/juhised/eas_innohangete_juhend.pdf

innovation procurements together and template documents for innovation procurement are not offered. In addition, references to recent EU initiatives (e.g. Eafip, procure2innovative network of competence centres, study SMART 2016/0040 that is benchmarking national policy frameworks for innovation procurement across Europe, EU guidance on innovation procurement, EU funding opportunities for innovation procurements (e.g. H2020, ESIF, EIB) and recent EU funded projects (e.g. Horizon 2020 funded projects) are missing. Resources dedicated to the EAS' capacity building activities are not yet at the level for mainstreaming innovation procurement at large scale across the country.

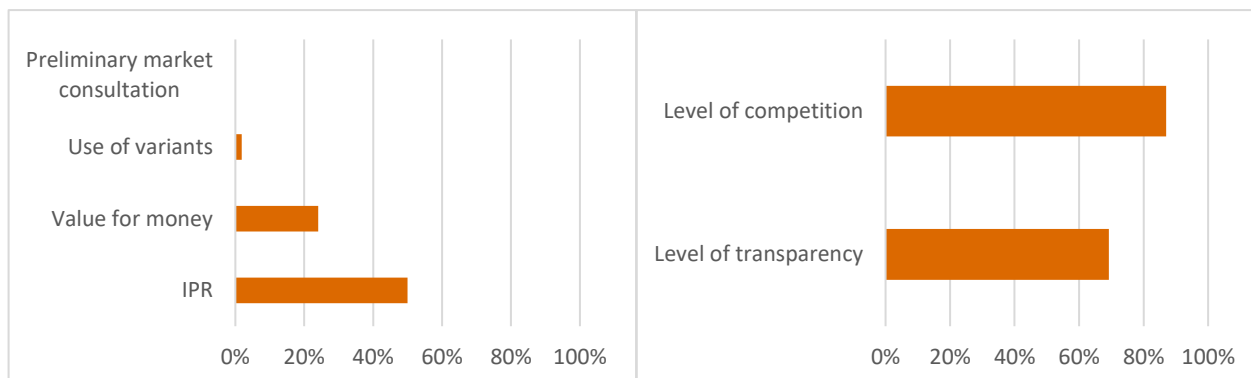
Indicator 10 – Innovation friendly public procurement market

Total score 49%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II - Openness of the national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Estonia
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Estonia presents the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 50% because the Estonian public procurement law does not address the issue of IPR allocation or transfer and the general terms and conditions for all government contracts do not define a default IPR regime either, but the Estonian guide on innovation procurement issued by EAS highlights that public procurers must decide before the launch of the procurement procedure about what is their IPR strategy and that they should only buy the rights they really need (which are typically usage rights) because the procurers' requirements on IPR rights will affect the price paid for the public procurement. The guide also reminds public procurers that public procurers should ensure that the allocation of IPR between public procurers and suppliers is compliant with the Estonian copyright rules. Indeed, the Estonian Copyright act³¹⁹ defines as default scenario that both the moral and economic rights of copyrights belong to the creator (also in public procurements) and that a copyright (moral rights) cannot be transferred by the creator (supplier) to another person (procurer). If a public procurer wants to obtain economic rights (e.g. usage, licensing, publication, modification, reproduction) on copyrighted material he must require in his tender documents the transfer, assignment or a license to the economic rights at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. In respect of this IPR/copyright and software/database legislation, the Estonian guide³²⁰ and model contracts³²¹ for ICT procurements foresee leaving IPR ownership with the contractor and allocating a license (to use, reproduce, alter, distribute and sublicense) to the public procurer.
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 24% of the procedures were not awarded on the basis of the lowest price only. This is significantly below the European average of 42% and far below the 80% satisfactory level set out in the EU single market scoreboard. Estonia is among the EU countries that is lagging behind the most on the use of value for money award criteria.
- c. **Use of variants:** Estonia has allowed the use of variants in the 2% of the procedures. This percentage is well below the European average.
- d. **Preliminary Market Consultation:** Estonia has not used Preliminary Market Consultations in procurement procedures in 2018.

Based on this evidence, the score for sub-indicator I is 19%, which is below the European average of 23%. This is mainly due to the significant underutilization of value for money award criteria and the absence of any Preliminary Market Consultation procedure. There is some promotion in guidelines to procurers for using an IPR default regime that fosters

³¹⁹ <http://www.wipo.int/edocs/lexdocs/laws/en/ee/ee184en.pdf>

³²⁰ https://itpraktikud.eesti.ee/dokuwiki/lib/exe/fetch.php?media=itari:toogrupid:erasektor:avalik:ikt_sektori_tarkvaraarendusleping-ute_ettepanekud.pdf

³²¹ https://itpraktikud.eesti.ee/dokuwiki/doku.php?id=itari:toogrupid:erasektor:start#olelusringi_juhendmaterjal

innovation in public procurement, but this is not anchored yet into legislation and general terms and conditions for government contracts.

With regard to sub-indicator II, Estonia shows the following evidence (based on the EU Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 87% which is slightly above the European average 84% but still below the 93% satisfactory level set by the EU single market scoreboard. This performance is driven by the above average percentage of procurements with more than one bidder (80%) and above average amount of procurements conducted with a call for bids (94%).
- f. **Level of transparency:** The level of transparency of the national public procurement market is 69%, which is above the European average 45% and in line with the 66% satisfactory level set by the EU single market scoreboard. Estonia has, after Lithuania, the highest number of procurements without missing call for bid information (99%) and without missing buyer registration numbers (100%).

Based on this evidence, the score for sub-indicator II is 78% which is above the European average of 65% and around the satisfactory level 79% set by the EU single market scoreboard.

Based on the scores for sub-indicators I and II, the total score the indicator "innovation friendly public procurement market" is 49%, which is slightly above the European average (44%). This performance is mainly explained by the fact that the Estonian procurement market is open to innovations from across the EU single market reaching an above-average level of transparency. Although there has been no use of Preliminary market Consultations, use of variants is low and the consideration of value for money criteria is below European average, the high above-average score in IRP default regime significantly improve the overall performance.

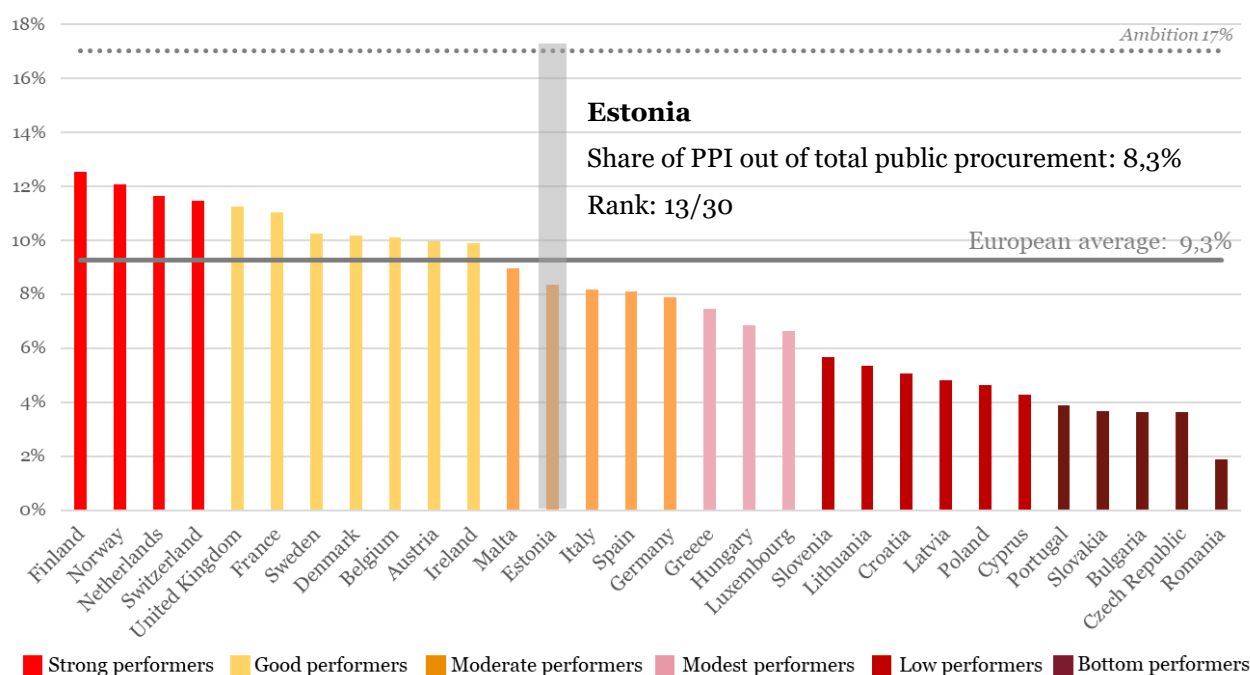
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Estonian investments on public procurements of innovative solutions (PPI) and the benchmarking of Estonian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 8,3% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,3 bn), **Estonia ranks 13th** in the benchmarking of investments on public procurement of innovative solutions (PPI)³²² across Europe. Estonia falls within the group of **moderate performers**, slightly below the European average of 9,3%.³²³ **A significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Estonian public sector.³²⁴ When taking into account also PPI in the defence sector Estonia drops to the 14th position.



The **main factors**³²⁵ explaining Estonia's moderate performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Estonia (95%) is high and well above the EU average (84%). This may be due to the fact that the largest portion of PPI investments is devoted to the adoption of 'significantly improved' solutions (56% of PPI) and innovative solutions that are 'new to the market' (39% of PPI). In comparison, only a marginal share of PPI investments is spent on the adoption of **incremental innovations** (5%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. However, as the total amount of investments in innovative

³²² Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

³²³ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

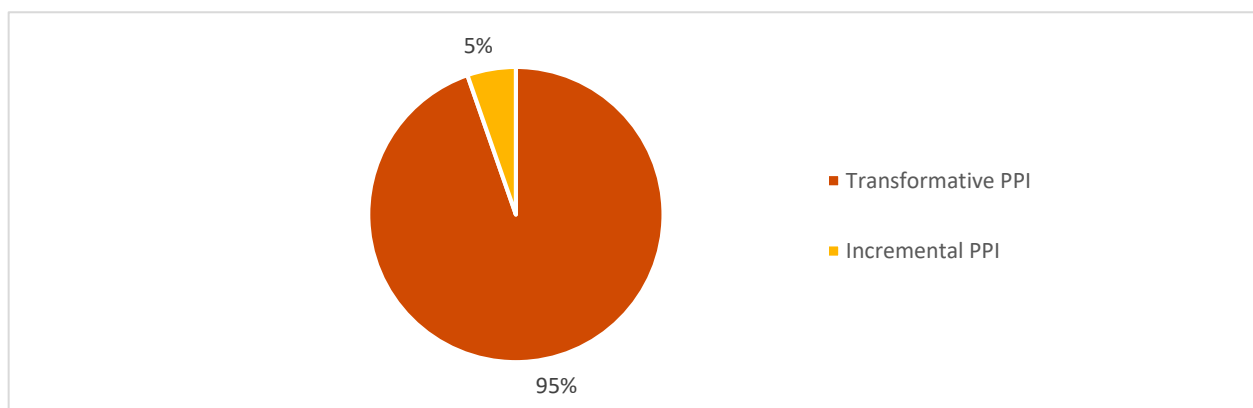
³²⁴ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

³²⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

solutions in Estonia is moderate and below European average, the country still needs to step up significantly its investments in the adoption of both transformative and incremental innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Estonia is not yet at the level of PPI investments that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investments readiness across different domains of public sector activity

Nearly all domains of public sector activity³²⁶ in Estonia purchased innovation solutions, except for the domain of 'Postal Services'. The shares of PPI investments by different public sector domains out of total PPI investments in the country are generally below European average (in 6 out of 11 sectors). In particular, PPI investments by procurers in 'Healthcare and social services' (-14 pp), 'General public services, public administration and economic and financial affairs' (-15 pp) and 'Public order, safety and security' (-7 pp) are significantly below EU average. At the same time, PPI investments in 'Public Transport' (+21 pp) and 'Education, recreation, culture and religion' (+13 pp) and 'Water' are remarkably higher than the European average.

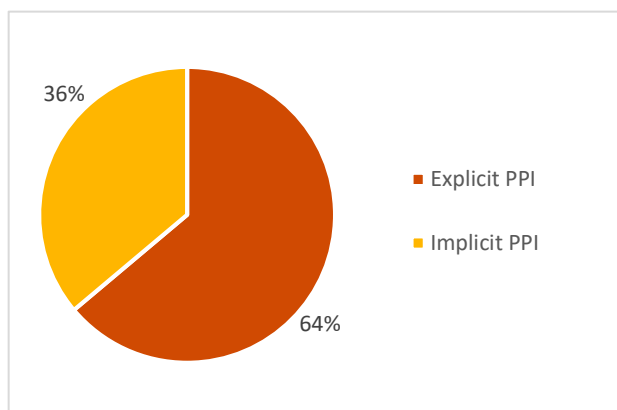
PPI investments by domains of public sector activity

Domain of public sector activity	Estonia	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	21%	35%	-14
Public transport	31%	10%	+21
Healthcare and social services	6%	21%	-15
Energy	6%	6%	0
Environment	1%	3%	-2
Construction, housing and community amenities	3%	4%	-1
Education, recreation, culture and religion	18%	5%	+13
Water	11%	4%	+7
Public order, safety and security	1%	8%	-7
Postal services	0%	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

³²⁶ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

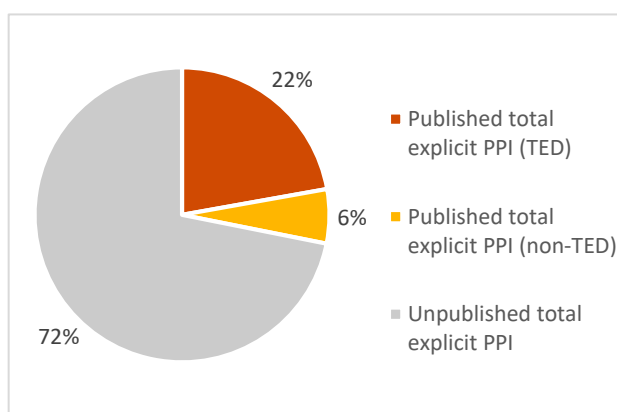


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is consistently higher in Estonia (64%) compared to the European average (29%). This indicates that Estonian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is consistently lower in Estonia (36%) compared to the European average (71%). This indicates that Estonian procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

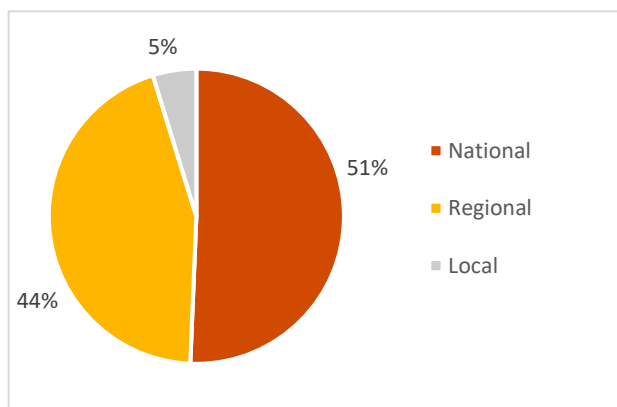


The share of Estonian PPI call for tenders that is published is modest, but slightly higher (28%) than the European average (22%). Both the portion that is **published at European level** in the TED database (22%) and the portion that is **published at national level** (6%) are slightly higher than the European average (respectively 18% and 5%). But the share of PPI that are not published remains very large (72%).

By not publishing PPI widely, **Estonia is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Estonian and other European innovative suppliers that are not informed about the Estonian PPI business opportunities.

Investment readiness levels of public sector activity

PPI investments by level of public sector activity

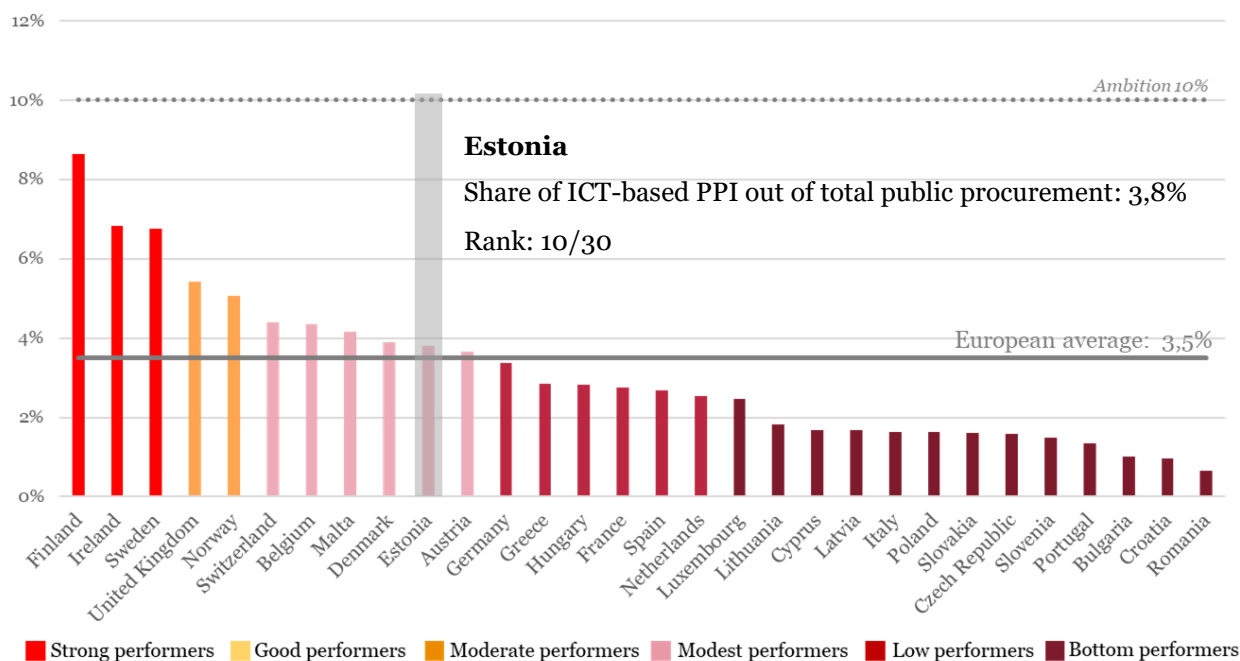


Half of the total PPI investments in Estonia is carried out by **large-scale entities at national level** (51%), such as ministries and ICT integrators of governments departments. This is above the European average (47%).

Procurers at regional level cover the largest part of the remaining share of PPI investments (44%), almost double the European average (24%). **Procurers at local level** account for a residual fraction of PPI (5%), considerably below the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Estonian public sector shows a **modest level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,03 bn or 3,8% of total public procurement invested in innovative ICT-based solutions, **Estonia ranks 10th** in the benchmarking of ICT-based PPI investments, slightly above the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (46%), Estonia performs more clearly above the European average (38%). **A significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Estonia to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.³²⁷

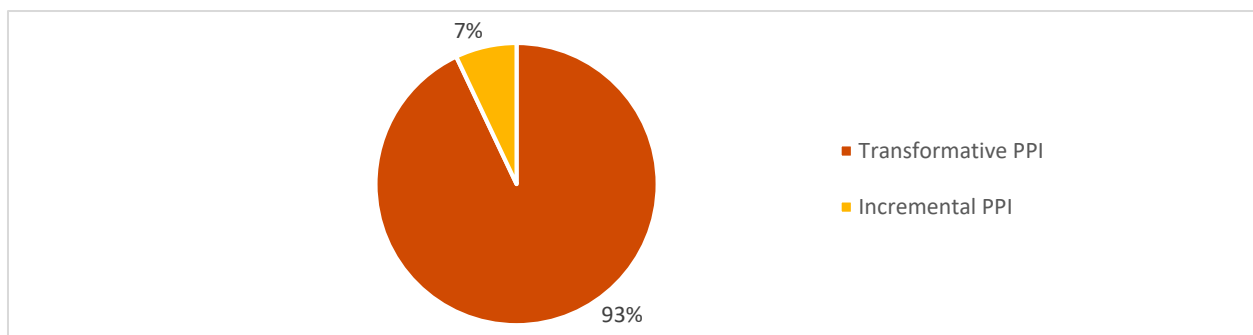


The **main factors**³²⁸ explaining Estonia’s modest performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative innovations** in Estonia (93%) is well above the European average (79%). This may be due to the fact that the largest portion of PPI investments is devoted to the adoption of ‘significantly improved’ solutions (62%) and innovative solutions that are ‘new to the market’ (31%). The share of **incremental innovations**³²⁹ (7%) is significantly smaller than the European average (21%). However, as the total amount of investments in ICT-based innovative solutions in Estonia is modest, the country still needs to step up significantly its investments in the adoption of both transformative and incremental innovations.

ICT-based PPI investments by type of innovation



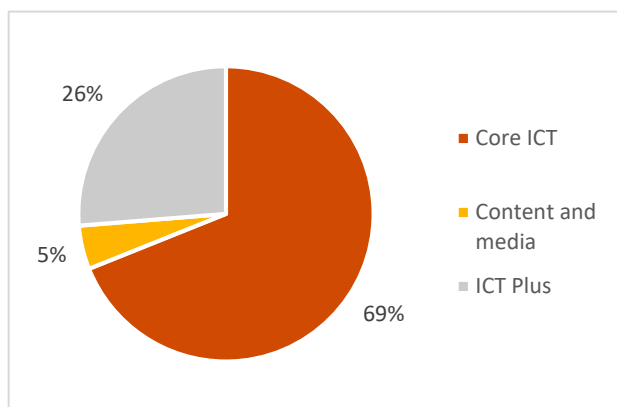
³²⁷ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

³²⁸ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

³²⁹ See definitions above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Estonia invested mainly in the adoption of innovations from the **'Core ICT' sub-sector**³³⁰ (69%), above the European average (54%)

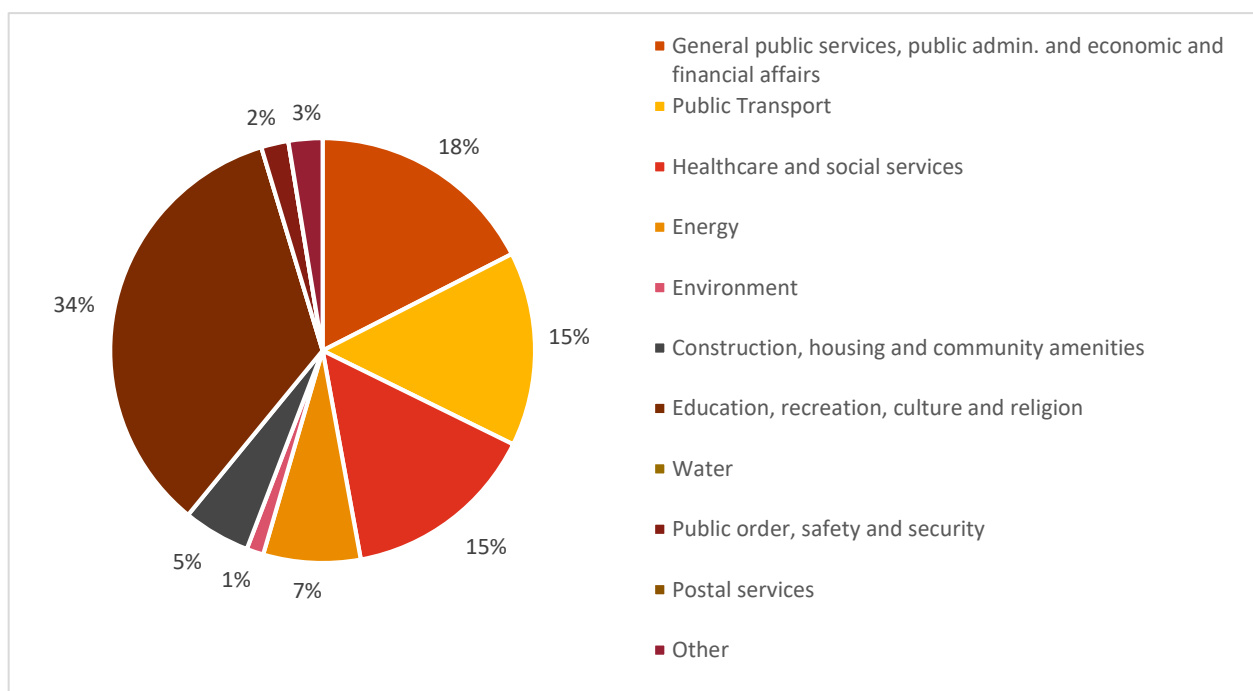
Estonia invested to a lesser extent in the adoption of innovations from the **'ICT Plus' sub-sector** (26%), significantly below the European average (44%).

Estonian investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (5%), but above the European average (1%).

Investments readiness across different domains of public sector activity

Nearly all domains of public sector activity in Estonia purchased innovation ICT-based solutions, except the **'Water'** and **'Postal Services'** domains where investment in ICT-based PPI was zero. The highest share of ICT-based PPI is made by procurers that operate in the domain of **'Education, recreation, culture and religion'** (34% against a 9% European average) followed by procurers in the **'Public Transport'** domain (15%) and **'Construction, housing and community amenities'** (5%) which are 4% above the European average.

ICT-based PPI investments by domains of public sector activity

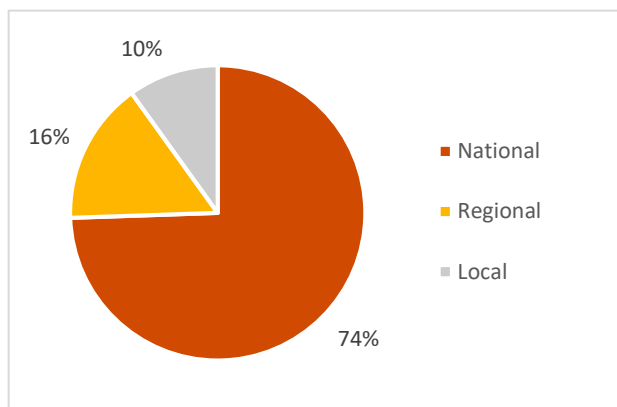


³³⁰ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for the largest share of ICT-based PPI (74%), quite above the European average (69%).

Procurers at regional level account for the 16% of the ICT-based PPI, below the European average (21%). **Local procurers** account for a similar fraction of ICT-based PPI (14%), which is still above the European average (10%).

Finland



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Finland the EU Procurement Directives (2014/23/EU, 2014/24/EU, 2014/25/EU) and the EU Defence Procurement Directive (2009/81/EC) have been transposed in the national legal framework by three acts, namely (i) the Act on Public Procurement and Concession Contracts (1397/2016), (ii) the Act on Procurement and Concession Contracts of Entities Operating in the Water and Energy Supply, Transport and Postal Services Sector (1398/2016) and (iii) the Public Defence and Security Procurement Act (1531/2011).

Finland is characterised by a harmonised and decentralised public procurement system. Competences in terms of public procurement are split between two Ministries. The **Ministry of Finance** is responsible for guiding central government procurement through the government procurement strategy, deciding on centralised joint purchasing, developing procurement procedures and maintaining responsibility for the general terms and conditions of procurement. Conversely, **Ministry of Economic Affairs and Employment** (MEAE) is responsible for the preparation of national procurement legislation and amendments, advising economic operators and contracting authorities on how the law should be interpreted and through its responsibilities for the Finnish innovation policy also for encouraging innovation procurement in the country. As part of this responsibility, the MEAE works with the Association of **Finnish Local and Regional Authorities** (FLRA) to operate the **Public Procurement Advisory Unit** (PPAU), an online and telephone help desk for contracting authorities.

Oversight of public procurement is carried out by the **Finnish Competition and Consumer Authority** (FCCA), which supervises compliance with legislation regarding public procurement, and the **Finnish National Audit Office** (NAO), which controls public procurement procedures in terms of budget, accounting, and financial operations, and reports its findings to the Parliament. The **Market Court** (MC) acts as a specific review body on public procurement in the first instance while **Hansel Oy**, a publicly owned stock company, acts as a central purchasing body and is designed to increase the Government's savings by entering into framework agreements for procurement.

The **Finnish Government programme 2015-2019** gave a strong boost to the development of innovation procurement policy, which is now embedded in the strategic priorities of several policies. Moreover, the Ministry of Economic Affairs and Employment launched an **Action Plan on innovation procurement** in 2017. In spring 2017 the Government decided to establish a competence centre of excellence on sustainable and innovation procurement, which has been operational since April 2018: the network based **Competence Centre for Sustainable and Innovative Public Procurement (KEINO)** is today the main operative body in the support of procurers in the implementation of innovation procurement policy.³³¹

Business Finland (previously called Innovation Funding Agency Tekes)³³² has a financing instrument for innovative public procurement since 2009, and between 2013 and 2016 ran a Smart Procurement programme.³³³ Other actors in the field are **VTT Technical Research Centre of Finland Ltd**³³⁴, a technology and research organisation which has developed a method to monitor and measure volume, trend and impact of innovation procurement, **SYKE**, the Finnish Environment Institute, which is involved in measurement activities, and **HAUS - the Finnish Institute of Public Management Ltd**, which is engaged in some capacity building activities such as *ad hoc* training for public procurers.

Innovation Procurement Policy Framework Benchmarking (2018)

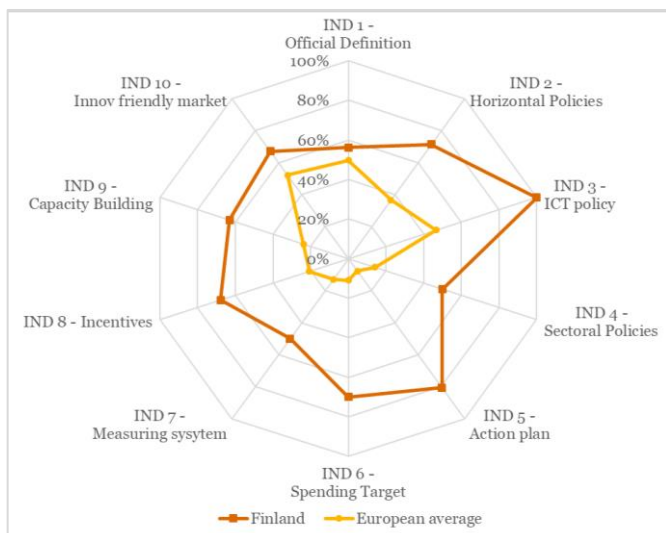
In the benchmarking of national innovation procurement policy frameworks across Europe, **Finland is at the 1st position** of the overall ranking with a **total score of 66,6%**. From the 30 countries analysed, Finland is among the strong performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. It scores on all ten indicators above the European average. Having implemented 66,6% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a reinforcement of the policy framework needed in Finland to reach its full 100% potential.

³³¹ <https://www.hankintakeino.fi/en> and http://valtioneuvosto.fi/en/artikkeli/-/asset_publisher/1410877/osaamiskeskus-vauhdittamaan-kestavia-ja-innovatiivisia-julkisia-hankintoja

³³² <https://www.businessfinland.fi/en/for-finnish-customers/home/>

³³³ The programme aimed at creating smart demand and speeding up market creation by bringing innovative supply and demand together. It included services such as financing, awareness raising, networking, sharing best practices. Between 2009 and 2016 it financed more than 70 projects for a total of 11 million euro.

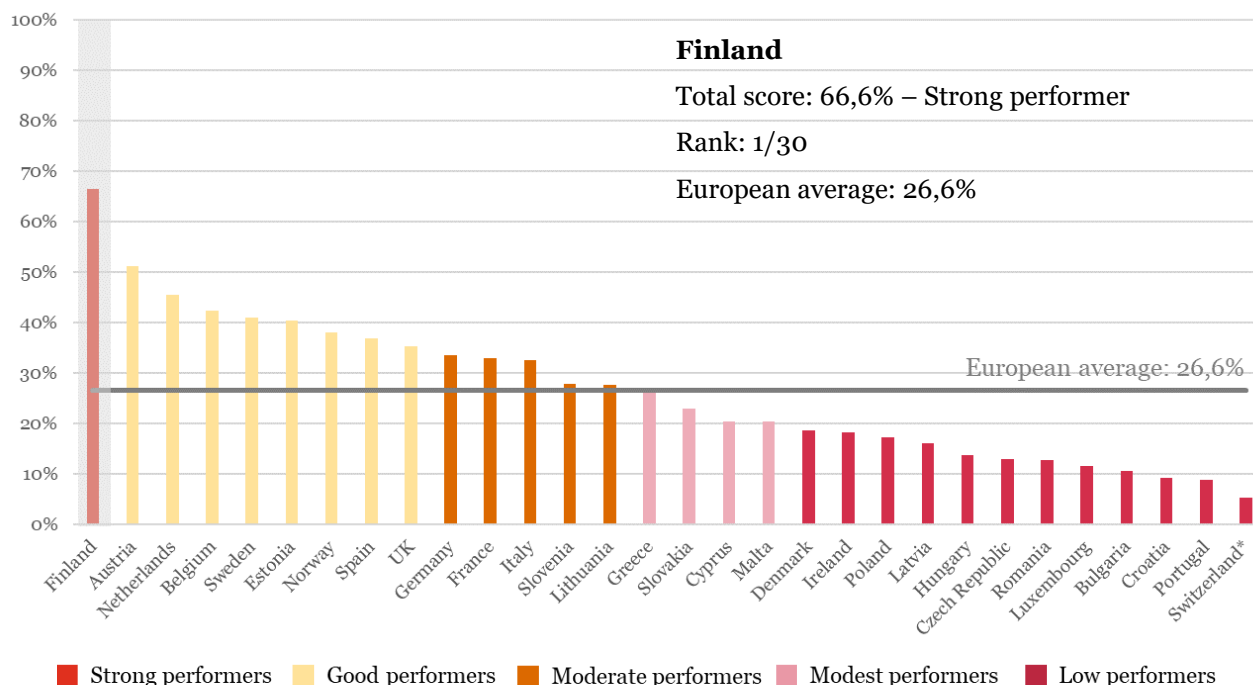
³³⁴ <http://www.vttresearch.com/>



Strengths: Finland has recently put in place a structured innovation procurement policy, action plan and target for national government with clear allocation of roles and objectives to scale up innovation procurement. A default IPR allocation regime that fosters innovation is anchored in the general terms and conditions for government contracts.

Weaknesses: Absence of a target that applies to all procurers in the country, lack of strategic recognition of the strategic importance of innovation procurement still by some sectors of public interest, structural monitoring system is still being setup, capacity building and assistance measures and use of value for money award criteria still to be further mainstreamed.

Overall ranking

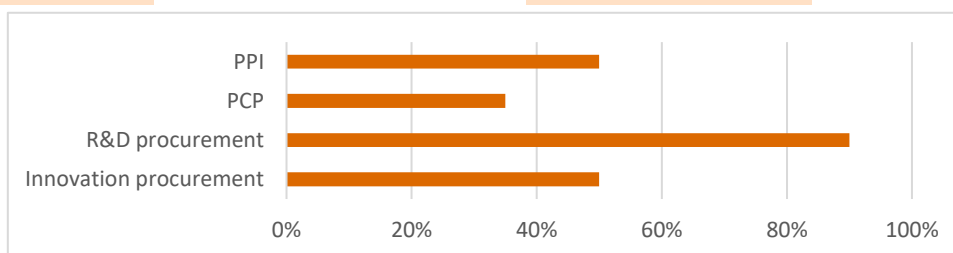


Finland
 Total score: 66,6% – Strong performer
 Rank: 1/30
 European average: 26,6%

Overview per indicator

Indicator 1 – Official definition

Total score: 56% European Average: 50%



The Finnish legal framework provides an official legal definition for R&D procurement but only applicable to the defence sector. “Innovation procurement”, Pre-commercial procurement (PCP) and “Public Procurement of Innovative solutions” (PPI) are defined in the report “Public procurement of innovation – definition, opportunities and measurement” published by the Prime Minister’s Office in December 2017. Therefore, the total score of this indicator is 56%.

The Act on Public Procurement and Concession Contracts (1397/2016) introduces the definition of “**innovation**” in the section 4(1) p.20 “*the implementation of a new or significantly improved product, service or process, including production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external*”. This definition is in line with the EU public procurement directives' definition.

In addition, the Prime Minister’s Office report from December 2017, defines **innovation procurement** as “*the acquisition of a new or significantly improved product or service that improves public service productivity, quality, sustainability and/or effectiveness*”. This definition is not fully in line with the EU official definition (as it does not cover purchases by all first 20% early adopters), but is applicable to all public procurers in the Country. The total score for this sub-indicator is 50%.

The Law on Public Defence and security procurement (29.12.2011/1531) provides a definition of **Research and Development**. In particular, the Chapter 1, sect. 3 (16), defines R&D as: “*all activities consisting of basic research, applied research and experimental development, which may also include equipment for the introduction of a new concept or a new technology in a relevant or typical environment*”. This definition is fully in line with the EU official definition but is applicable only to defence and security procurement. Therefore, the total score for this indicator 90%.

The Finnish Act on Public Procurement and Concession Contracts identifies in Section 9(1) p. 13, R&D as “*activities that have the CPV codes for fundamental research, applied research and industrial development*”. This article also transposes the exclusion for R&D services, which forms the legal basis for implementing in **PCP**, namely: “*the law only applies to R&D services procurements following the cumulative conditions of "(a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority*”. Therefore, even without PCP definition, there is a legal basis which is applicable to all public procurers in the country, resulting in a total score for this indicator of 35%.

Although there is no official definition for **Public Procurement of Innovative solutions (PPI)** in Finland, the *Public procurement and concession contract act. 1397/2016* provides the legal basis for its implementation (Section 108, p. 2) which states: “*In addition to the provisions of subsection 1, the contracting entity in a procurement of social and health services shall consider factors related to the quality, continuity, accessibility, affordability, availability and comprehensiveness of the services, to the special needs of various user groups, to user participation and increased empowerment, and to innovation*”. A non-legal definition is also provided by the Prime Minister’s Office report from December 2017 which defines PPI as the “*Purchase of a new product or new solution that was not previously on the market*”. This definition is applicable to all public procurers in the Country but is not in line with the EU official definition (as it does not cover purchases by all first 20% early adopters). Therefore, the total score of this sub-indicator is 50%.

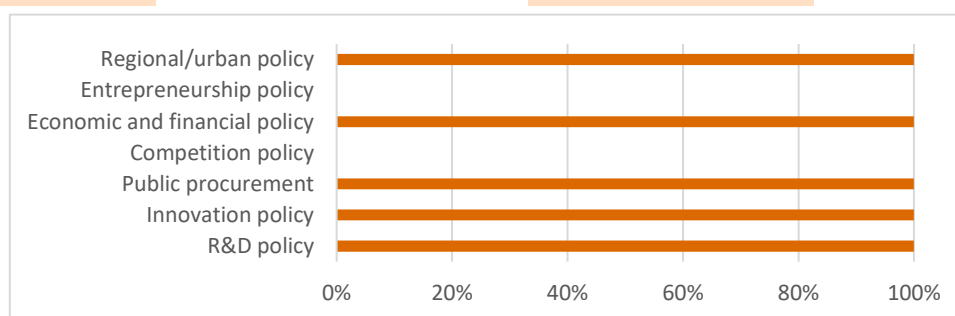
Indicator 2 – Horizontal policies

Total score

71%

European Average

36%



In Finland, innovation procurement is included in several horizontal policies, namely regional, economic, public procurement, innovation and R&D, for a total score of 71% for this indicator.

The introduction of innovation procurement in horizontal policies’ strategies is mainly due to the **Finnish Government Programme 2015-2019**³³⁵ (“*Finland, a land of solutions – Strategic programme of Prime Minister Juha Sipilä’s Government, 29 May 2015*”). By setting a spending target for innovation procurement (cfr. Indicator “Target”), the Programme dramatically increased attention in the field of innovation procurement, leading to the adoption of a specific Action plan and the foundation of the KEINO competence centre (cf. Indicators “Action plan” and “Capacity building and assistance measures”). As a consequence, specific policy programmes recognise today the role of innovation procurement: the national public procurement policy defined by the ministry of economic affairs and employment supports the implementation of the national 5% innovation procurement target (e.g. it has foreseen a default regime to leave IPR ownership with suppliers in public procurements in the national Finnish public procurement guidelines)³³⁶, the national

³³⁵ <http://valtioneuvosto.fi/en/implementation-of-the-government-programme>

³³⁶ <https://tem.fi/en/innovation-policy>

economic and financial policy foresees specific budgets for implementing actions to promote innovation procurement³³⁷, the national R&D and innovation strategy already encourages innovation procurement since 2008³³⁸.

Under the regional policy, the deployment of innovation public procurement is one of the key actions to be executed within the “**National Priorities for Regional Development 2016-2019**”.³³⁹ In addition, innovation procurement is often used in the context of the so-called “**growth agreements**” between the State and major cities. Growth agreements define key actions for long-standing development of cities and urban regions. In this context, innovation procurement is often used as a method to channel investments and procurement budget of cities to support the development of new services and products and create reference areas for companies.³⁴⁰

Indicator 3 – ICT policies

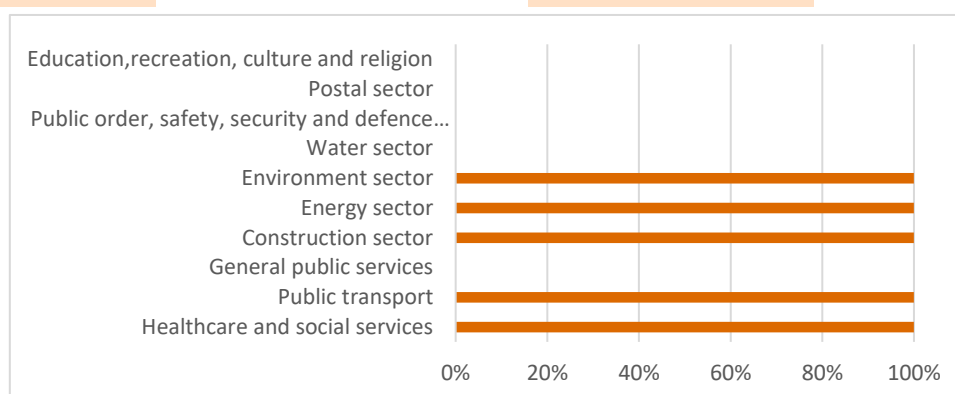
Total score	100%	European Average	47%
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The **Handi program**, the “Digitalisation of state procurement” program by the Ministry of Finance in Finland, has as one of the goals to enable more innovations in the field of public procurement³⁴¹. The program contains for example an obligation for the state contracting authorities to publish the procurement plans well in time before the actual procurement notice to allow the economic operators more time to innovate.

“**Digital Finland Framework**” (2018) indirectly refers to public procurement as a demand-side tool able to support the strategic priority of investing in innovative digital technologies.³⁴² Emphasis on using a demand-driven mode is put especially in the area of digital platforms for deploying and further developing new enabling technologies and applications, including those based on artificial intelligence IoT, 5G and cyber security. “*Digital platforms are an outstanding means to deploy and further develop new enabling technologies and applications, including those based on artificial intelligence IoT, 5G and cyber security. Platforms should primarily be developed industry-lead, but there are many domains and purposes where public sector driven or mixed public-private mode is most appropriate*” (public procurement is then shown in a picture as a possible resource that can be used). There is however no direct reference to specific actions on innovation procurement that are planned in the digital sector. Because of this indirect reference to innovation procurement, the total score for this indicator is 50%.

Indicator 4 – Sectorial policies

Total score	50%	European Average	14%
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Finland includes innovation procurement in five sectorial policies. The total score of this indicator is 50%.

In Finland, innovation procurement is among the strategic objectives set out in the **Government Programme 2015-2019** (cf. Indicator “Horizontal policies”). This clear political commitment has boosted the spread of innovation procurement in horizontal and sectorial policies. Evidence, for instance, is available in the following sectors:

- Under the healthcare policy, the “**Health Sector Growth Strategy for R&D - Roadmap 2016-2018**” encourages the introduction of innovative solutions when renewing health technology and pharmaceutical regulation as well as in the strategies of health sector institutions (Action n. 8). Furthermore, it explicitly supports innovation procurement.³⁴³

³³⁷ https://vm.fi/en/article/-/asset_publisher/xx

³³⁸ http://ec.europa.eu/invest-in-research/pdf/download_en/finland_national_innovation_strategy.pdf

³³⁹ <https://tem.fi/documents/1410877/2817500/NATIONAL%20PRIORITIES%20OF%20REGIONAL%20DEVELOPMENT%202016-2019/56d577b2-af13-47d0-8bcc-a1dd563d3f97>

³⁴⁰ <http://tem.fi/en/practical-measures-for-promoting-innovative-public-procurement>

³⁴¹ <https://www.handi.fi/?lang=en>

³⁴² <https://www.businessfinland.fi/contentassets/47485067fefa4d838f7bc81d8ac90cd4/digital-finland-framework-report-feb-2018.pdf>

³⁴³ <http://tem.fi/en/health-sector>

- The **Intelligent Transport Strategy**³⁴⁴, provides the introduction of a pre-commercial procurement (PCP) in order to link together the needs of society and the innovation potential of businesses. It will be possible to use PCPs to promote the use of new solutions and to solve development needs in society by exploiting the innovation potential of businesses and simultaneously creating an incentive system to encourage commercialization.
- **The government strategy to promote cleantech** also endorses innovation procurement. Already in 2013, the Finnish Government passed a resolution on the promotion of cleantech solutions (sustainable solutions in environment and energy) through public sector procurement³⁴⁵. This strategy includes targets for governments organisations to purchase electricity from renewable sources, targets to purchase vehicles with low emission rates, targets for the construction sector, energy use and transport and waste management to use lower amounts of materials and new products and solutions that generate less harmful environmental impacts.

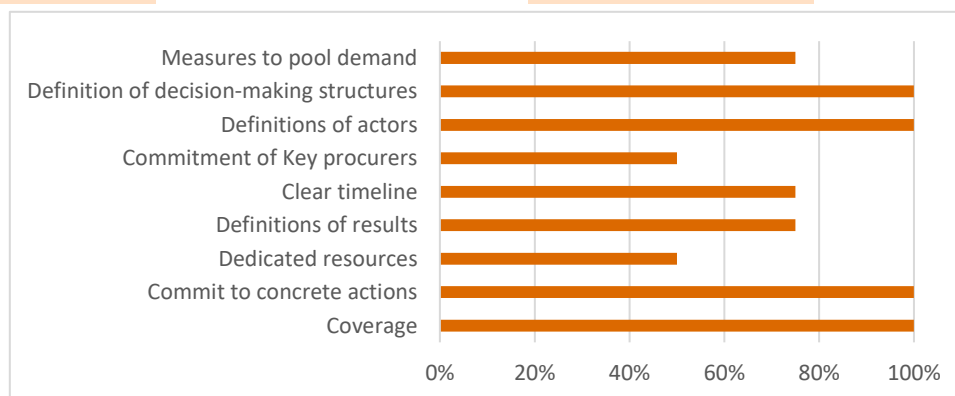
Indicator 5 – Action plan

Total score

81%

European Average

8%



In December 2017 Finland has adopted a **dedicated Action Plan on innovation procurement**, which was initiated by the Ministry of Economic Affairs and Employment.³⁴⁶ The overall purpose of the action plan is to promote a more strategic approach to innovation procurement at the Government level and enhance management and preparation of procurements in administrative branches. The action plan covers all types of innovation procurement, is applicable across the country and to all public procurers in all sectors and administrative levels and aims at mainstreaming innovation at a large scale. Therefore, the score of the sub-indicator "**coverage**" is 100%.

The action plan defines **concrete actions**. The Action Plan contains 14 different measures divided in four main categories: management, information sharing, skills development, and concrete tools (e.g. risk management tools). The action plan also defines concrete **responsible actors** for each action to be implemented. For each of the 14 measures, tasks are divided among the responsible actors which range from the competence centre KEINO to all ministries in the central government, the central purchasing body HANSEL, the funding entities Sitra and Business Finland, the training entity HAUS etc. The score for sub-indicators "definition of concrete actors" and "definition of actors" is therefore 100%.

The action plan defines for each action concrete **expected results**. For example, according to the Action Plan, innovation procurement should be included in the performance management (KPIs) of each public sector organisation to ensure a systematic approach. Furthermore, public organisations should assign a person in charge of achieving the objectives on innovation procurements (so called "change agents") and provide training activities tailored to innovation procurement. As these expected results are not implemented yet to achieve wide scale impact across all procurers in the whole country, the score for sub-indicator "expected results" is 75%.

The action plan defines a **clear timeline** to implement all the objectives in two phases.

The specific objectives of the Action Plan are:

- Promoting a more strategic approach to innovation procurement;
- Promoting a better management and preparation of procurements in administrative branches;
- Creating a systematic development process for cooperation across central government sectors and administrative branches;
- Support to the Government objective to raise the share of innovation procurement of all public procurement to 5% (cf. Indicator "Target")³⁴⁷.

The second phase of the plan consists of defining supporting activities for each administrative branch. Support and coaching, tailored to the needs of each administrative branch, will be provided to promote the implementation of the measures. The second phase is already underway in the form of coaching meetings for each administrative branch. These

³⁴⁴ https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/77970/Intelligence_in_Transport_and_Wisdom_in_Mobility_Finlands_Second_Generation_Intelligent_Strategy_for_Transport.pdf?sequence=1&isAllowed=y

³⁴⁵ <http://www.ym.fi/download/noname/%7B11E6CBCF-402F-4338-848A-A6F7676DoADD%7D/58318>

³⁴⁶ <https://tem.fi/documents/1410877/2132296/IJH+Toimenpidesuunnitelma.pdf/3fe413eb-ofd5-4dc3-9797-74ce98694503> (in Finnish). https://tem.fi/en/article/-/asset_publisher/innovatiivisten-julkisten-hankintojen-toimenpideohjelman-on-valmistunut (in English)

³⁴⁷ http://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_EN_YHDISTETTY_netti.pdf/8d2e1a66-e24a-4073-8303-ee3127fbfca6

meetings continued until January 2019. As the timeline does not cover long term actions to sustain wide scale implementation yet, the score for the sub-indicator timeline is therefore 75%. Finally, dedicated **resources** have been allocated by the ministry of economics for the activities in the action plan to be implemented by the national Finnish competence centre on innovation procurement KEINO however several of these activities are still in the start-up phase and mainly targeted at central government procurers. It is not clear which resources are exactly committed by the other key actors listed in the action plan to achieve their objectives in the action plan. Therefore, the score for the sub-indicator "resources" is 50%.

The fact that innovation procurement is now addressed more strategically at the central government level has also led to local initiatives. For example, the cities of Turku and Tampere have their own actions to promote innovation procurement.³⁴⁸ As the action plan is still in the process of obtaining similar commitment from other procurers across all levels and sectors, the score for the sub-indicator "**commitment of key procurers**" is currently 50%.

Finally, through the involvement of the national central purchasing body Hansel and the creation of purchasing groups the action plan defines concrete **measures to pool demand** among public and private procurers across the whole country and for all types of innovation procurement, however this is not implemented yet at a scale to mainstream innovation procurement widely yet. Therefore, the score of this sub-indicator is 75%. As a result, the total score for this indicator is 81%.

Indicator 6 – Spending target

Total score	70%	European Average	11%
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The **Finnish Government programme 2015-2019**³⁴⁹ ("Finland, a land of solutions – Strategic programme of Prime Minister Juha Sipilä's Government, 29 May 2015") includes a numerical target for innovation procurement (where innovation procurement comprises only the purchase of solutions that were not on the market before), set at **5%** of total public procurement at national level. The Action Plan for innovation procurement (cf. Indicator "Action Plan") has been formalised as a direct consequence of this government objective.

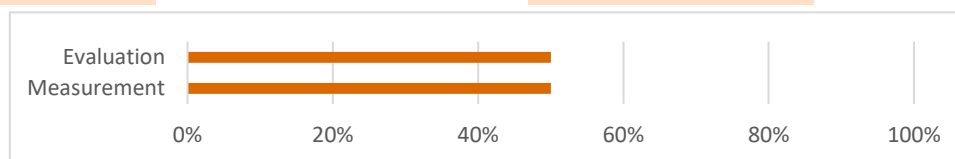
The target applies to all central government ministries, institutions and agencies across all policy sectors. It is also embedded in the national government strategic projects for key growth opportunity sectors. However, as the vast majority of public procurement in Finland takes place at sub-national level, it is a pity that the target is not applicable to regional or local authorities or to the utility sector. It does not oblige local governments (i.e. municipalities) in any formal manner. However, it is encouraging that some of the most advanced municipalities have set their own targets for innovation procurement (particularly largest cities, e.g. Tampere). In addition, the Finnish Ministry of Transport committed to a 10% innovation procurement spending target, which is higher than the national target.

The national target has been backed by a structured innovation procurement policy, which has foreseen practical support and monitoring activities, as well as the development of tools to facilitate the implementation of innovation procurement. The spending target has also been embedded in a number of government strategic projects with the aim to create an innovation procurement market and support the strategic use of innovation procurement in the whole economy. Unfortunately, these efforts are focused mainly on national level procurements that are covered by the target.

Finland does not have separate targets for innovation procurement, PPI, PCP and R&D procurement. Therefore, the total score of this indicator is 70%.

Indicator 7 – Monitoring system

Total score	50%	European Average	13%
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Finland does not have a structured system to measure or evaluate the impacts of completed innovation procurement. The country has conducted monitoring activities but only for a subset of innovation procurements and not widely across the whole country (e.g. only for certain sectors or certain levels of government, only for some regions, only for specific PPI programmes etc.). Therefore, total score of this indicator is 50%. The **Competence Centre for Sustainable and Innovative Public Procurement (KEINO)** has the responsibility to monitor innovation procurement, both in terms of its effectiveness and its efficiency.³⁵⁰ In the coming years it is expected to develop a management-oriented monitoring and evaluation system as well as monitoring and evaluation tools. These

³⁴⁸ <https://turkubusinessregion.com/en/services/growth-and-development/growth-from-municipal-customers/>; <http://projects.smarttampere.fi/procurement>; <https://yritystampere.fi/en/open/experiments-and-innovative-procurement>

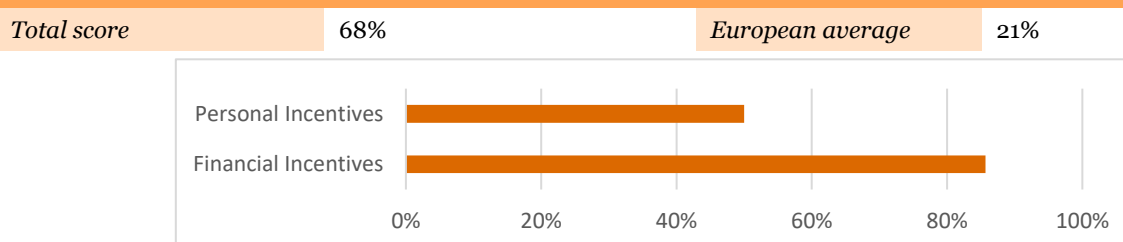
³⁴⁹ <http://valtioneuvosto.fi/en/implementation-of-the-government-programme>

³⁵⁰ <http://www.hankintakeino.fi/palvelumme/hankintojen-vaikuttavuus>. KEINO is expected to set up the monitoring and evaluation system in 2018.

include the creation of follow-up indicators, indicators for achieving national targets and to assess and evaluate the effectiveness and efficiency of the innovation procurement processes.

So far, monitoring activities have been carried out by the **VTT Technical Research Centre of Finland Ltd**³⁵¹, a technology and research organisation which works, among others, for public clients. For the **Ministry of Economic Affairs and Employment**, the VTT Technical Research Centre of Finland Ltd together with **Syke** initiated a project, under the PMO's TEAS funding programme, aiming at improving knowledge base and at developing tools for monitoring innovation procurement. In particular, they have been worked at the definition of PPI for purposes of monitoring, of estimating the potential of sectors and of defining the methodology to monitor and measure volume, trend and impact of innovation procurement.³⁵²

Indicator 8 – Incentives



Today, the main actor financing innovation procurement is **Business Finland**³⁵³ (previously called Innovaatio-rahoytokeskus Tekes), a publicly funded organization for financing research, development and innovation at national level, which grants funding for 40-50% of the project's total costs³⁵⁴. Business Finland finances all kinds of innovation procurement (PCPs, PPIs, R&D procurement).

The **Tekes Smart Procurement Programme**³⁵⁵, run between 2013 and 2016, financed more than 70 innovation procurement projects on a number of horizontal themes such as digitalisation, energy efficiency, transport, security, health and environment, for a total of €11 million. The programme encouraged public buyers to use procurements to solve societal problems, renew public services and improve market access for new products and services. The new funding now provided via Business Finland is designed to mainstream innovation procurement further.

The incentives schemes are financed with national funds and do not rely on European structural and investments funds. Therefore, the total score for this sub-indicator **financial incentives** is 86%

Finally, **personal incentives** to public procurers are also used. Non-personal incentives take the form of KPIs agreed between the central government/ministries and procurers in the country, which set cost reduction and quality improvement levels/targets for public procurements that are implemented by authorities at the national level or depending from the national level (e.g. CO₂ reduction). These KPIs seriously drive forward innovation procurement in the country, however they are mostly used at the national and not systematically at the local and regional level. The total score of the sub-indicator personal incentives is 50%. Therefore, the total score for the indicator incentives is 68%.

Indicator 9 – Capacity building and assistance measures

Total score	63%	European Average	24%
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	Existence	Connection with relevant international /EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	✓		✓	✓	✓	✓	83%
Good practices	✓		✓		✓	✓	67%
Trainings/workshops	✓		✓	✓	✓		67%
Handbooks/guidelines	✓	✓	✓	✓	✓	✓	100%
Assistance to public procurers	✓		✓	✓	✓		67%
Template tender documents							0%

³⁵¹ <http://www.vttresearch.com/>

³⁵² <http://tem.fi/en/practical-measures-for-promoting-innovative-public-procurement>

³⁵³ <https://www.businessfinland.fi/en/for-finnish-customers/home/>

³⁵⁴ <https://www.businessfinland.fi/en/for-finnish-customers/services/funding/public-services/innovative-public-procurements/>

³⁵⁵ <https://www.oecd.org/governance/ethics/Vilen-Finland-Forum-Procurement-Innovation-2016.pdf>

Coordination/pre-approval								0%
Networking of procurers	✓	✓	✓	✓	✓	✓	✓	100%
One-stop-shop/competence centre	✓		✓	✓	✓	✓	✓	83%

Finland has recently launched a wide range of initiatives to promote innovation procurement in the Country. Many of these activities are directly promoted in the Action Plan.

First of all, it has funded the national **Competence Centre for Sustainable and Innovative Public Procurement (KEINO)**³⁵⁶, which started its operation in April 2018. KEINO is a network-based consortium, whose founding members, responsible for the operation and co-development, are Motiva Ltd, the Association of Finnish Local and Regional Authorities, VTT Technical Research Centre of Finland Ltd, The Finnish Funding Agency for Innovation – Business Finland, the Finnish Environment Institute SYKE, Hansel Ltd, KL-Kuntahankinnat Ltd and the Finnish Innovation Fund Sitra. The **Ministry of Economic Affairs and Employment** will grant funding for the centre's founding and operations for three years (€6 million).

With the objective of promoting innovation procurement and enhancing procurers' know-how on green and innovation procurement, the responsibilities of the centre of excellence are³⁵⁷:

- Increasing the number of innovation and sustainable procurements in Finland;
- **Increase market dialogue** and facilitate better processes for the preparation and planning of public procurements: how to incorporate performance and effectiveness targets in procurements and how to create at the same time an efficient procurement process;
- Making public procurement recognised and actively used as a strategic management tool, through the **support to procurement units in drafting strategic goals and roadmaps**;
- **Create and disseminate** new, scalable and light-weight **operating models**;
- **Develop peer support practices and education models** together with municipalities and expert organisations and supporting their dissemination among contracting entities;
- Create and develop **national networks** of procurers and innovation procurement key stakeholders, to help the contracting entities share their knowledge, learn from each other and profit by market opportunities;
- Drafting market-inspiring **guidelines and models** for effective innovation procurement;
- Promoting **educational and collaborative research** and incorporating a sustainability and innovation perspective into procurement **teaching**.

In support of **regional knowledge networks**, KEINO is currently developing a pool of “**change agents**” (*muutosagenttien*).³⁵⁸ Change agents are local advisors for sustainable and innovation procurement. These act as KEINO local contact points and bring KEINO closer to local procurers. The role of these change agents is:

- Advising and sparring the contracting entities in their area in accordance with KEINO's activities;
- Share information with KEINO about the region's situation and local needs;
- Help the various procurement units and experts networking;
- Activate procurement units in network operations and subscriber groups.

KEINO's goal is to appoint 18 change agents around Finland. They will be supported by the centre's resources.

KEINO is involved in a number of **international cooperation activities** aiming at allowing Finnish contracting entities and experts to make active use of European innovation public procurement funding and to become sought after partners, besides **boosting Finland's image** as an internationally renowned innovation- and experiment-friendly operating environment. In particular, it **disseminates best international practices** for the use of contracting entities, builds up **international networks** for the benefit of contracting entities, writes interesting stories that can be used as company reference in international communication, seeks out Finnish contracting entities and nominates them to international procurement or similar competitions, **assists procurement experts** in applying for an exchange abroad, **represents Finland in international networks** such as the EU Urban Agenda.

KEINO operates also the country's **central website** on innovation procurement³⁵⁶. In order to promote innovation procurement, and innovation in general, KEINO also organises “**Buyer Groups**”, networking events where procurers and potential suppliers in some particularly fast-moving areas can meet and accelerate the market innovation activities. Through this measure, KEINO promotes the introduction of new procurement models and the development of know-how among procurers, facilitates cooperation and exchange of information between contracting entities and businesses, and accelerates the development and use of new enabling technologies in the country.

KEINO **networks** individual procurers at national level to create purchasing networks and cooperates with the national purchasing body Hansel to explore opportunities to achieve large scale multiplier effects with innovation procurements. In 2011 the Nordic Ministers of Industry launched together a **Nordic lighthouse initiative in the healthcare domain** to strengthen collaboration between Norway, Finland, Sweden, Denmark and Iceland on innovation procurement. Nordic innovation and the national competence centres on innovation procurement in those countries organise from time to time meetings with procurers from different Nordic countries to discuss potential coordinated procurement possibilities. Therefore, the score for sub-indicator networking is 100%.

³⁵⁶ <http://www.procurementcompetence.fi/> ; <https://tem.fi/documents/1410877/2937056/KEINO+-Towards+sustainable+and+innovative+public+procurement>

³⁵⁷ https://tem.fi/en/article/-/asset_publisher/innovatiivisten-julkisten-hankintojen-toimenpideohjelman-on-valmistunut

³⁵⁸ <http://www.hankintakeino.fi/palvelumme/muutosagentit>

In addition to the competence centre's actions, it shall be mentioned that also other three organisations are engaged in capacity building activities:

- **Business Finland**, besides financing innovation procurement (cf. Indicator "Incentives"), is engaged in awareness raising, networking, market consultations, training and sharing of best practices;
- **HAUS - the Finnish Institute of Public Management Ltd** trains civil servants and improves their skills, and it also participates in different ways in developing state administration organisations. HAUS is a Finnish state-owned company which reports to the Ministry of Finance and it offers specific training sessions on innovation procurement to public procurers.³⁵⁹
- **Sitra**, the Finnish Innovation Funds, published as early as in 2006 together with the Ministry of finance and the Ministry of trade and industry a guide for public organisations and enterprises about innovation procurement³⁶⁰ and is still active in financing procurers and in supporting the development of this policy.

Finally, it is worth noting the publication of the Ministry of Employment and Economy Enterprise and innovation Department (2015) "*Inspiring Innovation - Meeting the necessity for renewal*"³⁶¹ which deals specifically with innovation procurement policy advances in the country and presents best practices examples.

All capacity-building measures taken into consideration are put in place in the country, with the exception of the provision of template tender documents and pre-approval / coordination activities for the implementation of innovation procurements. However, several capacity building measures coordinated by KEINO, such as trainings and assistance, are still in the early phase of being rolled out. The list of good practice examples on the KEINO website is not covering all types of procurement (e.g. examples of R&D and PCP procurements are missing). References / interconnection of national capacity building activities to recent EU initiatives (e.g. Eafip, procure2innovative network of competence centres, study SMART 2016/0040 that is benchmarking national policy frameworks for innovation procurement across Europe, EU guidance on innovation procurement, EU funding opportunities for innovation procurements (e.g. H2020, ESIF, EIB) and recent EU funded projects (e.g. Horizon 2020 funded projects) is often still missing. On the basis of the evidence collected above, the total score for this indicator is 63%.

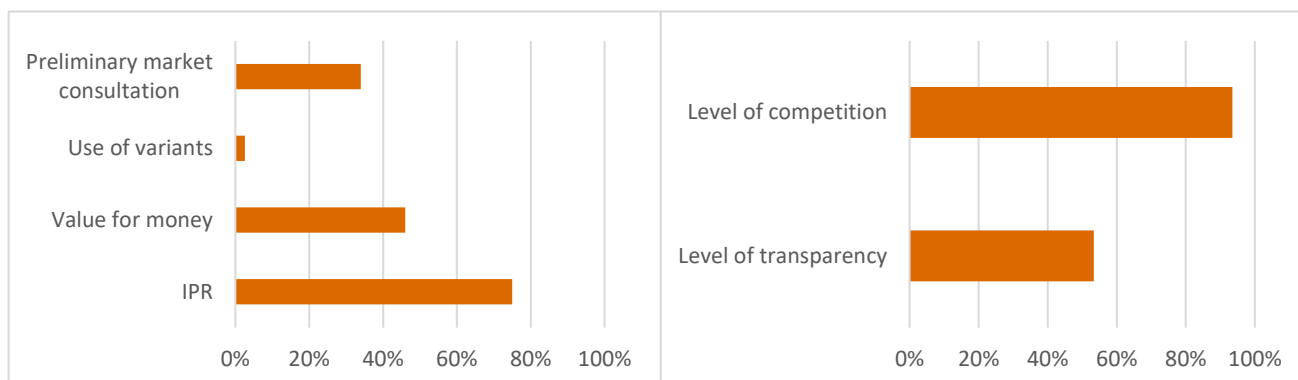
Indicator 10 – Innovation friendly public procurement market

Total score 56%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators measuring:

- The use of specific techniques to foster innovation in public procurement in Finland
- The openness of the national public procurement market to innovations from across the EU single market

With regards to sub-indicator I, Finland shows the following evidence:

- IPR default regime:** The score for this sub-indicator is 75% because the Finnish public procurement law does not address the issue of IPR allocation or transfer but the general terms for the Finnish government's service and product type public procurement contracts ("JYSE2014 services"³⁶² and "JYSE2014 supplies"³⁶³) define as default scenario that the public procurer obtains only usage rights while all other IPR rights are left with the contractor. This approach was adopted in line with the Finnish copyright act³⁶⁴ that assigns copyright to the creator and determines that the moral rights can only be waived to a limited extent by the creator when the use of the work in question is limited in nature and extent. If the procurer wants to use the commissioned work, he must require in

³⁵⁹ <https://www.haus.fi/HAUS-International/About>

³⁶⁰ News release: <https://www.sitra.fi/en/news/innovation-and-creativity-spur-public-sector-productivity/>; Report available at <https://media.sitra.fi/2017/02/27173648/Raportti64-2.pdf>

³⁶¹ <https://tem.fi/documents/1410877/2132258/Inspiring+Innovation/678be0a8-d2d2-4abb-8123-275e98d95bod/Inspiring+Innovation.pdf>

³⁶² <https://vm.fi/documents/10623/307565/JYSE+2014+services/920004d3-fbfd-4e82-b4ce-fccdf6e9dbc5>

³⁶³ <https://vm.fi/documents/10623/307565/JYSE+2014+supplies/0acd6bfd-1384-48f6-8e46-6c9c2ba172e3>

³⁶⁴ http://www.wipo.int/wipolex/en/text.jsp?file_id=208099

the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. The act foresees that whoever has legally acquired a computer program may make such copies of the program and make such alterations to the program as are necessary for the use of the program for the intended purpose. This shall also apply to the correction of errors.

- b. **Use of value for money award criteria:** According to the EU single market scoreboard, 46% of the procedures were awarded on the basis of criteria different from the lowest price. This is moderately above the European average of 42% but still not reaching the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Finland has allowed the use of variants in 3% of the procedures. This percentage is below the European average.
- d. **Preliminary Market Consultation:** Finland has used Preliminary Market Consultations in the 34% of the procedures. This percentage is largely above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 39% which is above the European average of 23%. This is due to a good, above-EU-average performance in all the components of sub-indicator I, with the exception of the use of variants, which is below the European average.

With regard to sub-indicator II, Finland shows the following evidence (based on the Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 94% which is above the European average 84% and reaching the 93% satisfactory level set by the EU single market scoreboard. This positive performance is both driven by the high amount of procurement procedure with more than one bidder (89%) and the high amount of procurements conducted with a call for bid (98%).
- f. **Level of transparency:** The level of transparency of the public procurement market is 53% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. The publication rate in Finland is on the European average (4%) but below the satisfactory 5% level. Above average are both the sub-indicators procedures without missing call for bid information (96%) and without missing buyer registration number (60%), however the latter one is significantly below the satisfactory level of 97%.

Based on this evidence, the score for sub-indicator II is 73% which is above the European average of 65% but still below the satisfactory level 79% set by the EU single market scoreboard. This is mainly driven by the high level of competition but the still below satisfactory level of transparency.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 56%, which is significantly above the 44% European average. This score is explained firstly by the fact that, in all the sub-components of sub-indicator I, with the exception of the *use of variants*, are above the European average. Even though the openness of the Finnish public procurement market to innovations from across the EU single market is above the European average, the use of specific techniques to foster innovation in the country is below European average and both are still below the satisfactory level. Indeed, the country has adopted a default IPR regime in public procurement that fosters innovation but value for money criteria are still significantly underused in public procurements. In addition, although the national public procurement market shows an above average level of competition, the level of transparency is although above the European average still below satisfactory level.

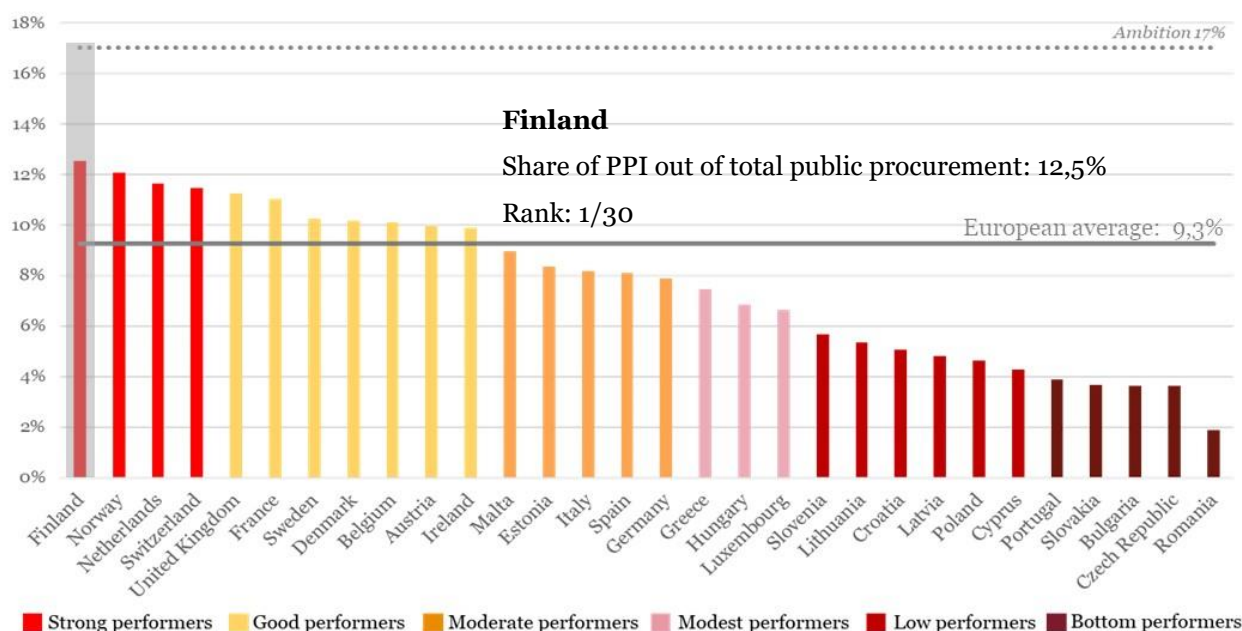
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Finnish investments on public procurements of innovative solutions (PPI) and the benchmarking of all Finnish investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 12,5% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 5,8 bn), **Finland ranks in the first place** in the benchmarking of investments on public procurement of innovative solutions (PPI)³⁶⁵ across Europe. **Finland leads the group of strong performers**, well above the European average of 9,3%.³⁶⁶ Despite resulting as the best performer in the benchmarking analysis, **Finland still needs a relatively modest increase of investments in PPI** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Finnish public sector.³⁶⁷ When taking into account also PPI in the defence sector Finland drops to the 3rd position.



The **main factors**³⁶⁸ explaining Finland's strong performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Finland (90%) is well above the European average (84%). This may be explained by the high adoption of 'innovative solutions that are 'new to the market' (72% of PPI). The share of 'significantly improved' solutions' is also considerable (17% of PPI). The portion of transformative innovations is also significantly higher than the share of **incremental innovations** (10%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'.

³⁶⁵ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

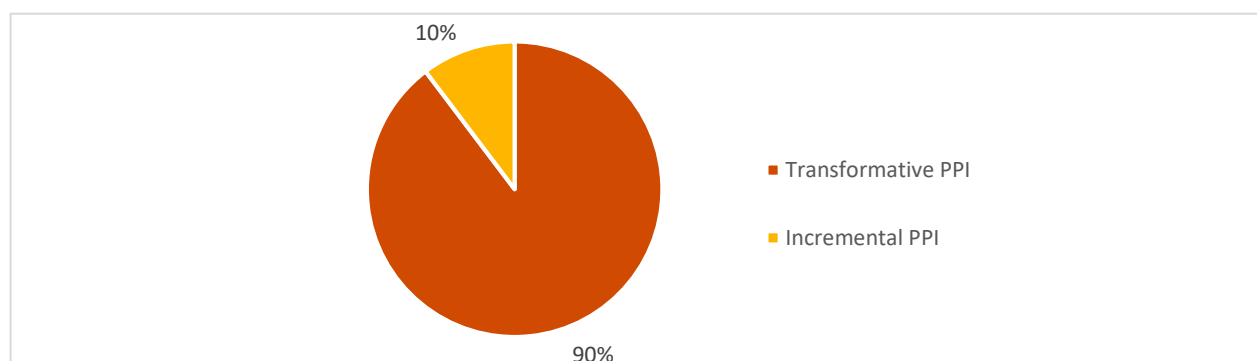
³⁶⁶ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

³⁶⁷ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

³⁶⁸ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **An appropriate, strong level of investment in the adoption of innovative ICTs** is therefore an important factor explaining Finland's strong performance. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investments readiness across different domains of public sector activity

Nearly every domain of public sector activity³⁶⁹ in Finland purchased innovation solutions, except in 'Postal Services' with zero PPI investments. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. At the same time, PPI investments by Finnish procurers operating in the 'Public Transport' domain are 6 times higher than the average at the European level (64% compared to 10% European average). However, PPI investments in 'Healthcare and social services' (-15 pp) and 'General public services, public administration and economic and financial affairs' domains (-28 pp) are far below the European average. Also, PPI investments made by procurers in 'Public order, safety and security', 'Water', and 'Energy' are below the European average (respectively -6 pp, -4 pp and -5 pp). The share of PPI investments contributed by procurers in the 'Water' and 'Other' domain was small.

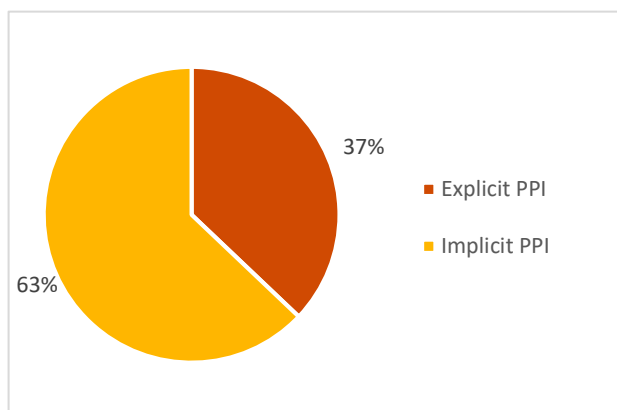
PPI investments by domains of public sector activity

Domain of public sector activity	Finland	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	7%	35%	-28
Public transport	64%	10%	+54
Healthcare and social services	6%	21%	-15
Energy	1%	6%	-5
Environment	7%	3%	+4
Construction, housing and community amenities	5%	4%	+1
Education, recreation, culture and religion	7%	5%	+2
Water	0% (0,4%)	4%	-4
Public order, safety and security	2%	8%	-6
Postal services	0%	1%	-1
Other	0% (0,4%)	3%	-3
Total PPI investments	100%	100%	-

³⁶⁹ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

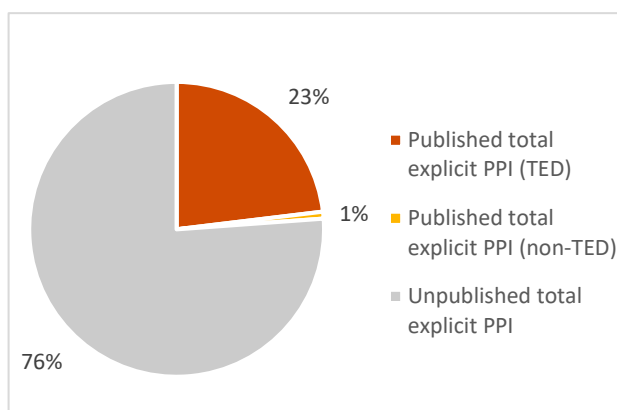


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is high in Finland (37%) compared to the European average (29%). This indicates that Finnish procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Finland (63%) compared to the European average (71%). This indicates that Finnish procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

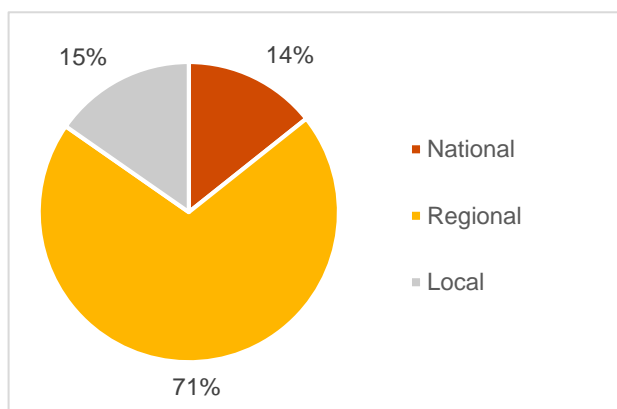


The share of Finnish PPI investments for which calls for tenders are published is 24%, in line with the European average (22%). The portion that is **published at European level** in the TED database (23%) is slightly above the European average, while the portion that is **published at national level** (1%) is below the European average (respectively 18% and 5%). The share of PPI investments for which no calls for tenders published in TED or at national level is however very large (76%).

By not publishing PPI call for tenders widely, **Finland is still missing out on potential innovative solutions** that could speed up public sector modernisation, both from Finnish and other European innovative suppliers that are not informed about the Finnish PPI business opportunities.

Investment readiness levels of public sector activity

PPI investments by level of public sector activity



The largest share of PPI investments is carried out by **procurers at the regional level** (71%), which is three times higher than the European average (24%).

Procurers at the national and local level account for a share of investments (respectively 14% and 15% of PPI), which is well below the European average (respectively 47% and 29% of PPI).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Finnish public sector shows a **strong level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,4 bn or 8,6% of public procurement invested in innovative ICT-based solutions, **Finland ranks 1st** in the benchmarking of ICT-based PPI investments, considerably above the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (69%), Finland not only performs better than the European average (38%), but it even outperforms already the ambition level (60%). Consequently, Finland is very close to reach the ambition of investing 10% of public procurement in ICT-based innovations and only **needs a relatively modest increase in ICT-based PPI investment** in order to enable Finland to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.³⁷⁰

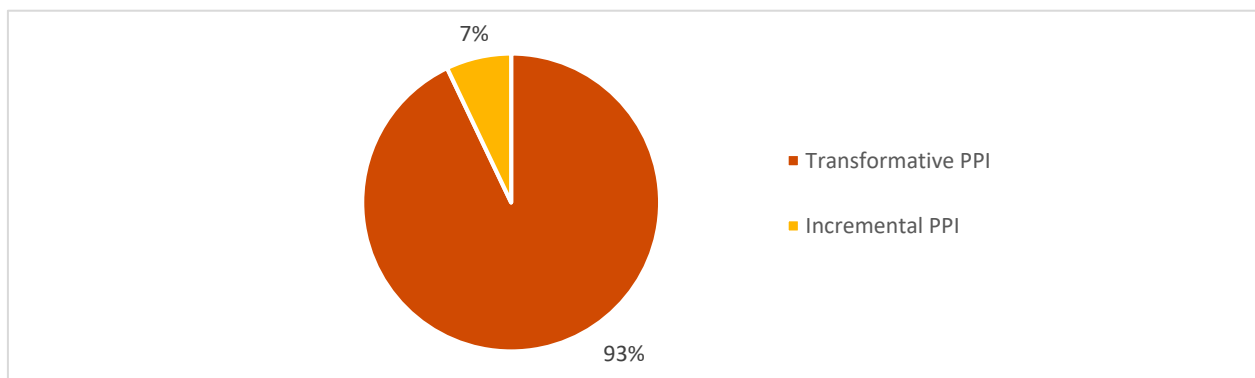


The **main factors**³⁷¹ explaining Finland’s strong performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on **incremental ICT-based innovations**³⁷² is small (7%) and well below the European average (21%). That is because the share of ICT-based PPI investments spent on the adoption of **transformative ICT-based innovations** in Finland (93%) is considerably above the European average (79%). This due to the fact that the lion share of ICT-based PPI investments (70%) focuses on the adoption of innovative solutions that are ‘new to the market’ (82%) and the second largest share focuses on ‘significantly improved solutions’ (11%).

ICT-based PPI investments by type of innovation



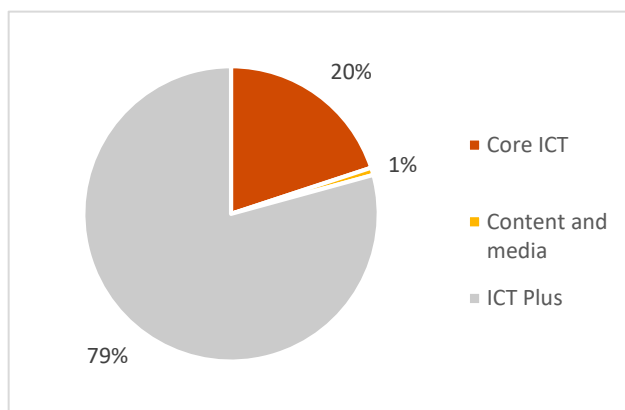
³⁷⁰ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

³⁷¹ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

³⁷² See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Finland invested mainly in the adoption of innovations from the so-called **'ICT Plus' sub-sector**³⁷³ (79%), which is above the European average (45%)

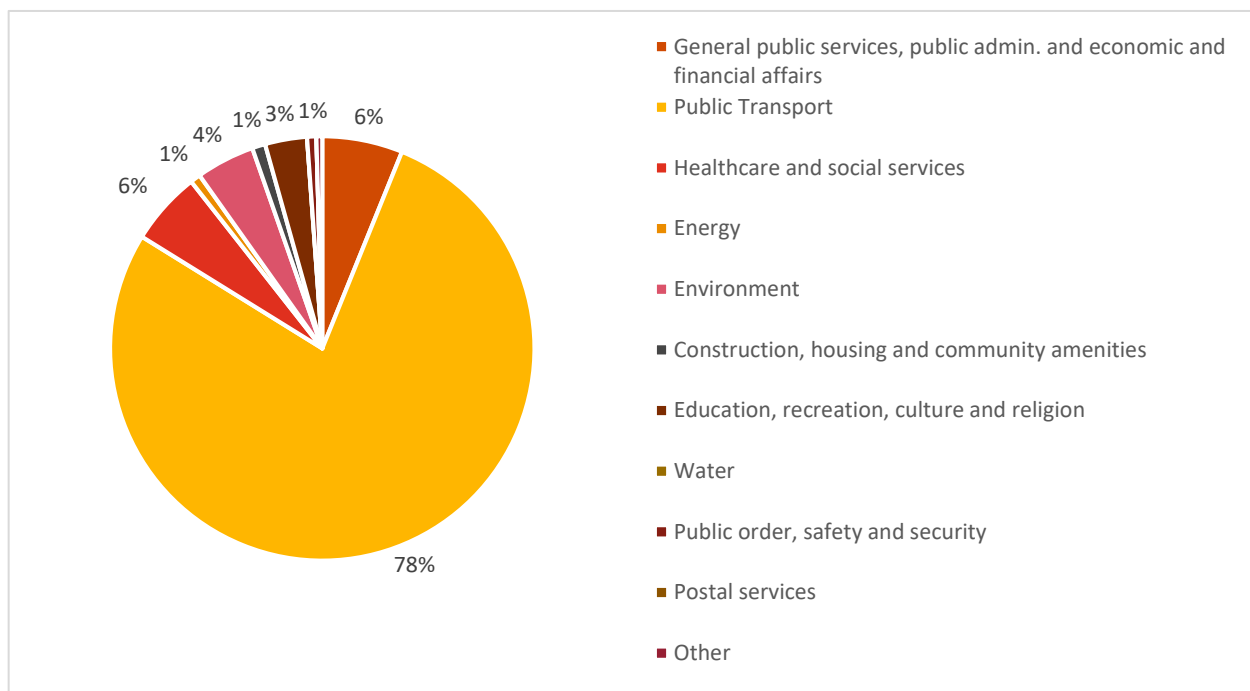
Finland invested to a lesser extent in the adoption of innovations from the **'Core ICT' sub-sector** (20%), significantly below the European average (54%).

The share of Finnish investments in adopting innovations from the **'Content & Media' sub-sector** was marginal (1%), in line with the European average (1%).

Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity in Finland purchased innovative ICT-based solutions, except the **'Water'** and **'Postal Services'** domain where ICT-based PPI investments were zero. Procurers in the **'Public Transport'** domain (77%) were responsible for the lion share of procurements of innovative ICT-based solutions. In this category, Finland show the highest deviation from the European average (+66 pp). Also procurers in the **'Environment'** domain, made above-European average investments in ICT-based innovations (+2 pp). At the same time, in a number of other domains the investments in the adoption of innovative ICTs were significantly below the European average: **'Healthcare and social services'** (-24 pp), **'General public services, public administration and economic and financial affairs'** (-10 pp) and **'Public order, safety and security'** (-18 pp).

ICT-based PPI investments by domains of public sector activity

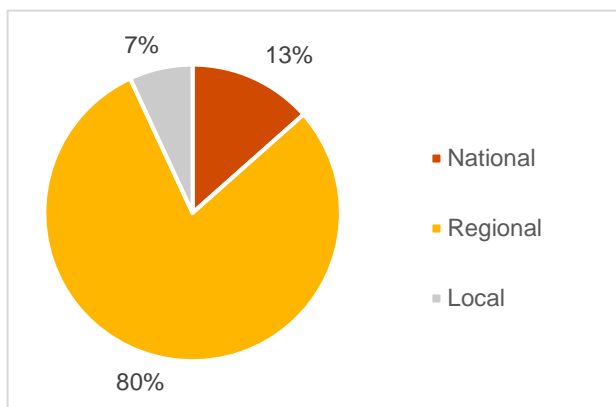


³⁷³ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 13% of ICT-based PPI investments, quite below the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI investments at sub-national level (80%), almost four times the European average (21%). To the contrary, **local procurers** account for only a modest fraction of ICT-based PPI investments (7%), which is below the European average (10%).

France



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The French innovation procurement legal framework is composed by i) the Order no 2015-899 of 23 July 2015³⁷⁴ on public procurement and ii) the following Order no 2016-360 of 25 Mars 2016³⁷⁵, which transposed the EU procurement Directives (2014/24/EU, 2014/23/EU, 2014/25/EU). The EU Directive on defence and security procurement (2009/81/EC) was transposed by the Decree no. 2011-1104 (14 September 2011)³⁷⁶.

The French public procurement system is characterised by the high number of contracting and oversight institutions involved due to the country's size and its semi-decentralised political structure. France stands out as having the highest number of procurement procedures per year within the EU. The majority of these contracts are public works carried out at the local and regional levels.

The main actors developing the innovation procurement policy at central level are the **Ministries of Economy and Enterprise**³⁷⁷, which led the development of the public procurement legal framework, and the **Directorate of Public Procurement**³⁷⁸ (DAE – by the Minister of Finance and Public Accounts), which defines and implements public procurement policy under the authority of the **Prime Minister**. The DAE acts in accordance with the **Directorate General for Enterprise**³⁷⁹ (DGE, under the authority of the Minister for the Economy and Finance Affairs) and the **Directorate of Legal Affairs of the Ministries of Economics and Finance**³⁸⁰ (DAJ, the main state institute for the public procurement law in France).

Concerning the implementation of the procurement policy, at government central level the key actors are the **Secretaries General of the ministries**, which are responsible for the organization of the purchases and the good implementation of the procurement policy within their ministry. The **Union of Public Purchasing Groups** (UGAP - a state industrial and commercial public institution under the supervision of the Minister responsible for the Budget and the Minister of Education), acts as central purchasing body for central authorities and hospitals.

At regional level, the **prefects** are in charge of the implementation of public procurement policy and they manage the procurement of the State in the regions. The prefects act through **Regional procuring platforms** (PFRA, within the Regional Secretariats for Regional Affairs). In addition, there is a responsible contact point in charge of raising procurers' know-how in the field and supporting sourcing activities within the **Regional Directorates of Enterprises, Competition, Consumer Affairs, Labour and Employment** (DIRECCTE), which have an operational link to the DAE and the DGE.

A key input to the French innovation procurement ecosystem was given by the **National Pact for Growth, Competitiveness and Employment (2012)** which set a spending target for innovation procurement awarded to innovative SMEs and MSBs (Small and Medium Enterprises and Mid-Size Businesses) at 2% of the procurement budget of national State level contracting authorities to be achieved by 2020. The Prime Minister's Circular 5681/SG (2013)³⁸¹ introduces a description of the scope and ambition level for innovation procurements by national State level contracting authorities that are addressed by the national innovation procurement target and road mapping exercise.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **France is at the 11th position** of the overall ranking with a **total score of 32,9%**. From the 30 countries analysed, France is among the group of moderate performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 32,9% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in France to reach its full 100% potential.

³⁷⁴ <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000030920376>

³⁷⁵ <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000032295952&categorieLien=cid>

³⁷⁶ <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000024560092&categorieLien=cid>

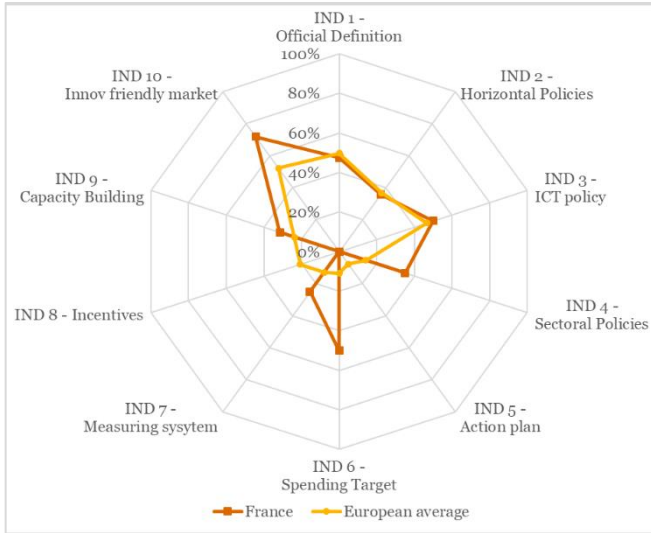
³⁷⁷ <https://www.entreprises.gouv.fr/politique-et-enjeux/achats-innovants>

³⁷⁸ The DAE has substituted the SAE – Service of State Procurement – since 2016. <https://www.economie.gouv.fr/dae/presentation>

³⁷⁹ <https://www.entreprises.gouv.fr/dge/introducing-the-dge?language=en-gb>

³⁸⁰ <https://www.economie.gouv.fr/daj>

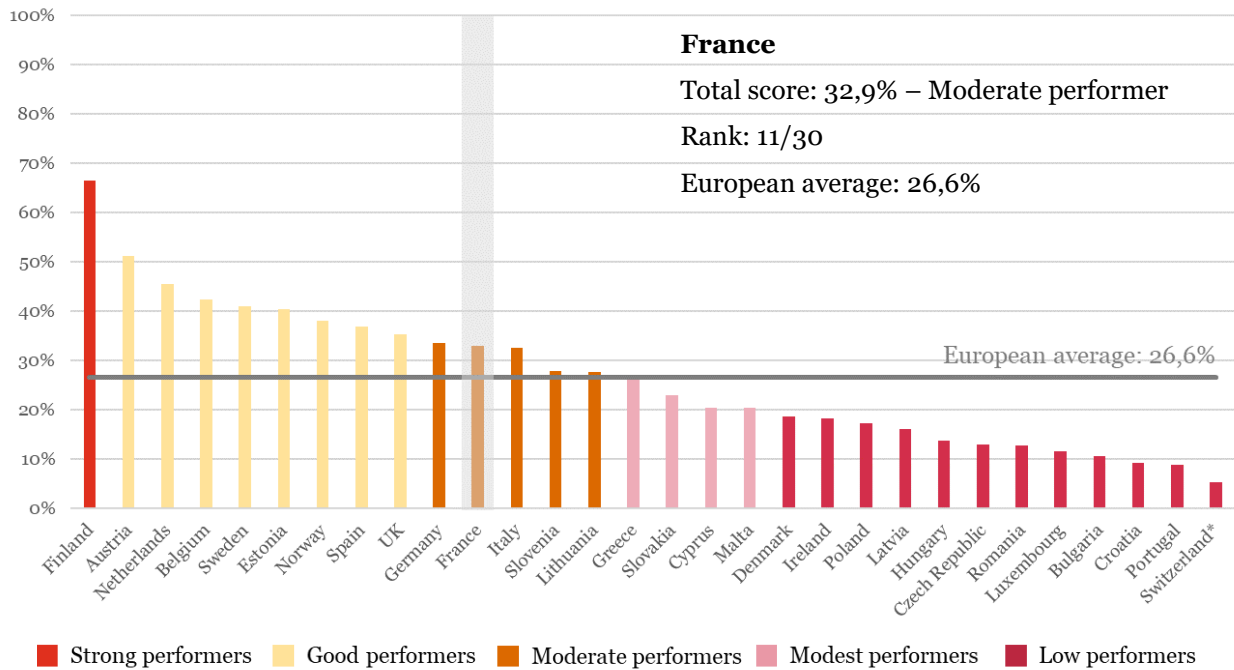
³⁸¹ https://www.economie.gouv.fr/files/files/directions_services/dae/doc/ciculairePM_25092013_soutien_innovation_par_achat_public.pdf



Strengths: France is promoting innovation procurement and has set a well-defined spending target for innovation procurement, however only for procurers that are national authorities and only for purchasing from SMEs and MSBs. An IPR default regime that promotes innovation is anchored in the general terms and conditions for government contracts.

Weaknesses: Absence of a target that applies to all procurers in the country, absence of a specific action plan and measurement system for innovation procurement, lack of structured capacity building/national competence centre and financial or other incentives for procurers to undertake more innovation procurements.

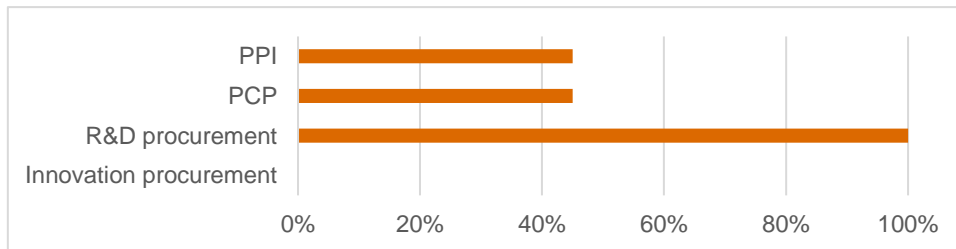
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 48% European Average 50%



In the French public procurement law - both the public authorities, utilities and defence/security procurers - there is a clear official definition of R&D procurement and a clear legal basis for implementing PCP procurements (although without explicit definition for PCP). French public procurement law has not transposed the definition of innovation from the EU public procurement directives, so Innovation and Innovation Procurement are not defined in French public

procurement law. A definition of innovation procurement has only been provided for the national State level contracting authorities affected by the national innovation procurement target and road mapping exercise by the **Prime Minister's Circular 5681/SG** of 25 September 2013. Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI) are defined in the **Practical Guide to Innovative Public Procurement** issued by DAJ³⁸². As the Circular and the Guide are not part of the French public procurement law they don't count as official legal definition. The total score for the indicator "official legal definition" is therefore 48%.

French public procurement law has not transposed the **definition of innovation** from the EU public procurement directives. The only reference to innovation in French public procurement law is found in the innovation partnership procedure. This situation has created confusion among French public procurers, many of which are assimilating innovation procurement only with the innovation partnership procedure.

A brief description of scope and ambition level for **innovation procurement** was introduced only for the State's national contracting authorities that are addressed by the national level innovation procurement target and road mapping exercise by the Prime Minister's Circular 5681/SG of 25 September 2013, titled "*Support to innovation through public procurement*". According to the Circular, "*Innovation procurement covers the purchase of products that do not exist, but could probably be developed in a reasonable time. As part of the preparation of the roadmaps³⁸³, the ministries and public institutions will target purchases of products not yet marketed and for which the buyer has helped finalize the definition in order to provide a response to an unmet need or a new and improved response to an existing need. R&D procurements aimed at promoting the emergence of a solution that did not exist on the market are also taken into account. Purchases of products already marketed by a company do not fall within the scope of the innovative procurement. However, they may be included if the product has been marketed for less than two years and if the product provides a response to an unmet need or a new and improved response to an existing need.*" This definition is partly in line with the EU definition of innovation procurement. The definition of innovation used in the Circular is more restrictive than the definition of innovation in the EU public procurement directives as it is limited only to procurements of products (not services, works), only to product innovation (not for organisational, service, process or marketing innovation), only to procurements that require both development and deployment of new products (suggesting only innovation partnership type procurements are eligible). Therefore, the total score of the indicator innovation procurement is 0%, because there is no definition of innovation or innovation procurement in a legal document. Other guidance documents provide definitions that are not applicable to all procurers in the country (only national level public procurers participating in the road mapping exercise) and not completely in line with the EU definition.

The **Practical Guide to Innovative Public Procurement** (Annex I) acknowledges that there is no unique legally binding definition for innovation or innovation procurement in French public procurement law. The guide mentions different definitions: the definition introduced by the 2014 EU public procurement directives and the definition used in the context of the national target and road mapping exercise.

The guide provides also a definition and practical explanation of PPI and PCP. The definition is the following: "*Innovation procurement is composed by two big families: 1) commercial procurements that purchase already existing products (public procurement of innovation or PPI); 2) pre-commercial procurement of R&D or pre-commercial procurement (PCP), which consist of financing the development of a concept or prototype with or without the sale of the resulting innovative product. [...] innovative purchases are purchases of products not yet marketed and for which the buyer has helped to finalize the definition to provide an answer to an uncovered need or a new and improved response to an existing need. R&D purchases aimed at promoting the emergence of solutions that did not exist on the market are also taken into account. Purchases of products already marketed by a company do not fall within the scope of the innovative procurement. However, they may be included if the product has been marketed for less than two years and if the product provides a response to an unmet need or a new and improved response to an existing need.*" These definitions are, again, only partly in line with the EU definition: PCPs can include the sale of supplies (including the innovative solution resulting from the R&D) as long as the amount of supplies cover less than 50% of the PCP contract. PPI also includes solutions that are already marketed by companies (even if longer than 2 years) as long as these solutions are still not widely adopted yet (as long as the buyer would still qualify as an early adopter, meaning typically among the 20% first buyers on the market to adopt the solution). The PCP and PPI definitions elaborated in the Practical Guide are only partially in line with the EU definitions and are not applicable countrywide (only national level public procurers participating in the road mapping exercise) therefore the total score of both PCP and PPI sub-indicators is 45%.

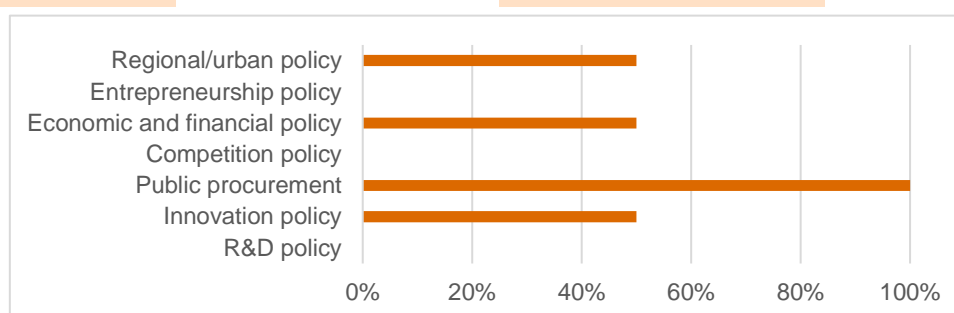
French public procurement law, Ordonnance no 2015-899 of 23 July 2015 article 14(3) defines **Research and Development** as "*all activities related to basic research, applied research and experimental development, including the production of technological demonstrators and with the exception of the production and qualification of pre-production prototypes, tooling and industrial engineering, industrial design and manufacturing. Technology demonstrators are devices designed to demonstrate the performance of a new concept or technology in a relevant or representative environment*". This definition of R&D is in line with the provisions in the EU public procurement directives. Therefore, the total score of this sub-indicator is 100%.

³⁸² https://www.economie.gouv.fr/files/files/directions_services/daj/marches_publics/conseil_acheteurs/guides/guide-pratique-achat-public-innovant.pdf

³⁸³ The Circular (2013) required the Ministries and the state operators to draft strategic roadmaps for innovation procurement.

Indicator 2 – Horizontal policies

Total score 36% European Average 36%



In France, innovation procurement has been recognised within different horizontal policies, namely public procurement policy (both at central and local level), innovation policy, economic policy and regional policy.

The Ministries of Economy and Enterprise leads the development of the public procurement legal framework, giving a first input to innovation procurement. Thus, innovation procurement's role is recognised within the Public Procurement policy (both at central and local level), with the central role of the Directorate for Public Procurement (DAE). The **strategic orientations 2016-2019 for public procurement policy**³⁸⁴ contain as third objective: "Even if public procurements by the State and public entities and organisations must be conducted on the basis of the most economically advantageous conditions, they also must (3) contribute to the diffusion of innovation." The score of this sub-indicator is 100% as innovation procurement is set as a priority at national level for the whole country.

Under Regional policy, a **network of Innovation procurement officers has been created in several regions** in order to raise awareness of public stakeholders and SMEs on innovation procurement issues. Some regions, specifically, organise events so that administrations and start-ups can meet and find market opportunities for innovative solutions³⁸⁵. The score of this sub-indicator is 50% as innovation procurement is not addressed in regional policy at central level but from the single regions, having therefore a more limited reach.

Under Economic policy, a key input to the French innovation procurement ecosystem was given by the **"National Pact for Growth, Competitiveness and Employment"** (2012)³⁸⁶ which is interconnected with and also supports Government's other thematic strategies, such as the "National Energy Research Strategy for the Energy Transition", the "National Healthcare Strategy" or the "National Sustainable Development Strategy". Furthermore, it will take into account forward-looking discussions such as those initiated by the "Commission Innovation 2030"³⁸⁷. This sub-indicator scores 50%, as the section of the National Pact referring to innovation procurement does not target contracting authorities in the whole country but only those at central level (cf. Indicator "Spending Target").

On the basis of the evidence collected above, the total score for this indicator is 36%.

Indicator 3 – ICT policy

Total score 50% European Average 47%

The **2015 French national digital strategy "Digital Republic in Action"**³⁸⁸ has an action "Action publique 2020: pour une transformation du service public", but this action does not mention innovation procurement, or the role of government to boost digital innovation/deployment of innovative solutions through public procurement. Only one part of the French ICT policy, on cybersecurity, recognises the role of innovation procurement.

The **"French national digital security strategy"**³⁸⁹, indeed, states that "By supporting investment, innovation and exports, also via public procurement, the State will develop a favourable environment for French companies in the digital sector offering secure products and services". Because of this partial recognition of innovation procurement in French ICT policy the score on this indicator is 50%.

³⁸⁴ <https://www.economie.gouv.fr/dae/orientations-strategiques-2016-2019>

³⁸⁵ https://www.meetup.com/fr-FR/MEETUP-DES-ACHATS-PUBLICS/?_cookie-check=9xMM_7-hwOK

³⁸⁶ <https://www.economie.gouv.fr/files/PR-competitiveness.pdf>

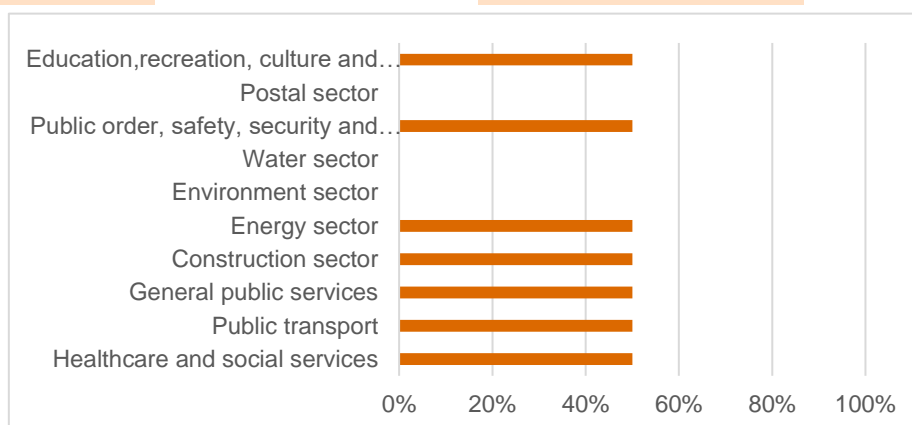
³⁸⁷ https://www.france-science.org/IMG/pdf/france-europe-2020_-_a_strategic_agenda_for_research_technology_transfer_and_innovation.pdf; <https://www.entreprises.gouv.fr/innovation-2030>

³⁸⁸ <http://www.gouvernement.fr/la-republique-numerique-en-actes>

³⁸⁹ https://www.enisa.europa.eu/topics/national-cyber-security-strategies/ncss-map/France_Cyber_Security_Strategy.pdf

Indicator 4 – Sectorial policies

Total score 35% European Average 14%



In France innovation procurement's role is recognised and promoted in several sectors and it is used to enhance innovation or achieve specific innovation goals.

The National Pact for Growth, Competitiveness and Employment (2012) and the following Prime Minister Circular 5681/SG (2013) required each national central authority that is subject to the 2% innovation procurement target to produce a sectorial roadmap for innovation procurement. Published on the website of the Service of State Procurement (SAE, now DAE - Directorate of Public Procurement)³⁹⁰, these roadmaps are intended to help companies, and especially SMEs and MSBs, to anticipate public purchases and adapt their work programme accordingly. **33 roadmaps** were published by the Ministries and by the “*établissements publics*” (including by the UGAP), each of them planning some innovation procurement initiatives³⁹¹. In each Ministry, a responsible person for innovation procurement is appointed. He or she is in charge of the promotion of innovation procurement with concrete actions, such as organising events to meet start-ups with procurers or doing sourcing activities to bring innovative solutions to specific markets. In addition, the companies in which the French State holds shares signed a charter to promote innovative and exemplary purchasing from SMEs and MSBs.

In conclusion, the roadmaps of innovation procurement have been designed in the sectors of **education, defence, environment, energy, construction, general public services, transports and healthcare** and they try to promote innovation procurement and to orient the market towards innovation also through innovation procurement. The score does not reach 100% because they are applicable only to the procurers which are affected by the spending target of the National Pact for Growth, Competitiveness and Employment. In addition, beside the publication of these roadmaps, there is no structured innovation procurement policy aiming at mainstreaming innovation procurement at large scale.

Indicator 5 – Action plan

Total score 0% European Average 8%

France does not have an Action Plan for innovation procurement. The sectorial roadmaps that were created following the Prime Minister Circular set several initiatives to foster innovation procurement, but do not constitute a structured Action Plan to mainstream innovation procurement across all procurers in the country. The score in this field is 0%.

Indicator 6 – Spending target

Total score 50% European Average 11%

In 2012 the **National Pact for Growth, Competitiveness and Employment**³⁹² set a spending target for innovation procurement, to be achieved by 2020. The spending target is for innovation procurements awarded to innovative SMEs and MSBs (Small and Medium Enterprises and Mid-Size Businesses)³⁹³, including those developing socially innovative processes, products and services, to achieve 2% of the annual volume purchase of the central public authorities (the State and its operators – “*les établissements publics*”) and hospitals.

Given the fragmentation of the procurement system of the country, this target has been set only for the central public authorities (the State and its operators) and hospitals, which together account for €50 billion per year: local/regional

³⁹⁰ <https://www.economie.gouv.fr/dae/feuilles-route-des-ministeres-et-des-etablissements-publics>

³⁹¹ The defence roadmap that contributes to the 2% target concerns only non-weapon purchases.

https://www.economie.gouv.fr/files/files/directions_services/dae/doc/plaquette_innovation_MINDEF2.pdf

³⁹² <https://www.economie.gouv.fr/files/PR-competitiveness.pdf>

³⁹³ SMEs: The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro; MSBs: they have between 250 and 4.999 employees and an annual turnover < 1.5 billion EUR. “Innovative” SMEs are defined in article L. 214-30 of the Monetary and Financial Code (available at <http://www.acheteurs-publics.com/marches-publics-encyclopedie/pme-innovantes>).

Assistance to public procurers	√	√	√				50%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers	√		√	√			50%
One-stop-shop/competence centre							0%

France carries out some capacity building and assistance activities to promote innovation procurement, including seminars, trainings, networking activities and provisioning of dedicated guidelines.

Political commitment for capacity building comes from the **Prime Minister** level. Political responsibility for several capacity building activities reside within the **Ministry of Economy and Finance** including three of its departments: the **Directorate of Public Procurement**³⁹⁴ (DAE), the **Directorate General for Enterprise**³⁹⁵ (DGE) and the **Directorate of Legal Affairs of the Ministries of Economics and Finance**³⁹⁶ (DAJ).

The DAE, in particular, develops and supports a number of tools to promote innovation procurement, such as:

- The **Innovation Procurement Platform for the State and public institutions**³⁹⁷, managed by the DAE together with the association “**Pacte PME**”, a forum to match public procurers needing innovative solutions and the potential supply of innovative companies;
- **Annual seminars** (“Understanding innovation to procure it better” – “*comprendre l’innovation pour mieux l’acheter*”) to inform and train public procurers on all aspects of innovation procurement.³⁹⁸ All aspects of innovation procurement are covered in these events.

In addition to this, the **Practical Guide to Innovative Public Procurement**³⁹⁹, drafted by the Ministry of Economics and Finance and the Ministry of Economic Regeneration and published by the Directorate of Legal Affairs in 2014, offers some detailed guidelines for public procurers and other stakeholders.

The **Union of Public Purchasing Groups**⁴⁰⁰ (UGAP - a state industrial and commercial public institution under the supervision of the Minister responsible for the Budget and the Minister of Education) acts as the central purchasing body for central authorities and hospitals, and in doing so, **offers its legal, technical and economic expertise to public authorities** in order to enhance innovation procurement. The work carried out by UGAP's innovation division since its beginning of 2014 (detection, qualification, purchase and deployment) has enabled UGAP to reach an innovation procurement amount of € 100 million in 2017, i.e. 3% of its procurement budget, therefore beyond the target set by the National Pact for Growth and Competitiveness for 2020.⁴⁰¹ UGAP's services target only part of the contracting authorities of the country.

A network of Innovation procurement officers has been created in each Region in order to raise awareness of public stakeholders and SMEs on innovation procurement issues. Also a social network (“Respae”) has been created for all purchasers of the State: pooling good practices and feedback, and sharing sourcing companies.⁴⁰²

Networking and assistance activities between procurers are not implemented to reach large scale implementation across the whole country. There is no structured assistance for PCPs or networking of French procurers at the international level with procurers from other countries. The score on sub-indicators networking and assistance is 50%.

An example of collaboration between innovation procurement actors of central and local level is the platform **SOLAINN** (Online Solution for Innovation Procurement – *Solution Online vers les Achats Innovants*), a web sourcing platform which facilitates the visibility and readability of innovative technological offerings (products or services) developed by start-ups, SMEs and mid-marketers of digital solutions. It targets public contractors, innovation departments, investors and any player seeking innovative skills or solutions.⁴⁰³

On the basis of the evidence collected above, the total score for this indicator is 31%. There is still a lack of essential capacity building measures to mainstream innovation procurement widely across the country. For example, there is no central website, one-stop-shop/competence centre, list of good practice cases. Template tender documents and assistance to procurers is also not provided for all types of innovation procurement and the connection to EU level initiatives on innovation procurement is often also missing.

³⁹⁴ The DAE has substituted the SAE – Service of State Procurement – since 2016. <https://www.economie.gouv.fr/dae/presentation>

³⁹⁵ <https://www.entreprises.gouv.fr/dge/introducing-the-dge?language=en-gb>

³⁹⁶ <https://www.economie.gouv.fr/daj>

³⁹⁷ <http://www.achatspublics-innovation.fr/>. Flyer available at:

https://www.economie.gouv.fr/files/files/directions_services/dae/doc/flyer_achats_innovants_2017_web.pdf

³⁹⁸ <https://www.economie.gouv.fr/dae/regards-dexperts-interviews-realisees-en-novembre-2016> ;

<http://www11.minefi.gouv.fr/catalogue-igpde/2018/co/7815.html>

³⁹⁹ https://www.economie.gouv.fr/files/files/directions_services/daj/marches_publics/conseil_acheteurs/guides/guide-pratique-achat-public-innovant.pdf

⁴⁰⁰ <https://www.ugap.fr/>

⁴⁰¹ https://www.ugap.fr/achat-public-responsable/soutien-aux-politiques-publiques/contribuer-a-linnovation_4458045.html

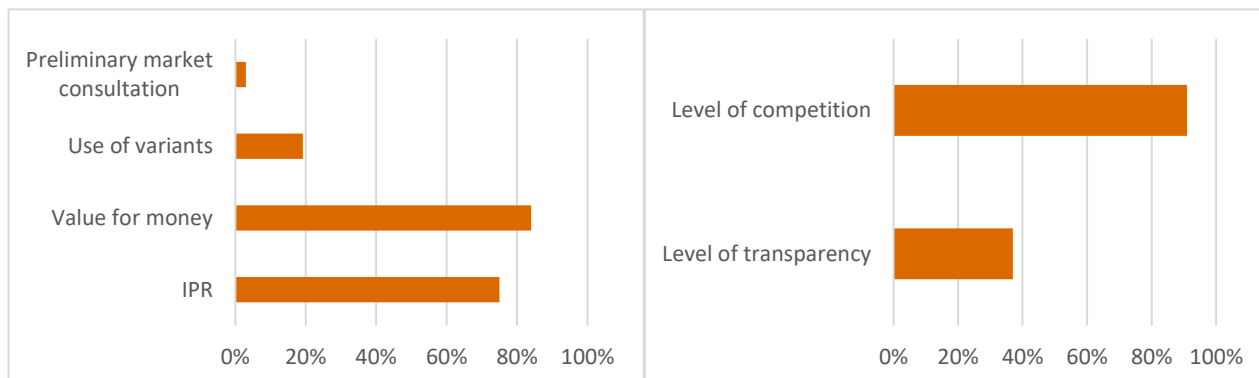
⁴⁰² <https://rio.jrc.ec.europa.eu/en/policy-support-facility/mle-innovation-related-public-procurement>, Thematic report C

⁴⁰³ SOLAINN is managed by the Pôle Systematic Paris-Region and co-financed by the Ile-de-France region, the Direccte, the FEDER and Systematic - <https://www.solainn.com/apropos>

Indicator 10 – Innovation friendly public procurement market**Total score** 55%**European Average** 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is measured via two sub-indicators that show evidence of:

- I. the use of specific techniques to foster innovation in public procurement in France
- II. the openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, France shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 75%, well above the 38% European average, because the French law on public procurement does not define how allocation of IPRs is dealt with in procurement contracts but the French national general terms and conditions for government contracts (CCAG)⁴⁰⁴ define as default scenario (Option A) that the procurer obtains only usage rights and all other IPR rights are left with suppliers. Option B provides that, if specifically mentioned in the procurement contract, all IP rights are exclusively assigned to the procurer. Option B is used only in the CCAG guidelines for procurements of "standard" products/services that are not software related ("standard" meaning when no IPR will be created during the procurement). Option A is used in the CCAG guidelines for all other procurements, i.e. procurements that involve some form of intellectual services and/or software. Furthermore, according to the Practical Guide to Innovative Public Procurement, in the case of PCP, the only possible option is A, allowing a further exploitation of the IPRs by the provider.⁴⁰⁵ The policy to go for Option A as default scenario was adopted specifically⁴⁰⁶ to ensure that IPR allocation in public procurements does not violate French copyright law (the Intellectual property Code)⁴⁰⁷. The latter determines that copyrights belong in an inalienable way to the creator. The existence or conclusion of a contract for hire or of service by the creator of a work of the mind (e.g. a public procurement contract) shall in no way derogate from the enjoyment of this right enjoyed by the creator. Only the economic rights can be assigned or licensed by the creator to another person/entity, on condition that the assignment is limited in scope, duration, place and destination. If the procurer wants to use the copyright owned by the creator, he must require in the tender specifications the assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific work, software and database rights.
- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, 84% of public procurement procedures were not awarded on the basis of lowest price only. This is well above the European average of 42% and reaching the 80% satisfactory level set out in the EU single market scoreboard. Indeed, France is the leading Member States in the widespread use of value for money award criteria.
- c. **Use of variants:** France has allowed the use of variants in the 19% of the procedures. This percentage is largely above the European average of 4%.
- d. **Preliminary Market Consultation:** France has used Preliminary Market Consultations in the 3% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 45% which is well above the European average of 23%. This is due to both active promotion of a default IPR regime that promotes innovation and wide scale use of value for money award criteria.

⁴⁰⁴ <https://www.collectivites-locales.gouv.fr/cahiers-des-clauses-administratives-generales-ccag-0>

⁴⁰⁵ https://www.economie.gouv.fr/files/files/directions_services/daj/marches_publics/conseil_acheteurs/guides/guide-pratique-achat-public-innovant.pdf and

https://www.economie.gouv.fr/files/files/directions_services/apie/propriete_intellectuelle/publications/Marches_publics_droits_PI_CCAG-TIC.pdf

⁴⁰⁶ <http://marches-publics.legibase.fr/actualites/focus/propriete-intellectuelle-ce-qu'il-faut-savoir-78624>

⁴⁰⁷ http://www.wipo.int/wipolex/en/text.jsp?file_id=435178

With regard to sub-indicator II, France shows the following evidence:

- e. **Level of competition:** The level of competition of the national public procurement market is 91% which is above the European average 84% but just below the 93% satisfactory level set by the EU single market scoreboard. This is due to the fact that proportion of tenders awarded without call for bids is low (3%) but the proportion of procurements where there was more than one bidder (85%) is, although above European average, still below the 90% satisfactory level set by the EU single market scoreboard.
- f. **Level of Transparency:** The level of transparency of the national public procurement market is 37% which is below the European average 45% and the 66% satisfactory level set by the EU single market scoreboard. This is because all sub-indicators are below European average: publication rate in TED (3%), percentage of procurements without missing call for bids information (83%) and without missing buyer registration number (25%).

Based on this evidence, the score for sub-indicator II is 64% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is due to the fact that while the level of competition is just above European average the level of transparency is more below average.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 54% which is above the 44% European average. This score is explained by high percentage in IPR regime, in the use of value for money award criteria and in the use of variants, which are largely above the European average. The use specific techniques to foster innovation in the country is above European average but the openness of the French procurement market to innovations from across the EU single market is below the European average. Indeed, the country has a default IPR regime in public procurement that fosters innovation and value for money criteria are widely used in public procurements. However, although the national public procurement market shows a slightly above average level of competition, the level of transparency is below the European average.

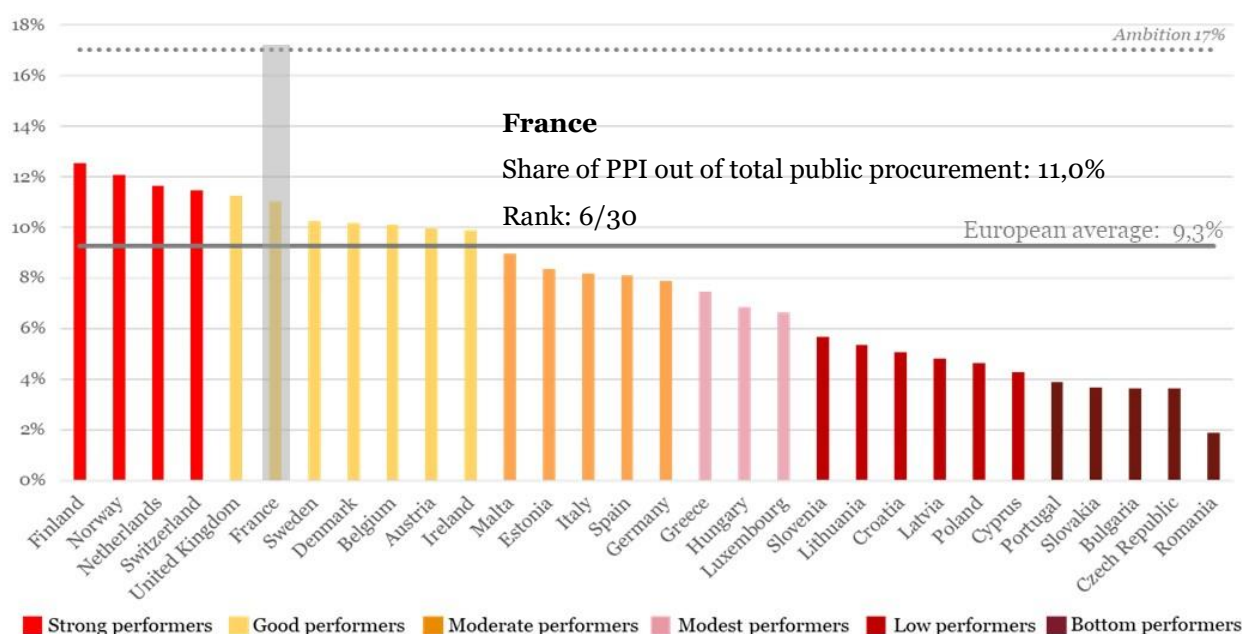
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all French investments on public procurements of innovative solutions (PPI) and the benchmarking of French investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 11,0% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 43,6 bn), **France ranks 6th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁴⁰⁸ across Europe. France falls within the group of **good performers**, above the European average of 9,3%.⁴⁰⁹ **A significant increase of investments in PPI is nonetheless needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the French public sector.⁴¹⁰ When taking into account also PPI in the defence sector France still remains in the 6th position.



The **main factors**⁴¹¹ explaining France's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in France (83%) is in line with the European average (84%): France adopted mainly innovative solutions that are 'new to the market' (61% of PPI) and, to a lesser extent, 'significantly improved' solutions (22% of PPI). The share of PPI investments spent on the adoption of **incremental innovations** (17%) - which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions' - is in line with the European average (16%). Despite its overall good level of performance, France still needs to step up its efforts both on the adoption of transformative and incremental innovations in order to become a strong performer.

⁴⁰⁸ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country - namely the amount of R&D procurement plus the amount of PPI - is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

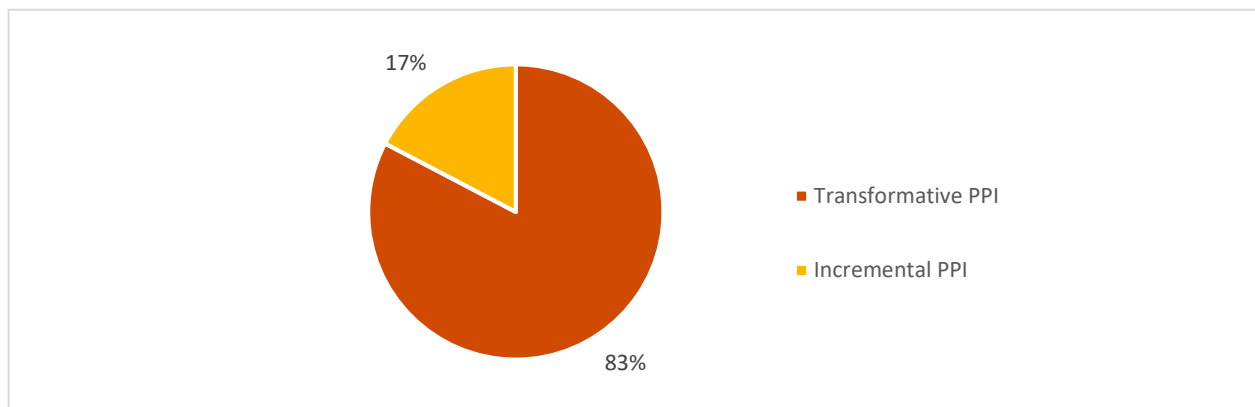
⁴⁰⁹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁴¹⁰ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation - including 3% of R&D procurement and 17% of PPI - to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁴¹¹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why France is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Every domain of public sector activity⁴¹² in France purchased innovation solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages** (in 6 out of 11 domains). However, PPI investments by French procurers operating in the ‘**Healthcare and social services**’, ‘**Public transport**’ and ‘**Public order, safety and security**’ domains are significantly below the European averages (respectively -18pp, -8pp and -4 pp). At the same time, PPI investments by French procurers in the ‘**General public services, public administration and economic and financial affairs**’ and ‘**Energy**’ domains is significantly higher than European average (respectively +27 pp and +9 pp).

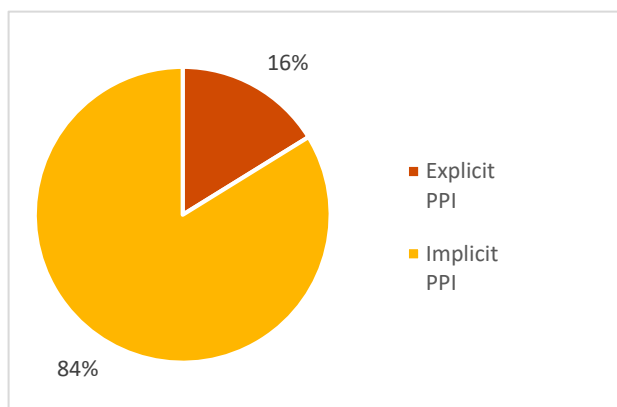
PPI investments by domains of public sector activity

Domain of public sector activity	France	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	62%	35%	+27
Public transport	2%	10%	-8
Healthcare and social services	3%	21%	-18
Energy	15%	6%	+9
Environment	2%	3%	-1
Construction, housing and community amenities	4%	4%	0
Education, recreation, culture and religion	3%	5%	-2
Water	1%	4%	-3
Public order, safety and security	4%	8%	-4
Postal services	0,1%	1%	-1
Other	5%	3%	+2
Total PPI investments	100%	100%	-

⁴¹² The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

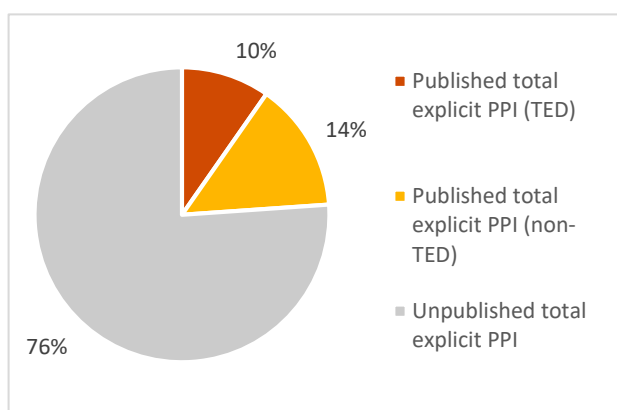


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly lower in France (16%) compared to the European average (29%). This indicates that French procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is higher in France (84%) compared to the European average (71%). This indicates that French procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

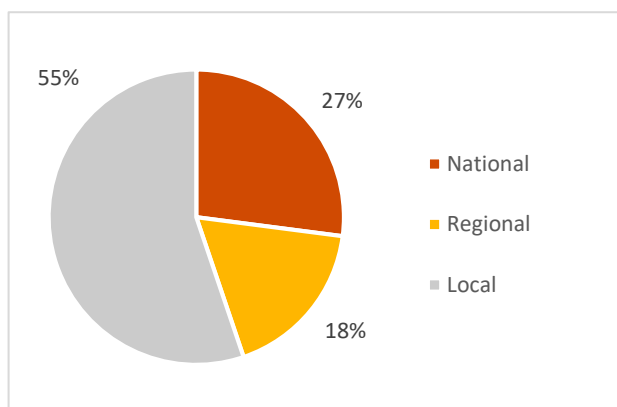


The share of French PPI investments for which call for tenders are published (24%) is low but in line with the European average (22%). The portion that is **published at European level** in the TED database (10%) is below the European average (18%) while the portion that is **published at national level** (14%) is above the European average (5%). The share of PPI investments for which no call for tenders are published in TED or at national level is nevertheless overall very large (76%).

By not publishing PPI call for tenders widely, **France is missing out on potential innovative solutions** that could speed up public sector modernisation, especially from other European innovative suppliers that are not informed about the French PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

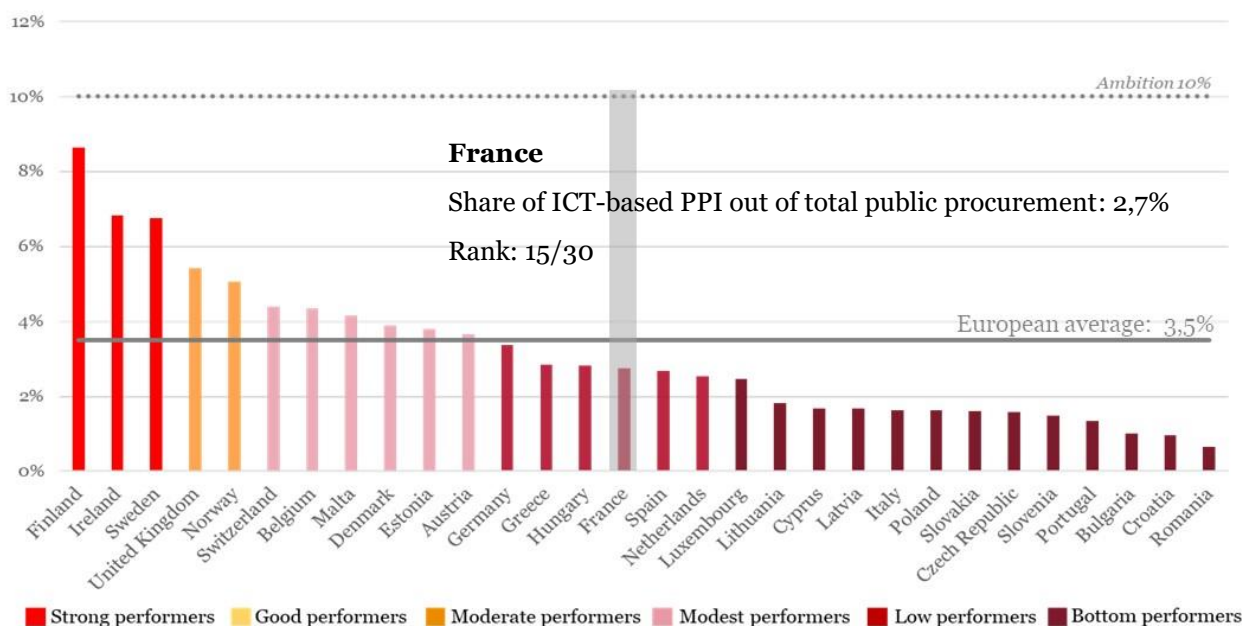


Less than one third of the total PPI investments in France are carried out by **large-scale entities at national level** (27%), such as ministries and ICT integrators of governments departments. This is considerably below the European average (47%).

Procurers at regional level account for a share of PPI investments (18%) which is below the European average (24%). **Procurers at local level** account for the highest fraction of PPI investments (55%), well above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The French public sector shows a **low level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,4 bn or 2,7% of total public procurement invested in innovative ICT-based solutions, **France ranks 15th** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is spent on ICT based solutions (25%), France performs below the European average (38%). **A considerable increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable France to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁴¹³

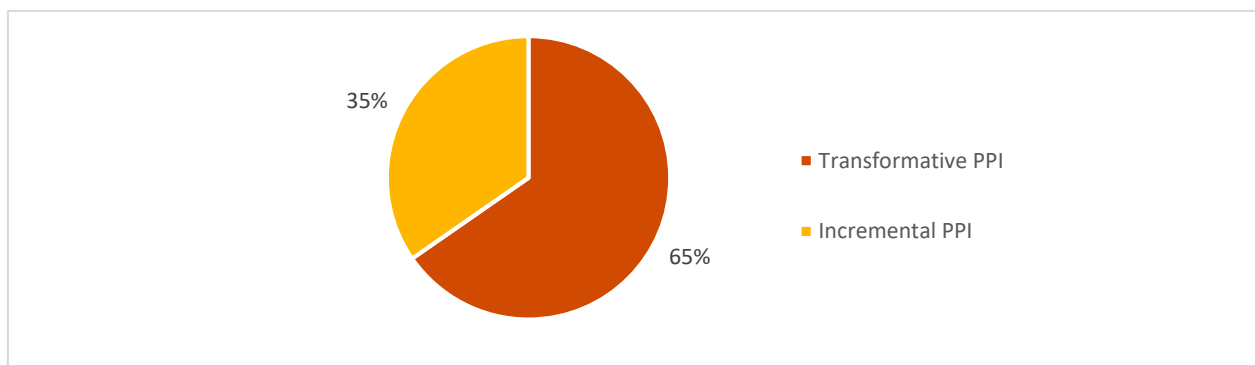


The **main factors**⁴¹⁴ explaining France’s low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in France (65%) is below the European average (79%). This may derive from the fact that despite the significant adoption of innovative solutions that are ‘new to the market’ (49% of ICT-based PPI), the adoption of ‘significantly improved solutions’ is still low (17% of ICT-based PPI). The share of purchases of ICT-based solutions that is spent on the adoption of **incremental ICT-based innovations**⁴¹⁵ (35%) is above the European average (21%). However, given the lower performance on the total amount of investments in ICT-based innovative solutions, France still needs to step up considerably its efforts on the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI by type of innovation



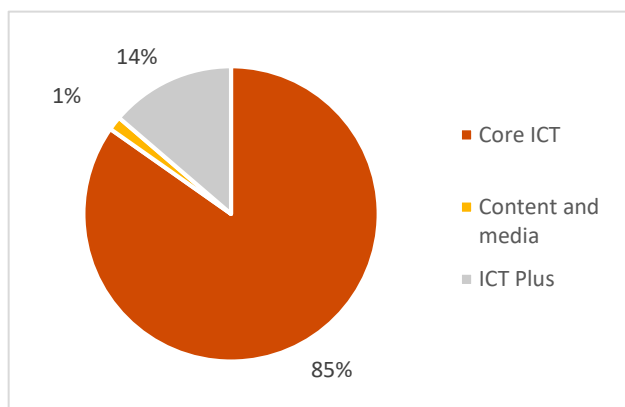
⁴¹³ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁴¹⁴ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁴¹⁵ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



France invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector⁴¹⁶ (85%), well above the European average (54%).

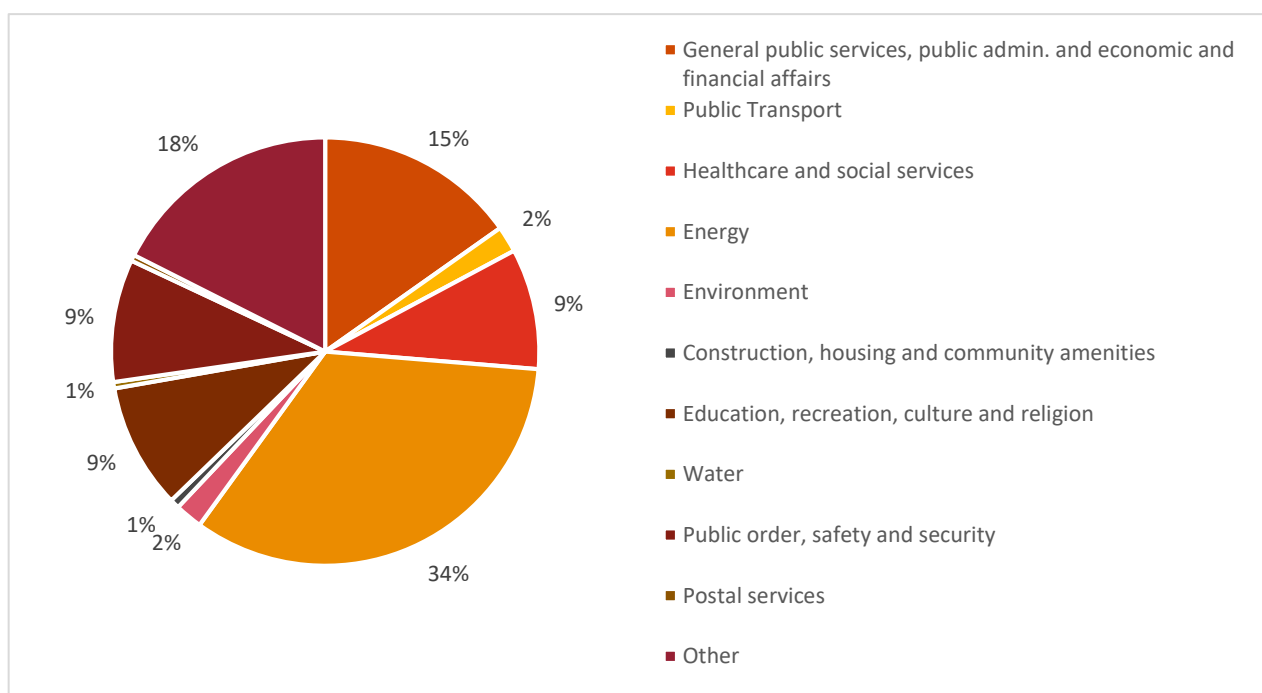
France invested to a lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (19%), below the European average (45%).

The share of French investments in adopting innovations from the '**Content & Media**' sub-sector was marginal (1%), in line with the European average (1%).

Investment readiness across different domains of public sector activity

All domains of public sector activity in France purchased ICT-based innovative solutions. In particular, the highest share of ICT-based PPI investments is made by procurers that operate in the domain of '**Energy**' (33% against a 6% European average). At the same time, the adoption of innovation ICT-based solutions by French procurers in the '**Healthcare and social services**' and '**Public order, safety and security**' domains were significantly below the European average (respectively -21 pp and -9 pp).

ICT-based PPI investments by domains of public sector activity

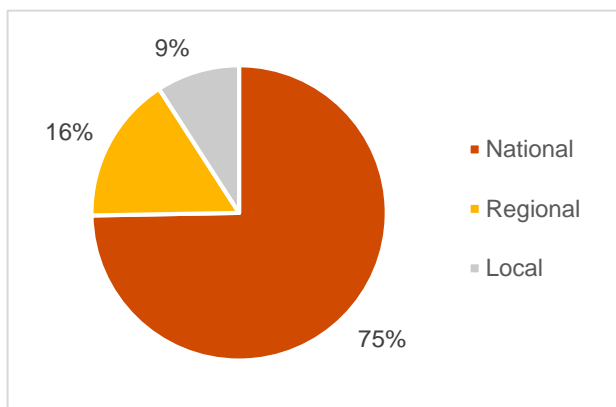


⁴¹⁶ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 75% of ICT-based PPI investments, quite above the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI investments at sub-national level (16%), which is below the European average (21%).

Local procurers account for a modest fraction of ICT-based PPI investments (9%), which is in line with the European average (10%).

Germany



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

Public procurement in Germany is regulated by a complex **regulatory framework** that comprises delegated acts, such as ordinances and rules by non-governmental bodies, and allows for a substantial level of autonomy to the German federal states. The main pieces of legislations in the field of public procurement are the German Act against Restraints of Competition (*Gesetz gegen Wettbewerbsbeschränkungen – GWB*), which provides general principles of public procurement law and regulates public procurement in the Country and the Procurement Regulation for Public Works (*Vergabe- und Vertragsordnung für Bauleistungen – VOB/A-EU*) which regulates public contract awards in the area of public supplies and services. Other relevant regulations are the German Regulation on the award of public contracts by entities operating in the transport, water and energy supply as well as the transport sectors (*Sektorenverordnung - SektVO*), the German Public Ordinance for Contracts in the fields of Defence and Security (*Vergabeverordnung Verteidigung und Sicherheit - VSVgV*), which transposed the Directive 2009/81/EC, and the German Regulation on the award of concession contracts (*Konzessionen Konzessionsvergabeverordnung - KonzVgV*).⁴¹⁷ These laws transposed the EU Directives on Public Procurement (i.e. 2014/23/EU, 2014/24/EU and 2014/25/EU) in 2016.

The **procurement system is highly decentralised** due to Germany's administrative structure. Public procurement activities are distributed among three different governmental levels (federal, regional and local level). Public procurement is mainly awarded at local level. Approximately 58% of all procurement activity is done at the municipal/local level, 30% at regional/federal states level (Länder), and only 12% is performed at federal level.⁴¹⁸

The main institution responsible for public procurement policy is the **Federal Ministry of Economy and Energy (BMWi)**, which decides on the principles of public procurement and drafts primary legislation. In the area of public works procurement, the **Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)** is the institution in charge, whereas the **Federal States Committee** on public procurement ensures regular exchanges among Federal States on the latest aspects of procurement policy and practices, including procurement in the context of EU Funds.

Other key actors in German procurement system are the **Public Procurement Committees**, a forum for stakeholders from federal state and local administrations, public-private organisations, and the private sector. They contribute to the drafting of procurement rules taking into account private and public sector needs. The **German Committee for Supplies and Services Tendering and Contract Regulations (DVAL)** works on procurement rules for supplies and services, while the **German Committee for Construction Tendering and Contract Regulations (DVA)** contributes to procurement rules for public works.

Germany has four central purchasing bodies at the federal level, which are thematically specialised. The **Central Purchasing Body of the Ministry of the Interior** procures for all federal agencies, manages the main e-procurement platform and carries out other supportive functions. The **Federal Institute for Materials Research and Testing** concludes framework agreements for specific technical product groups. The **Federal Office for Equipment, IT Technology, and Use of the German Armed Forces** is responsible for procurement for the German military. Finally, the **Federal Financial Directorate Southwest (BFD Südwest)** procures for the tax administration. There are central purchasing bodies at regional level as well.

Concerning the implementation of innovation procurement policy, the key actor at national level is the **Competence Centre for Innovative Procurement (KOINNO)**, which aims at being an information pool of knowledge and experience in public procurement. KOINNO is in charge of a number of activities, including awareness raising, individual consultancy and international networking, and it offers specific consultancy services to public institutions at all levels on innovative management and on innovative products. KOINNO is managed by the non-profit **Association for Supply Chain Management, Procurement and Logistics (BME)** on behalf of the **Federal Ministry for Economic Affairs and Energy (BMWi)**, and it has an annual budget of around €1.5 million.

Finally, another active actor on innovation procurement implementation is **ZENIT GmbH**, a Public Private Partnership owned by the State of North Rhine-Westphalia, a consortium of banks and an association comprising some 180 enterprises. ZENIT is particularly active in promoting and supporting innovation procurement regionally, as it implements part of the KOINNO competence centre mandate. In addition, since January 2017 ZENIT GmbH manages the EU Contact Point for innovation procurement throughout Germany, offering consulting services for proposers in Pre-Commercial Procurement and Public Procurement of Innovative Solutions as well as networking calls under HORIZON 2020 and other EU funding programmes.⁴¹⁹

Unlike the State of North Rhine-Westphalia, in other German regions there is little or no structured policy support framework for innovation procurement.

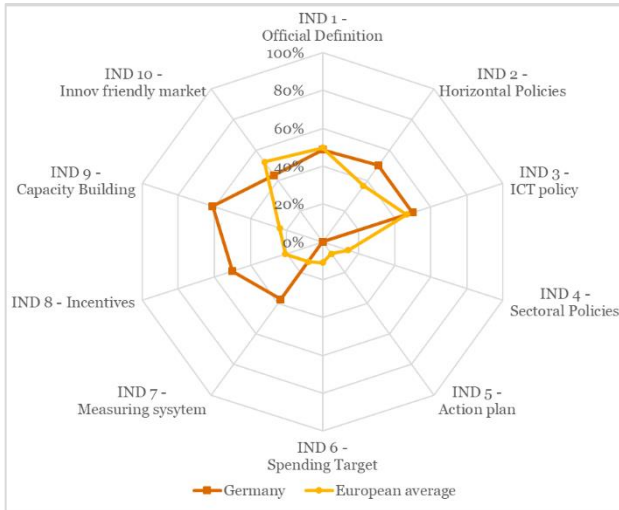
⁴¹⁷ These rules only apply to procurement contracts with values above a specific threshold. For further information, see <https://gettingthedealthrough.com/area/33/jurisdiction/11/public-procurement-2017-germany/>

⁴¹⁸ Estimation of the "Bundeswehrhochschule München" in 2016.

⁴¹⁹ <https://stars-pecp.eu/zenit-gmbh>

Innovation Procurement Policy Framework Benchmarking (2018)

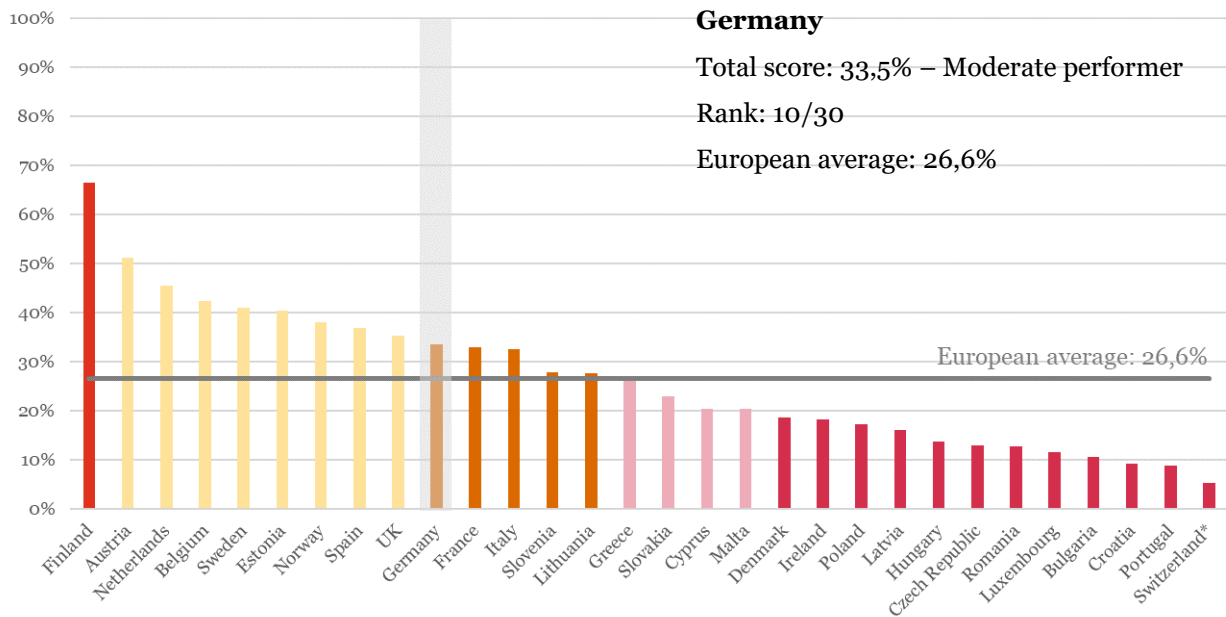
In the benchmarking of national innovation procurement policy frameworks across Europe, **Germany is at the 11th position** of the overall ranking with a **total score of 33,5%**. From the 30 countries analysed, Germany is among the group of moderate performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 33,5% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Germany to reach its full 100% potential.



Strengths: Germany has recognised the strategic importance of innovation procurement in the national policy frameworks for public procurement, innovation and R&D, but in most regions and local authorities this is not the case yet. Germany has a good set of capacity building and assistance measures, however still at limited scale.

Weaknesses: Absence of a dedicated action plan, target and monitoring system, limited financial incentives for procurers to engage in more innovation procurements, lack of strategic support for innovation procurement in horizontal and sectorial policies, wider/less focused definition of innovation procurement. Lack of IPR policy in public procurement that encourages innovation.

Overall ranking



Germany

Total score: 33,5% – Moderate performer

Rank: 10/30

European average: 26,6%

Overview per indicator

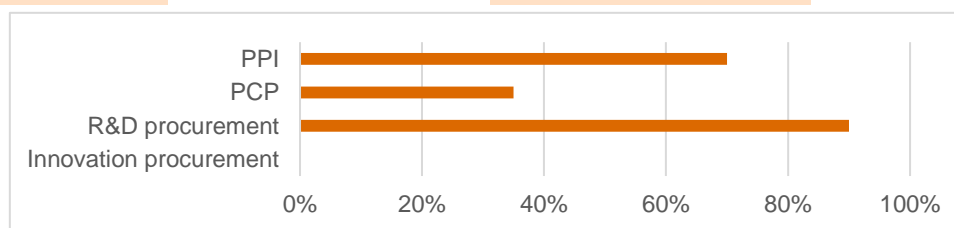
Indicator 1 – Official definition

Total score

49%

European Average

50%



German public procurement law does not provide an official definition of innovation nor of innovation procurement. The definition of innovation procurement in national guidance documents is not in line with the EU definition. German public procurement law provides a definition of R&D in line with the EU definition but only applicable to procurers in the defence sector. For non-defence procurers, German public procurement law identifies R&D via the CPV codes and provides a clear legal basis for implementing PCP and PPI (although without explicit definitions for PCP and PPI). Despite of the lack of clear definitions there is a legal basis for the development of innovation procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). Therefore, the total score of the indicator is 49%.

Despite having transposed the EU directive 2014/24/EU, the regulatory framework governing the German public procurement system does not provide a definition for **innovation procurement** nor for **innovation**. As the German public procurement law does not provide any legal definition, the total score for this sub-indicator is 0%. The guide on innovation procurement published by the BMWi and KOINNO defines innovation as “*the implementation of a new or significantly improved product (good or service), or process, a new marketing method in business practices, workplace organisation or external relations.*”⁴²⁰ The innovation procurement definition however includes two components: demand of innovative products and services resulting from the procurement process and the innovative and efficient design of procurement processes and the organisation of the public procurement procedure (so called innovative procurement which implements process improvements such as e-procurement but does not procure any innovation). This definition is applicable countrywide but not coherent with the EU definition (which does not include the second component).

The definition of **R&D procurement** is only provided under art. 4(3) of the German Public Ordinance for Contracts in the fields of Defence and Security. It defines R&D as “*all activities, including basic research, applied research and experimental development which includes activities based on existing knowledge obtained from research and practical experience, in view of the production of new materials, products or devices, commissioning acts of new processes, systems and services or improving considerably those that already exist.*” Experimental development includes devices that allow you to demonstrate the performance of a new concept or technology in a suitable or representative environment. This definition is only applicable in the defence sector (i.e. not countrywide) and is in line with the EU definition. For non-defence procurers, there is no full-sentence definition of R&D, but the law identifies R&D via the CPV codes for fundamental research, applied research and industrial development in line with the EU public procurement directives definitions of those CPV codes. Therefore, the total score of this sub-indicator is 90%.

With regard to **PCP**, the law transposed the exemption for R&D services unless (a) the results are the exclusive property of the client for his use in the performance of his own activities; and (b) the service is completely remunerated by the client. Therefore, while no definition of PCP exists, the legal framework provides the legal basis for implementing PCP for all types of public procurers in the country. The total score of this sub-indicator is 35%.

Again, the German legislation does not provide a definition of **PPI**. However, the Act Against Restraints on Competition (GWB) introduced innovation-related criteria within the procurement decision making process in 2009 and also established that public procurers could include innovation-award criteria in addition to social and environmental aspects in the service specifications.⁴²¹ Further steps in the introduction of innovation procurement into national legislation were carried out within the reform of public procurement law as part of a bureaucracy reduction initiative. The legislation officially established innovation as part of the procurement decision making process, allowing public procurers to include it in their service specification (art. 97(3) of the German Act Against Restraints of Competition). The legal basis is applicable to all public procurers in the country and is coherent with the EU definition. The BMWi / KOINNO national guidance document also defines PPI in line with the EU definition. Therefore, the score for this sub-indicator is 70%.

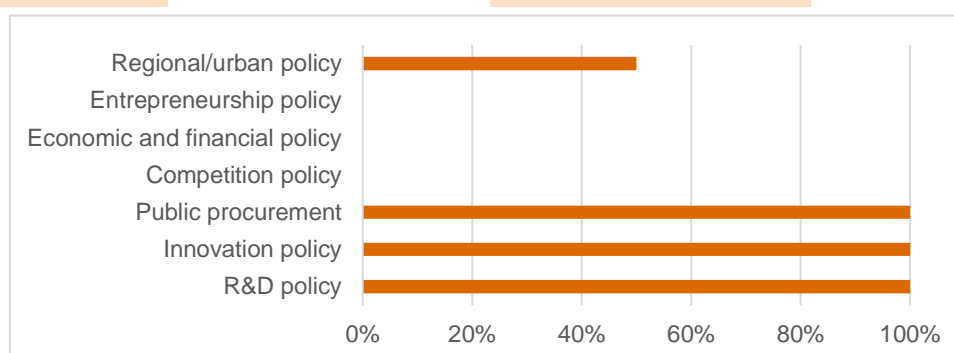
⁴²⁰

https://www.bmwi.de/Redaktion/DE/Publikationen/Wirtschaft/koinno-innovative-oeffentliche-beschaffung.pdf?__blob=publicationFile&v=16

⁴²¹ http://www.gesetze-im-internet.de/gwb/_97.html

Indicator 2 – Horizontal policies

Total score 50% European Average 36%



In Germany innovation procurement is embedded in three policies, namely Regional policy, public procurement and R&D&I policy. The total score of this indicator is 50%.

Innovation procurement was anchored in **public procurement policy** through the introduction of innovation related criteria in the German Act Against Restraints of Competition.

In the area of **Regional Policy**, Innovation procurement is not a specific objective of the country's regional policy, but at regional level, it is worth mentioning that in North-Rhine Westphalia region the use of innovation procurement is envisaged in the context of Green Public Procurement.⁴²² Also, ZENIT GmbH won in 2015 the tender of the regional government of North Rhine-Westphalia of the project named "Brückenbildung". The aim of the project was to create synergies between the Structural Funds in North Rhine-Westphalia and the H2020 programme. This is a first and unique project in the EU, which tries to create synergies. This project can determine the identification of potential follow-up PPI actions to be financed.⁴²³

In the area of **R&D&I**, **innovation** procurement is the most important demand-side policy measure to achieve the objectives identified in the **High-Tech-Strategy Germany**. It includes as a measure to bring more ideas into the market, which is one of the five pillars defined in the Strategy.⁴²⁴

Indicator 3 – ICT policies

Total score 50% European Average 47%

In the area of ICT, Germany's **Digital Agenda 2014-2017**⁴²⁵ identified 7 main areas where action is needed to achieve its overall objectives. One of these areas is public administration, where giving public procurement a more innovative focus is seen as a key principle to implement the digital transformation of the sector, in particular "to reduce the reliance of government IT on closed global IT and cloud computing ecosystems and to support innovative companies and boost competition in the IT sector". Germany's **Digital Strategy 2025** (adopted in 2016) does not refer specifically to innovation procurement either. Because of only indirect references to innovation procurement, the score for this indicator is 50%.

Indicator 4 – Sectorial policies

Total score 0% European Average 14%

Action plans and policy framework of sectorial policies in Germany do not explicitly recognize innovation procurement as a strategic priority. Therefore the total score for this indicator is 0%.

As specified above, indirect links to programmes and projects implemented in the context of the ESIF fund, are likely to have an indirect impact to sectorial policies. The use of PCP and PPI tools within this programme is expected to play a role. An example are the measures implemented to increase energy efficiency in public buildings, where the use of innovative procurement procedures had a positive effect on regional economic structures and markets.⁴²⁶

Indicator 5 – Action plan

Total score 0% European Average 8%

Germany does not have a stand-alone Action Plan for innovation procurement.

⁴²² E.g. <http://www.newtrade-nrw.de/fileadmin/files/downloads/Lageanalyse.pdf>

⁴²³ <https://stars-pcp.eu/zenit-gmbhh>

⁴²⁴ https://www.bmbf.de/pub_hts/HTS_Broschure_Web.pdf

⁴²⁵ <http://www.bmwi.de/EN/Topics/Technology/digital-agenda.html>

⁴²⁶ http://www.euburo.de/media/content/Synergien/Ergebnisbericht_PCPPPI_Workshop_BF.pdf

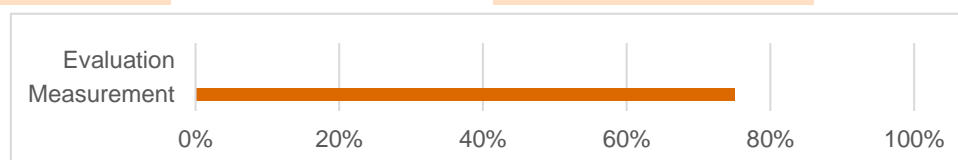
Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Germany there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score	38%	European Average	13%
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Germany does not have a structured monitoring system yet to measure the expenditure on innovation procurement and evaluate the impacts of completed innovation procurements, because of the high level of fragmentation of public procurement activities in the country, which obstacles an effective centralized monitoring system.

However, in the last years some improvement has been made which may foster measuring activities in the field of innovation procurement. Specifically, the *Bundeswehrhochschule München* carried out in 2016 a **pilot measurement** of public procurement in the country.⁴²⁷ The results of this exercise estimated that, of an overall €350 billion of public procurement, €40/50 billion, i.e. 11/14% of the overall budget, was spent on innovation procurements.

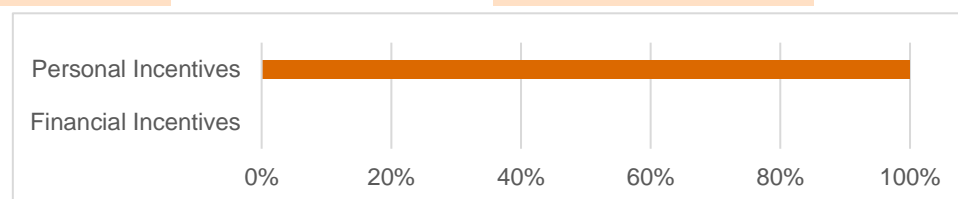
In addition, the **new regulation for statistical data** (§98 and §99 of the German Act against Restraints of Competition – Gesetz gegen Wettbewerbsbeschränkungen – GWB) requires information of all procurement activities. For procurement under the EU threshold, volume, kind of procedure and product group is required. For procurements above the EU threshold, the indication of different categories such as innovation and environment are required as well. The presence of such a pilot measurement and the adoption of a mandatory country wide indicator for innovation procurement justifies a 75% score in the “measuring” sub-indicator.

As a consequence, an electronic system for the collection of relevant data is being developed by the service company INIT in cooperation with the Federal Statistics Office, aiming to calculate the total spending of public procurement at country level (including the municipal and state procurement). In addition, this initiative aims to categorise the spending into a number of clusters, including innovation procurement, to provide progress indicators. First results of this initiative are expected in 2020.

Due to the absence of system to evaluate the impacts of completed innovation procurements, the overall score of the indicator “monitoring system” is 38%.

Indicator 8 – Incentives

Total score	50%	European Average	22%
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Regarding **personal incentives**, the Association for Supply Chain Management, Procurement and Logistics (BME) and the Federal Ministry for Economic Affairs and Energy (BMWi) are jointly holding, through KOINNO, an **“Innovation prize once a year”** (*“Innovation schafft Vorsprung”*).

The aim is to award top performances among public-sector contracting authorities in the procurement of innovative products and the design of innovative procurement processes. Those eligible to apply for the prize are administrative authorities at national, state and local level and also public companies and institutions. Manuscripts on either innovative procurement processes or procuring innovations are accepted. In recognition of the specific challenges involved in driving innovation in public institutions, the winners of the competition will each receive a voucher for consulting services worth € 10,000 (€ 10,000 for the category “Procurement of Innovation” and € 10,000 for the category “Innovative Procurement Processes”).⁴²⁸

Due to the absence of **financial incentives**, the total score of the indicator “incentives” is 50%.

⁴²⁷ <https://rio.jrc.ec.europa.eu/en/file/11255/download?token=h7oOt2OW>

⁴²⁸ <https://www.koinno-bmwi.de/en/koinno/innovation-prize/>

Indicator 9 – Capacity building and assistance measures

Total score

61%

European Average

24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all aspects and types of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	√	√	√	√	√		83%
Good practices	√	√	√	√	√		83%
Trainings/workshops	√		√	√	√		67%
Handbooks/guidelines	√	√	√	√	√		83%
Assistance to public procurers	√	√	√	√	√		83%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers	√		√	√	√		67%
One-stop-shop/competence centre	√	√	√	√	√		83%

Germany carries out several measures to develop skills and competences on innovation procurement, especially through the **Competence Centre for Innovative Procurement (KOINNO)**. One of the main goals of the Centre is to act as “one-stop-shop” providing of knowledge and experience in public procurement. Specifically, KOINNO carries out the following activities:

- **Central website** in Germany for innovation procurement related information
- **Consultancy services** to public institutions at all levels on innovative management and on innovative products (in-house trainings and individual consultations for procurers);
- **Events organisation** (regional conferences, trade fairs, innovation venues, strategic dialogues);
- **Networking activities**, both at national/local level and internationally;
- Free of charge **assistance to procurers**, offering legal, technical and economic assistance in the innovation procurement process and supporting public clients in setting up or restructuring their purchasing departments to become more efficient, innovative and strategic;
- **Information and awareness raising** through training, seminars and e-learning sessions, dissemination of **good practice examples**⁴²⁹, publication of **guides and toolbox**⁴³⁰, information on subsidies;
- **Prize for innovation procurement** (cf. Indicator "Incentives").

The German procurement system is highly decentralised. Therefore, there are also capacity building initiatives at local and regional levels. Two good examples can be the action of ZENIT GmbH in North Rhine-Westphalia⁴³¹ and initiative “Cost reduction and professionalization through inter-municipal allocation center in the district of Groß-Gerau” (2013)⁴³²:

- **ZENIT GmbH** has been active as a competence centre for public procurement of innovation in **North Rhine-Westphalia** (NRW) since 2012. It assists the Ministry of NRW to integrate PCP and PPI into the innovation and research strategy of the Land NRW and gives in-depth consulting services to public procurers. Furthermore, ZENIT GmbH offers support in cross-border innovation procurements between German procurers and procurers from other EU countries.
- The **Kreis Groß-Gerau** (district of small communities and cities around the city of Gerau) has implemented a central procurement body for ten member communities and the district itself. The introduction of public procurement enabled substantial annual savings in a six-figure range. This was achieved thanks to the know-how of dedicated procurement personnel. The model aims at increasing the uptake of green and innovative procurement, which otherwise would not be possible for small communities on their own.

⁴²⁹ <https://www.koinno-bmwi.de/informationen/praxisbeispiele/>

⁴³⁰ KOINNO has published a Guide on “Innovative Public Procurement”, outlining challenges, actors and framework conditions of innovation procurement, and a number of guides and fact-sheets on different relevant topics, such as the Guideline “Strategic Supplier Management”, the “Toolbox” on innovation procurement, and others. All publications are available free of charge in KOINNO’s website at <https://www.koinno-bmwi.de/en/information/publications/>

⁴³¹ <https://stars-pcp.eu/zenit-gmbh>

⁴³² https://www.koinno-bmwi.de/fileadmin/user_upload/praxisbeispiele/KOINNO-Praxisbeispiel_innovativer_Prozess_Interkommunales_Vergabezentrum_Gross_Gerau.pdf

KOINNO organises **networking** between national procurers. Under the impulse of ZENIT, the region North Rhine-Westphalia also signed a cooperation agreement with the Netherlands and the Flemish region (Belgium) to network public procurers of their different countries to stimulate cross-border innovation procurements. As this does not concern all procurers in Germany, the score on the sub-indicator networking remains 67%.

On the basis of the evidence collected, Germany scores 61% in this Indicator. In fact, all activities investigated are put in place, with the exception of the provision of template tender documents and the coordination/pre-approval of the implementation of innovation procurements. The interconnection with relevant EU level initiatives is for some measures also still lacking or not fully exploited yet. It is worth noting that the score reflects the fact that the capacity-building activities performed are not designed and/or resourced to mainstream innovation procurement at large scale in the country across all areas of public sector activity.

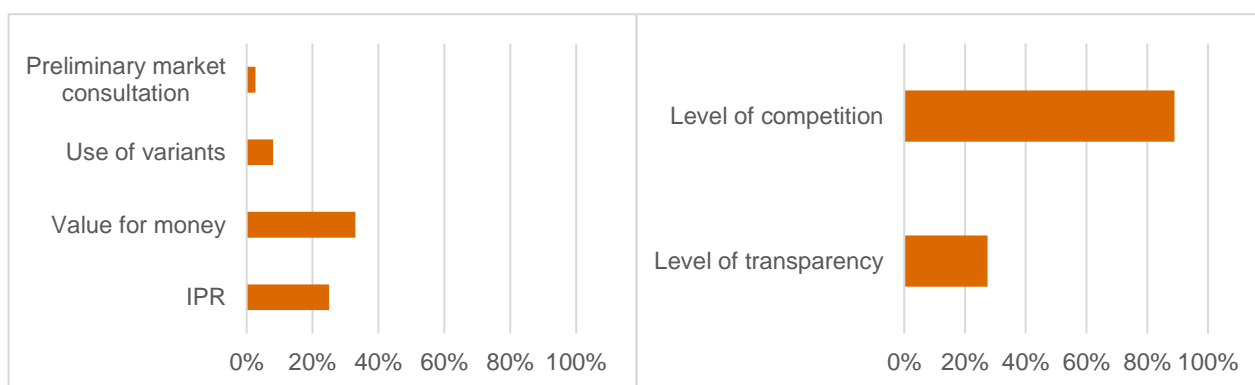
Indicator 10 – Innovation friendly public procurement market

Total score 38%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is composed of two sub-indicators that show evidence on

- I. the use of specific techniques to foster innovation in public procurement in Germany
- II. the openness of the national public procurement market to innovations from across the EU single market.

With regard to sub-indicator I, Germany shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Germany. The German law, general terms and conditions for government contracts and guidelines on public procurement do not define how IPRs are best dealt with in procurement contracts. It is left to the individual responsibility of each German procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with IPR/copyright law. The German copyright act⁴³³ assigns untransferable copyright (moral rights) to the creator. If the procurer wants to use the copyright created by (sub)contractors in his procurement he should require in the tender specifications the transfer, assignment, or license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific work, software and database rights.
- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, 33% of the procedures were awarded on criteria that are not based on lowest price only. This is below the European average of 42% and below the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Germany has allowed the use of variants in 8% of the procedures. This percentage is far above the European average of 4%.
- d. **Preliminary Market Consultation:** Germany has used Preliminary Market Consultations in the 3% of the procedures. The percentage for this sub-indicator is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 17% which is below the European average of 23%. This is mainly due to the below average performance on adopting a default IPR regime that fosters innovation, on the use of value for money award criteria and on the use of preliminary Market Consultation.

With regard to sub-indicator II, Germany shows the following evidence:

- e. **Level of competition:** The level of competition is 89% which is above the European average 84% but still below the 93% satisfactory level set by the EU single market scoreboard. Both sub-indicators score above European average: proportion of procurements with more than one bidder is 81% (which is however still below the satisfactory 90% level set by the EU single market scoreboard), whereas the proportion of procurements for which a call for bids was used reaches a satisfactory level of 97%.

⁴³³ http://www.wipo.int/wipolex/en/text.jsp?file_id=474263

- f. **Level of Transparency:** The level of transparency is 27% which is below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. All three sub-indicators score below the European average: TED publication rate (1%), percentage of procurements without missing call for bids information (78%) and without missing buyer registration numbers (3%). This makes it hard for suppliers across the EU internal market to find out which public procurer on the German market wants to buy what.

Based on this evidence, the score for sub-indicator II is 58% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to the scarce transparency of the national public procurement system.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 38% which is below the 44% European average. This score is explained firstly by the fact that both the use of specific techniques to foster innovation and the openness of the German procurement market to innovations from across the EU single market is below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still significantly underused in public procurements. Secondly, the country has shown a below-average use of Preliminary Market Consultation. In addition, although the level of competition is reaching the satisfactory level, transparency is scarce and below the European average.

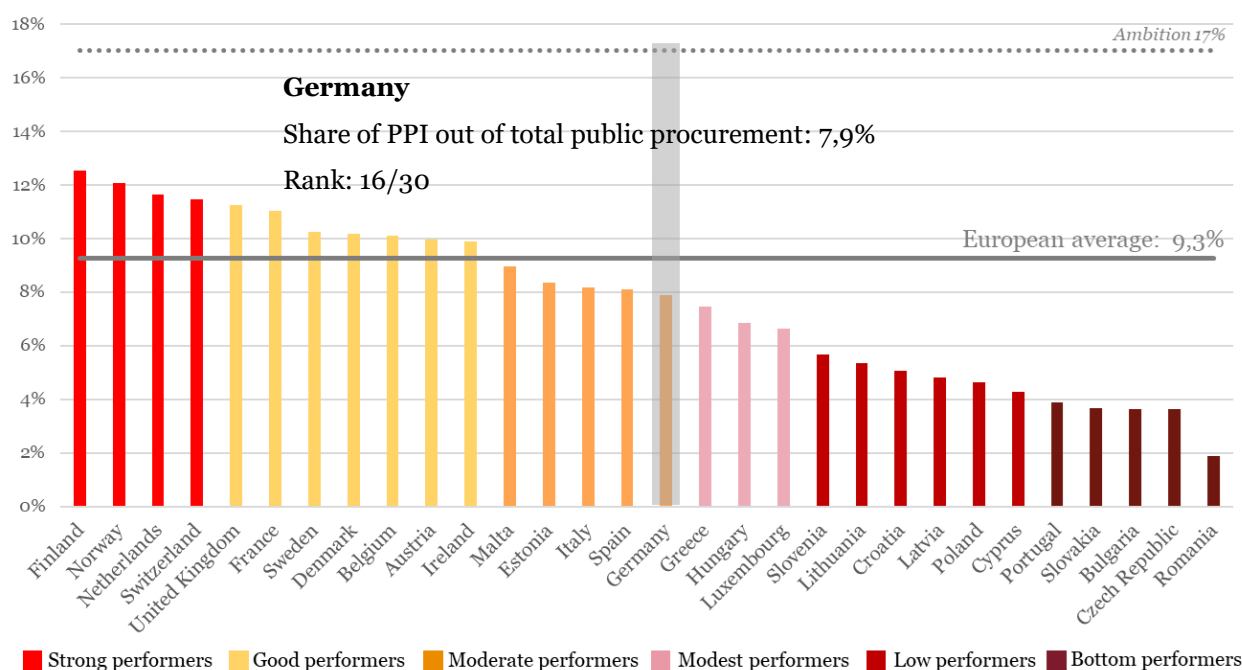
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of German investments on public procurements of innovative solutions (PPI) and the benchmarking of German investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 7,9% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 47,9 bn), **Germany ranks 16th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁴³⁴ across Europe. Germany falls within the group of **moderate performers**, slightly above the European average of 9,3%.⁴³⁵ **A significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the German public sector.⁴³⁶ When taking into account also PPI in the defence sector Germany moves up to the 15th position.



The **main factors**⁴³⁷ explaining Germany's moderate performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Germany (85%) is in line with the European average (84%). Large portions of PPI investments are devoted to the adoption of innovative solutions that are 'new to the market' (53% of PPI) and significantly improved' solutions (32% of PPI). The share of **incremental innovations** (15%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions' is also in line with the European average (16%).

⁴³⁴ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁴³⁵ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

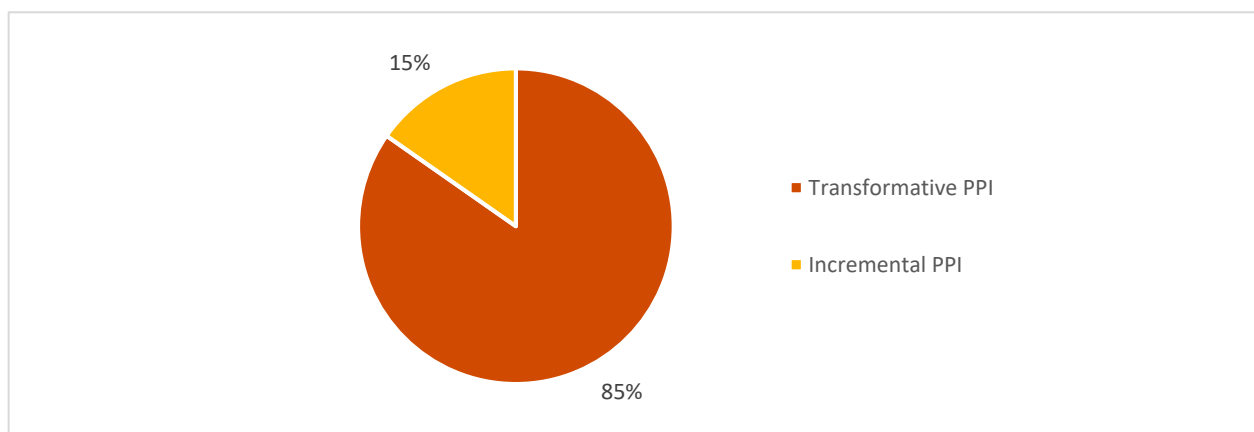
⁴³⁶ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁴³⁷ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

As the share of PPI investments that is spent on transformative innovations is much larger in leading countries, this may be a cornerstone element for Germany to improve its performance on innovation procurement.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Germany is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investments readiness across different domains of public sector activity

Nearly every domain of public sector activity⁴³⁸ in Germany purchased innovation solutions, except 'Postal Services'. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly not in line with the European averages**. German investments deviate by more than 3 percentage point (pp) from the European average in 6 out of 11 sectors. The share of PPI investments by German procurers in the 'General public services, public administration and economic and financial affairs' is significantly below (-21 pp) the European average. The share of PPI investments by procurers in 'Construction, housing and community amenities' (+12 pp) and in the 'Other' domain (+12 pp) are significantly above the European average.

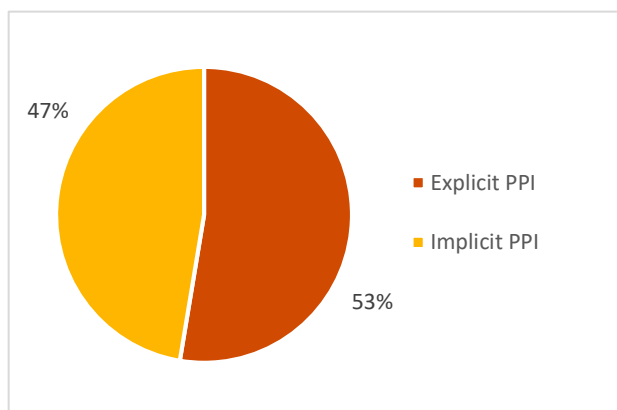
PPI investments by domains of public sector activity

Domain of public sector activity	Germany	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	14%	35%	-21
Public transport	10%	10%	0
Healthcare and social services	18%	21%	-3
Energy	7%	6%	+1
Environment	9%	3%	+6
Construction, housing and community amenities	16%	4%	+12
Education, recreation, culture and religion	9%	5%	+4
Water	1%	4%	-3
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	15%	3%	+12
Total PPI investments	100%	100%	-

⁴³⁸ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

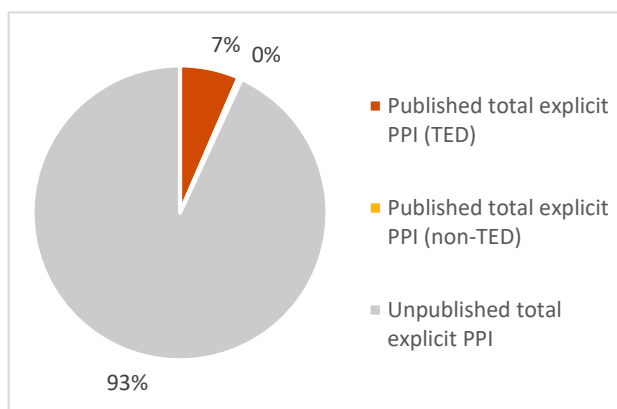


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is consistently higher in Germany (53%) compared to the European average (29%). This indicates that German procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is significantly lower in Germany (47%) compared to the European average (71%). This indicates that German procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

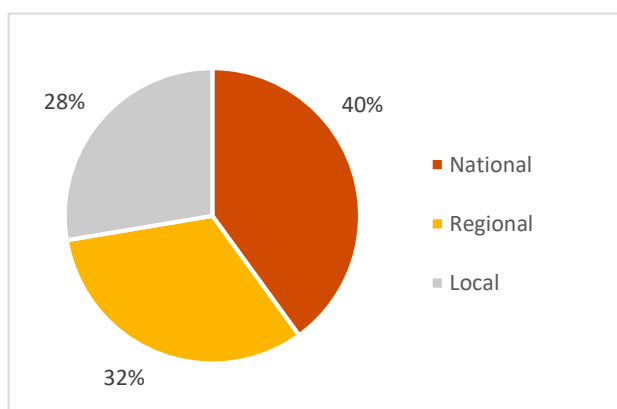


The share of German PPI investments for which call for tenders are published is very low (7%), and considerably below the European average (22%). Both the portion that is **published at European level** in the TED database (7%) and the portion that is **published at national level** (<1%) are below European average (respectively 18% and 5%). The share of PPI investments for which no call for tenders is published in TED or at national level is huge (93%).

By not publishing calls for tenders for PPI procurements widely, **Germany is missing out on potential innovative solutions** that could speed up public sector modernisation, both from German and other European innovative suppliers that are not informed about the German PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

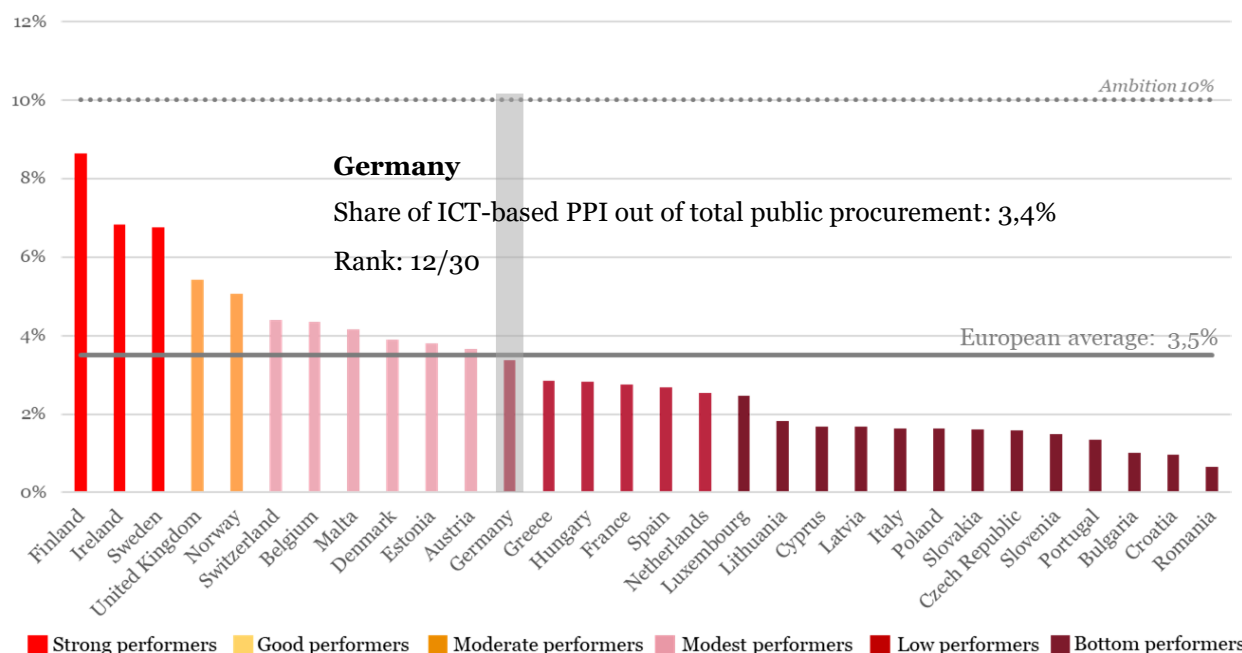


More than one-third of the total PPI in Germany is carried out by **large-scale entities at national level** (40%), such as ministries and ICT integrators of governments departments. This is not far from the European average (47%).

Procurers at regional level account for around one-third of the share of PPI (32%), above the European average (24%). **Procurers at local level** account for the smallest fraction of PPI (28%), slightly below above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The German public sector shows a **low level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,7 bn or 3,4% of total public procurement invested in innovative ICT-based solutions, **Germany ranks 12th** in the benchmarking of ICT-based PPI investments, below the European average (3,5%). In terms of the share of public procurements of innovative solutions (PPI) that is invested in ICT-based solutions (43%). Germany performs slightly above the European average (38%). **A considerable increase of investments in buying innovative ICT-based solutions is thus needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Germany to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁴³⁹

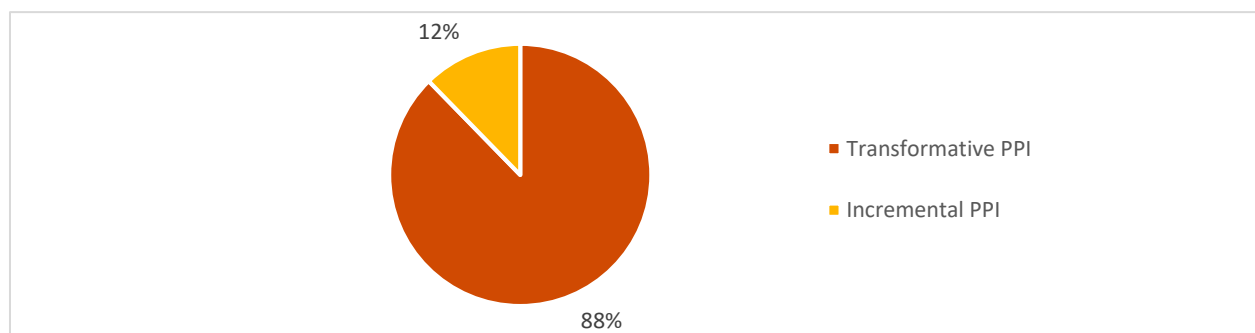


The **main factors**⁴⁴⁰ explaining Germany's low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Germany (88%) is above the European average (79%). More than half of ICT-based PPI investments is spent on the adoption of innovative solutions that are 'new to the market' (55%) and a significant share also on 'significantly improved solutions' (33%). The share of PPI investments spent on the adoption of **incremental ICT-based innovations**⁴⁴¹ (12%) is below the European average. As the total amount of investments in ICT-based innovations in Germany is below European average, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations to move from low to strong performer.

ICT-based PPI investments by type of innovation



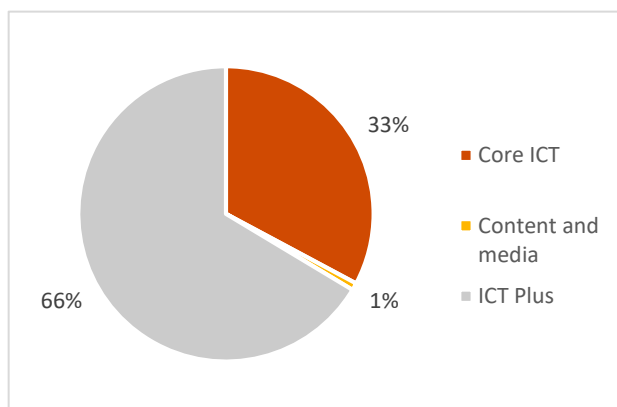
⁴³⁹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁴⁴⁰ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁴⁴¹ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Germany invested mainly in the adoption of innovations from the **'ICT Plus' sub-sector**⁴⁴² (66%), above European average (44%).

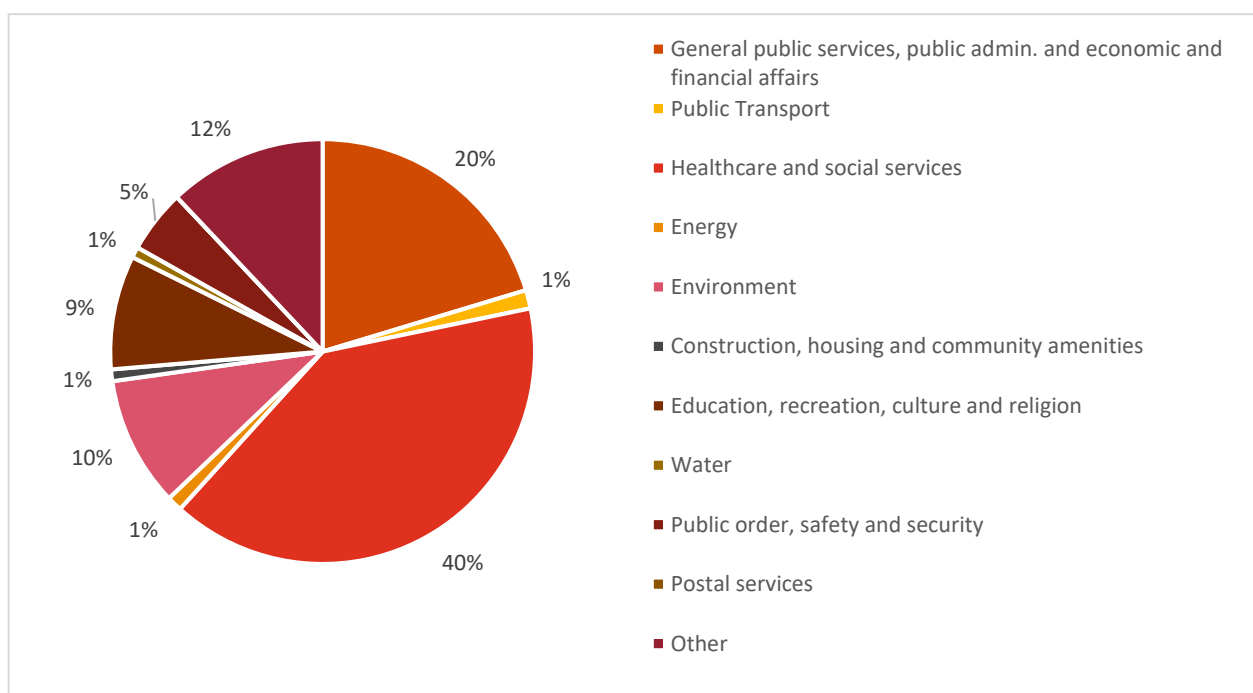
Germany invested to a lesser extent in the adoption of innovations from the so-called **'Core ICT' sub-sector** (33%), which is below the European average (55%).

German investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (1%), which is in line with the European average (2%).

Investments readiness across different domains of public sector activity

Nearly every domain of public sector activity in Germany purchased innovation ICT-based solutions, except in the 'Postal Services' domain with zero ICT-based PPI. The highest share of ICT-based PPI is made by procurers that operate in the domain of **'Healthcare and social services'** (40% against a 30% European average) followed by procurers in the **'General public services, public administration and economic and financial affairs'** domain (20% which is above the European average of 16%).

ICT-based PPI investments by domains of public sector activity

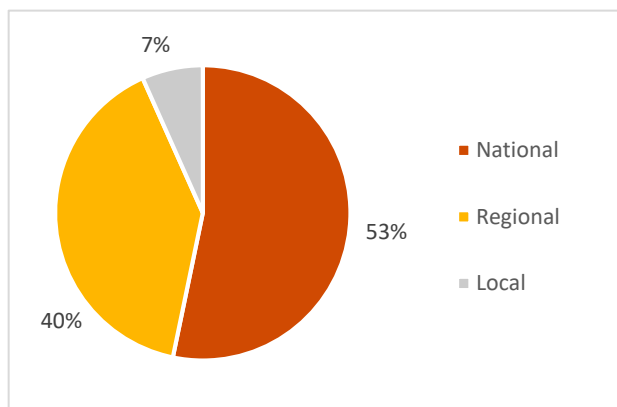


⁴⁴² The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 53% of ICT-based PPI, quite below the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI at sub-national level (40%), more than double the European average (21%). To the contrary, **local procurers** account for only a modest fraction of ICT-based PPI (7%), which is still above the European average (10%).

Greece



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The field of innovation procurement in Greece is regulated by the Law no. 4412/2016 on “public works, supplies, and service contracts” entered into force on 1 August 2016 (transposing the Directives 2014/24 and 2014/25/EU) and by the Law 4413/2016 on “award and execution of concessions” in transposition of Directive 2014/23/EU.

Public Procurement in the fields of Defence and Security are governed by law 3978/2011, which transposed the Directive 2009/81/EC.

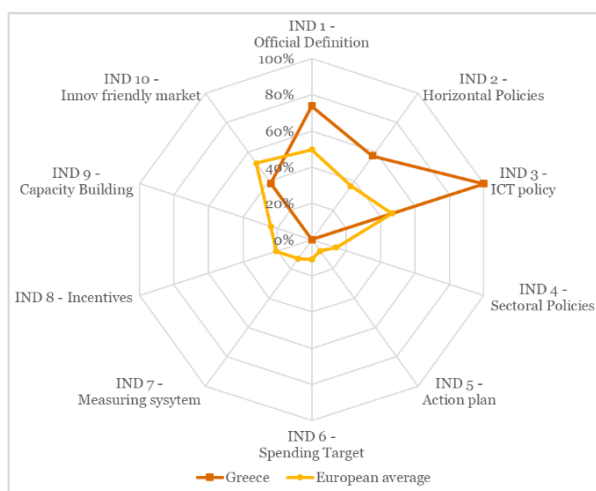
In Greece the main actors in the field of public procurement are:

- The **Government Council for Economic Policy** approves, monitors and evaluates the Action Plan for National Procurement Strategy and any possible revisions;
- The **National Central Purchasing Bodies**;
- The **General Directorate of Public Procurements** (within the Ministry of Economy and Development) owns and coordinates the national e-procurement system and is responsible for public supplies and services, including a specific focus on green and innovation procurement;
- the **General Secretariat of Infrastructure** (within the Ministry of Infrastructure and Transport), responsible for works procurement and public services contracts relating to public works;
- **National Central Authority for Procurements in Health “EKAPI”**, responsible for procurements in the health sector;
- The **Hellenic Single Public Procurement Authority (SPPA)**, established by the Government in 2011, which is responsible for the development and promotion of the national strategy in the field of public procurements, provision of policy advice to the legislature, provision of guidance to awarding authorities on the application of procurement law and regulation, and authorisation of the use of special procedures, such as negotiated procedure without publication notice. The SPPA also plays a supervisory role by monitoring and evaluating awarding authorities’ decisions.

Innovation procurement is enabled and promoted by a number of policy documents and programmes such as the Greek National Strategy for R&D&I and the Greek Smart Specialization Strategy. Law 4310/2014 on “**Research, Technological Development, Innovation and other provisions**”, introduces definition of Pre-Commercial Procurement (PCP). However, the Greek innovation procurement framework is still at an early stage. The commitment to set up a competence centre within the General directorate of public procurement can be considered as a first crucial step to mainstream innovation procurement at national level.

Innovation Procurement Policy Framework Benchmarking (2018)

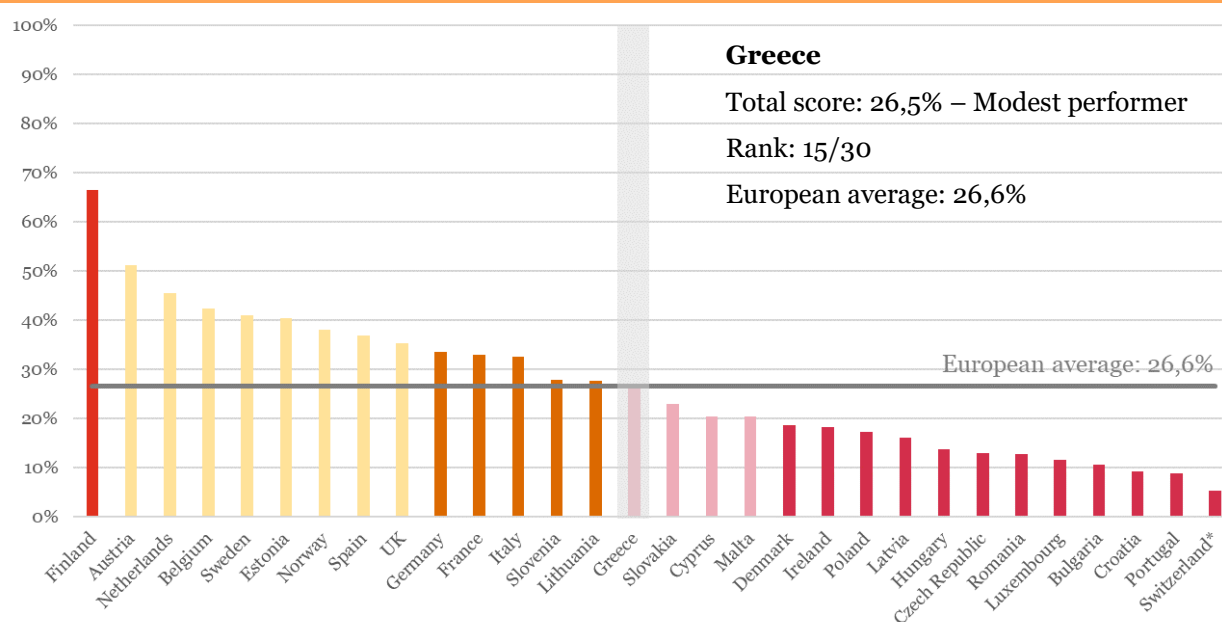
In the benchmarking of national innovation procurement policy frameworks across Europe, **Greece is at the 15th position** of the overall ranking with a **total score of 26,5%**. From the 30 countries analysed, Greece is among the group of modest performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 26,5% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a strong reinforcement of the policy framework needed in Greece to reach its full 100% potential.



Strength: In the Greek procurement legal framework there is a definition of PCP that is in line with the EU definition. The commitment to set up a competence centre within the General directorate of public procurement can be considered as a first crucial step to mainstream innovation procurement at national level.

Weaknesses: Innovation procurement in Greece is at an early development stage, and most important elements to foster its development are still missing (e.g. capacity building and assistance, action plan, monitoring system, spending target, financial and other incentives for public procurers, etc.). Lack of IPR policy in public procurement that encourages innovation.

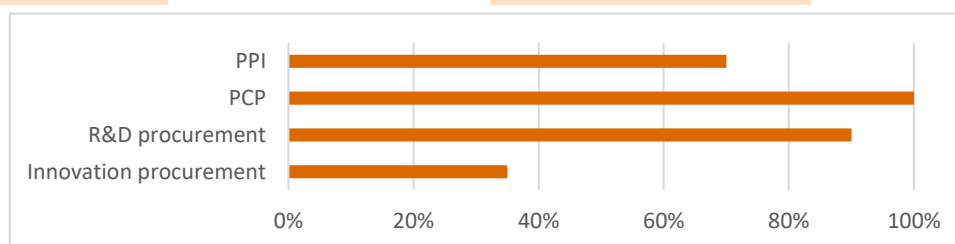
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 74% European Average 50%



In Greece, there is an official definition for R&D, PCP and PPI, while the legal framework only provides a legal basis for “innovation procurement”. Therefore, the total score of this indicator is 74%.

Law 4412/2016 introduces the definition of **innovation** as “the realisation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, new marketing methods or new organizational methods to business practices, workplace organization or external relations, inter alia, to contribute to addressing societal challenges or supporting the Europe 2020 Strategy for smart, sustainable and inclusive growth”. This definition is applicable countrywide and coherent with the EU definition, therefore the score for this sub-indicator is 35%.

Although there is no definition of **R&D**, Law 4413/2016 provides a reference to the CPV codes in the article 24. In addition, a definition of R&D is provided in the Defence Procurement Law (Greece Defence law 3978/2011). Article 73.3 provides a definition of Research and development that is coherent with the EU definition. This definition is only applicable in the defence sector (i.e. not countrywide applicable) but is coherent with the EU definition, therefore the total score for this sub-indicator is 90%.

Law 4310/2014, article 2, paragraph 41 defines **PCP** as “buying research services in case the contracting authority or entity does not assume all risks, the results and use benefits in the conduct of its activities, but shares them with the providers under market conditions. The object of the contract falls within one or more categories of research and development defined in the present context. The contract is of limited duration. With the exception of prototype or a limited set of first test/validation data, the purchase of goods or services, which are developed within the framework of a pre-commercial procurement, should not be subject of the same contract”. This definition is fully in line with EU definition and applicable country wide, therefore the total score of this sub-indicator is 100%.

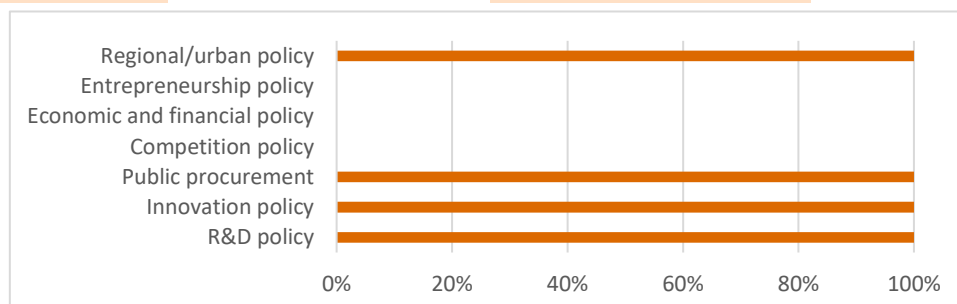
A **PPI** definition is not available in the legal framework. However, the 4413/2016 provides the legal basis to implement PPI. In particular, article 86 p.2(a) allows procurers to award contracts and monitor contract performance based also on innovation criteria). On 10/9/2018 the Hellenic Single Public Procurement Authority (SPPA) published a technical guidance document that provides definitions of PCP and PPI as well as description of their procedural framework⁴⁴³.

⁴⁴³ <https://diavgeia.gov.gr/doc/7%CE%9D%CE%A10%CE%9F%CE%9E%CE%A4%CE%92-%CE%9C%CE%A1%CE%A8?inline=true>

This technical guidance document contains also some case examples of PCPs and PPIs implemented in Europe as well as a comparative analysis between PCP/PPI and innovation partnerships. As a result, the total score of the sub-indicator is 70%.

Indicator 2 – Horizontal policies

Total score	57%	European Average	36%
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In Greece innovation procurement is embedded in the regional policy, public procurement policy, innovation policy and R&D policy. Hence the total score for this indicator is 57%.

Under **public procurement** policy, the evidence is provided by the Action Plan for National Procurement Strategy, adopted by the Government Council for Economic Policy in 2017, which foresees specific actions to promote innovation procurement: conducting a special study to promote innovation in the sectors of health, energy, environment and transport; informing / building knowledge for the Public Sector and for economic operators regarding the new legislative framework for promoting innovation procurement; developing support actions and promoting clusters in the relevant field etc. (Actions 33, 34 and 68 of the Action plan).⁴⁴⁴

In 2015, PCP was also added under the objectives of the Greek National Strategy for **R&D&I**. PCP was included under the article 4 of the Law 4386/2016 that amended Law 4310/2014. In particular, Article 4 of the Law 4310/2014 on Research, Technological Development, Innovation and other provisions states that “*the National Strategy on Research, Technological Development, Innovation aims at the development of [...] every mean for funding Research, Technological Development, Innovation (such as [...] pre-commercial public procurement [...])*”.

Specific PCP references are also foreseen under the **regional policy** in Thematic Objectives 2 (ICT) and 3 (Competitiveness) of the Greek Smart specialization strategy (RIS3) 2014-2020.⁴⁴⁵ The strategy is implemented by the Greek regions and local authorities which have their own smart specialization strategies. The RIS3 foresees the implementation of an action on Pre-Commercial Procurement (PCP) with an estimated budget of 40 million euros. According to the description, this action might address the development of applications in sectors such as culture (museums), education and tourism⁴⁴⁶. So far, however, there is no progress as regards its actual realisation.

Indicator 3 – ICT policies

Total score	100%	European Average	47%
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Actions to develop a framework for innovation procurement and PCP in the digital policy area are also envisaged in the **National Digital Strategy 2016-2021**. The strategy, prepared by **General Secretariat for Digital Policy** of the Ministry of Digital Policy, Telecommunications and Information, reports in its Priority 4.1 a “Support for research and development Research and Technological Development (ETA) includes among its objectives: “*a framework for the procurement of innovative services and pre-commercial procurement (Priority 4.1)*”.⁴⁴⁷

Indicator 4 – Sectorial policies

Total score	0%	European Average	14%
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In Greece no sectorial policy explicitly recognises the role of innovation procurement within its strategy.

⁴⁴⁴ http://www.opengov.gr/aads/wp-content/uploads/downloads/2016/02/02_STRATEGY_partB.pdf

⁴⁴⁵ http://www.gsrt.gr/Financing/Files/ProPeFiles19/RIS3V.5_21.7.2015.pdf

⁴⁴⁶ Operational Program for Competitiveness, Entrepreneurship and Innovation, available at: https://www.espa.gr/elibrary/Antagonistikotita_2014GR16M2OP001_1_3_el.pdf

⁴⁴⁷ http://www.opengov.gr/digitalandbrief/wp-content/uploads/downloads/2016/11/digital_strategy.pdf

Indicator 5 – Action plan

<i>Total score</i>	0%	<i>European Average</i>	8%
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Greece does not have a stand-alone Action Plan for innovation procurement. However, as explained in Indicator "Horizontal policies", the Government Council for Economic Policy adopted in 2017 the **Action Plan for National Procurement Strategy** which includes three actions towards promoting innovation procurement in the public sector.

Indicator 6 – Spending target

<i>Total score</i>	0%	<i>European Average</i>	11%
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In Greece there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

<i>Total score</i>	0%	<i>European Average</i>	13%
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Greece does not have structured monitoring and evaluating systems of innovation procurement.

Indicator 8 – Incentives

<i>Total score</i>	0%	<i>European Average</i>	22%
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In Greece there are no financial or other types of incentives to encourage public procurers to undertake more innovation procurements.

Indicator 9 – Capacity building and assistance measures

<i>Total score</i>	0%	<i>European Average</i>	24%
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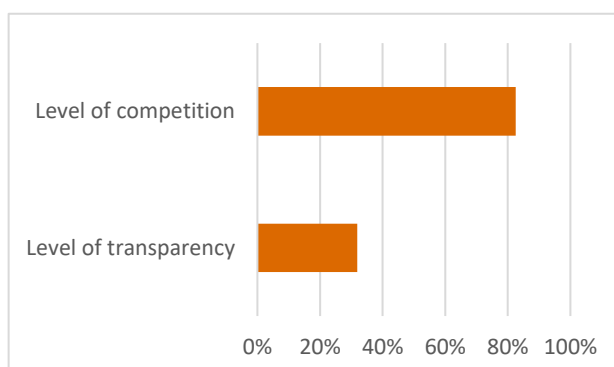
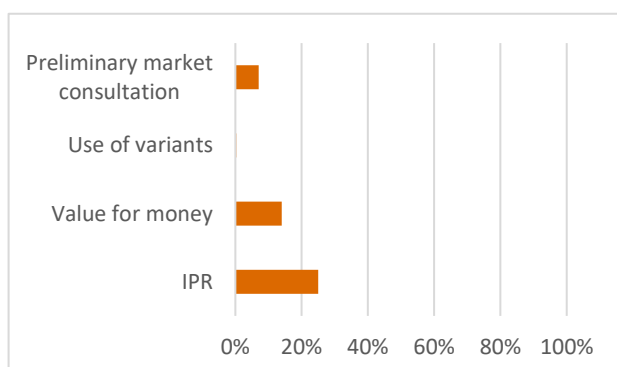
So far, Greece has not developed yet targeted capacity building and assistance measures to enhance the adoption of innovation procurement but an evolution in this sense is likely to occur in the near future. There are, indeed, sporadic initiatives on innovation procurement to increase awareness of innovation procurement among local public procurers. For example the Region of Central Macedonia in Greece in collaboration with DG CNECT and S3 Platform organized an event in 2014 in Thessaloniki on Innovation Procurement in the Regional Policy.⁴⁴⁸ Furthermore, in October 2016, the General Directorate of Public Procurements (Ministry of Economy and Development) co-organised with DG CNECT the second major Eafip in Athens and in 2017 participated in the CSA action called "Mutual Learning Exercise on Innovation Procurement". At present there is a formal commitment by the Minister of Economy and Development to set up a competence centre for innovation procurement in the General Directorate of Public Procurements in the context of the EU funded project Procure2Innovate. The General Directorate is a national CPB for procurement of goods and services in Greece and belongs to the General Secretariat of Commerce and Consumer Protection.

Indicator 10 – Innovation friendly public procurement market

<i>Total score</i>	34%	<i>European Average</i>	44%
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I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



⁴⁴⁸<https://ec.europa.eu/digital-single-market/news/digital-innovation-regional-growth-innovation-procurement-29-april-2014-thessaloniki-greece>

This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is composed of two sub-indicators that show evidence on:

- I. The use of specific techniques to foster innovation in public procurement Greece
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Greece shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because in Greece there is no default regime for the distribution of IPR rights between procurers and suppliers. The Greek law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Greek procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Greek public procurement law foresees that procurers can require in the tender specifications the transfer of IPR rights to the procurer. The Greek copyright law⁴⁴⁹ 2121/1993 however determines that copyright (moral rights) belong in an inalienable way to the creator. Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. If the procurer wants to use copyright produced by the contractor during his procurement, he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific creations, software and database rights. Templates for public procurements in Greece refer (in the preamble) to the above-mentioned Copyright law 2121/1993.⁴⁵⁰
- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, only 14% of the procedures were not awarded on the basis of lowest price only. This is significantly below the European average of 42% and below the 80% satisfactory level set out in the EU single market scoreboard. Greece is among the Member States with the highest underutilization of value for money award criteria.
- c. **Use of variants:** Greece has allowed the use of variants in less than 1% of the procedures (0,3%). This percentage is well below the European average.
- d. **Preliminary Market Consultation:** Greece has used Preliminary Market Consultations in the 7% of the procedures. This percentage is below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 12% which is significantly below the European average of 23%. This is mainly due to the below average performance on adopting an IPR default regime that fosters innovation and underutilization of value for money award criteria.

With regard to sub-indicator II, Greece shows the following evidence (based on the EU single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 83% which is just below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This is mainly because the proportion of procurements where there was more than one bidder is below European average (66%). The proportion of the procurements where a call for bids was used (99%) is above European average and reaching the satisfactory level defined by the EU single market scoreboard.
- f. **Level of Transparency:** The level of transparency of the public procurement market is 32% which is below the European average 45% and the 66% satisfactory level set by the EU single market scoreboard. This result is mainly affected by the very low TED publication rate (2%). The proportion of procurements without missing call for bids information (85%) and without missing buyer registration numbers (99%) are above average although the first is still below the 97% satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 57% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. Both the level of competition and transparency are below the European average and the satisfactory level set by the EU single market scoreboard.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 34% which is below the 44% European average and below the satisfactory level for the total of the EU single market indicators. This score is explained firstly by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Greek procurement market to innovations from across the EU single market is below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still seriously underused in public procurements. In addition, both the level of competition and transparency are below the European average.

⁴⁴⁹ <https://www.opi.gr/index.php/en/library/law-2121-1993>

⁴⁵⁰ <http://www.eaadhsy.gr/index.php/m-foreis/m-protypa>

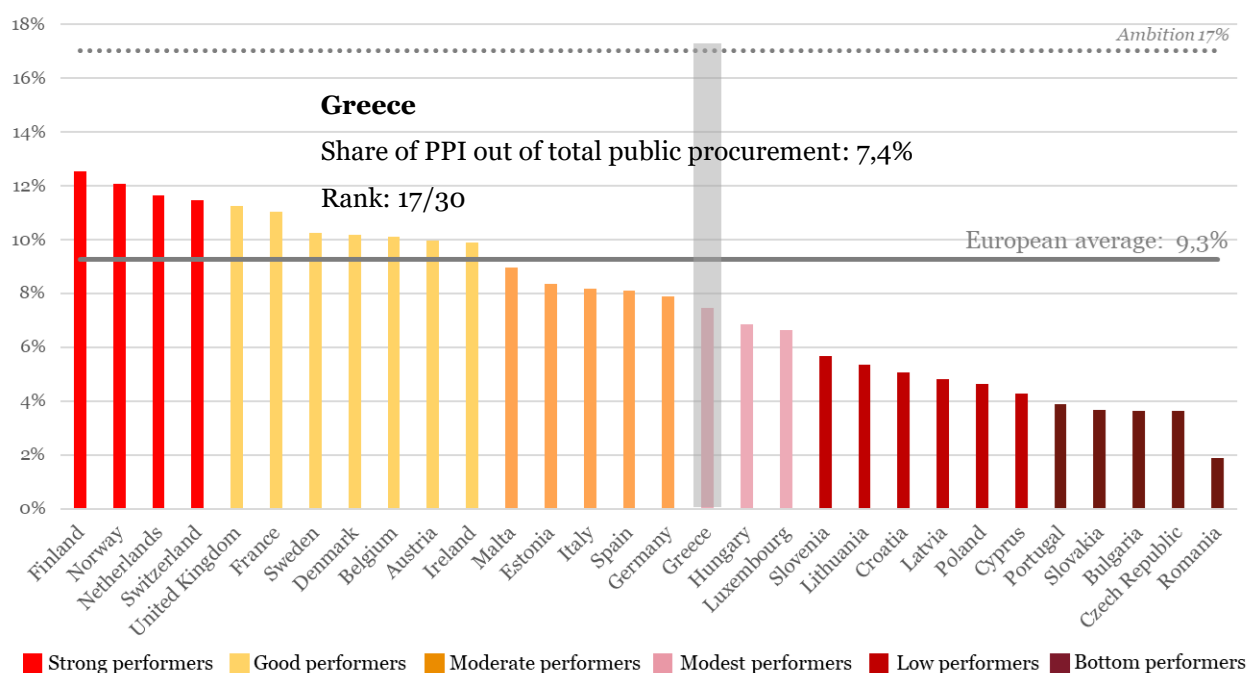
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Greek investments on public procurements of innovative solutions (PPI) and the benchmarking of Greek investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 7,4% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 20,7 bn), **Greece ranks 17th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁴⁵¹ across Europe. Greece falls within the group of **modest performers**, below the European average of 9,3%.⁴⁵² **A significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Greek public sector.⁴⁵³ When taking into account also PPI in the defence sector Greece still remains in the 17th position.



The **main factors**⁴⁵⁴ explaining Greece's modest performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Greece (55%) is well below the European average (84%). This may be due to the fact that the adoption of breakthrough innovative solutions that are 'new to the market' is still very limited (4% of PPI), despite the fact that the largest portion of PPI investments is devoted to 'significantly improved' solutions (51% of PPI). Greece still relies to a significantly larger extent (45%) than in Europe on average (16%) on the adoption of **incremental innovations**, which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. As the

⁴⁵¹ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁴⁵² All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

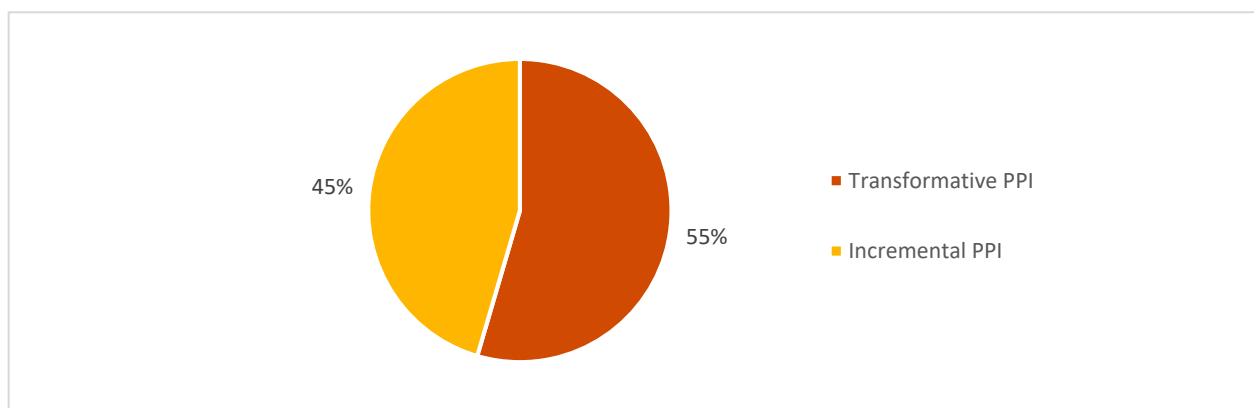
⁴⁵³ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁴⁵⁴ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

total amount of investments in innovative solutions in Greece is modest and below European average, the country still needs to step up considerable its efforts in the adoption of both transformative and incremental innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Greece is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Every domain of public sector activity⁴⁵⁵ in Greece purchased innovation solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. The highest divergences from the European average emerge in the ‘**Healthcare and social services**’ domain (-19 pp). On the other hand, PPI investments made by procurers in ‘**General public services, public administration and economic and financial affairs**’ and ‘**Public transport**’ are significantly higher than the European average (+12 pp and +13 pp respectively).

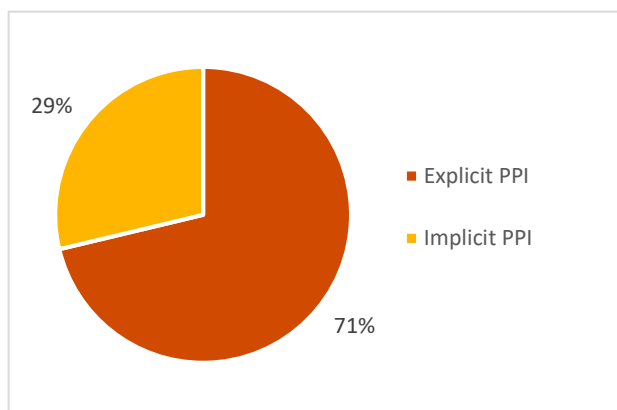
PPI investments by domains of public sector activity

Domain of public sector activity	Greece	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	48%	35%	+13
Public transport	22%	10%	+12
Healthcare and social services	2%	21%	-19
Energy	8%	6%	+2
Environment	3%	3%	+1
Construction, housing and community amenities	0%	4%	-4
Education, recreation, culture and religion	7%	5%	+2
Water	4%	4%	0
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	2%	3%	-1
Total PPI investments	100%	100%	-

⁴⁵⁵ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

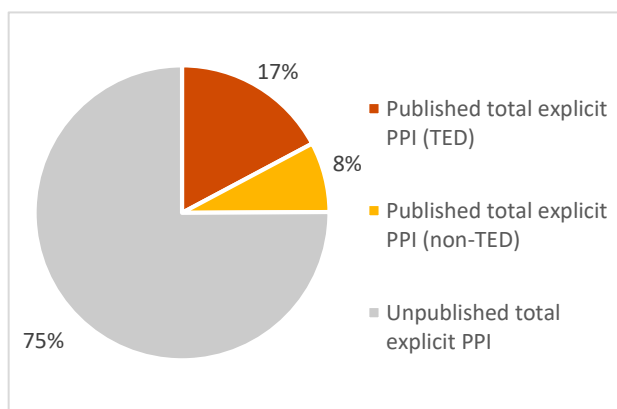


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is consistently higher in Greece (71%) compared to the European average (29%). This indicates that Greek procurers may be less risk-averse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is significantly lower in Greece (29%) compared to the European average (71%). This indicates that Greek procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

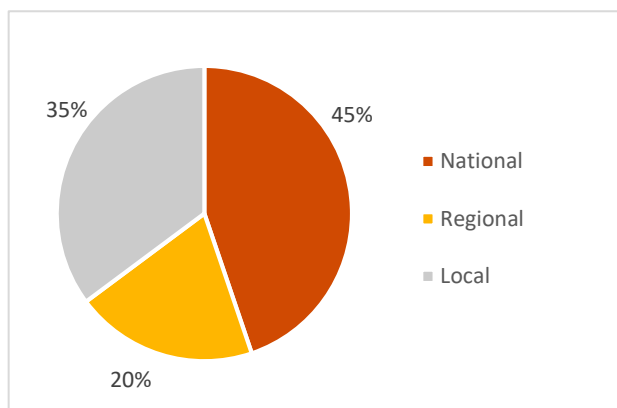


The share of Greek PPI call for tenders that is published is modest (25%), even if higher than the European average (22%). Both the portion that is **published at European level** in the TED database (17%) and the portion that is **published at national level** (8%) are below European average (respectively 18% and 5%). The share of PPI that are not published in TED or at national level is very large (75%).

By not publishing PPI call for tenders widely, **Greece is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Greek and other European innovative suppliers that are not informed about the Greek PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

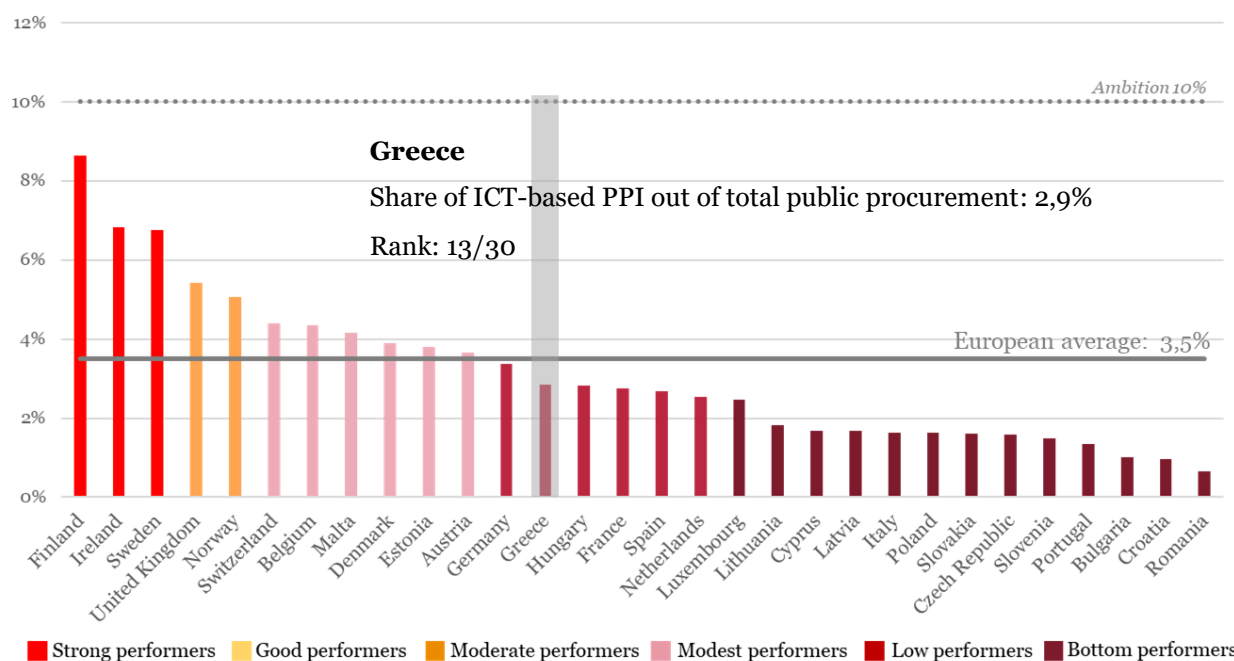


Almost half of the total PPI in Greece is carried out by **large-scale entities at national level** (45%), such as ministries and ICT integrators of governments departments. This is slightly below the European average (47%).

Procurers at regional level account for a smaller amount of share of PPI (20%) and below the European average (24%). **Procurers at local level** account for the highest fraction of PPI at sub-national level (35%) and above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Greek public sector shows a **low level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 2,9% of total public procurement invested in innovative ICT-based solutions, **Greece ranks 13th** in the benchmarking of ICT-based PPI investments, below the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions Greece performs in line with the European average (38%). **A significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Greece to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁴⁵⁶

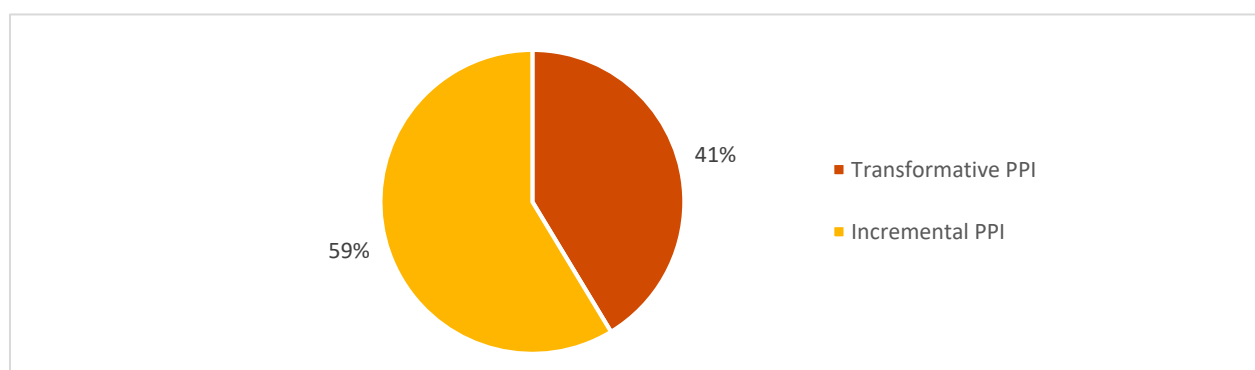


The **main factors**⁴⁵⁷ explaining Greece's low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations (41%)** is considerably below the European average (79%). This may derive from the fact that the adoption of innovative solutions that are 'new to the market' is very limited. Greece still relies to a significantly larger extent (59%) than in Europe on average (21%) on the adoption of **incremental ICT-based innovations**⁴⁵⁸.

ICT-based PPI investments by type of innovation



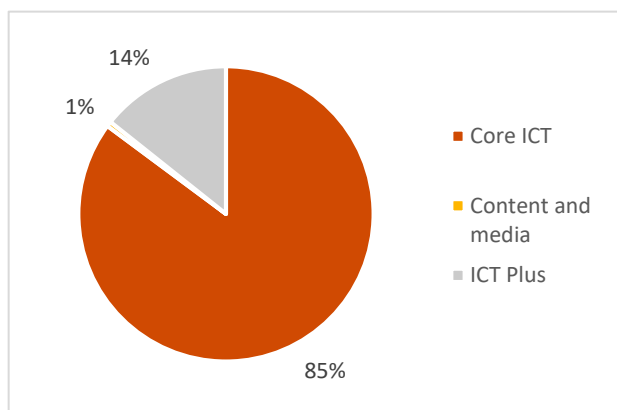
⁴⁵⁶ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁴⁵⁷ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁴⁵⁸ See definitions above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Greece invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector⁴⁵⁹ (85%), well above the European average (55%).

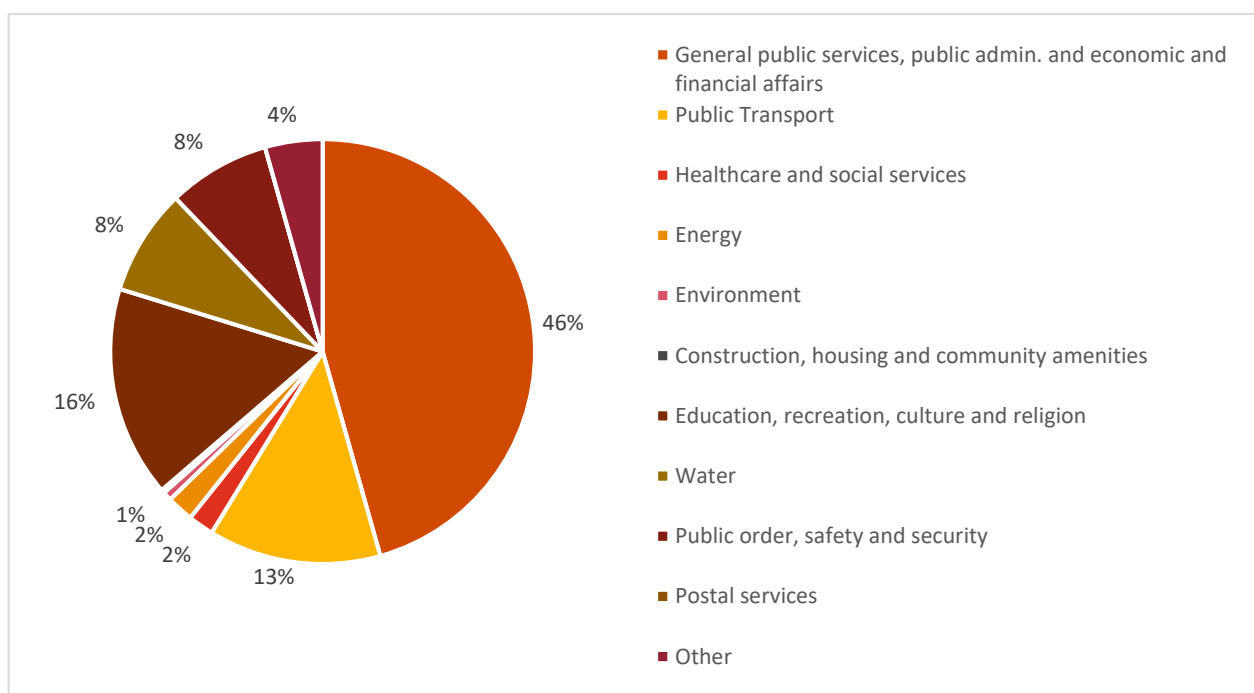
Greece invested to a considerably lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (14%), considerably below the European average (44%).

Greek investments in adopting innovations from the '**Content & Media**' sub-sector were marginal (1%), but in line with the European average (1%).

Investment readiness across different domains of public sector activity

Nearly very domain of public sector activity in Greece purchased ICT-based innovation solutions, except for the '**Postal Services**' sector with zero ICT-based PPI investment. In particular, the highest share of ICT-based PPI is made by procurers that operate in the domain of '**General public services, public administration and economic and financial affairs**' (46% against a 16% European average) followed by procurers in the '**Education, recreation, culture and religion**' domain (16% which is significantly above the European average of 9%).

ICT-based PPI investments by domains of public sector activity

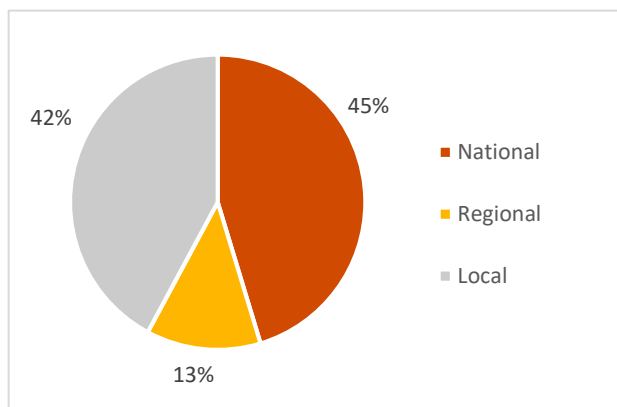


⁴⁵⁹ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 45% of ICT-based PPI investments, below the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (42%), significantly higher the European average (10%). To the contrary, **regional procurers** account for only a modest fraction of ICT-based PPI investments (13%), which is below the European average (21%).

Hungary



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The field of public procurement in Hungary is regulated by the Public Procurement Act (PPA - Act CXLIII of 2015), which defines national rules on public procurement procedures and concessions and implements the three EU procurement Directives (2014/23/EU, 2014/24/EU and 2014/25/EU).⁴⁶⁰ The Directive 2009/81/EC on defence procurement was implemented by the Order of the Minister of Defence 19/2016. (IX.14.).⁴⁶¹

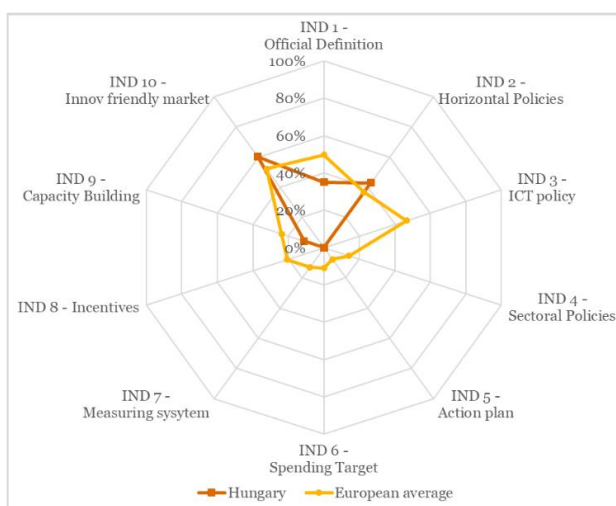
The two key actors in the public procurement system are the **Prime Minister Office** (PMO) and the autonomous **Public Procurement Authority** (KH). The PMO is responsible for drafting legislation, providing support and guidance to contracting authorities and acting as an internal supervisory body, conducting regulatory control of procurement procedures and monitoring compliance with the PPA. The KH is responsible for monitoring the application of the law, issuing guidance and formulating opinions on draft legislations. It also collects and publishes operational and statistical information through annual reports and bulletins. In addition, it holds the central register of award procedures.

A key player in the area of innovation procurement is the **National Research, Development and Innovation Office (NKFI Hivatal)**.⁴⁶² Its aim is “to create a stable institutional framework for the governmental coordination of national research, development and innovation ecosystem, provide predictable funding and implements an efficient and transparent use of available resources”, and it is developing a focus on innovation procurement as well.

In the Észak-Alföld region, an important actor in the field of innovation procurement is the **INNOVA Észak-Alföld Regional Development and Innovation Agency**⁴⁶³, which aims at becoming the sole innovation centre in the region operating in a networking model and achieving acknowledgement at national and international level.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Hungary is at the 23rd position** of the overall ranking with a **total score of 13,7%**. From the 30 countries analysed, Hungary is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country scores below European average on 8 of the 10 indicators. Having implemented only 13,7% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is a strong reinforcement of the policy framework for innovation procurement needed in Hungary to reach its full 100% potential.



Strengths: Hungary has the legal basis to start building up a policy framework for innovation procurement. National guidelines promote an approach to IPR allocation that fosters innovation in public procurement

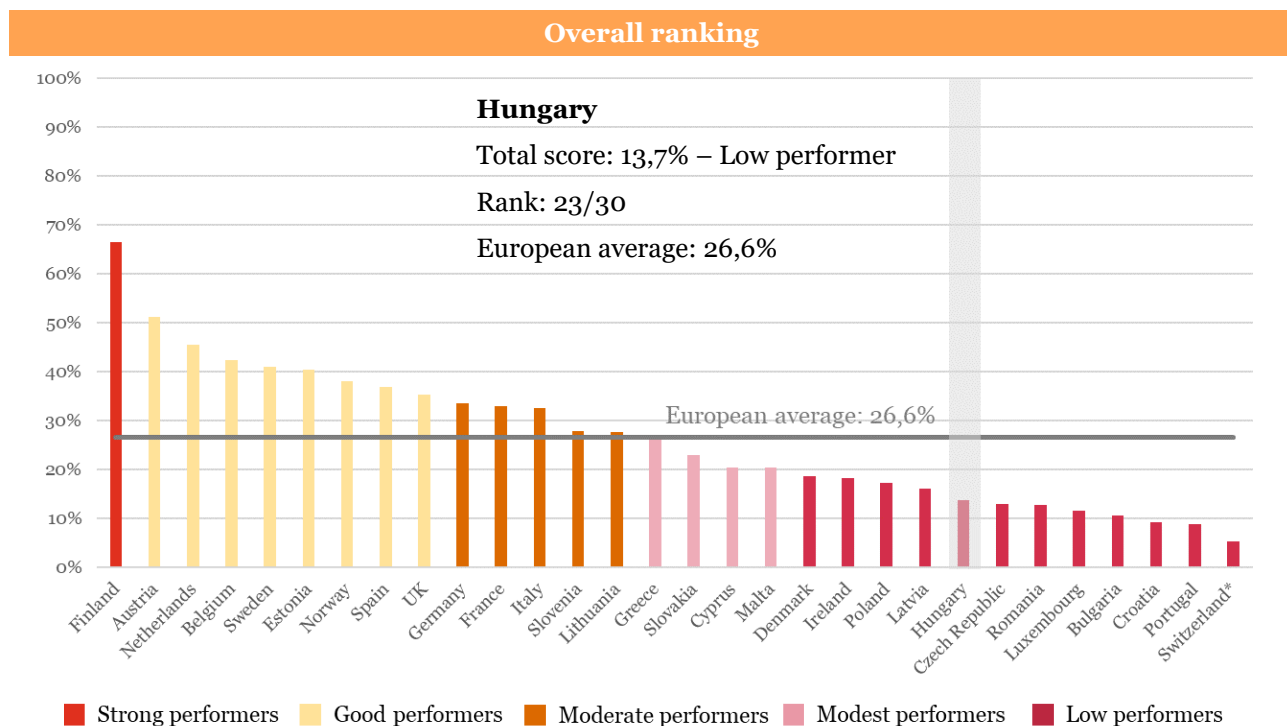
Weaknesses: Absence of a dedicated action plan, target and measurement system for innovation procurement, lack of national competence centre / low level of capacity building, lack of financial incentives for procurers to engage in more innovation procurement

⁴⁶⁰ <http://www.kozbeszerzes.hu/torveny/act-cxliiii-of-2015-on-public-procurement/> and <http://www.kozbeszerzes.hu/cikkek/hungarian-public-procurement-rules>

⁴⁶¹ <https://eur-lex.europa.eu/legal-content/EN/NIM/?uri=CELEX:32009L0081>

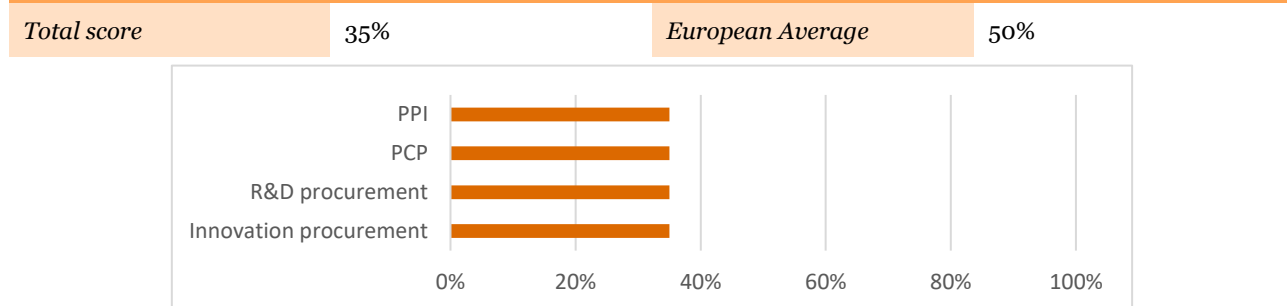
⁴⁶² <https://nkfi.gov.hu/english>

⁴⁶³ <http://www.innoregio.eu/en/about-us>



Overview per indicator

Indicator 1 – Official Definition



In the Hungarian public procurement legal framework does not provide an official definition but provides nevertheless the legal basis for all types of public procurers in the country to implement innovation procurement, R&D procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). Therefore, the total score of this indicator is 35%.

In national legislation or official guidance documents there is no definition of innovation procurement, but in national legislation there is a definition of innovation in the context of public procurement. **Innovation** is defined in Article 3 point 12. of the Act CXLIII of 2015 on Public Procurement (PPA)⁴⁶⁴ as “the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations, in particular with the purpose of improving the efficiency of a given activity and having a favourable impact on the society and environment”. The definition is in line with the EU definition and applicable to all public procurers in the country. Therefore, the total score of this sub-indicator is 35%.

Although there is no full sentence defining **R&D** in the context of public procurement in national legislation or official guidance documents, article 9 (8) letter L of the Hungarian PPA, identifies R&D as activities that have the CPV codes for *fundamental research, applied research and industrial development*, which are applicable to all public procurers in the country and in line with the EU definition of the R&D CPV codes. This article provides a legal basis to implement R&D procurement in the country. Therefore, the total score of this sub-indicator is 35%.

No definition of PCP exists in national legislation nor in official guidance documents. However, article 9 of the PPA also transposes the exclusion for R&D services, which forms the legal basis for implementing in **PCP**, namely: “the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. Therefore, no definition of PCP exists, but there is a legal basis which is applicable to all public

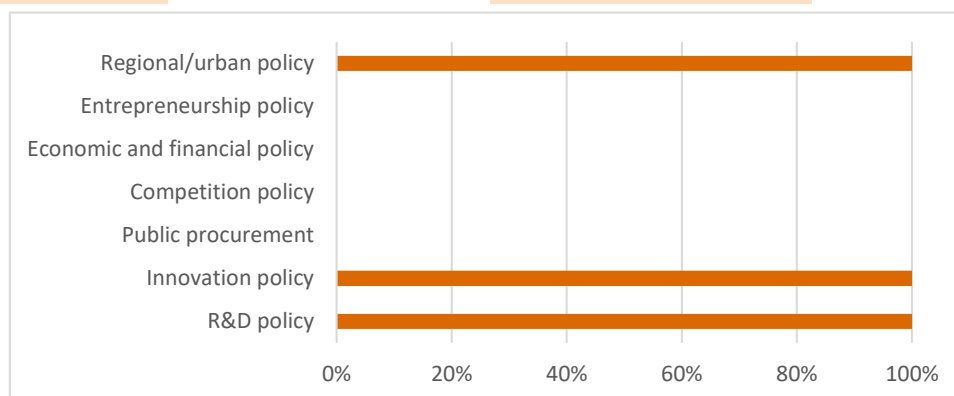
⁴⁶⁴ <http://www.kozbeszerzes.hu/torveny/act-cxliiii-of-2015-on-public-procurement/>

procurers in the country and in line with the EU procurement directives provisions, resulting in a total score for this indicator of 35%.

In national legislation or official guidance documents there is no definition for PPI, but the legislation provides the legal basis to implement PPI by enabling contract award and monitoring performance not only based on price but also based on innovative solution characteristics. In particular Article 132 of the Public Procurement Act states that “*the contracting authority may set special conditions for the performance of the contract, in particular, conditions related to social and environmental considerations as well as incentives for innovation. Reference to such contract terms shall be made in the notice launching the procedure and detailed conditions thereof may be included in the procurement documents*”. These legal provisions are applicable to all public procurers in the country and in line with the provisions of the EU public procurement directives. The total score of the sub-indicator is 35%.

Indicator 2 – Horizontal policies

Total score	43%	European Average	36%
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Three out of seven horizontal policies are currently enabling innovation procurement in Hungary. Specifically, innovation procurement is included in the Regional Policy and the R&D&I strategy frameworks. Both promote the use of PCPs, PPIs and innovation procurement to modernize the Hungarian economy and push public driven research. Therefore, the total score for this indicator is 43%.

In the area of **R&D&I**, the **national strategy 2013-2020 “Investment into the Future”**⁴⁶⁵ states that “*a further goal is that more and more national medium sized enterprises shall be able to participate in governmental and local council public procurements with an innovative content, taking into account the significant innovation content of procurements*” and sets as objective the promotion of public sector innovation (namely in the healthcare, environmental, energy, educational, transport/logistics sectors). The strategy foresees support for innovation procurement instruments, including pre-commercial procurement (PCP), and specifies that resources from several funds, such as the Research and Technology Innovation Fund (KTIA) and the European Regional Development Funds, should be allocated on innovation procurement measures.

With regard to **Regional Policy**, the **National Smart Specialisation Strategy (S3)**⁴⁶⁶ includes innovation procurement as a demand-side instrument. PCP pilot projects under the S3 are envisaged in the near future.

Indicator 3 – ICT policies

Total score	0%	European Average	47%
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Hungary's National Info-communication strategy 2014-2020⁴⁶⁷ identifies demand as key driver for the role out of innovative ICT and for creating opportunities for innovative ICT companies to invest. It also identifies as an issue that national ICT enterprises take very little part in Hungarian and international public procurements. However, it then identifies as only action to encourage and support ICT companies, in particular innovative SMEs, to participate more in public procurements. It does not make the link to foresee also an action to encourage Hungarian public procurers to undertake more innovation procurements themselves to trigger this process from the demand side. Therefore, innovation procurement is not recognized in the ICT policy and the score of this indicator is 0%.

Indicator 4 – Sectoral policies

Total score	0%	European Average	14%
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The National Research and Development Strategy can be considered a comprehensive national development policy to which several sectoral policies are connected. As already explained, the Strategy gives particular relevance to innovation procurement as a demand-side instrument to drive and support the development of new and innovative solutions. The Resolution No. 1414/2013 with which the Government has adopted the National Research Development

⁴⁶⁵ <https://nkfih.gov.hu/download.php?docID=25559>

⁴⁶⁶ <http://nkfih.gov.hu/policy-and-strategy/national-strategies>

⁴⁶⁷ http://www.kormany.hu/download/5/ff/70000/NIS_EN_clear.pdf

and Innovation Strategy, has among its priorities “Boost innovation in the health, environment, energy, education, traffic/logistics sector (P1)”. To reach this objective, the Strategy foresees among its instrument *the application of innovation procurement tools in the sectors*. There is no further evidence on the inclusion of innovation procurement within the strategies or action plans of these sectoral policies. The total score of this indicator is 0%.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Hungary does not have a dedicated Action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Hungary there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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Hungary does not have a system in place to measure innovation procurement expenditure and evaluate the impacts of completed innovation procurements. However, an evaluation assessment is being put in place in the course of the PCP pilot programme under the National Smart Specialization Strategy.

Indicator 8 – Incentives

Total score	0%	European Average	22%
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In Hungary there are no **financial incentives** to encourage public procurers to undertake more innovation procurements, and there is no specific instrument financed with ESIF funds focusing on innovation procurement either. However, there is a form of **personal incentives** in Hungary. The Public Procurement Authority has launched its programme entitled “2018 - The Year of Sustainable Procurement”. In the framework of the programme, the Authority established the **Public Procurement Prize for the most innovative public procurement procedure**. The prize will be given to procurers of the three subject-matter categories: public works, supplies and services. The deadline for application is the end of October 2018. For the purpose of this study, the prize does not get a score because it is focused on the procedure rather than on the content of the tender.

Indicator 9 – Capacity building and assistance measures

Total score	11%	European Average	24%
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	Existence	Connection with relevant international /EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices							0%
Trainings/ workshops	√						17%
Handbooks/ guidelines	√		√				33%
Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers	√		√	√			50%
One-stop-shop/ competence centre							0%

On the basis of the evidence collected, the total score for this indicator is 6%. Hungary is still lacking a structure approach to capacity building on innovation procurement across the country. Apart from some limited awareness raising on case law updates and links to EU websites at networking events for procurers that are not specifically tailored for innovation procurement, no dedicated capacity building measures for innovation procurement have been implemented in a systematic, regular way.

The key actor in this field is the **Public Procurement Authority (KH)**⁴⁶⁸, which is responsible for the promotion of innovation procurement practices. The PPA disseminates **good practices** from other EU countries, publishes practical tools on the implementation of innovation procurement and shares relevant information available on the web and on its mobile application. The mobile application “Daily Public Procurement” (*Napi Közbeszerzés* in Hungarian) offers a customised free news channel for the users, providing daily updated public procurement content concerning the latest and most important information on procurement, including innovation procurement. The application grants useful tips for both contracting authorities and suppliers.⁴⁶⁹ Good practices are free of charge, and are available to all public procurers in the country but focus mainly on current issues in public procurement law. There is a lack of practical case examples demonstrating how innovation procurements were practically implemented in Hungary and what benefits they achieved. Therefore, the total score for this sub-indicator is 0%.

The KH developed a **guideline**⁴⁷⁰. However the guideline does not provide a comprehensive guidance on innovation procurement, it touches only upon innovation partnerships (which is often too complex for smaller procurers/smaller procurement projects) and does not refer to all aspects of the EU legal basis for implementing those correctly (competition / State aid considerations are missing).

The employees of the PPA Authority participate in several Hungarian and international platforms dealing with sustainability and innovation, both as participants and as speakers. During its regular free-of-charge **conferences and workshops**, the Authority offers information on the law amendments also in the field of innovation aspects in public procurement (apart from an annual conference on innovation procurement⁴⁷¹ there are however no dedicated trainings on implementation aspects of innovation procurements), on the opportunities for contracting authorities in the area, provides the link to EU relevant web pages and documents, and to EU good practice examples.⁴⁷² Besides this single awareness raising conference on innovation procurement there are no dedicated regular trainings on innovation procurement implementation (including non-legal implementation) aspects, the total score for the sub-indicator **training/workshops** is 17%.

These conference and workshops are also the key **networking** opportunities offered to procurers in Hungary. In the Észak-Alföld region, an important body in the field of innovation procurement is the INNOVA Észak-Alföld Regional Development and Innovation Agency⁴⁷³, which aims at becoming the sole innovation centre in the region operating in a networking model and achieving acknowledgement at national and international level. INNOVA has already gained experience in project planning and implementation in different type of EU projects (FP6, FP7 and Interreg IVC) from coordination to partnering, including PCP related projects such as RAPIDE, Smart@fire, and IMAILE. However, apart from these individual EU funded projects there is no systematic networking of Hungarian procurers at international level with procurers from other countries. The score for sub-indicator networking is 50%.

Indicator 10 – Innovation friendly public procurement market

Total score

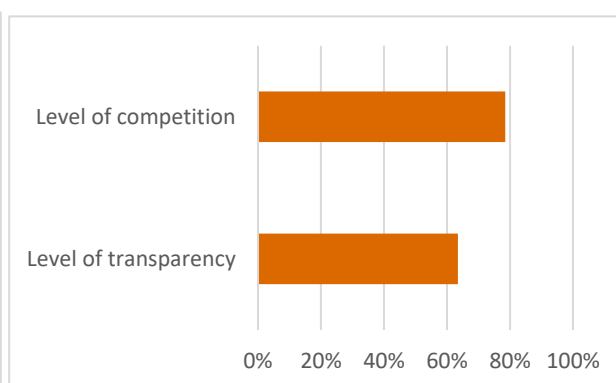
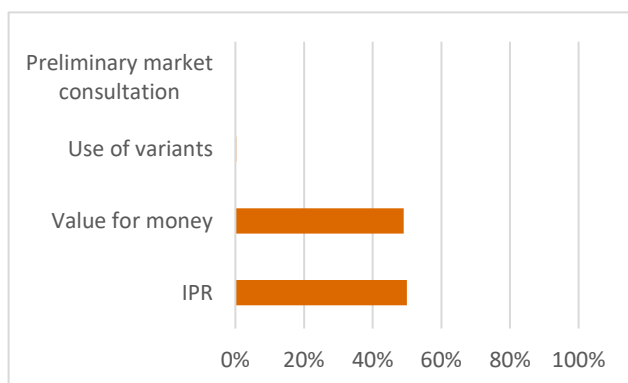
48%

European Average

44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



⁴⁶⁸ <http://www.kozbeszerzes.hu/cikkek/innovativ-kozbeszerzes>

⁴⁶⁹ The application is available at <http://www.kozbeszerzes.hu/#napi-kozbeszerzes> and can be downloaded from Google Play and iOS.

⁴⁷⁰ <http://www.kozbeszerzes.hu/cikkek/kozbeszerzesi-hatosag-kereteben-mukodo-tanacs-utmutatoja-az-innovacios-partnerseg-alkalmazasanak-egyes-kerdesirol>

⁴⁷¹ <http://www.kozbeszerzes.hu/cikkek/kozeppontban-az-innovacio-konferencia>

⁴⁷² http://www.kozbeszerzes.hu/data/filer_public/6a/ef/6aefb6a1-6d04-4232-a334-1a21dfo8d577/kozbeszerzesi_beszamolo_en_2017.pdf

⁴⁷³ <http://www.innoregio.eu/en/about-us>

This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Hungary
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Hungary shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 50% because the Hungarian law and general terms and conditions for government contracts on public procurement do not define how to best allocate IPRs allocation in order to stimulate innovation, but guidance on the Hungarian public procurement authority's webpage⁴⁷⁴ states that public procurers need to consider up front which IPR strategy to use and advocates that normally sharing of information or obtaining licenses to use suppliers' IPR is sufficient and transfer of suppliers' IPR to the public procurer is not needed. This approach is in line with the Hungarian copyright act⁴⁷⁵ which determines that copyright (moral rights) belong in an inalienable way to the creator. Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. If the procurer wants to use copyright produced by (sub)contractors in his procurement he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific creations, software and database rights.
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 49% of the public procurement procedures were not awarded on the basis of the lowest price only. This is moderately above the European average of 42% but still not reaching the 80% satisfactory level set out in the EU single market scoreboard. The country still shows an over-reliance of lowest price criteria in procurement procedures.
- c. **Use of variants:** Hungary has allowed the use of variants in less than 1% of the procedures (0,3%). This percentage is well below the European average.
- d. **Preliminary Market Consultation:** Hungary has not used Preliminary Market Consultations in procurement procedures in 2018.

Based on this evidence, the score for sub-indicator I is 25% which is slightly above the European average of 23%. However, despite the above European average level, there is an underutilization of value for money award criteria. Also, there is some promotion in guidelines to procurers for using an IPR default regime that fosters innovation in public procurement, but this is not anchored yet into legislation and general terms and conditions for government contracts.

With regard to sub-indicator II, Hungary shows the following evidence (based on the single market scoreboard):

- e. **Level of competition:** The level of competition is 79% which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. The result is mainly driven by the below average performance on both amount of procurements with more than one bidder (65%) and amount of procurements for which a call for bids was used (92%).
- f. **Level of Transparency:** The level of transparency is 63% which is above the European average 45% and but still below the 66% satisfactory level set by the EU single market scoreboard. The result is due to above average performance on all sub-indicators: TED publication rate (4%), amount of procurements without missing call for bids information (87%) and without buyer registration number (99%). The first two are however below the satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 71% which is above the European average of 65% but still below the satisfactory level 79% set by the EU single market scoreboard.

Based on the scores for sub-indicators I and II, the total score the indicator is 48% which is slightly above the 44% European average. This score is explained firstly by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Hungarian procurement market to innovations from across the EU single market is slightly above the European average. Indeed, the country is doing some effort to promote a default IPR regime in public procurement that fosters innovation but value for money award criteria are still significantly underused in public procurements. In addition, although the national public procurement market shows an above European average level of transparency, the level of competition is below European average.

⁴⁷⁴ http://www.kozbeszerzes.hu/data/filer_public/8c/aa/8caa271a-cdf5-4227-b3d7-bfa85525eda7/ppi-platform-guide-hun-final-lowres.pdf

⁴⁷⁵ http://www.hipo.gov.hu/en/English/jogforras/hungarian_copyright_act.pdf

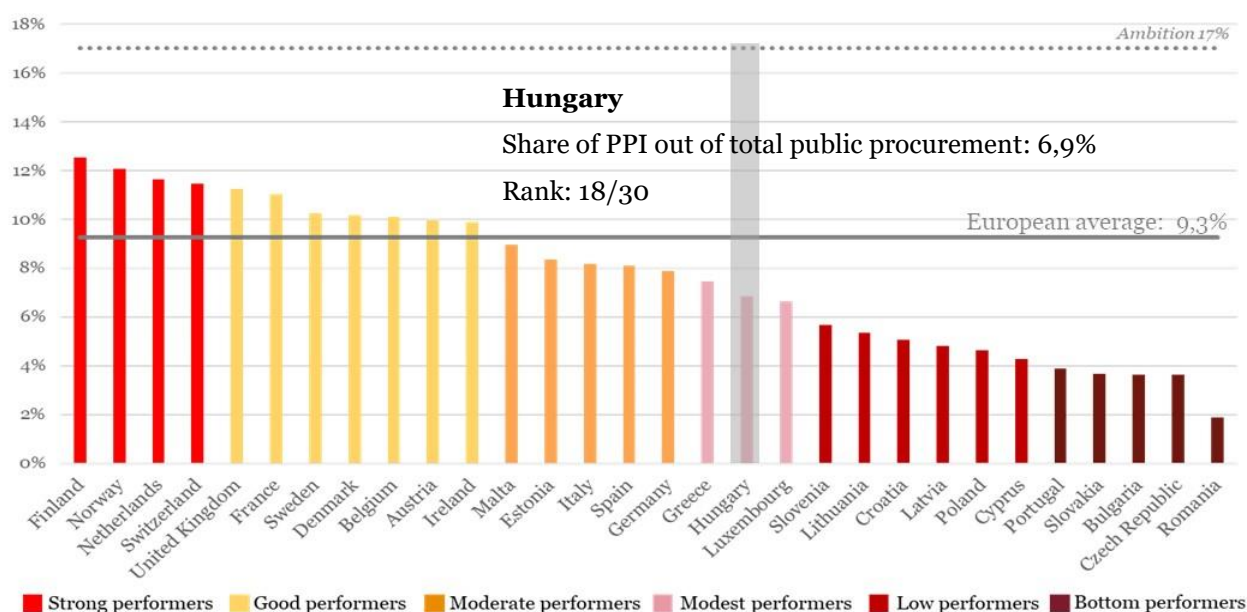
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Hungarian investments on public procurements of innovative solutions (PPI) and the benchmarking of Hungarian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 6,9% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 1,5 bn), **Hungary ranks 18th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁴⁷⁶ across Europe. Hungary falls within the group of **modest performers**, slightly below the European average of 9,3%.⁴⁷⁷ **A considerable increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Hungarian public sector.⁴⁷⁸ When taking into account also PPI in the defence sector Hungary still remains in the 18th position.



The **main factors**⁴⁷⁹ explaining Hungary's modest performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Hungary (54%) is still well below the European average (84%). This may be due to the fact that the adoption of 'significantly improved' solutions (33% of PPI) and innovative solutions that are 'new to the market' (21% of PPI) is modest. Hungary still relies to a significantly larger extent (46%) than in Europe on average (16%) on the adoption of **incremental innovations**, which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. As the total amount of investments in innovative solutions in Hungary is modest and below European average, the country still needs to step up considerable its efforts in the adoption of both transformative and incremental innovations.

⁴⁷⁶ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

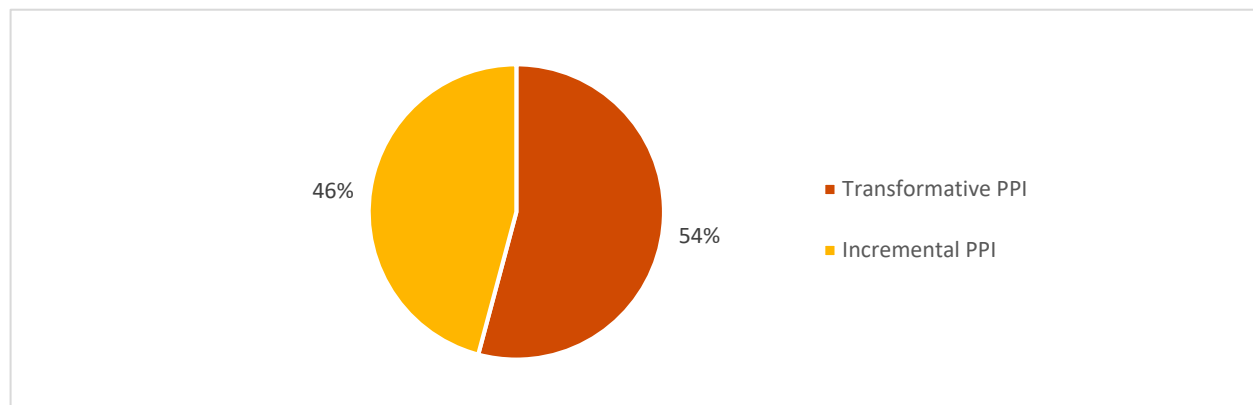
⁴⁷⁷ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁴⁷⁸ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁴⁷⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Hungary is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity⁴⁸⁰ in Hungary purchased innovation solutions, except for the 'Postal services' domain with zero PPI investment. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly below the European averages** (in just 3 out of 11 sectors they are above the European averages). PPI investments made by Hungarian procurers operating in the 'Education, recreation, culture and religion' domain is significantly higher than the European average (27% against a 5% European average) while in the 'General public services, public administration and economic and financial affairs' and 'Public order, safety and security' domains, adoption of innovative solutions is significantly lower than European average (respectively -18 pp and -8 pp).

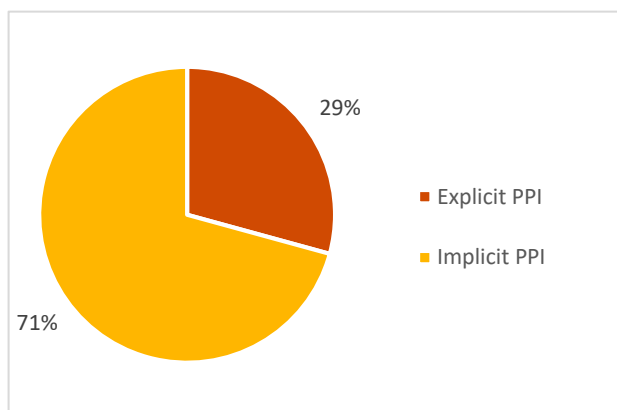
PPI investments by domains of public sector activity

Domain of public sector activity	Hungary	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	17%	35%	-18
Public transport	5%	10%	-5
Healthcare and social services	20%	21%	0
Energy	2%	6%	-4
Environment	6%	3%	3
Construction, housing and community amenities	4%	4%	0
Education, recreation, culture and religion	27%	5%	22
Water	3%	4%	-1
Public order, safety and security	0%	8%	-8
Postal services	0%	1%	-1
Other	13%	3%	10
Total PPI investments	100%	100%	-

⁴⁸⁰ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

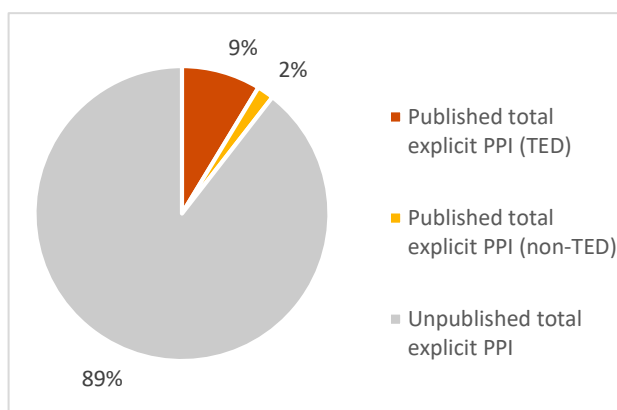


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) in Hungary (29) equals the European average. This indicates that Hungarian procurers may still be equally risk-adverse in requesting innovative solutions as in many other European countries.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) equals the European average (71%). This indicates that Hungarian procurers may tend to be rather open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

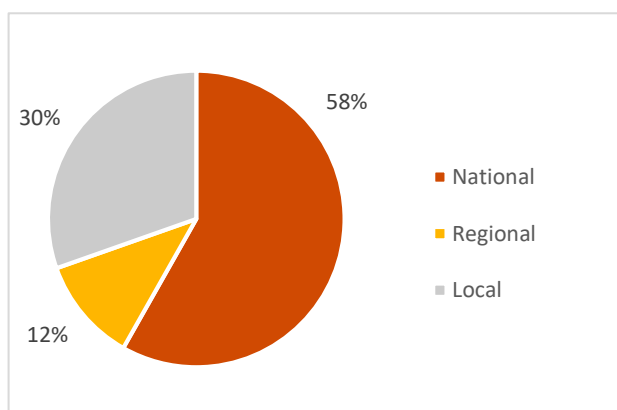


The share of Hungarian PPI investments for which call for tenders are published is low (11%), and well below the European average (22%). Both the portion that is **published at European level** in the TED database (9%) and the portion that is **published only at national level** (2%) are below European average (respectively 18% and 5%). The share of PPI investments for which no call for tenders is published in TED or at national level is very large (89%).

By not publishing PPI call for tenders widely, **Hungary is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Hungarian and other European innovative suppliers that are not informed about the Hungarian PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

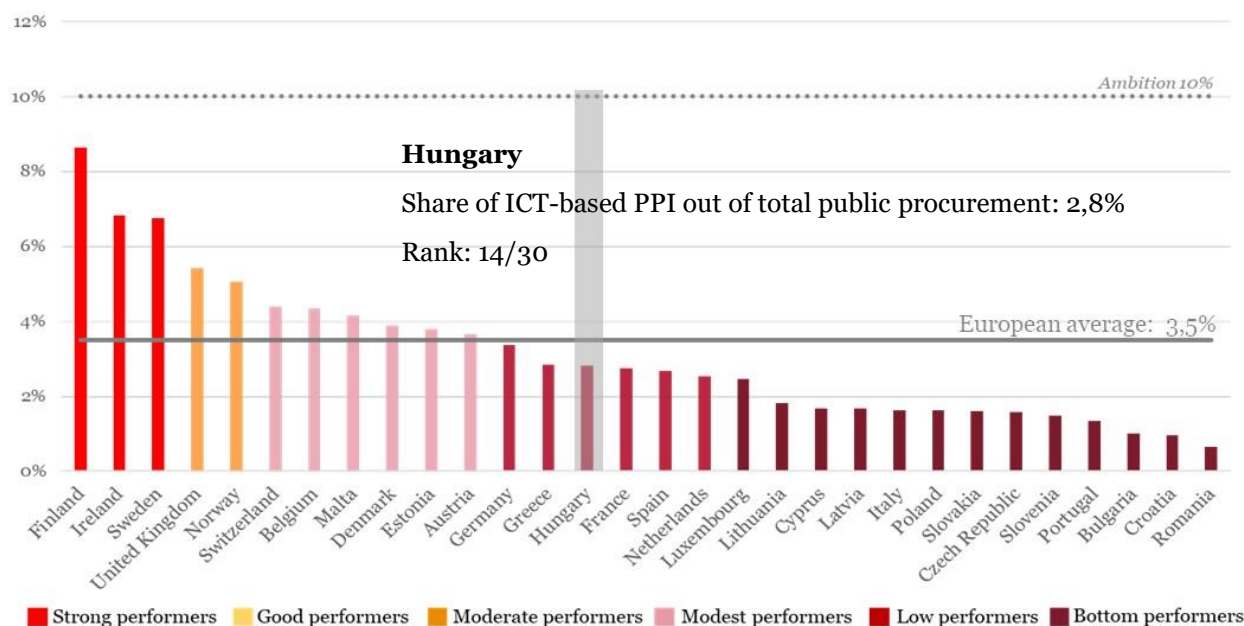


The largest share of the total PPI investments in Hungary is carried out by **large-scale entities at national level** (58%), such as ministries and ICT integrators of governments departments. This is considerably above the European average (47%).

Procurers at regional level account for a modest amount of share of PPI investments (12%), well below the European average (24%). **Procurers at local level** account for the highest fraction of PPI investments a sub-national level (30%), slightly above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Hungarian public sector shows a **low level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,02 bn or 2,8% of total public procurement invested in ICT-based PPI, **Hungary ranks 14th** in the benchmarking of ICT-based PPI investments, below the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (41%), Hungary performs slightly above the European average (38%). **A significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Hungary to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁴⁸¹

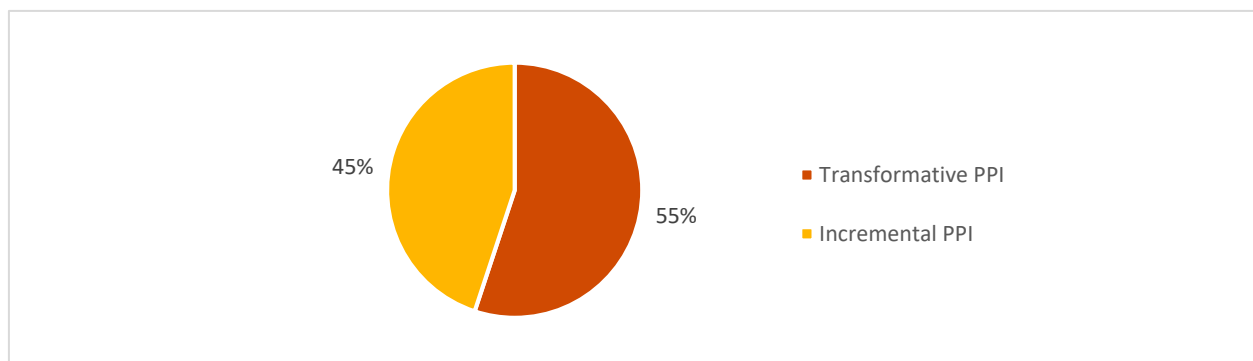


The **main factors**⁴⁸² explaining Hungary’s low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations**⁴⁸³ in Hungary (55%) is below the European average (79%). This may derive from the fact that the adoption of ‘significantly improved solutions’ (34%) and the adoption of ICT-based innovative solutions that are ‘new to the market’ (21% of ICT-based PPI) is low. Compared to the European average (21%) Hungary depends more on the adoption of **incremental ICT-based innovations** (45%). However, as the total amount of investments in innovative ICT-based solutions in Hungary is low, the country still needs to step up considerable its efforts in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



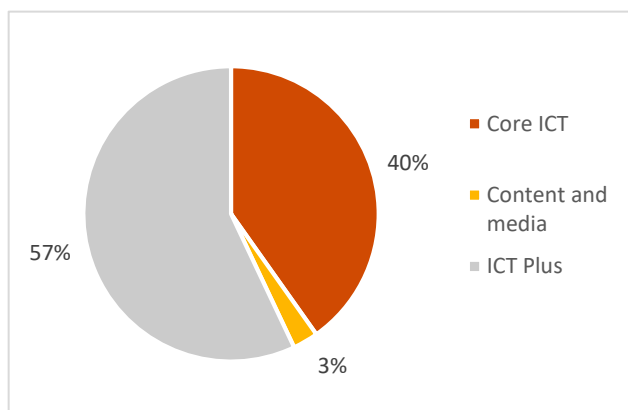
⁴⁸¹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁴⁸² The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁴⁸³ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Hungary invested mainly in the adoption of innovations from the so-called '**ICT Plus**' sub-sector⁴⁸⁴ (57%), above the European average (45%)

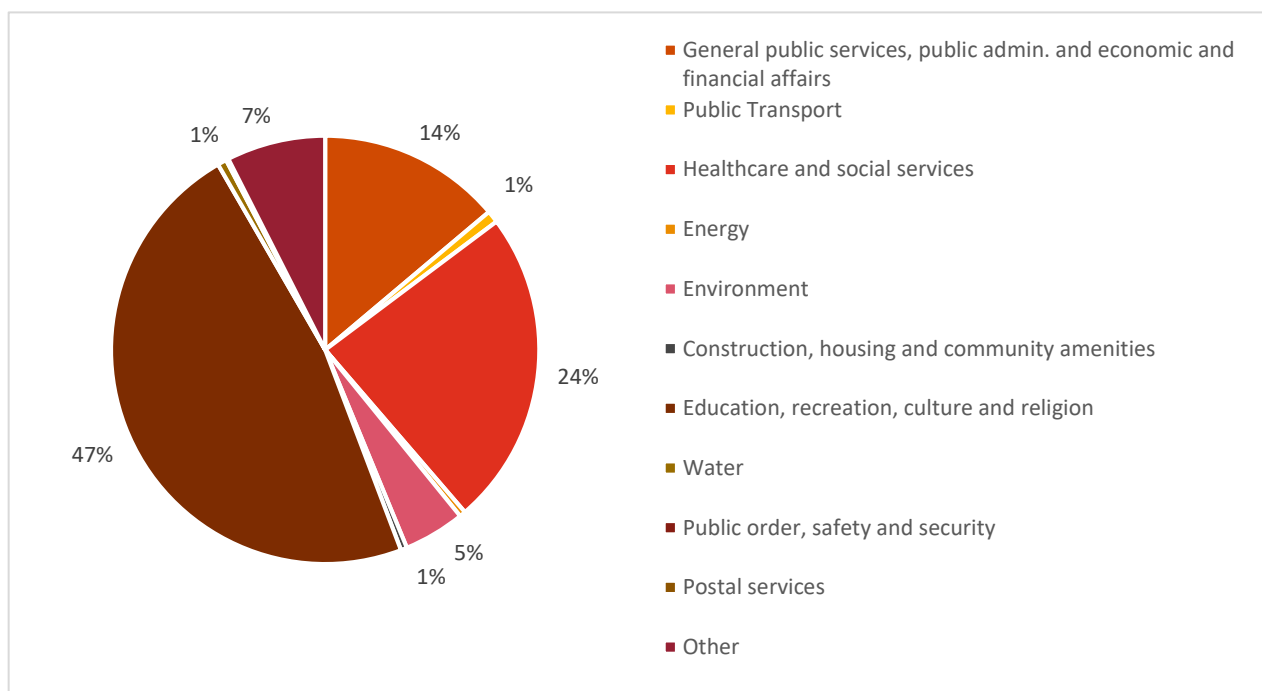
Hungary invested to a lesser extent in the adoption of innovations from the '**Core ICT**' sub-sector (40%), below the European average (55%).

The share of investments in adopting innovations from the '**Content & Media**' sub-sector was small (3%), but above the European average (1%).

Investment readiness across different domains of public sector activity

Most of the domains of public sector activity in Hungary purchased innovative ICT-based solutions, except from the '**Postal services**' sector with zero ICT-based PPI. In particular, the highest share of ICT-based PPI investments is made by procurers that operate in the '**Education, recreation, culture and religion**' domain (47% against a 9% European average). At the same time, the shares of ICT-based PPI investment made by procurers in the '**Public order, safety and security**' and '**Public transport**' domain are significantly below the European average (respectively -19 pp and -10 pp).

ICT-based PPI investments by domains of public sector activity

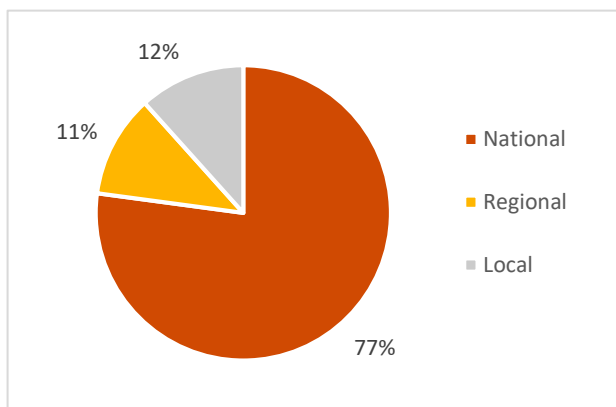


⁴⁸⁴ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 77% of ICT-based PPI investments, quite above the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (12%), in line with the European average (10%). To the contrary, **regional procurers** account for 11% of ICT-based PPI investments, which is below the European average (21%).

Ireland



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The EU Procurement Directives 2014/24/EU, 2014/25/EU and Directive 2014/23/EU were transposed into Irish Law by the regulations No. 284/2016; S.I. No. 286/2016 (the “2016 Utilities Regulations”) and S.I. No. 203/2017 (the “2017 Concessions Regulations”). In addition, the EU Directive on Defence Procurement 2009/81/EC was transposed into national legislation by the regulation SI. NO. 62/2012.

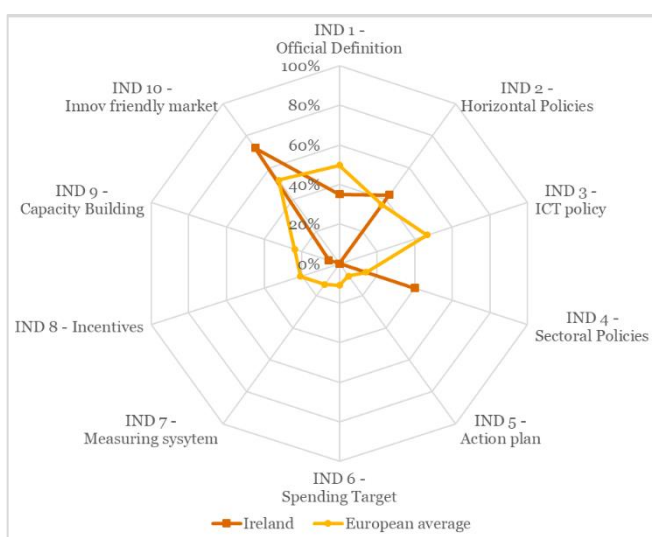
Overall, the amount of money spent on public procurement in Ireland is low compared to most of the other European Member States.

The **Office of Government Procurement (OGP)**⁴⁸⁵ of the Department of Public Expenditure and Reform (DPER) plays the primary role in the Irish procurement system. OGP is in charge of the formulation of public procurement policy, dissemination of best practices, guidance and management of the government e-procurement strategy. The OGP was established in 2014 with the aim to save public money through the introduction of professionalised procurement practices in the field of public service and the centralisation of government procurement. Before the introduction of the OGP, public procurement was fragmented across several departments, implementing different procurement processes and not allowing to fully leverage economies of scale.

In addition, Ireland established central purchasing bodies in sectors identified as particularly relevant in the area of public procurement. **Central purchasing bodies** were created in the following sectors: health, defence, education and local government.

Innovation Procurement Policy Framework Benchmarking (2018)

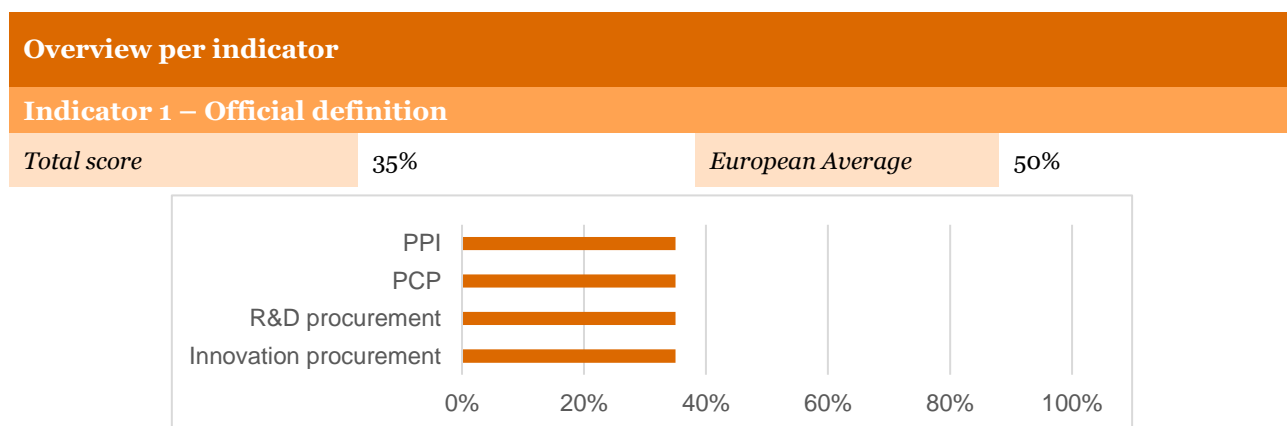
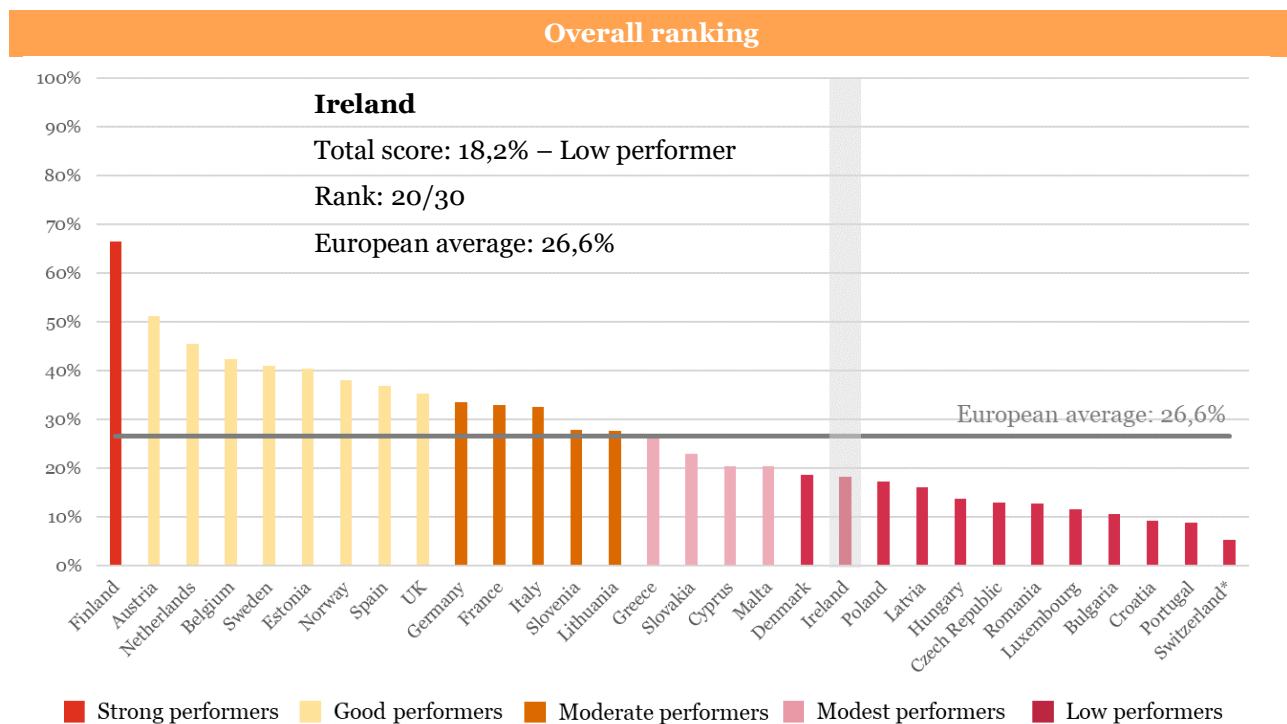
In the benchmarking of national innovation procurement policy frameworks across Europe, **Ireland is at the 20th position** of the overall ranking with a **total score of 18,2%**. From the 30 countries analysed, Ireland is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on 7 out of 10 indicators. Having implemented only 18,2% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is a strong reinforcement of the policy framework for innovation needed in Ireland to reach its full 100% potential.



Strengths: Several sectoral and horizontal policies foresee innovation procurement as a strategic tool to modernise public services and create growth and jobs for companies. National guidelines promote an approach to IPR allocation that fosters innovation in public procurement

Weaknesses: Absence of structured capacity building measures, a dedicated action plan, spending target, and incentives for innovation procurement as well as a monitoring system

⁴⁸⁵ <https://ogp.gov.ie/>



In Ireland, the legal framework only provides an official definition for innovation in the context of public procurement. The Irish public procurement regulations provide the legal basis for all types of public procurers across the country to implement Innovation procurement, R&D procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI), although without there being an official definition for those terms in national legislation or official guidance documents. Therefore, the total score of this sub-indicator is 35%.

Innovation procurement is not defined in national legislation or official guidance documents. However, article 2(1) (Chapter 1, Scope and Definitions) of the Regulation n.284/2016, defines **innovation** in the context of public procurement as “the implementation of a new or significantly improved product, service or process, including production, building or construction processes, a new marketing method or a new organizational method in business practices, workplace organization or external relations, amongst other things, with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is applicable countrywide and is in line with the EU definition. Therefore, the total score of the sub-indicator is 35%.

The legislative framework does not provide a definition of R&D procurement. However, the public procurement Regulation n.284/2016 identifies **R&D** via the CPV codes.⁴⁸⁶ In particular, article 14 (Chapter 1, Scope and Definitions) identifies R&D as all the activities that have the CPV codes for fundamental research, applied research and industrial development. This is applicable countrywide and in line with the EU definition for the CPV codes for R&D. Therefore, the total score for the sub-indicator R&D is 35%.

The same article also transposes the exemption for R&D services, which forms the legal basis for implementing **PCP**, namely: “the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. Therefore, even if no official definition for PCP exist in Ireland, the legal

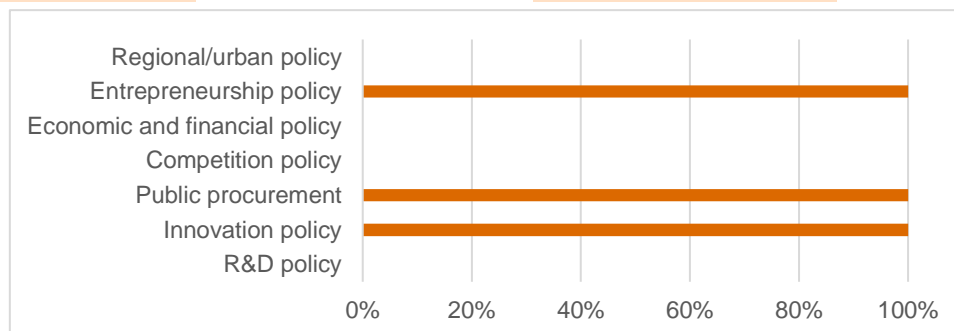
⁴⁸⁶ <http://www.irishstatutebook.ie/eli/2016/si/284/made/en/pdf>

basis is available to implement PCP in line with EU definition and applicable to all public procurers in the country, resulting in a total score for this sub-indicator of 35%.

Although national legislation or official guidance documents do not provide an official definition for **PPI**, article 70 of the public procurement Regulation 284/2016 enables public procurers to implement PPI by allowing procurers to award contracts not only based on price but also on innovation criteria: "A contracting authority may lay down special conditions relating to the performance of a contract [...] (2) The conditions referred to in paragraph (1) may include economic, innovation related, environmental, social or employment related considerations." This provision is applicable countrywide and in line with the provisions in the EU public procurement directives. Therefore, the total score of the sub-indicator PPI is 35%.

Indicator 2 – Horizontal policies

Total score	43%	European Average	36%
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Overall, three horizontal policies in Ireland recognise innovation procurement as an issue of strategic importance. Therefore, the total score for this indicator is 43%.

In the area of entrepreneurship policy, innovation procurement is identified as a key tool to facilitate the access of SMEs to the public sector market. In April 2014, Department of Public Expenditure & Reform's implemented a number of initiatives to assist SMEs in Public Procurement. In particular, point 4.1 of the **Circular Initiatives to assist SMEs in Public Procurement (10/14)** states that "the Government recognises that creative ideas for new and innovative solutions and products often come from SMEs. Buyers should, where possible and appropriate, encourage new and innovative solutions by indicating in tender documents where they are prepared to accept reasonable variants to the specifications. Alternatively, or in addition, requirements may, for example, be set out in terms of a deliverable which allows tenderers to provide creative and innovative solutions. This output-oriented approach may enable buyers to concentrate on the functional requirements of a product they would like to have but leaves tenderers the freedom to develop new, innovative goods or services which might better correspond to the actual need of the buyer".⁴⁸⁷ The purpose is therefore to foster the participation of SMEs to public tender procedures and facilitate the spread of innovative solutions in public contracts.

In the field of R&D&I policy, the **strategy Innovation 2020** states that "Public procurement can be used to stimulate the take-up of new technologies". In particular, action 4.1 "Use public service innovation to deliver better outcomes for users of public services" foresee the use of public procurement to "realise the full potential of public service innovation to provide better and more efficient public services"(timeline 2014-2020).⁴⁸⁸ In addition, the Small Business Innovation Research (SBIR) address challenges faced by the public sectors to connect with businesses to procure research and development on innovative solutions.⁴⁸⁹

Indicator 3 – ICT policies

Total score	0%	European Average	47%
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The **Public Service ICT Strategy, 'Delivering better outcomes and efficiency through innovation and excellence in ICT'** sets out how Ireland can operate in a more efficient, shared and integrated manner across all of Government while delivering new and innovative digital services to citizens and businesses. The Strategy provides a 5-year horizon for delivering better outcomes and efficiency through innovation and excellence in ICT. However, even though it focuses on increasing efficiency in the procurement processes as well as the use of value for money, Innovation procurement is not defined as a tool to reach these goals. Therefore, the score of this indicator is 0%.

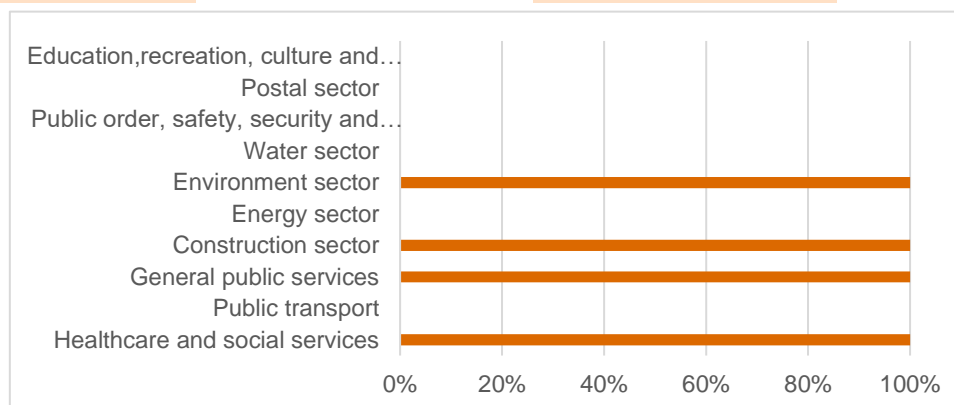
⁴⁸⁷ http://etenders.gov.ie/Media/Default/SiteContent/LegislationGuides/Circular_10_-_14_o.pdf

⁴⁸⁸ <https://dbei.gov.ie/en/Publications/Publication-files/Innovation-2020.pdf>

⁴⁸⁹ <https://www.enterprise-ireland.com/en/about-us/services/procurement/sbir-ireland/>

Indicator 4 – Sectoral policies

Total score 40% **European Average** 14%



Overall, in Ireland innovation procurement is embedded in four sectoral policies. It is explicitly recognised as a tool in the following sectors: environment, energy, construction, general public services, healthcare and social services. Therefore, the total score for this indicator is 40%.

In the area of environment, the **Irish Green Public Procurement Action Plan “Green Tenders”**⁴⁹⁰ sets out a range of measures to drive innovation and thus provide industry with real incentives for developing green products and services – particularly where public purchases represent a large share of the market, such as in construction, health services and public transport. The national green public procurement objectives include "enhance competitiveness and encourage innovation".

Ireland has also a specific framework for public procurement in the **construction sector**: the **Capital Works Management Framework**.⁴⁹¹ It is used by contracting authorities for construction projects and related consultancy services. The framework provides a systematic and detailed approach to support, among others planning (both preparatory and detailed), capital budgeting, design and construction cost, enhanced control and cost effectiveness of public work projects. The guidance document in the capital works management framework recommend procurers to use output-based specifications to encourage supply-wide innovation in construction procurements.

In the area of general public services, in the **Government’s Public Service Reform Programme**⁴⁹², identifies as key objective maximising value for money and delivering sustainable public services for the taxpayers. The reform plan does not specifically cite innovation procurement but refers to the objective for the OGC to facilitate the access of innovative SMEs to the public procurement with the introduction of increased centralized purchasing. The ambition is that "The Public Service will focus on delivering greater efficiency and effectiveness in how it uses limited resources. In addition to increased operational efficiency, the Public Service will be more innovative and strategic in how it designs and delivers public services".

In the **health sector**, innovation procurement is envisaged to support the effectiveness of R&D. The **Health Research Board’s Strategic Plan 2016–2020**⁴⁹³ identifies innovation procurement as a tool to enhance the effectiveness of the health system, thanks to its ability to foster new products, processes and solutions.

Indicator 5 – Action plan

Total score 0% **European Average** 8%

Despite several horizontal and sectoral policies recognise innovation procurement as an important tool to achieve their strategic objectives, Ireland has not developed yet a specific action plan for innovation procurement, defining roles and activities to be implemented in the area of innovation procurement.

Indicator 6 – Spending target

Total score 0% **European Average** 11%

As a result of the absence of an action plan, in Ireland no specific spending targets have been set for innovation procurement.

⁴⁹⁰ <https://www.etenders.gov.ie/Media/Default/SiteContent/LegislationGuides/13.%20Green%20Tenders%20-%20An%20Action%20Plan%20on%20Green%20Public%20Procurement.pdf>

⁴⁹¹ <http://constructionprocurement.gov.ie/capital-works-management-framework/>

⁴⁹² <https://www.reformplan.per.gov.ie/2014/downloads/files/Reform%20Plan%202014.pdf>

⁴⁹³ http://www.hrb.ie/uploads/media/HRB_Strategy_consultation_document.pdf

Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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At the moment Ireland does not envisage any activity related to measuring innovation procurement expenditure and evaluating the impacts of completed innovation procurements.

Indicator 8 – Incentives

Total score	0%	European Average	22%
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Currently there are no financial or personal incentives to encourage public procurers to undertake more innovation procurements.

Indicator 9 – Capacity building and assistance measures

Total score	6%	European Average	24%
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	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices							0%
Trainings/workshops							0%
Handbooks/guidelines	√		√		√		50%
Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers							0%
One-stop-shop/ competence centre							0%

In terms of specific capacity building activities, in 2009 Ireland **developed a guide on** innovation procurement. The guide is entitled “*Buying Innovation: The 10 Step Guide to SMART Procurement and SME Access to Public contracts*” and sets out the range of actions to be considered during the procurement process to stimulate innovation in the Irish economy. It was developed by the Department of Business Enterprise and Innovation, and aims at promoting best practices and consistency of application of the public procurement rules in relation to the purchase of goods and services.⁴⁹⁴ The guide is free of charge, available to all public procurers in the country. However, as the guide already dates from 2009, it does not refer to the most recent public procurement legal framework and EU initiatives anymore. It focuses on aspects that facilitate SME access to public procurement, not on all aspects and possible modalities of implementing innovation procurement itself (i.e. there is no reference to specific procurement approaches like PCP and PPI). Therefore, the total score for this sub-indicator is 50%.

An example of Public Procurement **networking**, but not specifically focused on innovation procurement, is given by quarterly meetings of the SME Advisory Group, chaired by the Minister of State to address issues affecting SME participation in public procurement. Representatives encompass, among the others, the Office of Government Procurement, the Department of Enterprise and Innovation, Enterprise Ireland, InterTrade Ireland, the Competition and Consumer Protection Commission, the Irish Business and Employers’ Confederation, the Small Firms Association, the Construction Industry Federation, Chambers Ireland and the Irish Small and Medium Enterprises Association. However, these networking activities focus on SME issues, not specifically on innovation procurement. Therefore, the score for sub-indicator networking is 0%.

Ireland still lacks a structured approach to capacity building on innovation procurement across the country. The only capacity building measure related to innovation procurement is a guideline on facilitating the access of SMEs to public procurement to encourage innovation is provided. All other capacity building measures reflected under this indicator are not put in place, at least not with a dedicated focus on innovation procurement. On the basis of the evidence collected, the total score of this indicator is 6%.

⁴⁹⁴ <http://ogp.gov.ie/buying-innovation-the-10-step-guide-to-smart-procurement-and-sme-access-to-public-contracts/>

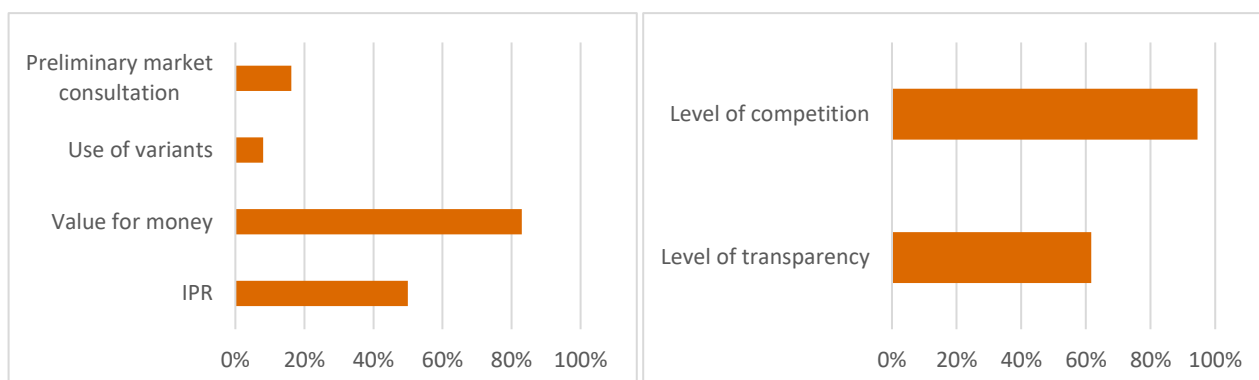
Indicator 10 – Innovation friendly public procurement market

Total score 59%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators measuring:

I. The use of specific techniques to foster innovation in public procurement in Ireland

II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Ireland shows the following evidence:

- IPR Default regime:** The score for this sub-indicator is 50% because the Irish law and general terms and conditions for government contracts do not define a default regime for IPR but the Irish government's 10 step guide on buying innovation and facilitating the access of SMEs to public procurement recommends that public procurers leave IPR ownership with contractors. It explains that: "If government decides to keep the IPR, it will have to pay a higher price for exclusive development. A supplier who can keep the IPR may consider it to be an investment, a building block for other projects. This would normally be reflected in a lower price for the public procurer. For overall economic development it is preferable that the IPR stay with the supplier so that the results of procurement (i.e. innovative solutions) can be diffused into the market. Ideally intellectual property rights should ultimately rest with the party who is best able to exploit it." This guidance was drawn up in line with Irish copyright Act⁴⁹⁵. Irish public procurement law foresees that public procurers can require in the tender specifications the transfer of IPR rights to the procurer. However, the Irish copyright act determines that the copyright (moral right) cannot be transferred by the creator to another party. If the procurer wants to use the copyright, he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases.
- Use of value for money award criteria:** According to the Single Market Scoreboard, 83% of the procedures were not awarded only on the basis of the lowest price.⁴⁹⁶ This is well above the European average of 42% and above the 80% satisfactory level set out in the EU single market scoreboard. Indeed, Ireland is together with the UK, Netherlands and France among the top performers in this sub-indicator.
- Use of variants:** Ireland has allowed the use of variants in 8% of the procedure. This percentage is well above the European average.
- Preliminary Market Consultations:** Ireland has used Preliminary Market Consultations in the 16 % of the procedures. This percentage is significantly above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 39% which is above the European average of 23%. This is due to fact that Ireland performs far above the European average in all the subcomponents of sub-indicator I. There is some promotion in guidelines to procurers for using an IPR default regime that fosters innovation in public procurement, but this is not anchored yet into legislation and general terms and conditions for government contracts.

With regard to sub-indicator II, Ireland shows the following evidence (based on the Single Market Scoreboard):

- Level of competition:** The level of competition is 95% which is above the European average 84% and above the 93% satisfactory level set by the EU single market scoreboard. Both sub-indicators score above the European average: the percentage of procurements where there was more than one bidder (89%) and the percentage of procurements conducted with a call for bids (100%).
- Level of transparency:** The level of transparency is 62% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. This is mainly due to the low TED publication rate (2%) and the percentage of procurements without missing buyer registration number (85%)

⁴⁹⁵ http://www.wipo.int/wipolex/en/text.jsp?file_id=128034
⁴⁹⁶ [Single Market Scoreboard](#)

which is above European average but still below the 97% satisfactory level set by the EU single market scoreboard. The percentage of procurements without missing call for bids information (98%) is very good.

Based on this evidence, the score for sub-indicator II is 78% which is above the European average of 65% but still slightly below the 79% satisfactory level set by the EU single market scoreboard.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 59% which is above the 44% European average but still below the satisfactory level for the total of the EU single market indicators. This score is explained firstly by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Irish procurement market to innovations from across the EU single market is above the European average but not yet reaching satisfactory level. Indeed, value for money criteria are widely used in public procurements but the IPR default regime that fosters innovation in public procurement that is promoted in Irish guidelines is not anchored yet into legislation and general terms and conditions for government contracts. In addition, although the national public procurement market shows an above average level of competition and transparency, the latter is still below the satisfactory level set in the EU single market scoreboard.

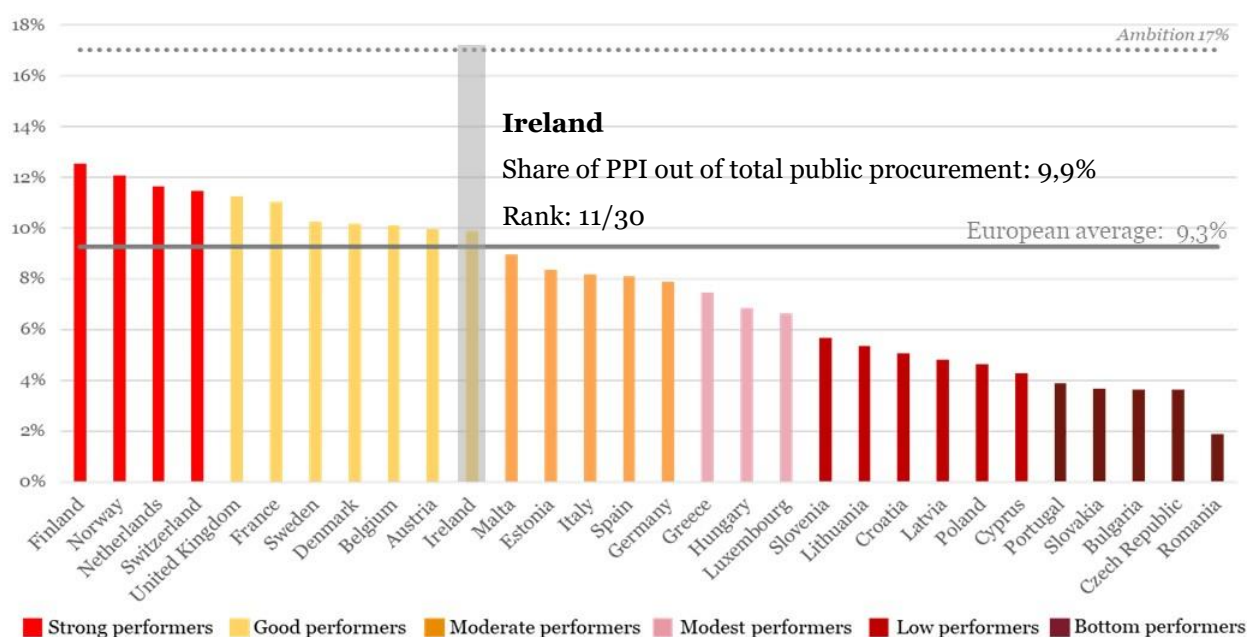
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Irish investments on public procurements of innovative solutions (PPI) and the benchmarking of Irish investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, except when explicitly mentioned, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 9,9% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 2,8 bn), **Ireland ranks 11th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁴⁹⁷ across Europe. Ireland falls within the group of **good performers**, slightly above the European average of 9,3%.⁴⁹⁸ However, **a significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Irish public sector.⁴⁹⁹ When taking into account also PPI in the defence sector Ireland still remains in the 11th position.



The **main factors**⁵⁰⁰ explaining Ireland's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Ireland (89%) is slightly above the European average (84%). This may be due to the fact that the largest portion of PPI is devoted to 'significantly improved' solutions (48% of PPI) and the adoption of innovative solutions that are 'new to the market' (41% of PPI). The share of PPI investments that is spent on **incremental innovations** (11%) - which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions' - is below the European average (16%). Despite being overall a good performer, Ireland still needs to step up efforts both on the adoption of transformative and incremental innovations to become a strong performer.

⁴⁹⁷ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country - namely the amount of R&D procurement plus the amount of PPI - is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

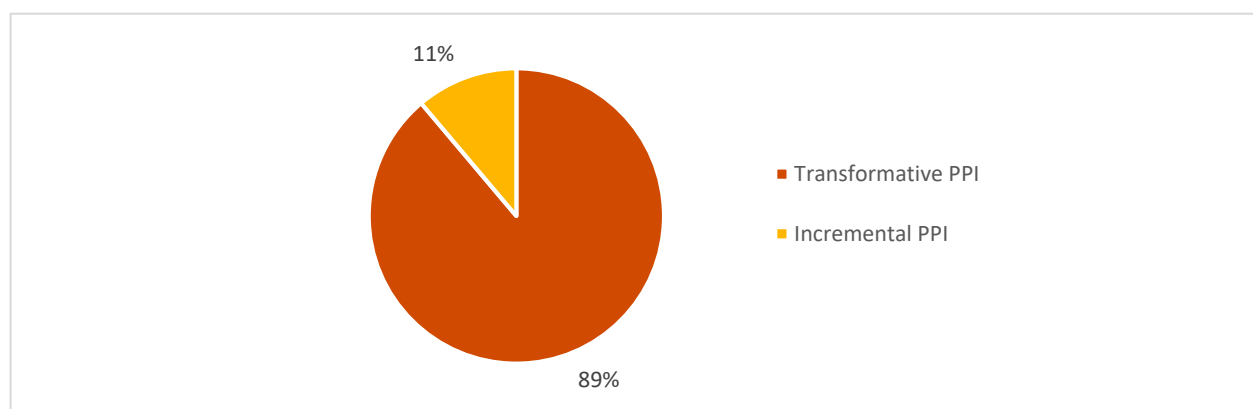
⁴⁹⁸ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁴⁹⁹ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation - including 3% of R&D procurement and 17% of PPI - to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁵⁰⁰ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. Although Ireland places among the strong performers **in the adoption of innovative ICTs, further investments are still needed** in this field, to allow the country to achieve a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Every domain of public sector activity⁵⁰¹ in Ireland purchased innovation solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. The share of PPI investments made by Irish procurers operating in the ‘**Healthcare and social services**’, ‘**Education, recreation, culture and religion**’ and ‘**Energy**’ domains is significantly above the European average (respectively +14 pp, + 8 pp and +7 pp). At the same time, the share of PPI investments made by procurers operating in the ‘**General public services, public administration and economic and financial affairs**’, ‘**Public order, safety and security**’ and ‘**Public transport**’ domains are considerably below the European average (respectively -14 pp, -7 pp and -5 pp).

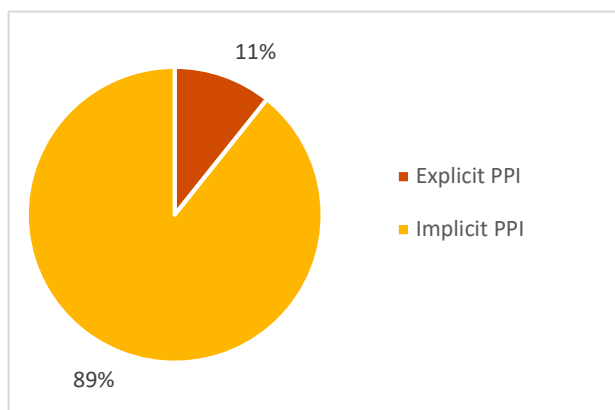
PPI investments by domains of public sector activity

Domain of public sector activity	Ireland	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	21%	35%	-14
Public transport	5%	10%	-5
Healthcare and social services	35%	21%	+14
Energy	13%	6%	+7
Environment	3%	3%	0
Construction, housing and community amenities	2%	4%	-2
Education, recreation, culture and religion	13%	5%	+8
Water	5%	4%	+1
Public order, safety and security	1%	8%	-7
Postal services	1%	1%	0
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁵⁰¹ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

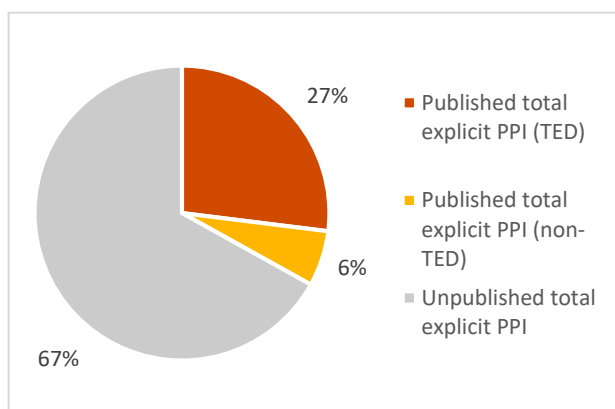


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly lower in Ireland (11%) compared to the European average (29%). This indicates that Irish procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is higher in Ireland (89%) compared to the European average (71%). This indicates that Irish procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

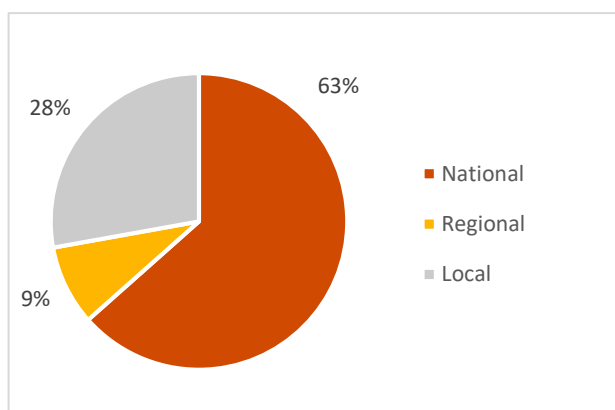


The share of Irish PPI investments for which calls for tenders are published (33%), is higher than European average (22%). Both the portion that is **published at European level** in the TED database (27%) and the portion that is **published at national level** (4%) are above European average (respectively 18% and 5%). However, for the majority of PPI investments there are no published in TED or at national level (67%).

Despite placing above the European averages, by not publishing PPI call for tenders widely, **Ireland is still missing out on potential innovative solutions** that could speed up public sector modernisation, both from Irish and other European innovative suppliers that are not informed about the Irish PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

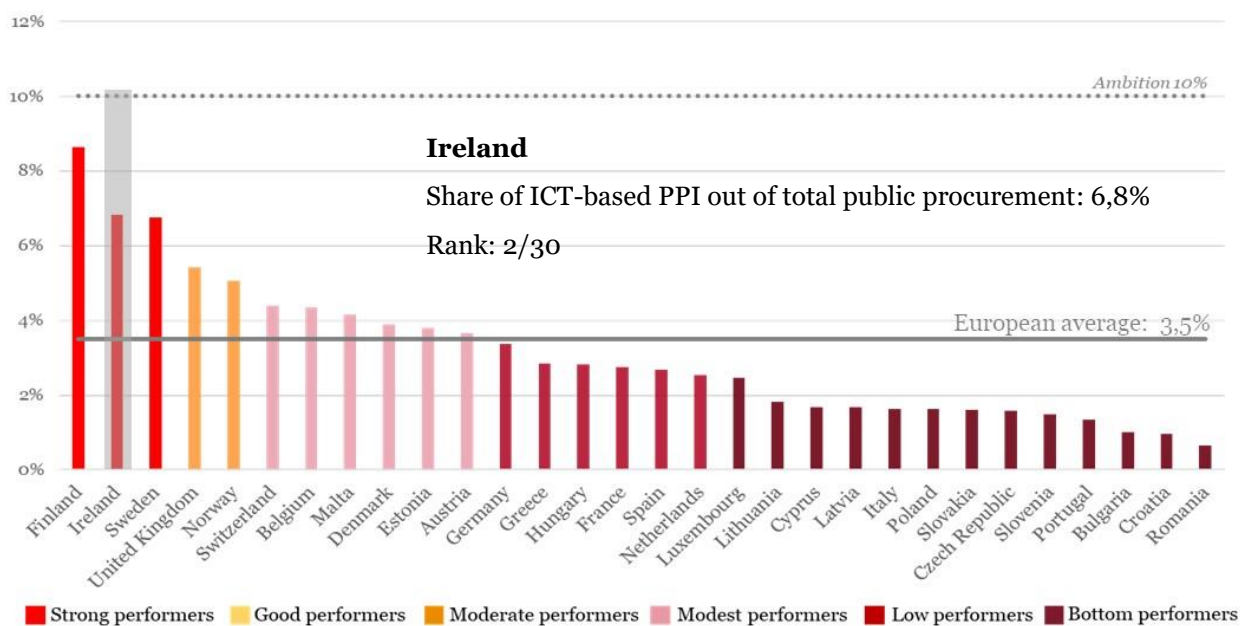


The largest share of total PPI investments in Ireland is carried out by **large-scale entities at national level** (63%), such as ministries and ICT integrators of governments departments. This is considerably above the European average (47%).

Procurers at local level account for slightly less than one-third of PPI investments (28%), below the European average (29%). **Procurers at regional level** account for the smallest fraction of PPI investments (9%), well above the European average (24%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Irish public sector shows a **strong level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 6,8% of total public procurement invested in ICT-based PPI, **Ireland ranks 2nd** in the benchmarking of ICT-based PPI investments, above the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (69%), Ireland performs above the European average (38%). Despite being the country that already dedicates the highest share of PPI investments to ICT-based solutions, **a further effort is still needed** to reach the level of devoting 10% of total public procurement in the country to ICT-based innovations which would enable Ireland to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁵⁰²

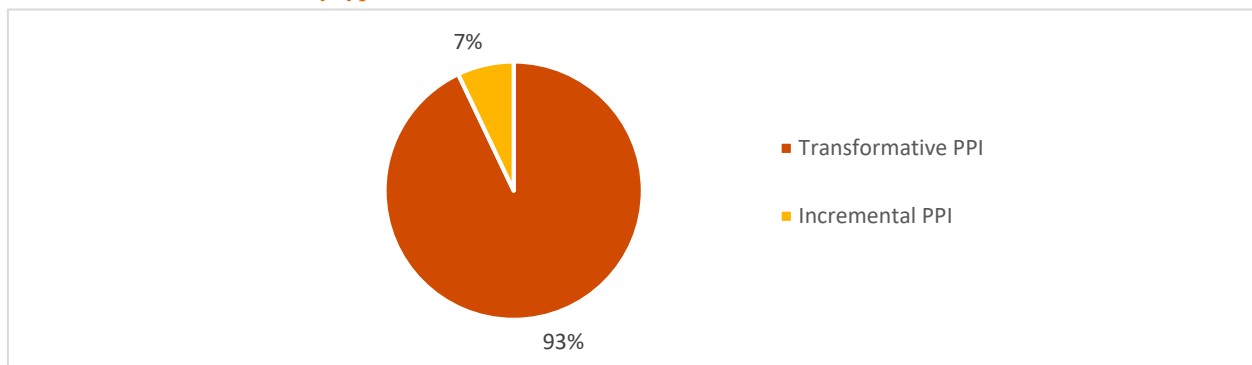


The **main factors**⁵⁰³ explaining Ireland’s strong performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations**⁵⁰⁴ in Ireland (93%) is well above the European average (79%). This may derive from the fact that more than the half of innovative ICT-based solutions that are adopted in Ireland, are ‘new to the market’ innovations (53% of ICT-based PPI) and almost the entire remaining part are ‘significantly improved solutions’ (40% of ICT-based PPI). The share of ICT-based PPI investments spent on the adoption of **incremental ICT-based innovations** (7%) is below the European average (21%). Despite being overall a strong performer, Ireland still needs a further effort both on the adoption of transformative and incremental ICT-based innovations to reach top level performance.

ICT-based PPI investments by type of innovation



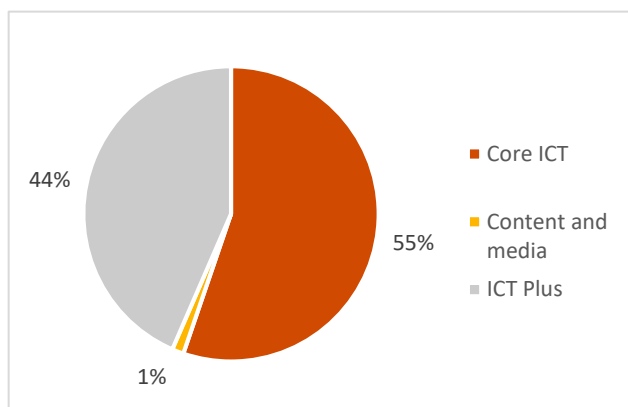
⁵⁰² It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁵⁰³ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁵⁰⁴ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Ireland invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector⁵⁰⁵ (55%), in line with the European average (55%).

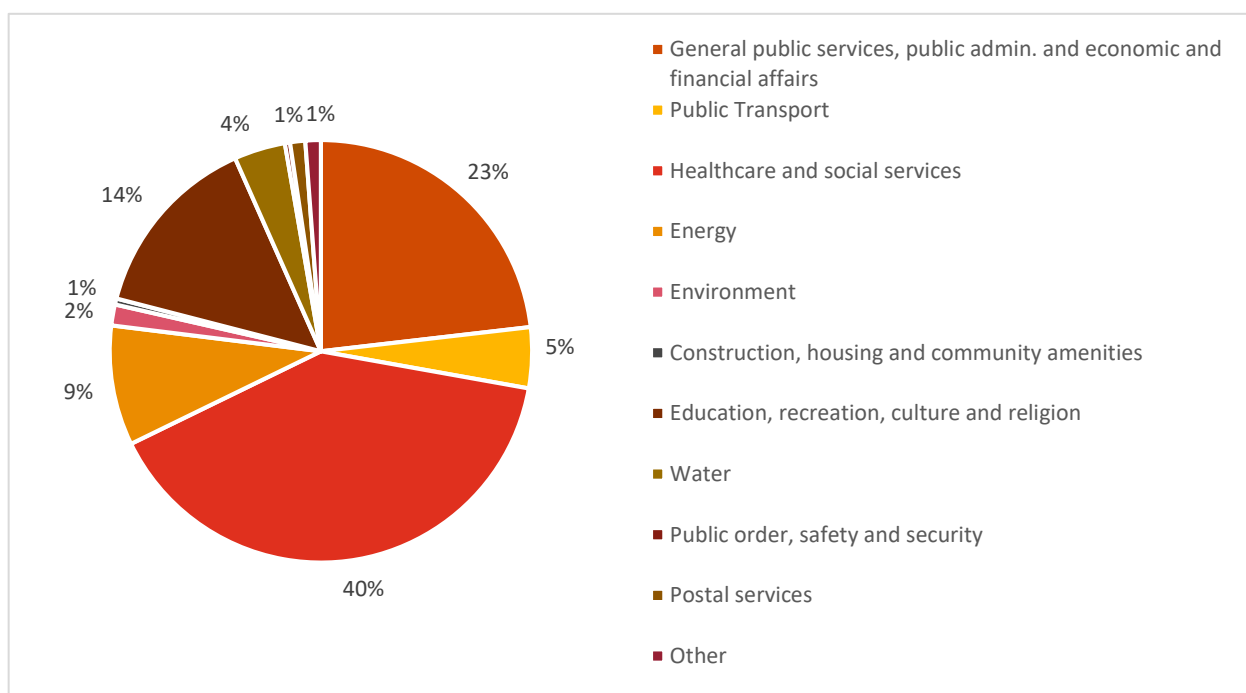
Ireland invested to a lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (44%), but still in line with the European average (45%).

The share of Irish investments in adopting innovations from the '**Content & Media**' sub-sector was small (1%), in line with the European average (1%).

Investment readiness across different domains of public sector activity

Every domain of public sector activity in Ireland purchased innovative ICT-based solutions. In particular, the highest share of ICT-based PPI investments were made by procurers active in '**Healthcare and social services**' (40% against a 30% European average) followed by procurers in '**General public services, public administration and economic and financial affairs**' (23% which is significantly above the European average of 16%).

ICT-based PPI by domains of public sector activity

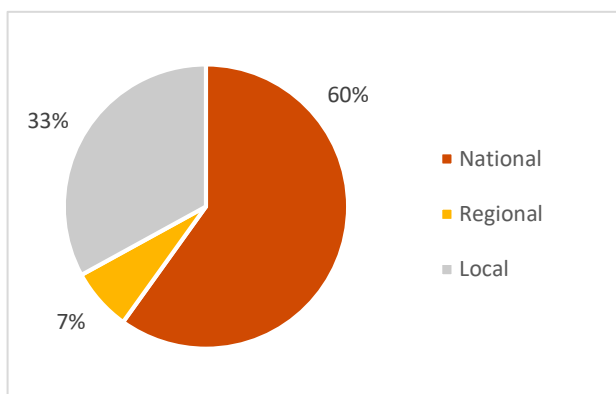


Investment readiness across levels of public sector activity

⁵⁰⁵ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

ICT-based PPI investments by level of public sector activity



National level procurers account for 60% of ICT-based PPI investments, below the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (33%), considerably above the European average (10%). To the contrary, **regional procurers** account for only a modest fraction of ICT-based PPI investments (7%), which is well below the European average (21%).

Italy



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

On April 19, 2016, the Italian Government approved the Legislative Decree no. 50/2016,⁵⁰⁶ implementing Directives 2014/23/EU, 2014/24/EU and 2014/25/EU of the European Parliament and European Council “on public procurement and awarding concession contracts, procurement by entities operating in the water, energy, transport and postal services sectors and on the reorganization of the Public Procurement Regulation” (New Code). Public procurements in the defence and security sectors are currently governed by the code and the Legislative decree no.208/2011 (Defence decree) implementing the Directive no.2009/81/EU.

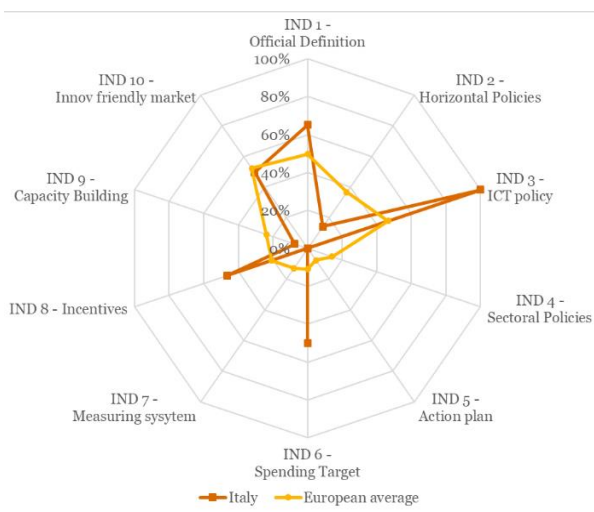
The Italian public procurement system is decentralised: it is composed of more than 20,000 contracting authorities active at local, regional and national level. In addition to these decentralized procurements, there is some centralisation of public procurement happening through a central procurement authority at the national level (CONSIP) and 31 main purchasing bodies (so-called *soggetti aggregatori*) at regional and local level, which represent approximately half of the procurement expenditure in the country. The rationale behind the centralisation of procurement is to take advantage of economies of scale.

The *New Code* includes measures aimed at strengthening the **National Anti-Corruption Authority (ANAC)** functions in the national public procurement system. ANAC exercises a supervisory role on public contracts and implements soft regulations, e.g. public statements, concerning the public procurement system of Italy, including innovation public procurement. Italy does not have a permanent officially appointed competence centre for innovation procurement. However, the **national purchasing body, CONSIP**, is currently participating to the EU-funded project “*Procure2Innovate - European network of competence centres for innovation procurement*”, with the aim to establish a national competence centre for innovation procurement in Italy in the framework of the project. Another relevant actor promoting the importance of the public sector as a buyer for research and innovation is the **Ministry of Education, University and Research (MIUR)**.

At regional level and supported by external expertise, the **Lombardy region** has taken a leading role on innovation public procurement, both in terms of PCPs and PPIs, having approved and set up an all-encompassing policy (Regional Guidelines and Governance Framework), legislation (Regional Law n.29/2016 “Lombardy is Research and Innovation”) and implementation (PCP pilot promoted in 2012 by Niguarda Hospital and 3 PCPs in health care sector financed with funds from the 2014-2020 POR-FESR), creating the basis for the establishment of a regional competence centre on innovation procurement in the healthcare sector.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Italy is at the 12th position** of the overall ranking with a **total score of 33%**. From the 30 countries analysed, Italy is among the group of moderate performers in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 33% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, a significant reinforcement of the policy framework is still needed in Italy to reach its full 100% potential.



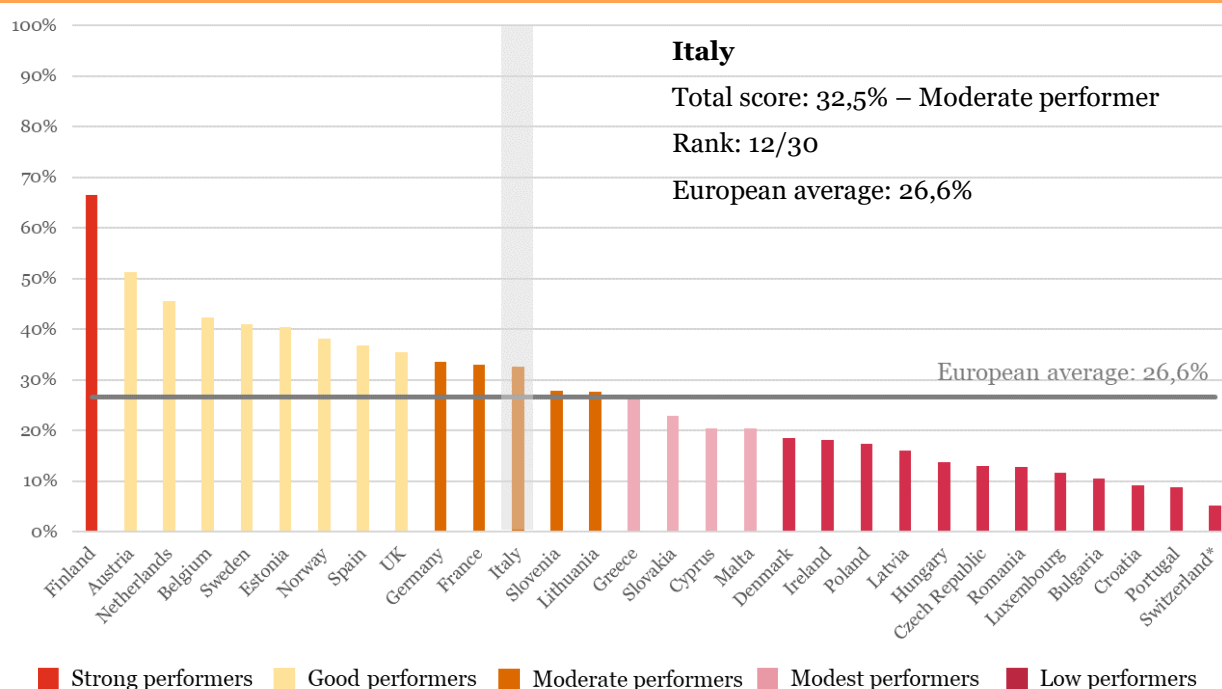
Strengths: R&D and innovation policies that identify the strategic importance of innovation procurement

Weaknesses: High fragmentation of the procurement system. Although there is a good practice example at regional level in Lombardy, there is a lack of a structured innovation procurement policy in other regions and at national level: absence of a dedicated national action plan, financial incentives, target and monitoring systems for innovation procurement that is applicable country wide. IPR policy in national code of practice for IT procurements that hinders innovation.

⁵⁰⁶

http://www.gazzettaufficiale.it/atto/serie_generale/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=2016-04-19&atto.codiceRedazionale=16G00062

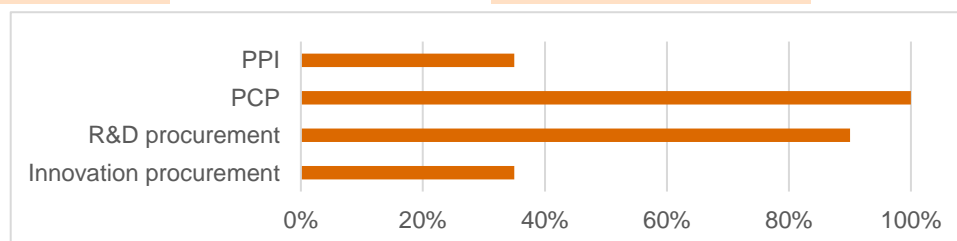
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 65% European Average 50%



In the Italian procurement legal framework there are clear official definitions for Pre-Commercial Procurement (PCP) and R&D procurement. These definitions, in line with the European legislation, are applicable country wide. In addition Legislative Decree no. 50/2016 also provides a legal basis to implement innovation procurement and Public procurement of innovative solutions (PPI). Therefore the total score for this indicator is 65%.

Although there is no definition of innovation procurement in the Italian legal framework, article 3 (Section Definitions) of the legislative decree n° 50/2016, defines **innovation** as “the implementation of a new or significantly improved product, service or process, including production, building or construction processes, a new marketing method, or a new organizational method in business practices, workplace organization or external relations”. This definition provides the legal basis to implement innovation procurement in the country and therefore the total score for this sub-indicator is 35%.

Art. 158 paragraph 1 (2) (Title V) of the Legislative Decree no. 50/2016 sets out **Pre-Commercial Procurement** by stating that “the contracting authorities may engage, in compliance with the principles set out in Article 4 of this Code, in pre-commercial public procurements that are intended for the achievement of results not belonging exclusively to the contracting authority nor to the contracting entity, for use in the exercise of its activity and for which the provision of the service is not fully remunerated by the contracting authority nor the contracting entity, as defined in the Communication of the European Commission COM 799 (2007) of December 14, 2007, in the cases in which the requirement cannot be satisfied by using solutions already available on the market for provisions concerning commercial public procurement”. The definition is in line with the EU definition and applicable countrywide. Therefore, the total score for this sub-indicator is 100%.

The Statement of 9 March 2016 issued by the National Anti-Corruption Authority (ANAC) in the exercise of its soft regulation power on procurement contracts (also excluded from the application of the procurement code), clarified the scope of application of the pre-commercial contracts by limiting the use of this procedure only to procurement involving research and technological development services (R&D) and excluding those research and development services carried out in a permanent and functional manner for the exercise of the Public Administration ordinary activities. ANAC summarized the salient aspects of the discipline of pre-commercial procurement, in order to distinguish the pre-

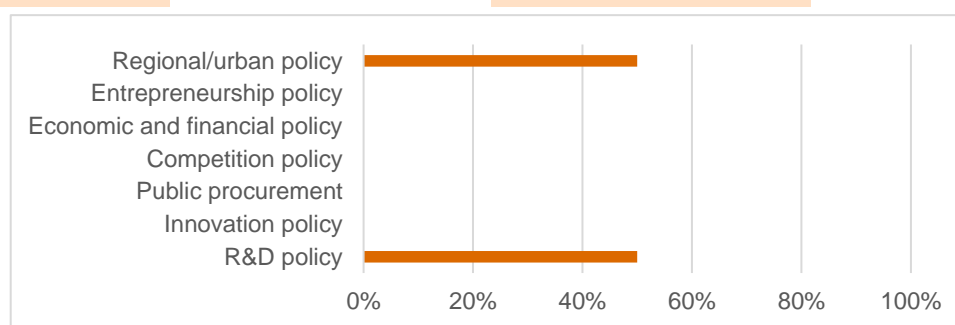
commercial procurement from state aid in the field of research, development and innovation.

The Legislative decree no.208/2011 (Defence decree) which transposes the Defence and security Directive 2009/81 defines **Research and Developments** (in article 1H) as “all activities including fundamental research, applied research and experimental development. Experimental developments include activities based on existing knowledge obtained from research and practical experience, in view of the production of new materials, products or devices, new processes, new systems and services. Experimental development can also include the implementation of technological demonstrators, i.e. devices that allow to demonstrate the performance of a new concept or technology in a suitable or representative environment. «Research and development» does not include construction and qualification of prototypes, equipment and industrial engineering, industrial design or industrial production”. This definition is in line with the EU definition but is not applicable to all public procurers in the Country. Therefore the total score is 90%.

With regard to **Public Procurement of Innovative solutions (PPI)** a definition is not available in the legal framework, and neither present in any policy document or guideline. However, the Legislative Decree no. 50/2016 provides the legal basis to all public procurers in the country to implement PPI (allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria). In particular, article 100 (Chapter V) specifies that “contracting authorities may require special requisites for the performance of the contract, provided that they are compatible with European law and the principles of equal treatment, non-discrimination, transparency, proportionality and innovation and are specified in the contract notice, or in invitation in the case of procedures without tender or in the contract documents”. These conditions may, in particular, meet social environmental and innovative requirements”. Therefore the total score for the sub-indicator PPI is 35%.

Indicator 2 – Horizontal policies

Total score	14%	European Average	36%
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In Italy, two horizontal policies actively support innovation procurement, namely regional/urban policies and R&D policy. However, they enable innovation procurement only at regional level and only for PCP (leading to 50% score for both policies). The total score of the indicator is 14%.

The Italian **strategy for smart specialisation**⁵⁰⁷ recognises the importance of PCP and PPI to foster innovation from the demand side. Several Italian Regions explicitly indicate PCP and PPI in their **2014-2020 operational plans for regional policy**. Lombardy and Sardegna are implementing PCPs via their operational programmes co-financed by the European Structural and Investment Funds. The application sectors have been identified by each Region in accordance with their smart specialization strategy (S3).

The PCP/PPI Funding Programme planned in **the National Research Plan (2015-2020)**⁵⁰⁸ adopted by the Ministry of Education, University and Research (MIUR) and financed through the Cohesion Action Plan for the Convergence Regions (Puglia, Sicilia, Calabria and Campania) is another example of research and regional policy that embeds innovation procurement as a strategic priority.

For more information on the financing aspects and implementation status of the two above initiatives, see indicator 8.

Indicator 3 – ICT policies

Total score	100%	European Average	47%
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The Decree 179/2012⁵⁰⁹ on urgent measures for the growth of the country, defined “a priority objective: the use of PCP and PPI in order to stimulate the demand for innovative goods and services based on digital technologies in compliance with the European Digital Agenda”. The **“Strategy for digital growth 2014-2020”**⁵¹⁰ highlights again this objective regarding PCP. The **three-year plan for IT in the Public Administration 2017-2020**⁵¹¹ highlights that all public administrations responsible for IT purchases should encourage innovation procurement, including PCP and PPI. In addition, it provides recommendations to public procurers to support innovation in public procurement “by

⁵⁰⁷ http://s3platform.jrc.ec.europa.eu/documents/20182/223684/IT_RIS3_201604_Final.pdf/085a6bc5-3d13-4bda-8c53-a0beae3da59a

⁵⁰⁸ <https://www.researchitaly.it/en/national-research-programme/>

⁵⁰⁹ http://www.itaca.org/documenti/aggiornamento%20normativo/AN31_DL_179.pdf

⁵¹⁰ <http://www.funzionepubblica.gov.it/digitalizzazione/agenda-digitale>

⁵¹¹ https://pianotriennale-ict.italia.it/assets/pdf/Piano_Triennale_per_l_informatica_nella_Pubblica_Ammministrazione.pdf

specifying the problem to be solved instead of the solution to be procured, by considering to organise preliminary market consultations with industry before procuring and by using appropriate innovation procurement procedures."

Indicator 4 – Sectorial policies

Total score	0%	European Average	14%
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In Italy no sectorial policy explicitly recognises the role of innovation procurement within its strategy.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Italy does not have a national action plan for innovation procurement at national level.

Indicator 6 – Spending target

Total score	50%	European Average	11%
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In Italy there is no specific spending target at national level for innovation procurement that is applicable to all types of procurement and to all types of procurers across all domains of public sector activity. The only exception is the Lombardy Region where at least the 3% of the resources annually spent for the purchase of goods and services from the region's public bodies should be allocated on innovation public procurement, including the purchase of innovative solutions and green solutions emerged from research and development (through pre-commercial procurement). The Strategy for digital growth 2014-2020⁵¹² includes a KPI entitled "volume growth for procurement of innovations", which is set for 2018 at +60% in comparison to 2013 and for 2020 at +100% in comparison to 2013. However this KPI is only applicable to some specific e-procurement activities foreseen under this strategy (i.e. it is not applicable to the whole digital strategy). In addition, it is also not bound to achieving concrete results or impacts as it applies only to realisation objectives. No corresponding KPI for the result or impact objectives is available.

As there is no overall national spending target for all innovation procurements across the country, but only for certain parts, the score for this indicator is 50%.

Indicator 7 – Monitoring system

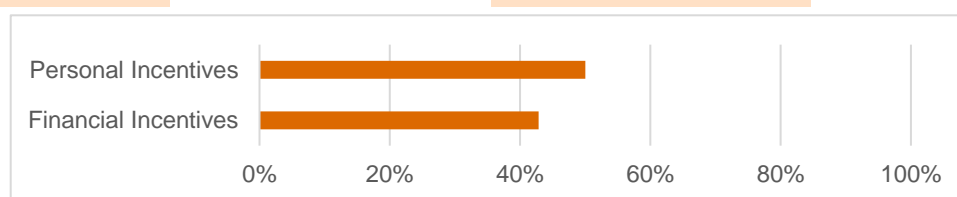
Total score	0%	European Average	13%
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Italy does not have a structured system to measure the amount of innovation procurement expenditure or evaluate the impact of completed innovation procurements.

However, the initiatives carried out under PCP/PPI Funding Programme, financed through the Cohesion Action Plan, are regularly monitored by the Cohesion agency. The ESIF's funded innovation procurement initiatives at regional level are monitored according to the standard procedures.

Indicator 8 – Incentives

Total score	46%	European Average	22%
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At national level, there are no incentives to encourage public procurers in undertaking more innovation procurement, but **financial incentives** are present at regional level.

The Inter-ministerial Directorial Decree (DD) number 437 of 13th of March 2013, planned the implementation of a Funding Programme for PCP/PPI financed through the Cohesion Action Plan. The intervention covered the four Convergence Regions, namely Calabria, Campania, Puglia and Sicily. With the DD number 1 of the 7th of January 2015, the MIUR and Ministry for Economic Development (MISE) defined the respective competences on 42 selected procurements under the programme (30 initiatives managed by the MIUR and 12 initiatives managed by the MISE).

In this context, in 2015, MIUR signed a collaboration agreement with AGID for the management of the 30 procedures. However, by 2018, when the AGID-MIUR agreement ended, AGID had only launched 2 out of the 30 calls for tenders. In parallel, the MISE had withdrawn the funding for the 12 planned actions. These actions do not count for the scoring of the sub-indicator financial incentives, because these pilot actions are implemented by the national ministries

⁵¹² Presidenza del Consiglio dei Ministri (2015), Strategia per la crescita digitale 2014-2020 (page 85). Available at: https://www.agid.gov.it/sites/default/files/repository_files/documentazione/strategia_crescita_digitale_ver_def_21062016.pdf

MISE/MIUR themselves and do not provide financial incentives to regional authorities to implement innovation procurements.

Other relevant regional initiatives are implemented through the ESIF in Lombardy and Sardinia. Both regions have set up calls for interest to collect innovation needs from public procurers in their region. On the basis of these needs, the aim is to select innovation procurement actions to be implemented under the Operational Regional Program ERDF 2014-2020. In Lombardy, the precondition for the implementation of the initiative (financed under Action I.1.b.3.1 of the ERDF 2014-2020, stemmed from the publication of a public invitation for the collection of innovative needs from public and accredited private hospitals and nursing homes in Lombardy (DDUO n. 5704/2017). As a result, financial incentives in Italy are not applicable country wide and are not directed to all types of innovation procurement. Conversely, financial incentives are only available in some regions and are only co-financed with ESIF funds. Therefore, the score of the sub-indicator “Financial incentives” is 43%.

At national level there are no **personal incentives** to encourage innovation procurement. However in Lombardy, there are bonuses for public servants related to achieving the objectives of Lombardy's regional policy on innovation procurement, including Lombardy's 3% regional target for innovation procurement, which is also included in the career objectives. The score for the sub-indicator "personal incentives" is 50%.

The total score of the indicator “incentives” is 46%.

Indicator 9 – Capacity building and assistance measures

Total score 7% *European Average* 24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices							0%
Trainings/ workshops							0%
Handbooks/ guidelines	√	√	√		√		67%
Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers							0%
One-stop-shop/ competence centre							0%

The total score of the indicator reflects the weakness of the Italian system in implementing regular structural capacity building or assistance measures to increase the know-how of public procurers across all levels and sectors of public sector activity across the country.

The only measure implemented is an eGuidelines/Vademecum document entitled “**Guide for the use of Pre-Commercial Procurement**”. The document was published in 2012 by the **Department for Digitalisation and Technological Innovation of the Public Administration**.⁵¹³ It was issued for the purpose of clarifying the legislation on PCP. In addition, it presented procedures to facilitate the implementation of PCP in the country. These guidelines are offered free of charge, refer to the relevant EU legal framework and guidance on PCP and are available to all public procurers in the country, but are not covering all aspects of innovation procurement. Therefore the total score of the sub-indicator “Handbook-Guidelines” is 67%. Other measures to enhance procurers' know-how in innovation procurement are not put in place.

Since 2016, the National Anti-Corruption Authority (ANAC) and the National School for public Administration (SNA) have set up a **training on innovation procurement**⁵¹⁴. However, the training is not scaled-up in a widespread, regular way to be considered as a structural measure for training public administrations across the country on innovation procurement. Therefore, the score for this sub-indicator is still 0%.

⁵¹³ https://procurement-forum.eu/resource/download/449/Italy_Guide+on+PCP.pdf

⁵¹⁴ Post-graduate training on Innovation Procurement in the II level Master “Strategie per l'efficienza, l'integrità e l'innovazione nei contratti pubblici” managed by Dipartimento di Management of Torino University, Autorità Nazionale Anticorruzione (ANAC), Scuola Nazionale dell'Amministrazione (SNA). More info at: https://www.unito.it/comunicati_stampa/efficienza-integrita-e-innovazione-nei-contratti-pubblici-unito-anac-e-sna

Consip is participating in the EU funded Procure2Innovate project (European network of national competence centres on innovation procurement) with the aim to establish a **national competence centre for innovation procurement** in Italy. However, as this competence centre is currently still under construction, the score for one-stop-shop / competence centre is still 0%.

Italy still lacks a structured framework for capacity building on innovation procurement. Apart from one guideline on PCP, there are no capacity building measures available. On the basis of the evidence collected, the total score for this indicator is 7%.

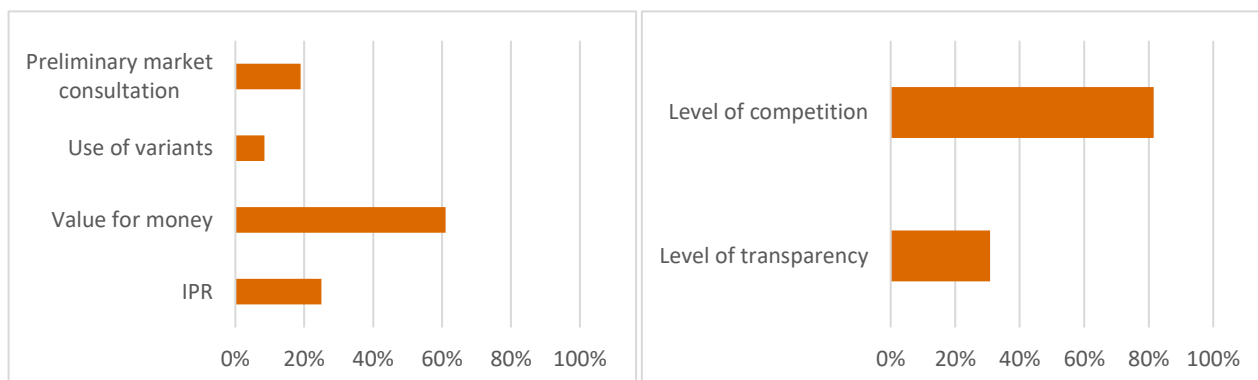
Indicator 10 – Innovation friendly public procurement market

Total score 42%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of innovation procurement. It is composed by two sub-indicators measuring:

I. The use of specific techniques to foster innovation in public procurement in Italy

II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Italy shows the following evidence:

- IPR Default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for distribution of IPR rights between procurers and suppliers in Italy. Italian law, general terms and conditions for government contracts and guidelines on public procurement do not define how IPR allocation is best dealt with in procurement contracts. It is left to the individual responsibility of each Italian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Italian copyright law⁵⁴⁵ determines that copyrights belong in an inalienable way to the creator (cannot be waived, licensed or assigned to anyone else). Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. If the procurer wants to use the copyright created by a (sub)contractor he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific work, software and database rights. In the specific case of PCP, the Italian law refers to the EC COM 799/2007 which explains that in PCPs IPR ownership remains with the contractor while the contracting authority retains usage and rights to require the contractors to give licenses to third parties under fair and reasonable market conditions.
- Use of value for money criteria:** According to the EU single market scoreboard, 61% of the procedures were not awarded on the basis of the lowest price only. This is moderately above the European average of 42% but still not reaching the 80% satisfactory level set out in the EU single market scoreboard.
- Use of variants:** Italy has allowed the use of variants in the 8% of the procedures. This percentage is well above the European average.
- Preliminary Market Consultations:** Italy has used Preliminary Market Consultations in the 19% of the procedures, ranking well above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 28% which is above the European average of 23%. This is mainly due to the above average performance on the use of value for money criteria, use of variants and Preliminary Market Consultation in procedures. The score in IPR default regime is instead below European average.

With regard to sub-indicator II, Italy shows the following evidence (based on the Single Market Scoreboard):

- Level of competition:** The level of competition is 82% which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This performance is driven by average

⁵⁴⁵ http://www.wipo.int/wipolex/en/text.jsp?file_id=301483

amount of procurements that were conducted with a call for bids (93%) and below average amount of procurements with more than one bidder (70%).

- f. **Level of transparency:** The level of transparency is 31% which is below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. This negative performance is mainly driven by the high amount of procurements with missing buyer registration numbers (97%) which makes it hard for suppliers to understand which public buyer wants to buy what. The amount of procurements without missing call for bids information (87%) is above European average but below the 97% satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 56% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to below European average level of competition and transparency.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 42% which is slightly below the 44% European average. This score is explained firstly by the fact that the use of specific techniques to foster innovation in public procurement the country is around the European average but the openness of the Italian procurement market to innovations from across the EU single market is below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and the use of value for money award criteria is not fully mainstreamed yet. In addition, although the national public procurement market shows a below average level of competition and transparency.

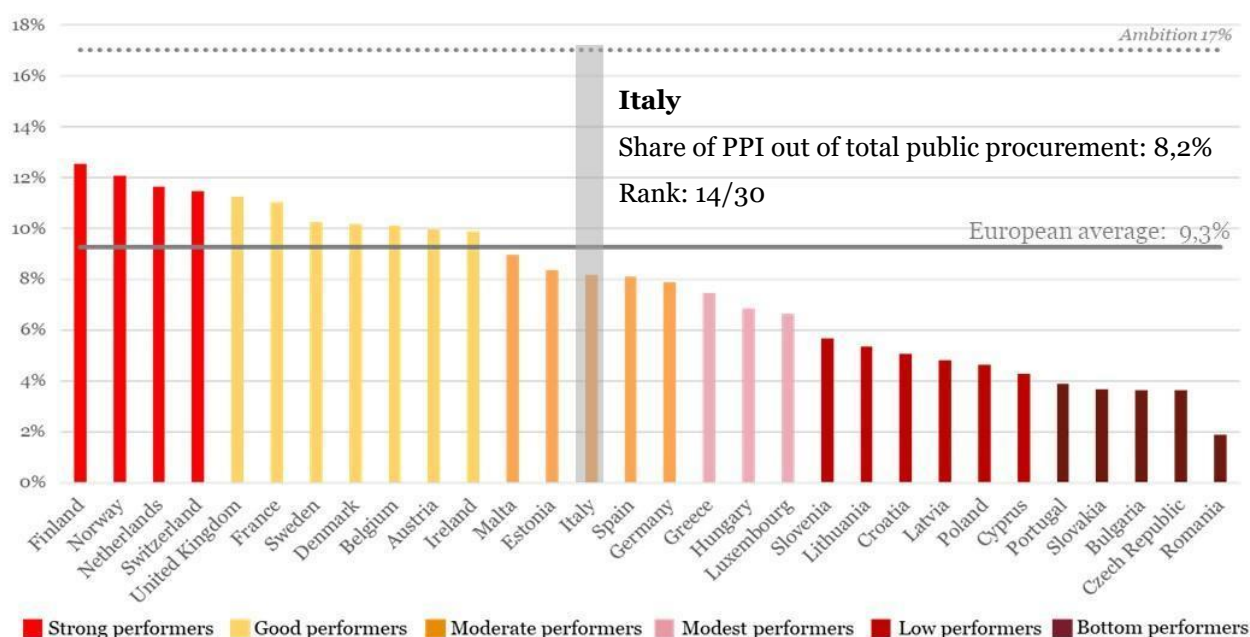
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Italian investments on public procurements of innovative solutions (PPI) and the benchmarking of Italian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, except when explicitly mentioned, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 8,2% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 20,2 bn), **Italy ranks 14th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁵¹⁶ across Europe. Italy falls within the group of **moderate performers**, slightly below the European average of 9,3%.⁵¹⁷ **A considerable increase of investments in PPI** is still needed to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Italian public sector.⁵¹⁸ When taking into account also PPI in the defence sector Italy drops to the 16th position.



The **main factors**⁵¹⁹ explaining Italy's moderate performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** (94%) is well above the European average (84%). This consists of innovative solutions that are 'new to the market' and 'significantly improved' solutions. The share of PPI investments spent on the adoption of **incremental innovations** (6%) – which consist of 'existing solutions being used in a new way or in a new sector' or 'innovative combinations of existing solutions' – is significantly below the European average (16%). As the total amount of investments in innovative solutions in Italy is moderate and below EU average, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

⁵¹⁶ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI procurement) across Europe can be found [here on the EU webpages](#).

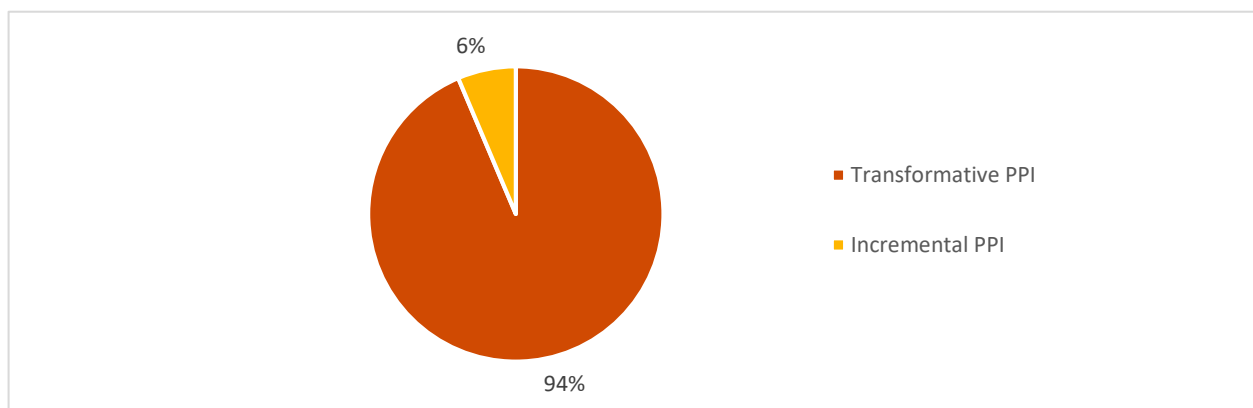
⁵¹⁷ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁵¹⁸ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁵¹⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is an important factor explaining why Italy is not yet at the level of PPI investment that would allow a full-speed modernisation of the Italian public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

All domains of public sector activity⁵²⁰ in Italy purchased innovative solutions. PPI investments made by different public sector domains are **mostly below the European averages** (in 6 of the 11 domains). The share of PPI investments by Italian procurers operating in ‘**Healthcare and social services**’, ‘**Public order, safety and security**’ and ‘**Public transport**’ are significantly below the European averages (respectively -9 pp, -7 pp and -6 pp). The share of PPI investments by Italian procurers is significantly higher than the European average in the ‘**General public services, public administration and economic and financial affairs**’ and ‘**Postal services**’ domains (respectively +13 pp and +9 pp).

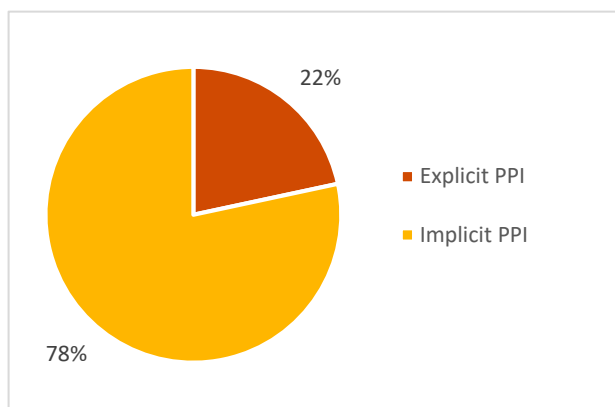
PPI investments by domains of public sector activity

Domain of public sector activity	Italy	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	48%	35%	13
Public transport	3%	10%	-7
Healthcare and social services	12%	21%	-9
Energy	10%	6%	4
Environment	3%	3%	0
Construction, housing and community amenities	2%	4%	-2
Education, recreation, culture and religion	2%	5%	-3
Water	8%	4%	4
Public order, safety and security	2%	8%	-6
Postal services	10%	1%	9
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁵²⁰ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposals

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

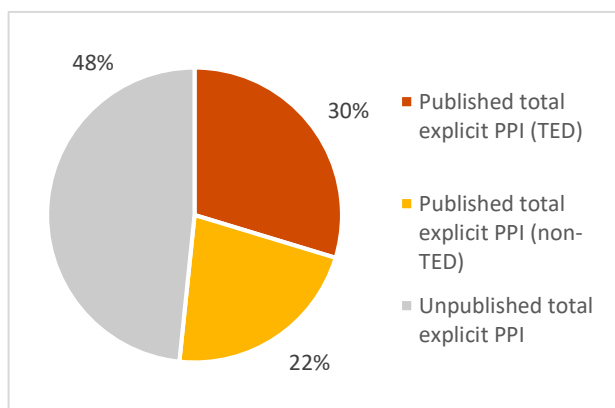


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is lower in Italy (22%) compared to the European average (29%). This indicates that Italian procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is slightly higher in Italy (78%) compared to the European average (71%). This indicates that Italian procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

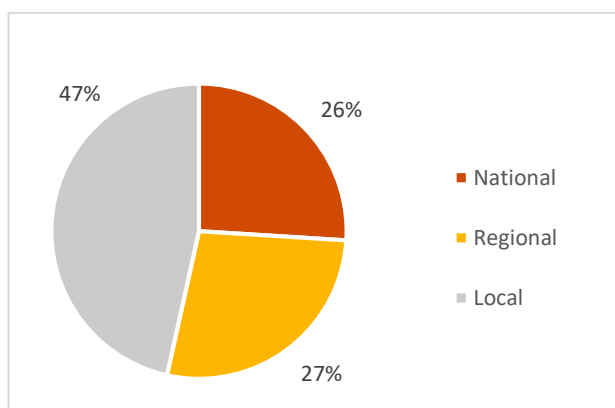


The share of PPI investments for which calls for tenders are published in Italy is considerably higher (52%) compared to the European average (22%). Both the portion that is **published at European level** in the TED database (30%) and the portion that is **published at national level** (22%) are significantly above the European average (respectively 18% and 5%). Nonetheless, the share of PPI investments for which no calls for tenders are published in TED or at national level is still almost equally big (48%) as the share of published PPI (52%).

By publishing calls for tenders for roughly half the amount of PPI investments, **Italy still misses out on innovative solutions** from Italian and other European innovative suppliers that are not aware about the PPI business opportunities. Further enhancing the share of published PPIs would help Italy reach a good path for enhancing the opportunities to purchase potential innovative solutions that could speed up public sector modernisation, both.

Investments readiness across levels of public sector activity

PPI investments by level of public sector activity

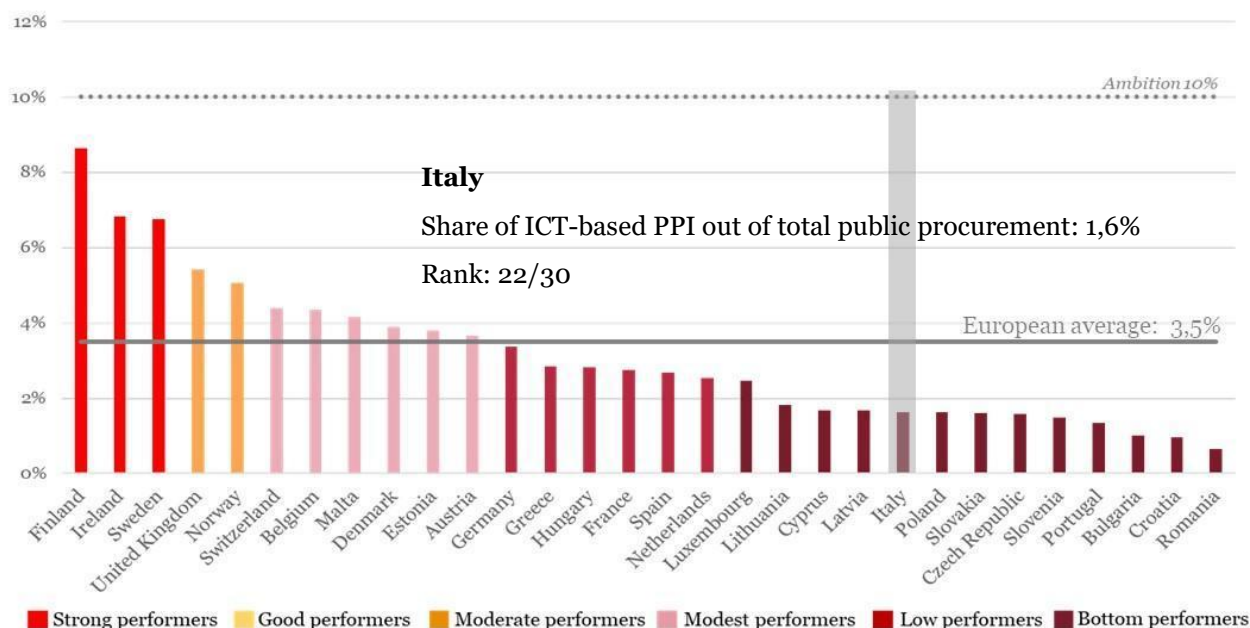


Almost the half of the total PPI investments in Italy are carried out by **procurers the local level** (47%). This is considerably above the European average (29%). **Procurers at the regional level** account for a share of PPI investments (27%) which is quite in line with the European average (24%).

National level procurers account for the smallest fraction of PPI investments (26%), well below the European average (47%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment), Italy falls within the group of **bottom level performers**. With € 0,5 bn or 1,6% of total public procurement invested in innovative ICT-based solutions, **Italy ranks 22th** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (20%), Italy performs below the European average (38%). Thus, **a large increase of investments in buying innovative ICT-based solutions is needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Italy to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁵²¹

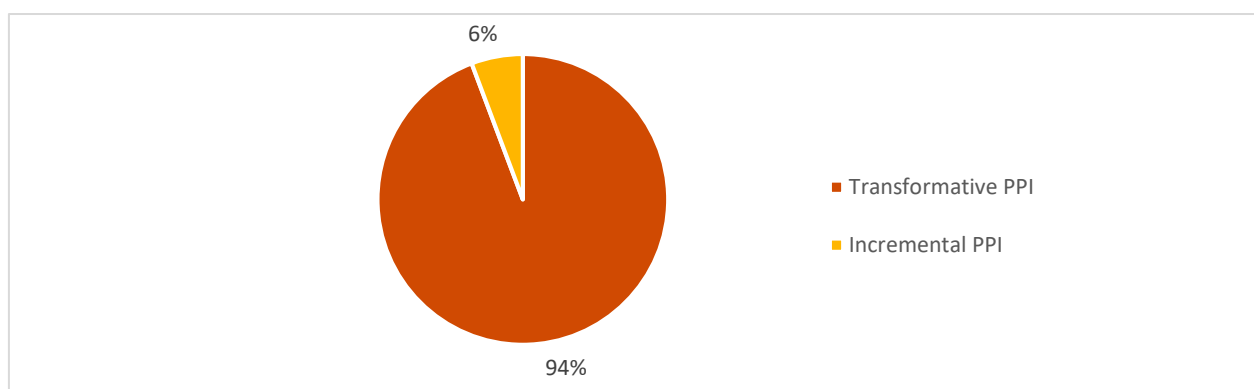


The **main factors**⁵²² explaining Italy's bottom level performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments spent on the adoption of **incremental ICT-based innovations** (6%) is significantly below European average (21%). The share of ICT-based PPI investments that went to the adoption of **transformative ICT-based innovations** (94% of ICT-based PPI) is well above the European average (79%). This consists of 'significantly improved solutions' (65%) and innovative solutions that are 'new to the market' (29%). However, as the total amount of investments in ICT-based innovative solutions in Italy is really low, the country is still lagging behind considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation

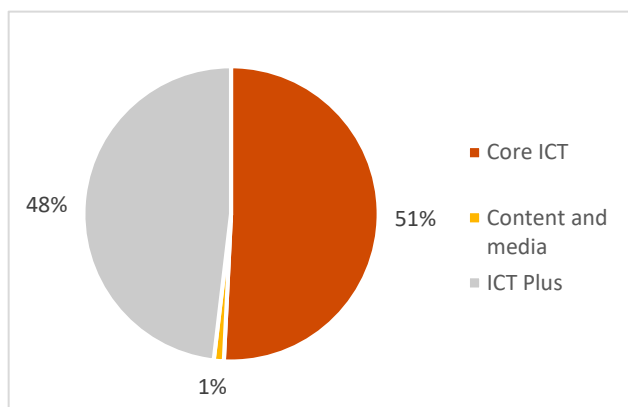


⁵²¹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁵²² The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Italy invested mainly in the adoption of innovations from the **'Core ICT' sub-sector**⁵²³ (51%), quite in line with the European averages (54%).

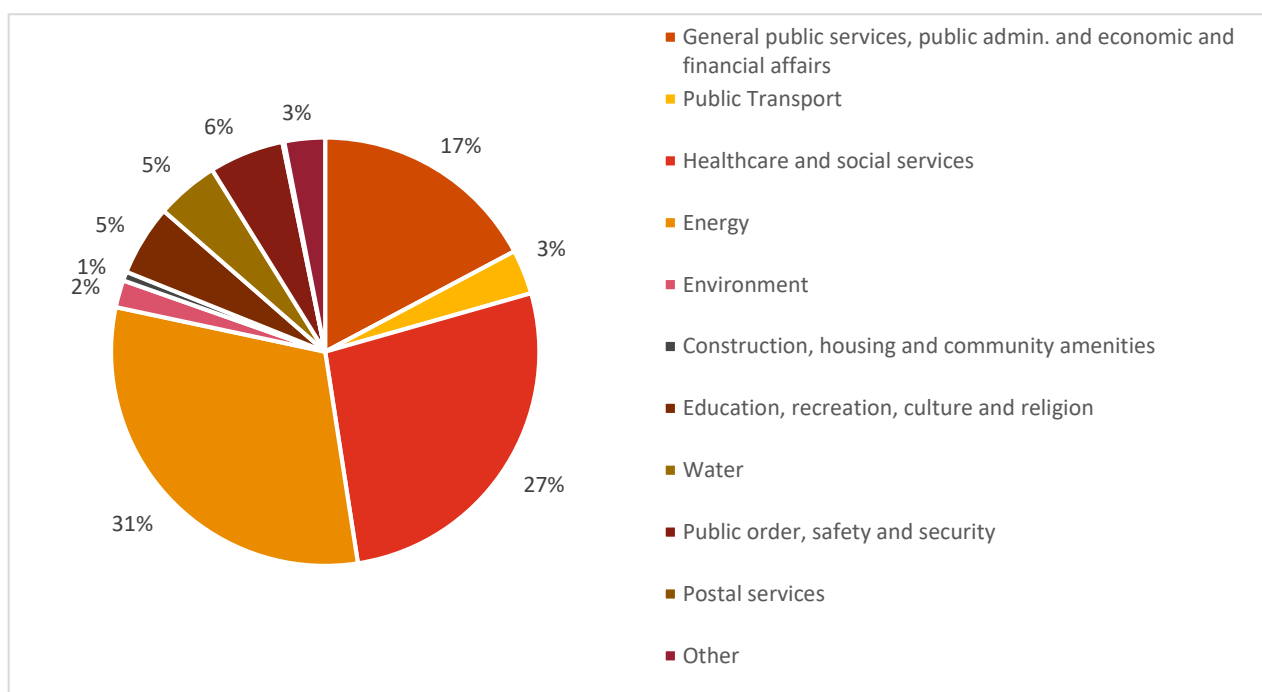
The share of Italian investments spent on the adoption of innovations from the **'ICT Plus' sub-sector** (48%) is quite in line with the European average (45%).

The share of investments in adopting innovations from the **'Content & Media' sub-sector** was small (1%), in line with the European average (1%).

Investment readiness across different domains of public sector activity

All domains of public sector activity in Italy purchased innovative ICT-based solutions. The highest share of ICT-based PPI investments was made by procurers that operate in the **'Energy'** domain (31%), which is well above the European average (6%). At the same time, the share of investments made by Italian procurers operating in **'Public order, safety and security'** (6%) are significantly below the European average (19%).

ICT-based PPI investments by domains of public sector activity

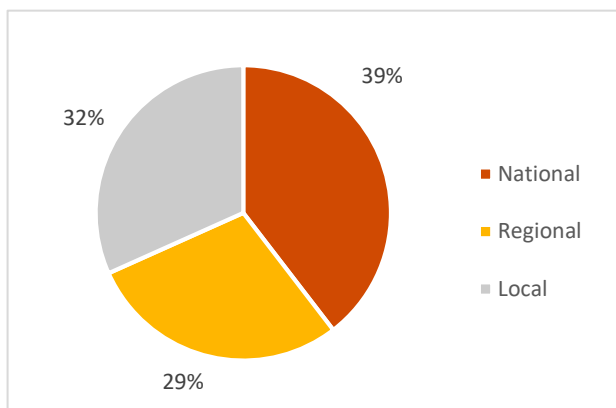


Investment readiness across levels of public sector activity

⁵²³ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

ICT-based PPI investment by level of public sector activity



National level procurers account for 39% of ICT-based PPI investments, which is well below the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (32%), three times higher than the European average (10%), while **regional procurers** account for the 29% of ICT-based PPI investments, which is above the European average (21%).

Latvia



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The new Public Procurement Law⁵²⁴ entered into force on March 2017 and transposed the EU directive 2014/24. The law is supplemented by other Regulations, which aim to expand the law and detail how public procurement should be performed in the country. The Directive 2014/25/EU has been transposed into national legislation through the Public Service Providers Procurement Law⁵²⁵ entered into force in April 2017. The Directive 2014/23/EU was implemented through Law on Public-Private Partnership with amendments which entered into force in April 2017. Finally, the European Defence Directive 2009/81/EC was adopted through Procurement Law in the field of defence and security⁵²⁶ in 2011.

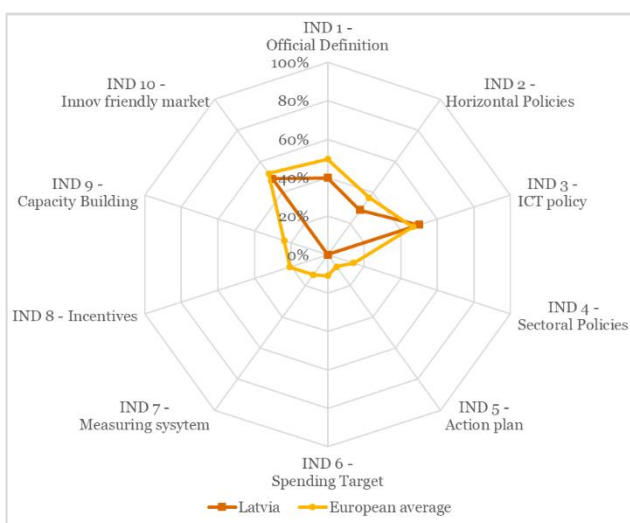
According to the Procurement Monitoring Bureau, in Latvia there were approximately 1750 contracting authorities registered in the publication of public procurement notices in 2017. In Latvia, 38% of public procurement takes place at national level, 12% at regional and local level, 18% by bodies governed by public law and 33% by other types of public procurers.

The **Ministry of Finance** is responsible for procurement policy and for drafting legislation in the field. Within the Ministry, the **Procurement Monitoring Bureau (IUB)** plays an important role in terms of oversight. In addition, the IUB is responsible for providing guidance, training and statistical monitoring of procurement, and provides methodological instructions and explanations for the organization of the procedure as well as provide consultations to contracting authorities in all procurement stages. The **State Regional Development Agency** is the main actor for e-procurement, whereas the **Ministry for Environmental Protection and Regional Development (VARAM)** is the main authority for GPP policy which is well developed in the Member State.

Innovation procurement in the Country is at an early development stage. Transposition of the new 2014 public procurement Directives 2014/24/EU and 2014/25/EU in national legislation can be considered as a first step towards the development of the innovation procurement system in Latvia.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of national innovation procurement policy frameworks across Europe, **Latvia is at the 22nd position** of the overall ranking with a **total score of 16,1%**. From the 30 countries analysed, Latvia is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on 9 out of 10 indicators. Having implemented only 16,1% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, a strong reinforcement of the policy framework for innovation procurement is needed in Latvia to reach its full 100% potential.



Strength: Latvia has the legal basis and awakening support from some horizontal enabling policies on which the country can start developing an innovation procurement policy framework

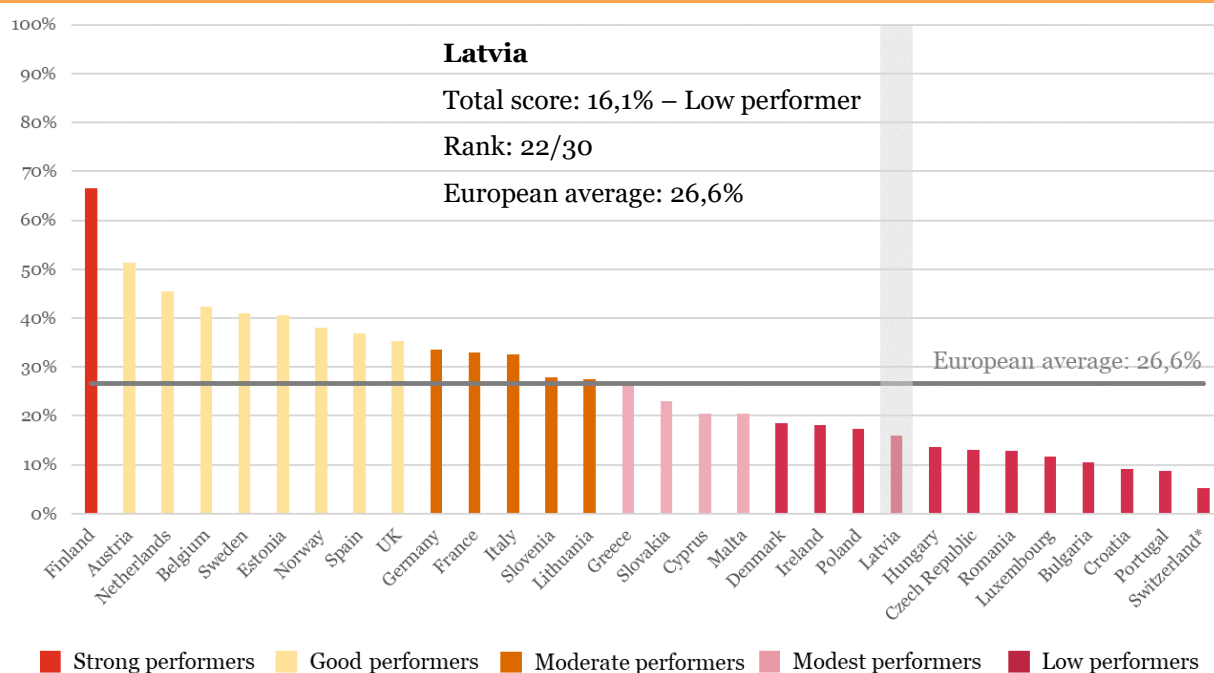
Weaknesses: Innovation procurement in Latvia is at an early development stage, and most important elements of a structural policy framework to foster innovation procurement are still missing (e.g. national competence centre, dedicated action plan, spending target, monitoring system etc.). Lack of IPR policy in public procurement that encourages innovation.

⁵²⁴ <https://likumi.lv/doc.php?id=287760>

⁵²⁵ <https://likumi.lv/doc.php?id=216076>

⁵²⁶ <https://likumi.lv/ta/id/238803-aizsardzibas-un-drosibas-jomas-iepirkumu-likums>

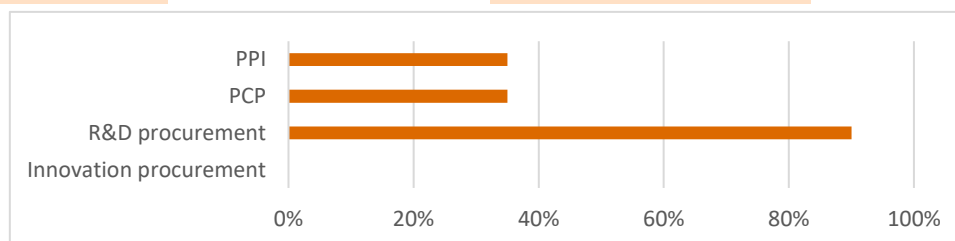
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score 40% European Average 50%



In the Latvian national legal framework and guidance documents on public procurement there is no official definition for innovation nor for innovation procurement, Pre-Commercial Procurement (PCP), Public Procurement of Innovative solutions (PPI). However, the Latvian public procurement laws for public authorities, utilities and defence/security procurement provide a clear legal basis for implementing PCP and PPI (although without giving explicit definitions). A full definition of R&D is only available in the Latvian public procurement law for defence and security which is in line with the provisions in the EU defence procurement directive. Therefore, total score for this indicator is: 40%.

Latvian public procurement law has not transposed the **definition of innovation** from the 2014 EU public procurement directives that can be used in combination with all public procurement procedures. Instead innovation is only mentioned in Latvian public procurement law under the Innovation Partnership procedure that has been transposed. As a result, so far, national level policy activities on innovation procurement have approached innovation procurement in a rather narrow way, assimilating its definition to the innovation partnership procedure or the competitive dialogue. There is a however a much wider range of procurement procedures and approaches available under the public procurement legal framework that can be used to implement innovation procurements, ranging from simple-to-start-with procedures (to buy R&D or innovative solutions separately) to more elaborate and complex ones such as the innovation partnerships⁵²⁷. Avoiding this confusion will be important to prevent misconceptions and disorientation about what is considered innovation procurement and what is not. To this purpose, the informative report that the Ministry of Economy is planning to prepare (due in 2018/2019) will also include a section on the definitions. Because of the lack of any official definition so far, the total score for this sub-indicator is 0%.

The **definition of R&D** in the context of public procurement is only available in the defence sector. Article 1(13) of the Latvian public procurement law for defence and security has transposed the definition of R&D from the Directive/81/EC on defence procurement: "research and development" means all activities related to fundamental and applied research and experimental development (production), which may also include demonstration of technology with equipment

⁵²⁷ https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/innovation-procurement_en

demonstrating the performance of the concept developed in a real or artificial environment; This definition is compliant with the EU definition but is applicable only in the defence sector. Although there is no full sentence definition for R&D in the other Latvian procurement laws, article 3(2) in the Latvian public procurement law and article 86(4) and article 9(1)(6) in the Latvian Public Service Providers Procurement Law identify R&D as activities that have the CPV codes for fundamental research, applies research and industrial development. Therefore, the total score for this sub-indicator is 90%.

Article 3(2) also transposes the exclusion for R&D services, which forms the legal basis for implementing **PCP** in Latvia: "This law applies only to public service contracts for research and development services for which the CPV code is from 73000000-2 to 73120000-9, 73300000-5, 73420000-2 and 73430000-5, provided that the following conditions are fulfilled simultaneously: 1) the results of the service provided will only benefit the contracting authority, who will use these results exclusively for their own needs; 2) the contracting authority fully pays for the service provided." The article 4(3)(5) of the Latvian national public procurement law for defence and security and the article 9(1)(6) of the Latvian Public Service Providers Procurement Law define a similar exclusion for R&D services. Although no definition of **PCP** exists in national legislation nor in official guidance docs, but the legal basis to implement PCP is available (R&D services exemption) which is applicable to all public procurers in the country and in line with the EU procurement directives provisions. The total score for this sub-indicator is 35%.

Finally, a definition of **PPI** is not embedded in the national legislation nor in official guidance documents. However, the Public procurement act allows procurers to implement PPI (awarding and monitoring performance based on innovative solution characteristics). In particular, art. 51.2 (a) states that "(1) A contracting authority shall award a procurement contract to the most economically advantageous tender. (2) The most economically advantageous tender is determined by: 1) using price or cost, applying an efficiency approach (for example, by estimating life cycle costs); 2) taking into account the price or cost and the quality criteria related to the subject of the procurement contract, for example: (a) quality, including technical advantages, aesthetic and functional characteristics, availability, conformity to universal design, social and environmental protection requirements, innovative characteristics and conditions of sale." These legal provisions are applicable to all public procurers in the country and are in line with the provisions of the EU public procurement directives. Therefore, the total score of this sub-indicator is 35%.

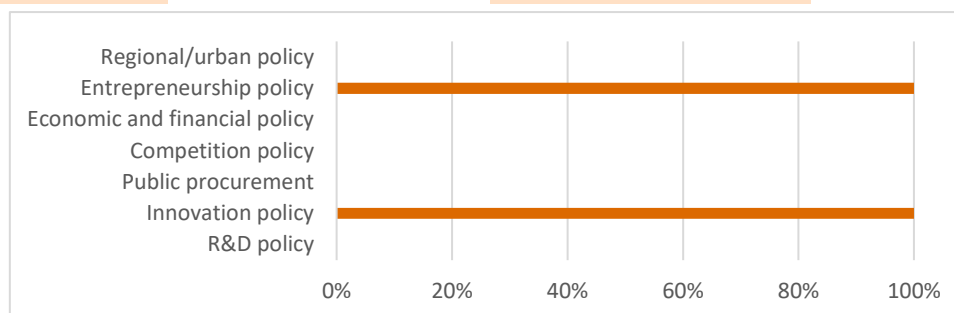
Indicator 2 – Horizontal policies

Total score

29%

European Average

36%



Two policy documents focusing on innovation policy incentivise the use of innovation procurement and industrial policy in the whole country. Therefore, total score for this indicator is 29%.

The two strategic documents are:

- 1) **Guidelines on National Industrial Policy for 2014-2020**⁵²⁸ - According to these Guidelines, promotion of innovation has been set as one of the key pillars to enhance competitiveness, productivity and export volumes. Public demand for innovation is one of the four equally important elements emphasized within the Guidelines to improve innovation system. The other elements are: 1) knowledge capacity, 2) innovation supply, and 3) knowledge transfer system. Guidelines focus on two main courses of actions for innovation, the promotion of technology development and production of higher value-added products, and boosting knowledge absorption and dynamic entrepreneurship.
- 2) **Guidelines for the Development of Science, Technology and Innovation for 2014-2020**⁵²⁹ - The Guidelines implement a new horizontal approach to science and innovation policy, linking research and industry sectors in a single system. According to the guidelines, the development of the Latvian innovation system should focus on (i) developing the potential of scientific activities; (ii) developing platforms for long-term cooperation between researchers and enterprises and public authorities (iii) supporting the development of innovative companies. The aim of the STI Guidelines is to raise the global competitiveness of Latvian science, technology and innovation, satisfying the development needs of Latvian society and economy. In reaching this objective the role of public demand can be crucial.

However, both documents do not define concrete actions but make a reference to public demand for innovation as a tool to boost innovation in the country.

⁵²⁸ <http://polsis.mk.gov.lv/documents/4391>

⁵²⁹ <http://polsis.mk.gov.lv/documents/4608>

Indicator 3 – ICT policies

<i>Total score</i>	50%	<i>European Average</i>	47%
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The **Information Society development guidelines 2014-2020**, which is the Latvian strategy for digitization⁵³⁰, does not specifically mention innovation procurement but sets as objectives "to involve experts in public administration who know how to convert needs into clearly defined functional demands" and "to support the purchase of SME research services in order to increase demand for innovative solutions and the innovation performance of innovative companies." Innovation procurement is only partly addressed in the policy framework, therefore the score of this indicator is 50%.

Indicator 4 – Sectorial policies

<i>Total score</i>	0%	<i>European Average</i>	14%
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In Latvia no sectorial policy explicitly recognises the role of innovation procurement within its strategy. Therefore, the score for this indicator is 0%. There are however opportunities where innovation procurement could help address the demand for innovation solutions:

The country has a specific policy on **Green Public Procurement**, developed since 2008 when the "Guidance for the National and Local Authorities on how to promote GPP in Latvia and how to green construction works and services" was introduced. Until last year, GPP was governed by the National GPP Support Plan for 2015-2017, which defined targets, criteria, product groups as well as government actions for reaching its objectives. Furthermore, Latvia has developed specific environmental and contract award criteria for procurement of food supply and catering services. However, there is no specific reference to innovation procurement in any environmental policy or national strategy.

Demand for more innovative products in the industry of **building and construction**, which is one of the most relevant public procurement areas, is growing. It is related to energy efficiency, thermal insulation and other environmental issues, as well as life cycle costing (LCC), but the focus is especially on Green or Sustainable Procurement rather than on innovation procurement.

Indicator 5 – Action plan

<i>Total score</i>	0%	<i>European Average</i>	8%
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Latvia does not have a stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

<i>Total score</i>	0%	<i>European Average</i>	11%
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In Latvia there is no specific spending target for innovation procurement, while there is a national spending target for Green public procurement.

Indicator 7 – Monitoring system

<i>Total score</i>	0%	<i>European Average</i>	13%
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Latvia does not have a structured system for measuring innovation procurement expenditure or for evaluating the impact of completed innovation procurements.

Indicator 8 – Incentives

<i>Total score</i>	0%	<i>European Average</i>	22%
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In Latvia there are no financial or personal incentives to encourage public procurers to undertake more innovation procurements.

Indicator 9 – Capacity building and assistance measures

<i>Total score</i>	0%	<i>European Average</i>	24%
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In Latvia a structured approach to capacity building on innovation procurement is still missing. There are no dedicated innovation procurement capacity building activities; innovation is usually addressed as a part of wider capacity building activities. There is some assistance on innovation related legal provisions in the new public procurement legislation to public procurers as a part of wider capacity building activities on public procurement in general, but not dedicated systematic assistance or training on non-legal implementation aspects on all types of possible innovation procurement approaches. Based on the evidence collected, the overall score of this indicator is 0%.

⁵³⁰ http://www.varam.gov.lv/in_site/tools/download.php?file=files/text/Darb_jomas/elietas//Information_Society_Development_Guidelines_2014_2020.docx

The Procurement Monitoring Bureau provides **methodological support** for the organisation of public procurement procedures. Support activities take the form of instructions and clarifications to public procurers. In addition, it also provides **consulting services** to contracting authorities throughout the whole procurement process. These activities usually focus on the effective implementation of the new legislation in the area of public procurement.

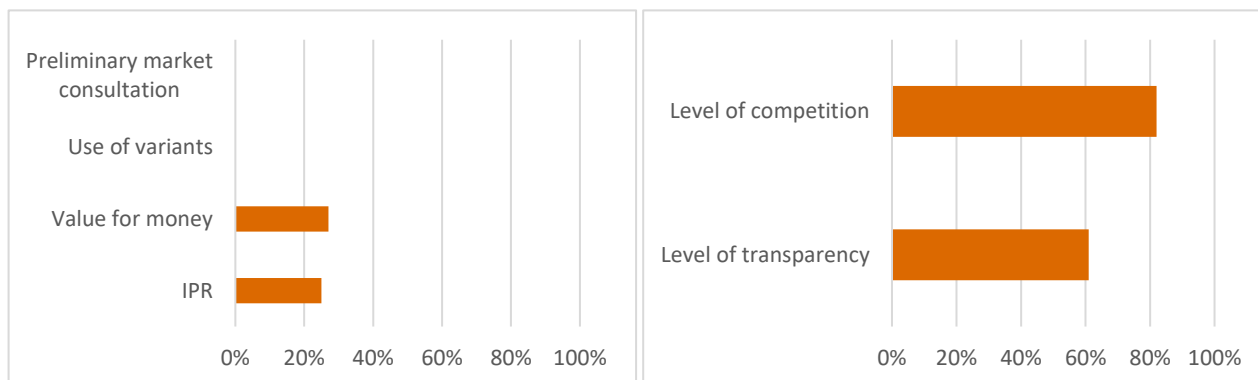
Indicator 10 – Innovation friendly public procurement market

Total score 42%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Latvia
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Latvia shows the following evidence:

- a. **IPR Default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Latvia. Latvian law, general terms and conditions for government contracts and guidelines on public procurement do not define how IPR allocation is best dealt with in procurement contracts. It is left to the individual responsibility of each Latvian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Latvian copyright law⁵³¹ determines that copyrights belong in an inalienable way to the creator (cannot be waived, licensed or assigned to anyone else). Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. Therefore, Latvian copyright law determines that for commissioned works the author retains copyright and the commissioning party obtains the right to use the commissioned work. If the procurer wants to obtain other economic rights owned by the creator (sub)contractors in his procurement) he must require in the tender specifications the transfer, assignment or a license of those economic rights (e.g. licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific work, software and database rights.
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 27% of the public procurement procedure have been awarded using not only criteria based on the lowest price. This is below the European average of 42% and below the 80% satisfactory level set out in the EU single market scoreboard. The country shows an over-reliance of lowest price criteria in procurement procedures.
- c. **Use of variants:** Latvia has not allowed the use of variants in any procurement procedure in 2018
- d. **Preliminary Market Consultation:** Latvia has not used Preliminary Market Consultations in 2018

Based on this evidence, the score for sub-indicator I is 13% which is significantly below the European average of 23%. This is mainly due to the below average performance on adopting an IPR default regime that fosters innovation in public procurement and the underutilization of value for money award criteria.

With regard to sub-indicator II, Latvia shows the following evidence (based on the single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 82% which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This is due to the fact that both sub-indicators are below European average: the percentage of procurements with more than one bidder (73%) and the percentage of procurements conducted with a call for bids (91%).
- f. **Level of Transparency:** The level of transparency of the public procurement market is 61% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. Latvia has the highest TED publication rate in Europe (9,8%). However, its above European average amount of procurements without missing call for bids information (95%) and its below European average amount of

⁵³¹ http://www.wipo.int/wipolex/en/text.jsp?file_id=352940

procurements without missing buyer registration number (78%) are still below the 97% satisfactory level of the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 71% which is above the European average of 65% but below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to below average level of competition.

Based on the scores for sub-indicators I and II, the total score for the indicator is 42% which is slightly below the 44% European average. This score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is significantly below European average and the openness of the Latvian procurement market to innovations from across the EU single market is above the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still seriously underused in public procurements. Secondly, use of variants or Preliminary Market Consultation have not been considered in procedures. In addition, although the national public procurement market shows an above average level of transparency, the level of competition is below the European average.

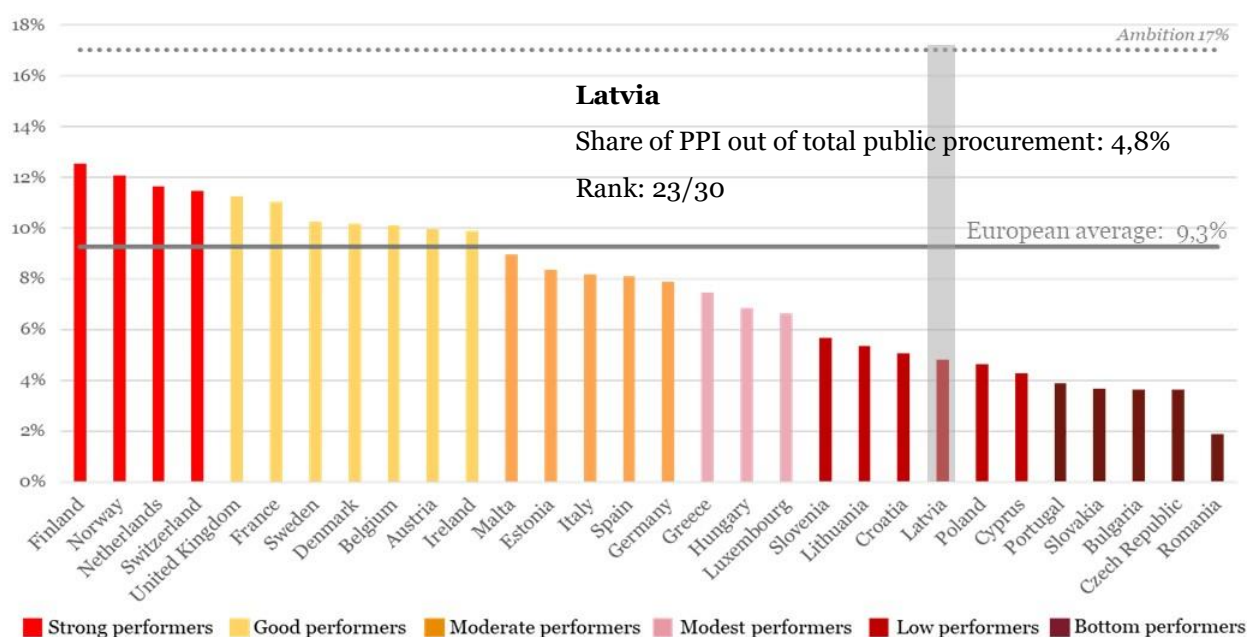
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Latvian investments on public procurements of innovative solutions (PPI) and the benchmarking of Latvian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 4,8% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,2 bn), **Latvia ranks 23rd** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁵³² across Europe. Latvia falls within the group of **low performers**, below the European average of 9,3%.⁵³³ **A large increase of investments in PPI** is still needed to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Latvian public sector.⁵³⁴ When taking into account also PPI in the defence sector Latvia still remains in the 23rd position.



The **main factors**⁵³⁵ explaining Latvia's low performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Latvia (96%) is well above the European average (84%). This consists of adoption of 'significantly improved' solutions (55% of PPI) and innovative solutions that are 'new to the market' (41% of PPI). The share of PPI investment that is spent on the adoption of **incremental innovations** (4%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions', is really small and well below the European average (16%). As the total amount of investments in innovative solutions in Latvia is low, the country is still lagging behind considerably in the adoption of both transformative and incremental innovations.

⁵³² Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

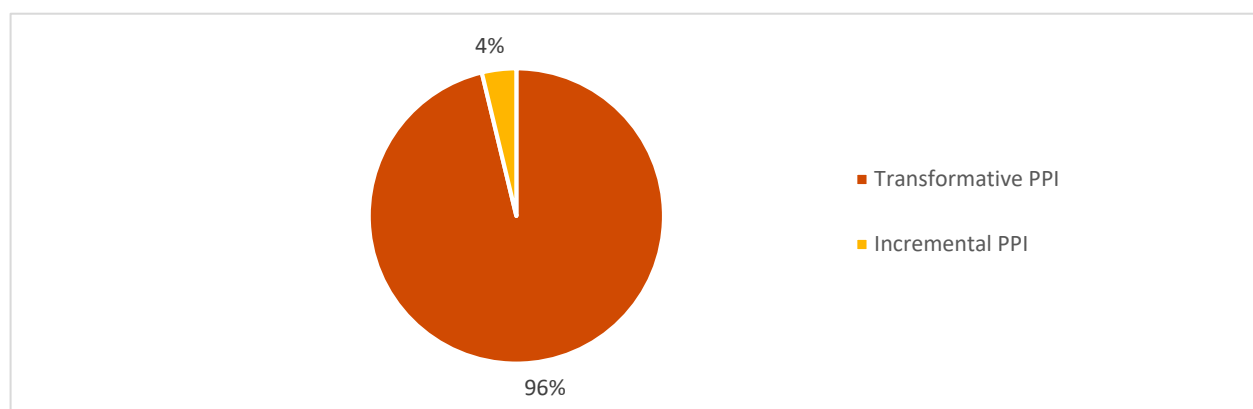
⁵³³ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁵³⁴ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁵³⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Latvia is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

A number of domains of public sector activity⁵³⁶ in Latvia did not invest in the adoption of innovative solutions: PPI procurements made by public procurers that operate in the domains of ‘**Construction, housing and community amenities**’, ‘**Water**’, ‘**Postal services**’ and ‘**Other**’ were zero. In addition, the shares of PPI investments out of total PPI investments in the country made by procurers in ‘**Healthcare and social services**’, ‘**Public transport**’ and ‘**Public order, safety and security**’ are significantly below the European averages (respectively, -10 pp, -9 pp and -6 pp). However, the shares of PPI investments made by Latvian procurers in the ‘**Energy**’ and ‘**Education, recreation, culture and religion**’ domains are significantly above the European average (respectively, +20 pp and +17 pp).

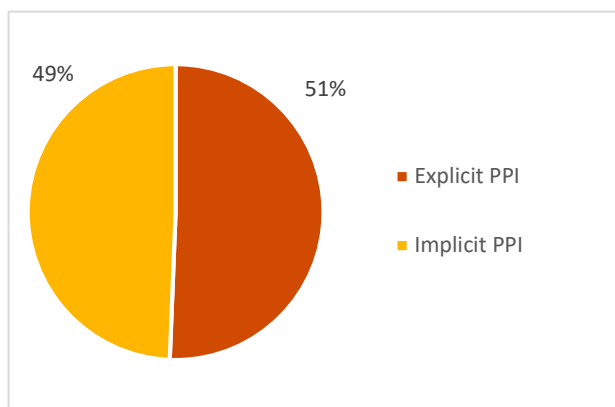
PPI investments by domains of public sector activity

Domain of public sector activity	Latvia	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	36%	35%	+1
Public transport	1%	10%	-9
Healthcare and social services	11%	21%	-10
Energy	26%	6%	+20
Environment	2%	3%	-1
Construction, housing and community amenities	0%	4%	-4
Education, recreation, culture and religion	22%	5%	+17
Water	0%	4%	-4
Public order, safety and security	2%	8%	-6
Postal services	0%	1%	-1
Other	0%	3%	-3
Total PPI investments	100%	100%	-

⁵³⁶ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

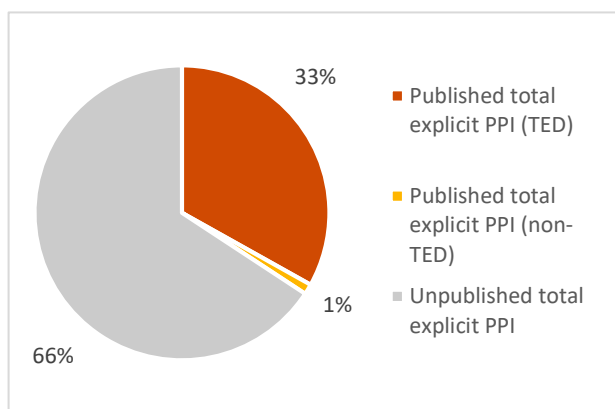


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly higher in Latvia (51%) compared to the European average (29%). This indicates that Latvian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is significantly lower in Latvia (49%) compared to the European average (71%). This indicates that Latvian procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

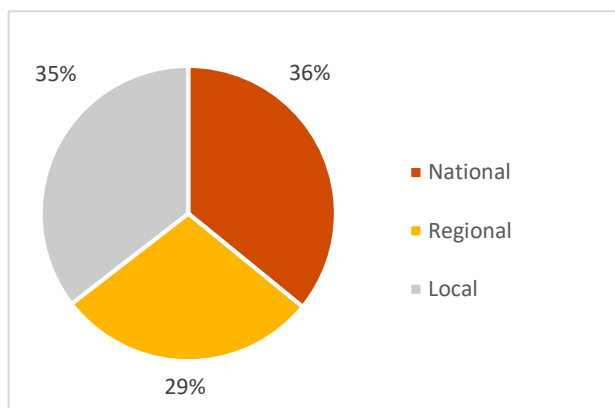


The share of Latvian PPI investments for which calls for tenders are published (34%) is above the European average (22%). The portion that is **published at European level** in the TED database (33%) is higher than the European average (18%), while the portion that is **published at national level** (1%) is below the European average (5%). The share of PPI investments for which no call for tenders are published in TED or at national level is high (66%).

By not publishing calls for tenders for PPI procurements widely, **Latvia is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Latvian and other European innovative suppliers that are not informed about the Latvian PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

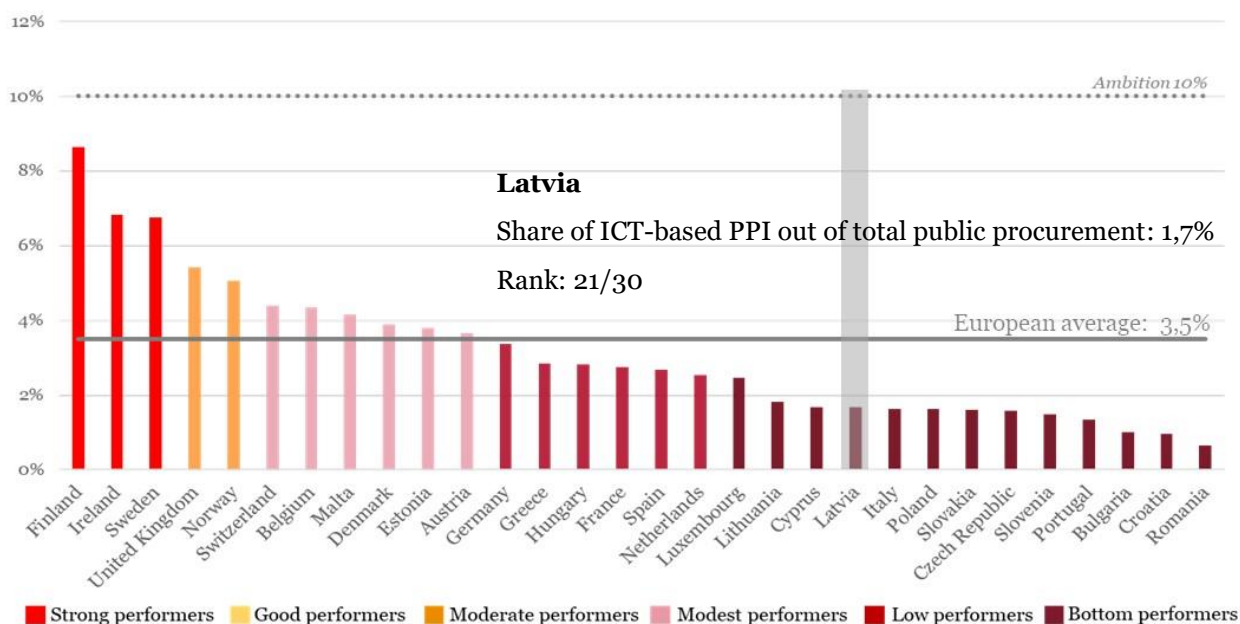


The largest share of the total PPI investments in Latvia is carried out by **large-scale entities at national level** (36%), such as ministries and ICT integrators of governments departments. This is considerably below the European average (47%).

Procurers at local level account for similar amount of share of PPI investments (35%), but this time well above the European average (29%). **Procurers at regional level** account for the smallest fraction of PPI investments (29%), which is slightly above the European average (24%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Latvian public sector shows a **bottom level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,01 bn or 1,7% of total public procurement invested in innovative ICT-based solutions, **Latvia ranks 21st** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (35%), Latvia is performing below the European average (38%). **A large increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Latvia to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁵³⁷

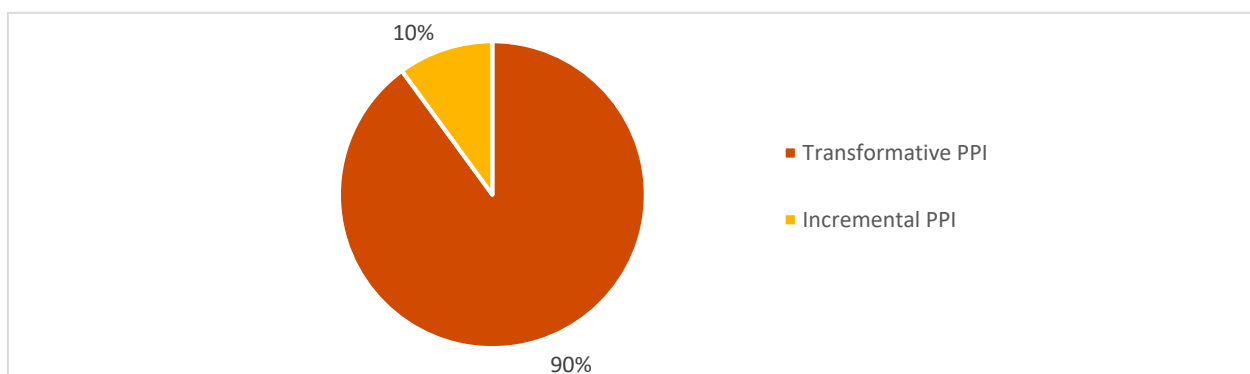


The **main factors**⁵³⁸ explaining Latvia’s bottom level performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments in Latvia that is spent on the adoption of **incremental ICT-based innovations**⁵³⁹ (10%) is below the European average (21%). The share that is spent on the adoption of **transformative ICT-based innovations** (90%) is well above the European average (79%). This consists in the adoption of ‘significantly improved solutions’ (30% of ICT-based PPI) and innovative solutions that are ‘new to the market’ (31% of ICT-based PPI). However, as the total amount of investments in ICT-based innovative solutions in Latvia is low, the country is still lagging considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



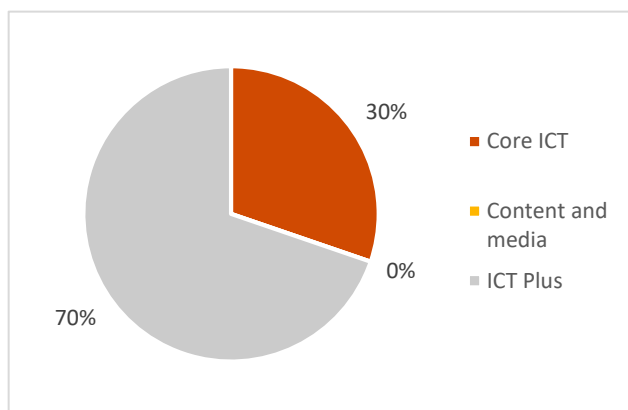
⁵³⁷ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁵³⁸ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁵³⁹ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Latvia invested mainly in the adoption of innovations from the so-called **'ICT Plus' sub-sector**⁵⁴⁰ (70%), well above the European average (45%).

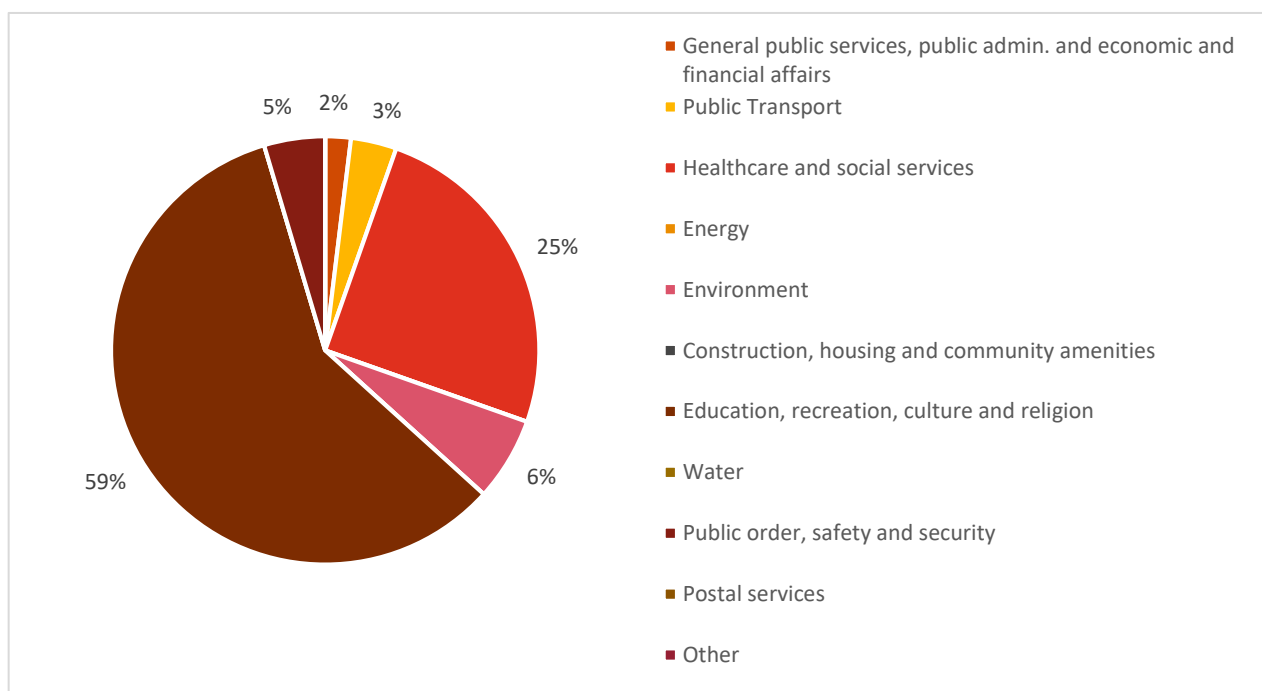
Latvia invested to a lesser extent in the adoption of innovations from the **'Core ICT' sub-sector** (30%), below the European average (55%).

No investment was directed to adopting innovations from the **'Content & Media' sub-sector**, which is below the European average (1%).

Investment readiness across different domains of public sector activity

In several domains of public sector activity public procurers did not invest in the adoption of ICT-based innovative solutions in Latvia: ICT-based PPI investments made by public procurers that operate in the domains **'Construction, housing and community amenities'**, **'Water'**, **'Postal'** and **'Other'** were zero. In addition, the shares of investments made by public procurers that operate in **'Public order, safety and security'** (5%) and **'General public services, public administration and economic and financial affairs'** domains (2%) were significantly below the European averages (19% and 16% respectively). **'Education, recreation, culture and religion'** and **'Environment'** are the only two domains in which the shares of ICT-based PPI investment were significantly above the European averages (respectively, +50 pp and +4 pp).

ICT-based PPI investments by domains of public sector activity

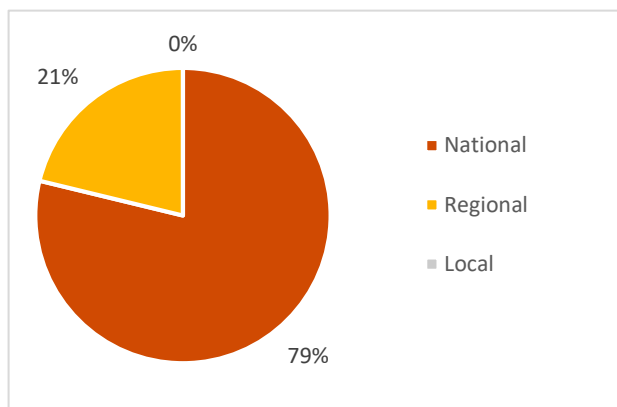


⁵⁴⁰ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 79% of ICT-based PPI investments, above the European average (69%).

Procurers at regional level account for the rest of the ICT-based PPI (21%), which equals the European average. No ICT-based PPI results were made by **procurers at the local level** (0%), showing a significant gap from the European average at local level (10%).

Lithuania



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Lithuania public procurement is regulated by the Law on Public Procurement. The EU Procurement Directives 2014/23, 24, 25/EU were transposed in 2016⁵⁴¹. In the field of PCP, particularly important is the Decree No 709 of the Government of the Republic of Lithuania of 1 July 2015 on the Approval of the Procedures for Pre-commercial Procurement. The Directive 2009/81/EC was implemented by the law on Public procurement in the field of defence and security, No XI-1491⁵⁴².

In Lithuania, public procurement is primarily conducted by sub-national contracting authorities with the national procurement supervising body operating a strong reporting system to monitor their activities.⁵⁴³

At national level, the key actor in the area of public procurement is the **Ministry of Economy and Innovation**, which is responsible for public procurement, its legislation and for technology and innovation⁵⁴⁴. The Ministry is supported by the **Public Procurement Office (PPO)**, which implements the public procurement policy and supervises compliance with the law and the implementing legislation. The PPO's functions include providing methodological assistance to the contracting authorities, administering the central e-procurement portal, preventing infringements, controlling contracting authorities' compliance with the law and coordinating and monitoring public procurement procedures together with partner ministries and other State authorities. Another important key actor is the **Competition Council**, which is responsible to investigate possible anti-competitive practices from both contracting authorities and bidders. It reports its findings to the PPO and can impose fines as well as refer cases to the courts in case of competition law infringements related to public procurement. Finally, the **Central Purchasing Organisation (CPO)** conducts centralised procurement on behalf of contracting authorities, including the central administration and its territorial branches, as well as local authorities.

In the field of innovation procurement, other important actors are the **Ministry of Education, Science and Sport**⁵⁴⁵, responsible for the research policy, and the **Agency for Science Innovation and Technology (MITA)**⁵⁴⁶, which co-finances PCPs, provides expertise, supports and assists contracting authorities. MITA is also the main actor for the implementation of capacity building measures, and it takes part of the awarding process for funding PCPs. In this regard, when the candidate PCPs have a value of more than €1 million, also the **Council on R&D&I of the Government** participates to the awarding process. Innovation procurement activities in Lithuania are mainly focused on Pre-Commercial Procurement (PCP), which is financed through ESIF funds measure "Pre-commercial procurement LT". The funding organisation is the **Lithuanian Business Support Organisation (LVPA)**.

Innovation Procurement Policy Framework Benchmarking (2018)

In this 2018 benchmarking of national innovation procurement policy frameworks across Europe, **Lithuania is at the 14th position** of the overall ranking with a **total score of 27,6%**. From the 30 countries analysed, Lithuania is among the group of moderate performers countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 27,6% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a significant reinforcement of the policy framework needed in Lithuania to reach its full 100% potential.

⁵⁴¹ Lietuvos Respublikos viešųjų pirkimų įstatymo Nr. I-1491 pakeitimo įstatymas Nr. XIII-327, available at: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/b63962122fcb11e79f4996496b137f39>

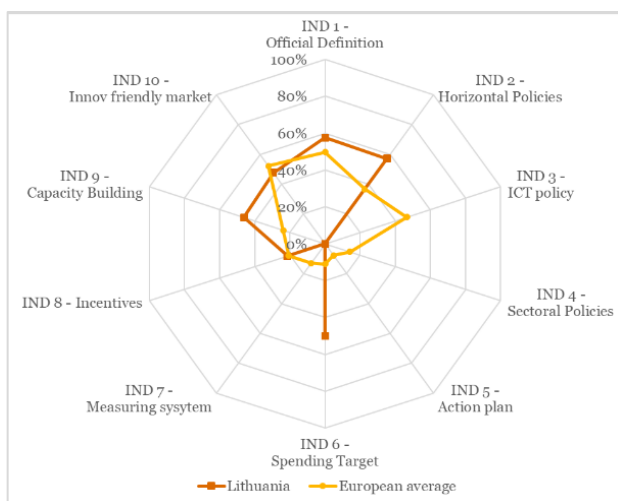
⁵⁴² <https://eur-lex.europa.eu/legal-content/EN/NIM/?uri=celex:32009L0081>

⁵⁴³ http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/lt.pdf

⁵⁴⁴ <http://eimin.lrv.lt/en/>

⁵⁴⁵ <https://www.smm.lt/web/en/>

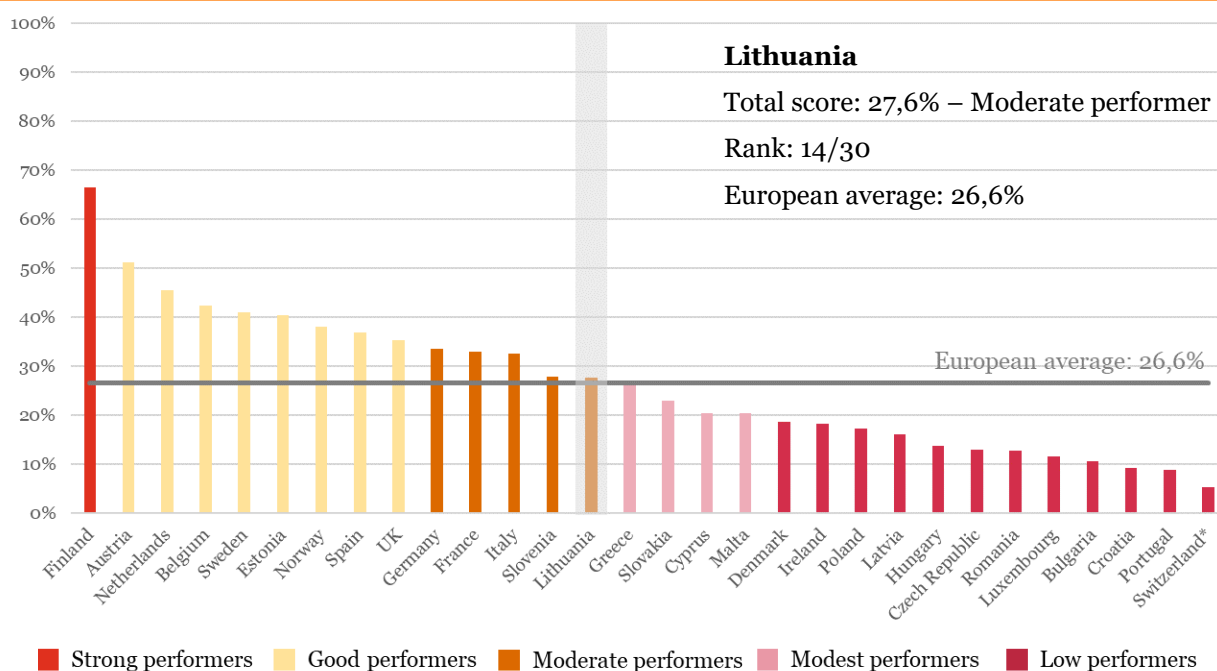
⁵⁴⁶ <https://mita.lrv.lt/en/>



Strengths: Lithuania's innovation and public procurement policy framework recognises the strategic importance of innovation procurement which is solidified in a spending target. Lithuania has setup capacity building and assistance activities and some financial incentives for a first set of pilot PCP projects.

Weaknesses: Potential synergies with other horizontal and vertical policies are underused. Lithuania does not have any specific action plan or monitoring system for innovation procurement and currently all main actions are still limited in scale. Lack of IPR policy in public procurement that encourages innovation.

Overall ranking



Lithuania

Total score: 27,6% – Moderate performer

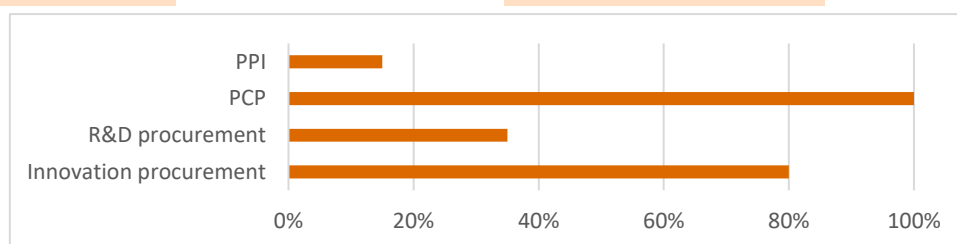
Rank: 14/30

European average: 26,6%

Overview per indicator

Indicator 1 – Official definition

Total score: 58% European Average: 50%



The Lithuanian legal framework provides a definition of Pre-commercial procurement and Public Procurement of Innovative Solutions (PPI) and a legal basis to implement innovation procurement and R&D procurement. Whereas the PCP definition is compliant with the EU definition, the PPI definition is not completely so. Therefore, the total score for this indicator is 58%.

The Article 2.14 of the Public procurement law defines **innovation** as “the creation of a new or significantly improved product, service, or process, including manufacturing, building, construction, or other processes, or the installation

of a new marketing method or a new organisational method in business activities, organisation or external relations". This definition is in line with the definition on the EU public procurement directives and applicable to all procurers in the country. There is however no definition of innovation procurement.

There is an official Lithuanian definition of Innovative Public Procurement in the Guidelines No. 4-938, approved by the Minister of Economy on 29 December, 2014⁵⁴⁷ which is defined as "public procurement where the contracting authority chooses the method of procurement, provides for specific bids evaluation criteria, asks for alternative bids and/or formulates technical specification in a way that ensures the purchase of innovative products, which are best suited to the functions and the strategic objectives of the public procurer". An Innovative product is defined as a new or substantially improved object (goods, services and works) created or endowed with effort, which can be released to meet the needs of the market. In the Law on Technologies and Innovation No XIII-1414 of 30 June 2018 also provides a definition for Innovative Public Procurement as "public procurement where the contracting authority, when defining the object to be procured in the technical specification, includes requirements that ensure that the contracting authority acquires innovative products, including manufacturing, construction (in the meaning of building and design) or other processes, that best suit the performance of the contracting authority's functions or achieving the strategic objectives, and/or the public procurement and procurement carried out in the Water, Energy, Transportation or Post Services sectors (thereinafter referred to as 'procurement'), in accordance with the procedures that provide the preconditions and incentives for suppliers to offer and supply the innovative products". The above definitions are only partially in line with the definition provided by the European Commission: only procurements when the procurer specifically requests innovative product features are considered PPI (not procurements where suppliers themselves propose offers with innovative solutions on their own initiative), the "early adopter" concept is missing and there is no definition of the innovative good and service in relation to the market availability. In Lithuania, for those reasons, there is still confusion about the difference between PPI, Innovative procurement and Innovation procurement. Therefore, the total score for this sub-indicator is 80%.

The Article 15.2.2 of the public procurement law identifies **R&D** as activities that have the CPV codes for fundamental research, applied research and industrial development. This reference via CPV code represents a legal basis to implement R&D and PCP procurement in the Country. It is in line with the definition of the R&D CPV codes in the EU public procurement directives and applicable to all public procurers in the country. There is however no full sentence definition of R&D in the context of public procurement. The total score for the indicator R&D is therefore 35%.

The Lithuanian legal framework provides an official definition of Pre-commercial procurement. The definition of **PCP** is recorded in Decree No 709 of the Government of the Republic of Lithuania of 1 July 2015 on the Approval of the Procedures for Pre-commercial Procurement⁵⁴⁸ and in the Law on Technologies and Innovation No XIII-1414 of 30 June 2018⁵⁴⁹. PCP is defined as "procurement of scientific research and/or experimental development (R&D) services listed in the art. 15.2.2 of the Law on Public Procurement and in article 26.2.2 of the Law on Procurement in Water, Energy, Transportation or Post Services Sectors and exempted from those laws". The principles of using a phased multi competitor open transparent procedure, using risk benefit sharing at market conditions and the separation from the purchase of commercial volumes of solutions are also included in the definition.

The Decree also recognises that the PCP purchase may include the purchase of non-commercial volumes of final end-products. According to the law, PCP shall be organised when a) there is no innovative product on the market which the contracting authority needs or there is no evidence that market players in the nearest future (in less than a year) will produce such a product, or the contracting authority cannot acquire the product and R&D services are essential to create such an innovative product b) Product on the market does not meet the need of the contracting authority, therefore they need to significantly improve functional properties of the product and there is no evidence that market players in the nearest future (in less than a year) will produce such a product, and R&D services are required to improve the functional properties of the product. c) Contracting authority cannot immediately acquire innovative product due to market restrictions. PCPs can involve three stages: I – concept creation and approval of innovative product, II – prototype creation of innovative product, III – small-scale test product creation. PCPs might involve all three stages, the second and the third stages or only the third one. Lithuania's definition of PCP is applicable countrywide and in line with the EU definition. Therefore the total score of the indicator is 100%.

The Public procurement Act enables public procurers to implement **PPI** in Lithuania by allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria. In particular the *article 55.1* states that "The contracting authority shall select the most economically advantageous tender in accordance with: 1) price / cost / quality ratio. The assessment shall take into account the price or costs and criteria relating to the subject of the purchase, including qualitative, environmental and / or social criteria, technical merit, aesthetic and functional characteristics, accessibility, suitability for all users, social, environmental and innovative characteristics and fair trade conditions [...]".

The score for the sub-indicator PPI is 15%, because there is a legal basis to implement PPI but there is no definition for PPI in national legislation or guidelines.

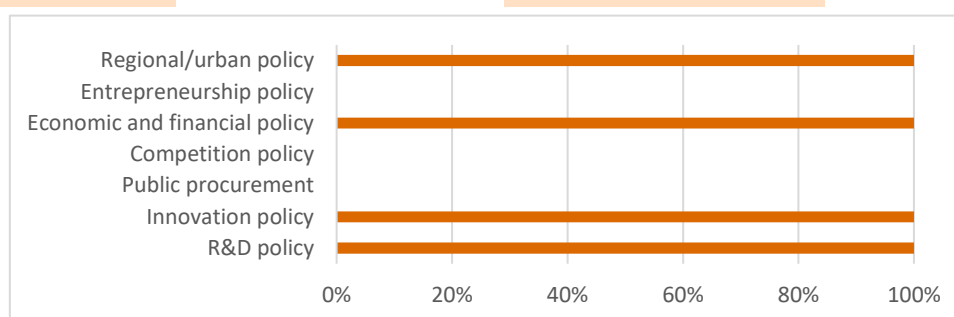
⁵⁴⁷ http://eimin.lrv.lt/uploads/eimin/documents/files/Inovacijos/LR%20Ukmin%20isakymas%20del%20inovatyviuju%20pirkimu%20gairiu_14-12-29.pdf

⁵⁴⁸ <https://www.e-tar.lt/portal/lt/legalAct/b6649670219411e5b336e9064144f02a/nOwbTicvxJ>

⁵⁴⁹ <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/3a00ca517f7d11e89188e16a6495e98c?fwid=sujolj4j>

Indicator 2 – Horizontal policies

Total score 57% European Average 36%



In Lithuania, innovation procurement is considered in four horizontal policies: economic, innovation, R&D and regional policy. The total score for this indicator is therefore 57%.

Innovation procurement was one of the strategic objectives of the Lithuania's Government Programme for 2012-2016. Today, the "**National Progress Programme for 2014-2020**" sets ambitions for increasing public demand for innovative solutions as well as for encouraging more private sector development and commercialisation of innovative solutions: Task 4.2.2 in Annex 2 of the National Progress Programme for 2014-2020 sets a target to achieve by 2020 that 5% of public procurement is devoted to innovation procurement and a target to achieve by 2020 that 10% of company sales in terms of total business turnover are coming from new innovative products. .

This direct link to innovation procurement is present in the **innovation and R&D policy**. The Lithuanian **Innovation Development Programme 2014-2020**, approved by the Government's Resolution No 1281 (18 December 2013)⁵⁵⁰ aims at increasing the efficiency on innovation policy-making and its implementation in the public sector. The programme identifies two targets to achieve this objective, one of which intends to create measures having the scope of stimulating demand for innovation that can help to address the social, economic and environmental challenges. Within this target innovation procurement is expected to play a key role (this is confirmed by the fact that the only assessment criterion to measure the 5% target for the "*proportion of innovative public procurement as percentage of total public procurement*"). Also more recently the **Law on Technology and Innovation** No XIII-1414 of 30 June 2018⁵⁴⁹ states: "*Public sector entities that are contracting authorities are encouraged to carry out innovative public procurement and pre-commercial procurement. Public sector entities are also encouraged to apply advanced public management technologies in public administration practices and to use innovative products in their activities.*"

The country tries to reach the objectives of the Programme with support from its **regional policy** which has allowed Lithuania to set up a number of initiatives, such as the provision of supply-side and demand-side funding or co-funding, and capacity building actions (cf. Indicators "Incentives" and "Capacity building and assistance measures"). Currently, most part of activities are focused on Pre-Commercial Procurement.

Indicator 3 – ICT policies

Total score 0% European Average 47%

Lithuania's Digital Agenda⁵⁵¹ does not mention innovation procurement nor encouraging the use of public procurement to modernize public services with innovative solutions.

Indicator 4 – Sectorial policies

Total score 0% European Average 14%

In Lithuania no sectorial policy explicitly recognises the role of innovation procurement within its strategy.

Indicator 5 – Action plan

Total score 0% European Average 8%

Lithuania has not a stand-alone Action Plan specifically dedicated to innovation procurement.

⁵⁵⁰ https://mita.lrv.lt/uploads/mita/documents/files/en/national-programmes/innovation-in-lithuania/lithuanian_innovation_programme.pdf

⁵⁵¹ <https://www.e-tar.lt/portal/lt/legalActEditions/dbd546f0b04011e39a619f61bf81adoa?faces-redirect=true>

Indicator 6 – Spending target

<i>Total score</i>	50%	<i>European Average</i>	11%
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The Lithuanian Government set a spending target of 5% of all public procurement to be spent on innovation to be achieved by 2020. The spending target was set for all national authorities, which did not however operationally commit to it (non binding target). However the Law on Technologies and Innovation foresees the possibility for the Lithuanian government to set in the future an obligatory target via a legal act. Art 22.1 of the Law on Technologies and Innovation No. XIII-141: “By promoting technology development and innovation, the Government can identify the share of public procurement (number or percentage) that must be performed as innovative public procurement for ministries, government agencies, agencies under ministries and other government subordinate contracting authorities”. Due to the absence of separate targets for R&D procurement, PPI and PCP, the final score of this indicator is 50%, which is above the European average.

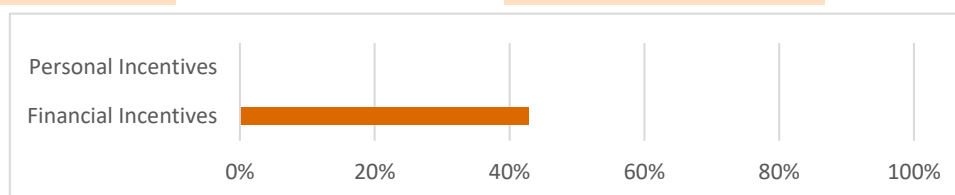
Indicator 7 – Monitoring system

<i>Total score</i>	0%	<i>European Average</i>	13%
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Lithuania does not have a structured system to measure innovation procurement expenditure or evaluate the impacts of completed innovation procurements yet. Therefore, the score for this indicator is 0%. However, the Public Procurement Office has started collecting **statistics on PPI** asking to the contracting authorities to mark the tender as innovative or not at the moment of publication. The information gathered with this procedure is not further double-checked and given the lack of awareness or specific competence about the definition of PPI among procurers, the overall result could be unreliable.

Indicator 8 – Incentives

<i>Total score</i>	21%	<i>European Average</i>	22%
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In the field of public procurement, Lithuania has implemented financial incentives, provided through the **LPVA**, mainly responsible for EU-related funding, and **MITA**, which provides incentives through national funds.

Lithuania promotes **PCPs** providing funds through **EU ESIF funding programmes**.⁵⁵² Depending on the stage at which the contracting authority starts PCP⁵⁵³, participants receive funding for: developing the concept (stage I), prototype building (stage II), developing and testing a small volume test product (Phase III).

The LPVA provides financial incentives from the ESIF. Specifically, under the measure “**Pre-commercial procurement LT**” (“*Ikiprekybiniai pirkimai LT*”), which has a budget of €29.36 million, LPVA gives contracting authorities funds for up to 90% of all eligible costs, and for a maximum project amount of €2 million⁵⁵⁴. Since all projects funded through this measure are considered state planned projects, the **Ministry of Economy and Innovation** and the **MITA** are also involved in the award procedure. When the candidate PCP’s value is more than €1 million, also the **Council on R&D&I of the Government** takes part to the selection process.

As the financial incentives are not for all types of innovation procurement, not for large scale implementation and only using ESIF (no national) funds, the score for the sub-indicator "financial incentives" is 43%.

As there are no personal incentives in Lithuania the score for sub-indicator "personal incentives" is 0%.

Based on the evidence collected above the total score for this Indicator is 21%.

⁵⁵² http://www.esinvesticijos.lt/lt/patvirtintos_priemones/ikiprekybiniai-pirkimai-lt; <https://rio.jrc.ec.europa.eu/en/file/11736/download?token=Z4BY8U7>

⁵⁵³ PCPs may include up to 3 stages – cf Indicator "Definition" and <https://mita.lrv.lt/lt/veiklos-sritys/programos-priemones/ikiprekybiniai-pirkimai>

⁵⁵⁴ <https://www.e-tar.lt/portal/lt/legalAct/f3c41820243911e78397ae072f58c508/ubxlpSjKhV>

Indicator 9 – Capacity building and assistance measures

Total score

46%

European Average

24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	✓		✓		✓		50%
Good practices							0%
Trainings/workshops	✓	✓	✓	✓	✓		83%
Handbooks/guidelines	✓	✓	✓	✓	✓		83%
Assistance to public procurers	✓		✓		✓		50%
Template tender documents							0%
Coordination / pre-approval	✓	✓	✓		✓		67%
Networking							0%
One-stop-shop/competence centre	✓	✓	✓	✓	✓		83%

Lithuania has implemented a range of capacity building and support measures to raise awareness and increase the competences of public procurers.

In 2014, the Ministry of Economy and Innovation published on its central website the **Guidelines on innovation procurement**.⁵⁵⁵ These guidelines aim to support public procurers in the acquisition of goods, services and works of better quality, adequate to their needs and that can enhance the performance of the public sector.⁵⁵⁶ The Ministry of Economy and Innovation dedicates some pages of its website on innovation procurement.⁵⁵⁷

Another list of services was provided through the project entitled “Promotion of new type of public procurement - PCP and PPI” (“*Naujo tipo (inovatyviųjų ir ikiprekybinių) pirkimų skatinimas*”).⁵⁵⁸ The project, implemented by MITA, provides for a range of activities to increase skills and competences of public procurers, including:

- Organization of **lectures** and trainings for public procurers on PCP and PPI;
- Identification (and financial support) of **experts able to help/provide assistance to public procurers** in organization and performance of PCP and PPI;
- Providing **consultations** on PCP and PPI;
- **Preparation of methodologies** (including templates) on organization and performance of PCP and PPI;
- Creation of an **online platform** on PCP and PPI;
- Creation of a **national competence center** on innovation procurement

MITA pre-approves the implementation of PCPs (approval of the compliance of the tender documents with the national Lithuanian regulation on PCP) and coordinates the implementation of PCPs under the national programme, but this is happening so far only at small scale and not for all types of innovation procurements (only PCPs). The score for this sub-indicator is 67%.

MITA joined July 2018 the EU-funded project “*Procure2Innovate - European network of competence centres for innovation procurement*” to learn from experiences other countries about setting up a national competence center. According to Art. 13 and Art 14.2.3 of the Law on Technology and Innovation, MITA was authorized from 30 June 2018 onwards by the government, to act as national competence center for innovation procurement in the country that perform the following functions: stimulating contracting authorities to carry out innovative public procurement and pre-commercial procurement and providing them with methodological assistance regarding these procurements. The total score for the sub-indicator one-stop shop/competence center is therefore 83%.

Finally, the project “Innovation Consulting and Support Services for Business (InoSpurtas)” (“*Inovacijų konsultacinės ir paramos paslaugos verslui*”)⁵⁵⁹, promoted by the MITA, provides **innovation consulting and support services to businesses** to promote PCP among enterprises and to improve their capacity to bring innovative solutions to the market in the context of innovation procurements.

⁵⁵⁵ http://ukmin.lrv.lt/uploads/ukmin/documents/files/Inovacijjos/LR_Ukmin_isakymas_del_inovatyviuju_pirkimu_gairiu_14-12-29.pdf

⁵⁵⁶ <https://ukmin.lrv.lt/en/sector-activities/innovation/innovation-support-measures>

⁵⁵⁷ <https://ukmin.lrv.lt/en/sector-activities/innovation/innovation-support-measures>; <https://ukmin.lrv.lt/en/sector-activities/public-procurement-policy/sustainable-innovative-public-procurements/pre-commercial-procurement>

⁵⁵⁸ <https://mita.lrv.lt/lt/veiklos-sritys/mita-vykdomi-projektai/naujo-tipo-viesuju-pirkimu-skatinimas>

⁵⁵⁹ <https://mita.lrv.lt/lt/veiklos-sritys/mita-vykdomi-projektai/inospurtas>

On the basis of the evidence collected, the total score for this indicator is 46%. Among the capacity-building activities considered, the provision of good practice examples, of template tender documents and of networking activities is not put in place in the country. In addition, the overall score is affected by the fact that several of the proposed activities are not conceived yet to mainstream innovation procurement at large scale across all sectors in the whole country and are missing references/connection to activities at European level in the field.

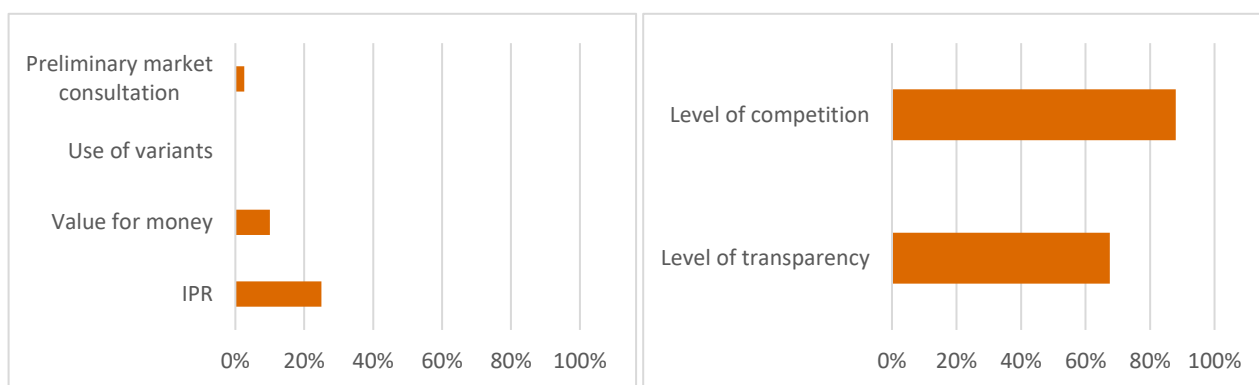
Indicator 10 – Innovation friendly public procurement market

Total score 44%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is composed of two sub-indicators that show evidence on:

- I. the use of specific techniques to foster innovation in public procurement in Lithuania
- II. the openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Lithuania shows the following evidence:

- a. **IPR Default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Lithuania. The Lithuanian law, general terms and conditions for government contracts define how IPR allocation is best dealt with in procurement contracts. It is left to the individual responsibility of each Lithuanian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Lithuanian copyright law⁵⁶⁰ determines that copyrights belong in an inalienable way to the creator (cannot be waived, licensed or assigned to anyone else). Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. Therefore Latvian copyright law determines that for commissioned works the author retains copyright and the commissioning party obtains either a license to use the commissioned work or - if required in the contract – a transfer of economic rights at equitable payment. The procurer needs to therefore clearly specify in the tender documents which economic rights (e.g. licensing, publication, modification, reproduction rights) owned by the creator ((sub) contractors in his procurement) he wants to obtain. Copyright law protects also scientific work, software and database rights.
- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, only 10% of the procedures were not awarded on the basis of lowest price only. Lithuania has an over-reliance on price criteria with respect to the European average. Together with Romania, Malta and Cyprus, Lithuania is one of the four countries in Europe with the lowest use of value for money award criteria in Europe.
- c. **Use of variants:** Lithuania has allowed the use of variants in less than 1% of the procedures (0,2%). This percentage is well below the European average.
- d. **Preliminary Market Consultations:** Lithuania has used Preliminary Market Consultations in the 3% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 9% which is significantly below the 40% European average. This is mainly due to both below average performance on adopting an IPR default regime that fosters innovation in public procurement and structural underutilization of value for money award criteria.

With regard to sub-indicator II, Lithuania shows the following evidence (based on the Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 88% which is above the European average 84% but below the 93% satisfactory level set by the EU single market scoreboard. The positive performance is driven both by the above EU-average proportion of procurements for which there was more than one bidder (79%) and above-European average proportion of procurements that was conducted

⁵⁶⁰ http://www.wipo.int/wipolex/en/text.jsp?file_id=128571

with a call for bids (97%). The first sub-indicator is however still below the 90% satisfactory level set by the EU single market scoreboard.

- f. **Level of Transparency:** The level of transparency is 68% which is above the 45% European average and reaching the 66% satisfactory level set by the EU single market scoreboard. This good performance is due to above average and reaching satisfactory performance on all three sub-indicators: the TED publication rate (5%), the percentage of procurements without missing calls for bids information (98%) and without missing buyer registration number (100%).

Based on this evidence, the score for sub-indicator II is 78% which is above the European average of 65% but below the satisfactory level 79% set by the EU single market scoreboard.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 44% which is in line with the 44% European average. This score is explained firstly by the fact that, although the openness of the Lithuanian procurement market to innovations from across the EU single market is above the European average, the use of specific techniques to foster innovation in public procurement is below European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still seriously underused in public procurements. Secondly, the use of variants and Preliminary Market Consultation is very low if compared with the European average. In addition, although the national public procurement market shows an above average level of transparency and competition, the level of competition still does not reach the satisfactory level set by the EU single market scoreboard.

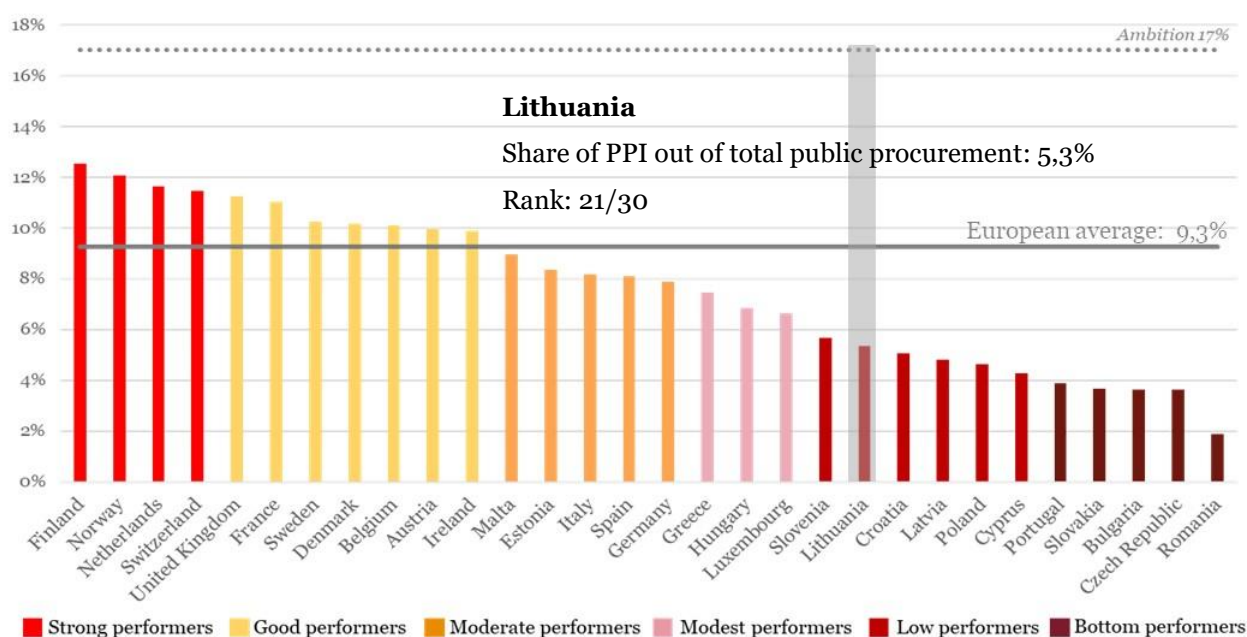
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Lithuanian investments on public procurements of innovative solutions (PPI) and the benchmarking of Lithuanian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidential reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 5,3% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,3 bn), **Lithuania ranks 21st** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁵⁶¹ across Europe. Lithuania falls within the group of **low performers**, below the European average of 9,3%.⁵⁶² **A large increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Lithuanian public sector.⁵⁶³ When taking into account also PPI in the defence sector Lithuania moves up to the 19th position.



The **main factors**⁵⁶⁴ explaining Lithuania's low performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** (89%) in Lithuania is slightly above the European average (84%). This consists of adoption of 'significantly improved' solutions (47% of PPI) and innovative solutions that are 'new to the market' (43% of PPI). The share of PPI investments spent on **incremental innovations** (11%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions', is below the European average (16%). As the total amount of investments in innovative solutions in Lithuania is low, the country is still lagging behind considerably in the adoption of both transformative and incremental innovations.

⁵⁶¹ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

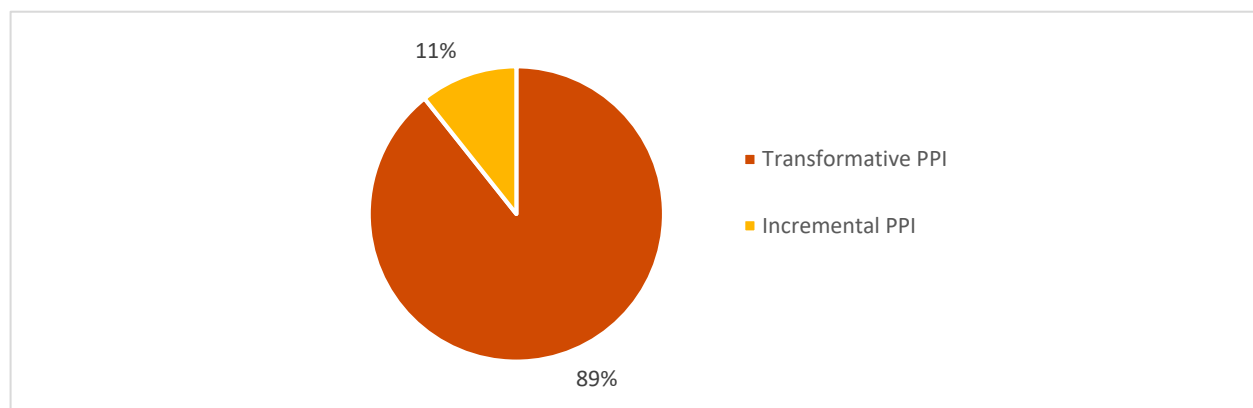
⁵⁶² All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁵⁶³ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁵⁶⁴ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Lithuania is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity⁵⁶⁵ in Lithuania purchased innovation solutions, except for the 'Postal Services' domain which made zero PPI investments. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **generally in line with the European averages**. PPI investments made by Lithuanian procurers operating in 'Healthcare and social services' and 'Public order, safety and security' are significantly below the European average (respectively -12 pp and -5 pp). At the same time, PPI investments made by Lithuanian procurers in 'Public transport' and 'Energy' are significantly higher than the European average (respectively +13 pp and +17 pp). The share of Investments in 'Water' and 'Construction, housing and community amenities' was very small.

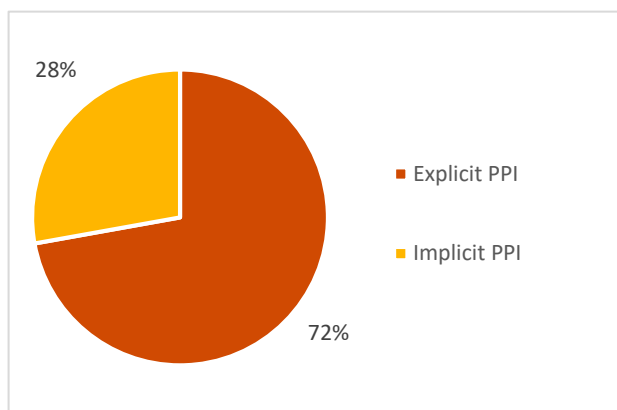
PPI investments by domains of public sector activity

Domain of public sector activity	Lithuania	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	34%	35%	-1
Public transport	23%	10%	+13
Healthcare and social services	9%	21%	-12
Energy	23%	6%	+17
Environment	2%	3%	-1
Construction, housing and community amenities	0% (0,5%)	4%	-4
Education, recreation, culture and religion	4%	5%	-1
Water	0% (0,5%)	4%	-4
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁵⁶⁵ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

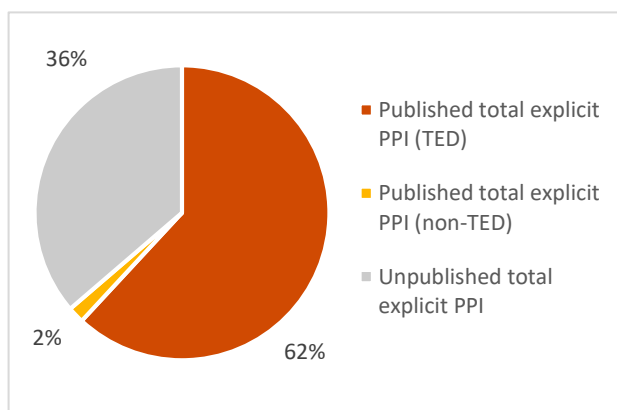


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly higher in Lithuania (72%) compared to the European average (29%). This indicates that Lithuanian procurers may be less risk-averse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Lithuania (28%) compared to the European average (71%). This indicates that Lithuanian procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

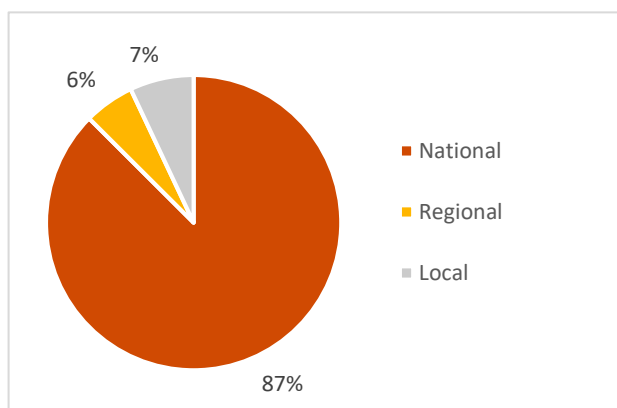


For the majority of Lithuanian PPI investments (64%) call for tenders are published, which is well above the European average (22%). The portion of call for tenders that are **published at European level** in the TED database (62%) is significantly above the European average (18%), while the portion that is **published at national level** (4%) is slightly below the European average (5%). Accordingly, the share of PPI investments for which no call for tenders is published in TED or at national level is modest (36%).

By publishing calls for tenders for PPI investments widely, **Lithuania misses out only on a moderate number of potential innovative solutions** from both Lithuanian and other European innovative suppliers that are not informed about the Lithuanian PPI business opportunities. Further improving the publication of PPI calls for tenders would put Lithuania on a good path to adopt more innovation solutions that could speed up public sector modernisation.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

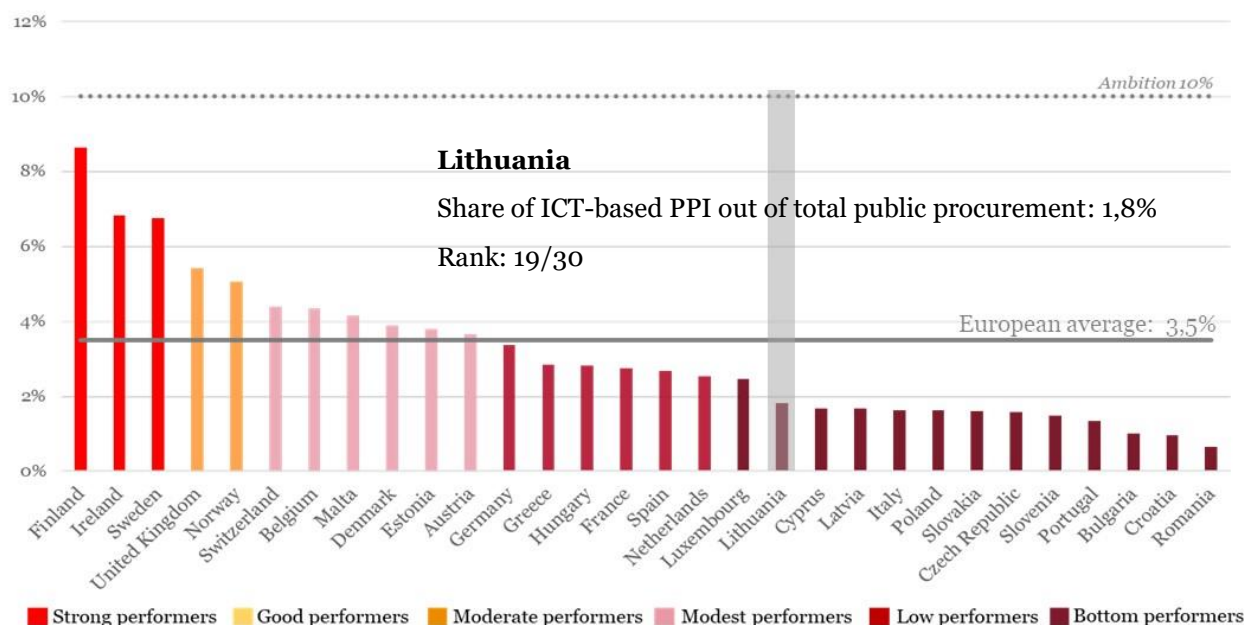


The largest part of the total PPI investments in Lithuania is carried out by **large-scale entities at national level** (87%), such as ministries and ICT integrators of governments departments. This is considerably above the European average (47%).

Procurers at regional and local levels account for small shares of PPI investments (respectively 6% and 7%), both below the European average (respectively 24% and 29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Lithuanian public sector is among the **bottom level of performers** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,04 bn or 1,8% of total public procurement invested in innovative ICT-based solutions, **Lithuania ranks 19th** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (34%), Lithuania performs below the European average (38%). **A large increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurements of innovative solutions in the country to ICT-based innovations, which would enable Lithuania to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁵⁶⁶

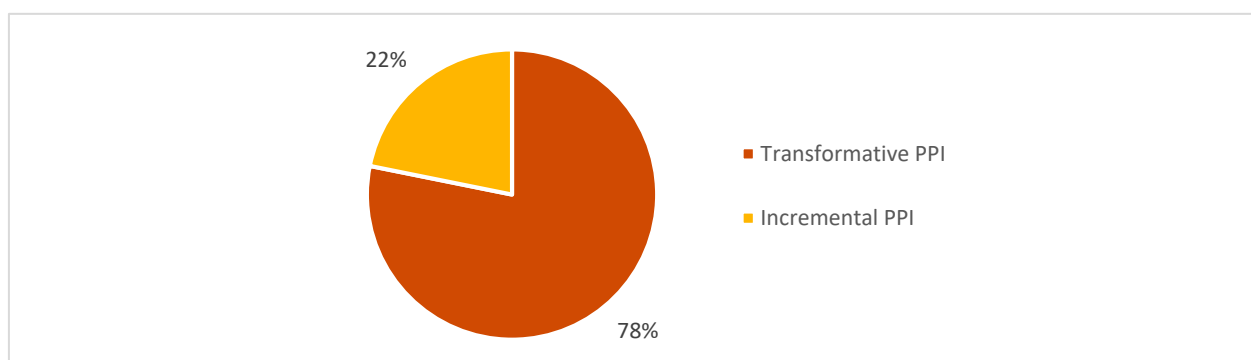


The **main factors**⁵⁶⁷ explaining Lithuania’s bottom level performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** (78%) is in line with the European average (79%). This consists in the adoption of ‘significantly improved solutions’ (57% of ICT-based PPI) and innovative solutions that are ‘new to the market’ (21% of ICT-based PPI). The share of investments spent on the adoption on **incremental ICT-based innovations**⁵⁶⁸ (22%) is in line with the European average. However, as the total amount of investments in ICT-based innovative solutions in Lithuania is low, the country is still lagging considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



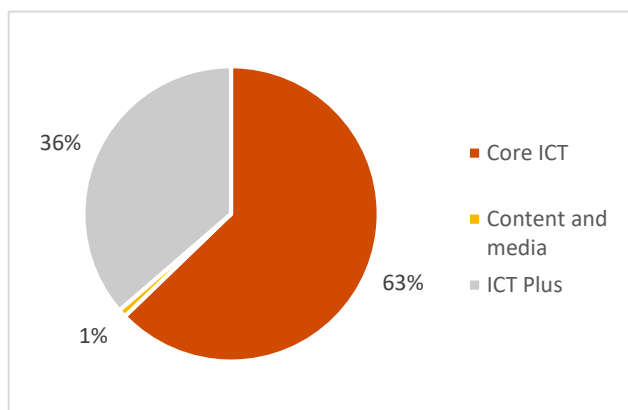
⁵⁶⁶ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁵⁶⁷ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁵⁶⁸ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Lithuania invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector⁵⁶⁹ (63%), but below the European average (54%).

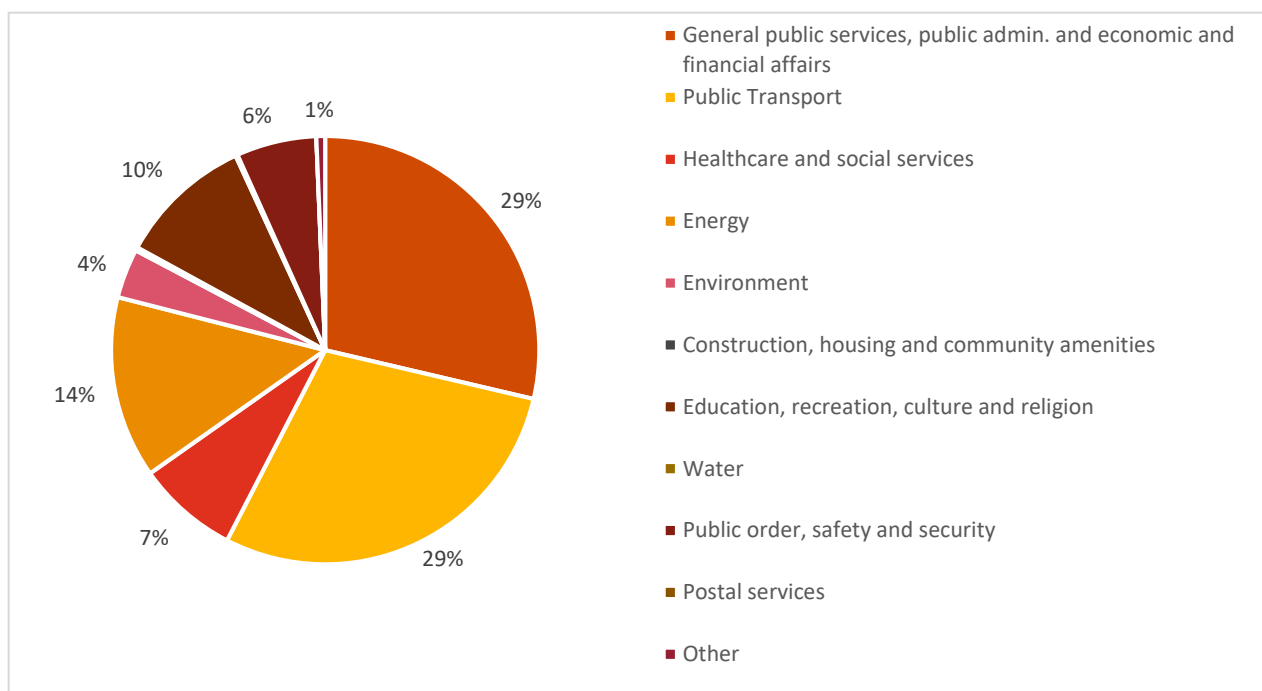
Lithuania invested to a lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (36%), below the European average (45%).

Lithuanian investments in adopting innovations from the '**Content & Media**' sub-sector were marginal (1%), in line with the European average.

Investment readiness across different domains of public sector activity

Nearly all domains of public sector activity in Lithuania purchased innovative ICT-based solutions, except '**Postal Services**' which made zero ICT-based PPI investments. In particular, the highest share of ICT-based PPI investments is made by procurers that operate in the domain of the '**General public services, public administration and economic and financial affairs**' (29% against a 16% European average) and '**Public Transport**' domains (29%, which is significantly above the European average of 10%). However, ICT-based investments made by procurers that operate in '**Health and social services**' and '**Public order, safety and security**' were significantly below the European averages (respectively - 23pp and - 11pp).

ICT-based PPI investments by domains of public sector activity

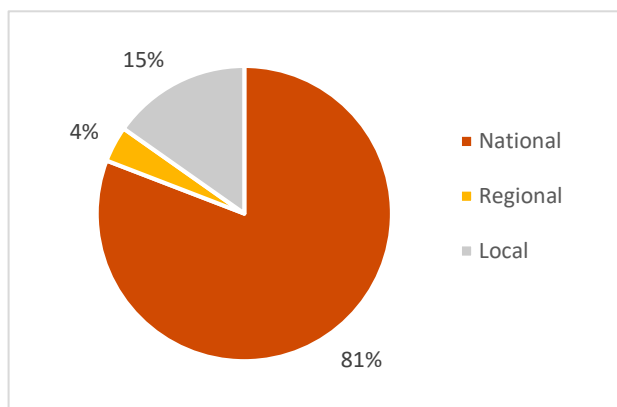


Investment readiness across levels of public sector activity

⁵⁶⁹ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

ICT-based PPI investments by level of public sector activity



National level procurers account for 81% of ICT-based PPI investments, above the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (15%), slightly above the European average (10%). To the contrary, **regional procurers** account for only a modest fraction of ICT-based PPI (4%), which is significantly below the European average (21%).

Luxembourg



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Luxembourg the law n°6982 on public procurement entered into force in April 2018 and transposed the EU Directives 2014/24/EU and 2014/25/EU.⁵⁷⁰ The EU Directive on defence (2009/81/EC) has been transposed through the Law of 26 December 2012 on defence and security in public contracts. Conversely, the Directive 2014/23/EU has not been transposed yet.⁵⁷¹

The public procurement system is centralised and articulated around a single one-stop-shop public procurement portal on which all contracting authorities publish their tenders.

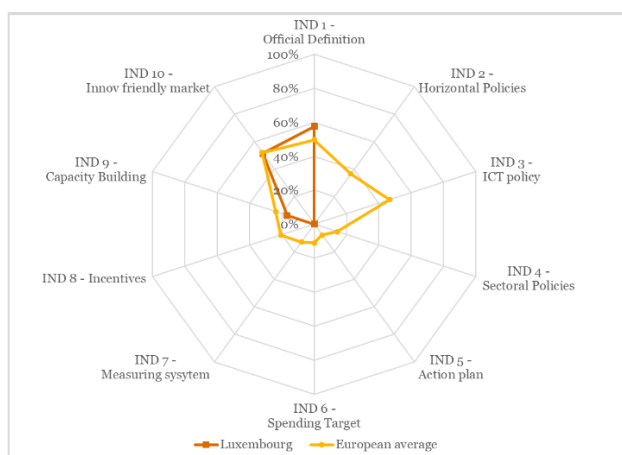
The main actor in the field of public procurement is the **Public Procurement Department**, part of the Public Works Department of the **Ministry of Sustainable Development and Infrastructures** (MDDI). It is responsible for the regulatory framework, drafting legislation, monitoring its implementation, publishing tenders online on the public procurement portal and ensuring the external representation of the authorities in the field of public procurement.⁵⁷² Another key actor is the **Tender Commission** (*Commission des soumissions*), a consultative and administrative body within the MDDI composed of representatives from contracting authorities, chambers of commerce and cottage industries. It can act as a supervision body, ensuring that public procurement rules are applied properly by contracting authorities, or upon the reception of complaints from tenderers.⁵⁷³

In the area of innovation procurement, an important role is played by the **National Agency for Innovation and Research – Luxinnovation GIE**, which offers some capacity building activities to promote innovation procurement among procurers. At national level, the **Ministry of Economy** is in charge of innovation.

At sectoral level, the **CRTI-B (GIE)**, *“Centre de ressources de technologies de l’innovation pour le bâtiment”*, conceives and sets up communication and information systems for all actors involved in the construction sector. To do so, it offers technological assistance and advisory services, specialized training, documentation and support for R&D projects in the construction sector.⁵⁷⁴

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Luxembourg is at the 26th position** of the overall ranking with a **total score of 11,7%**. From the 30 countries analysed, Luxembourg is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country’s performance is below European average on 9 out of 10 indicators. Having implemented only 12,6% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is a very strong reinforcement of the policy framework needed in Luxembourg to reach its full 100% potential.



Strengths: Luxembourg has the basic legal framework and support from some horizontal enabling policies to start building up a policy framework for innovation procurement. National guidelines promote an approach to IPR allocation that fosters innovation in public procurement

Weaknesses: Lack of a dedicated innovation procurement policy and a structured set of measures to foster its adoption in the country (competence centre, action plan, spending target, incentives, capacity building etc.).

⁵⁷⁰ <http://legilux.public.lu/eli/etat/leg/loi/2018/04/08/a243/jo>

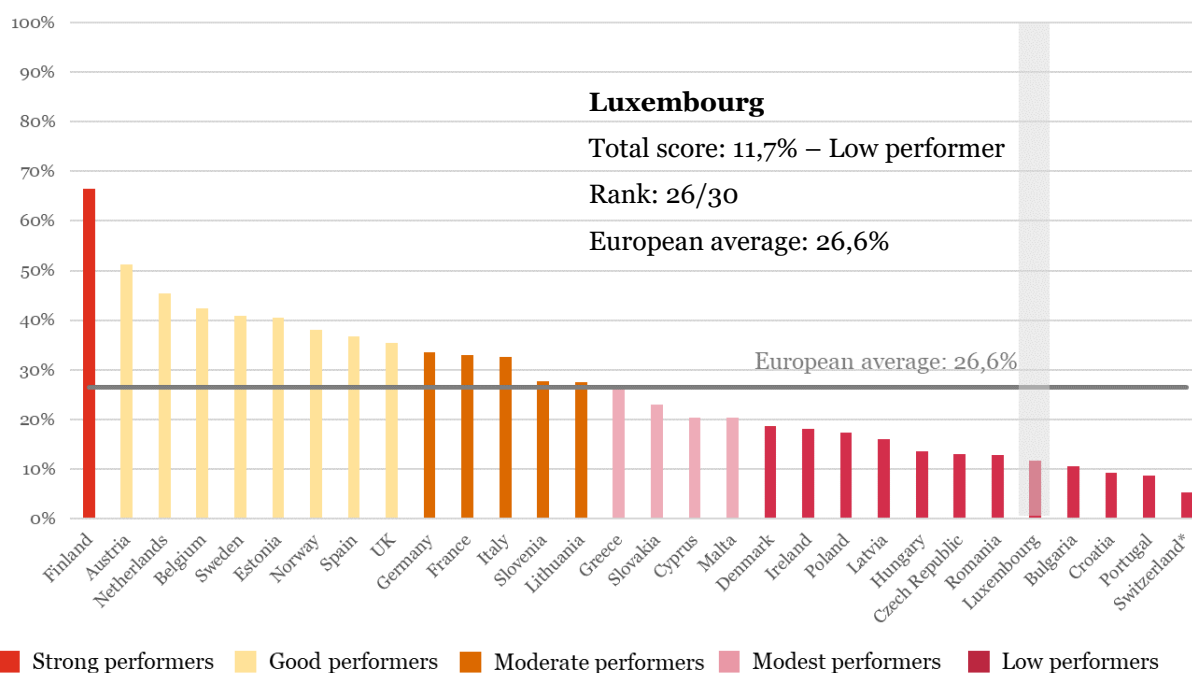
⁵⁷¹ At the time of writing, 4 May 2018.

⁵⁷² <http://www.marches.public.lu/fr/acteurs/direction.html>

⁵⁷³ http://ec.europa.eu/regional_policy/sources/policy/how/improving-investment/public-procurement/study/country_profile/lu.pdf

⁵⁷⁴ <http://www.crtib.lu/fr/crti-b/qui-sommes-nous>

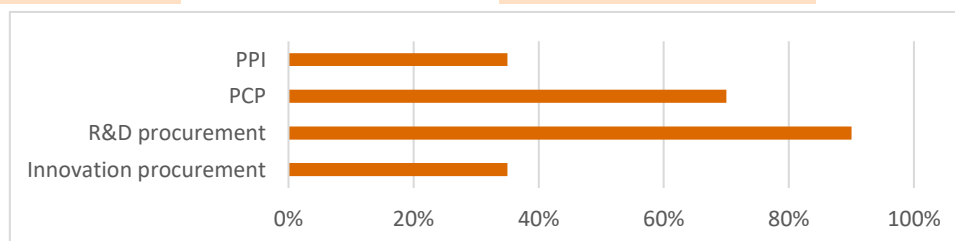
Overall ranking



Overview per indicator

Indicator 1 – Official definitions

Total score 58% European Average 50%



In Luxembourg the public procurement legislation provides an official definition for innovation and for R&D in the context of public procurement, the latter is however applicable only in the defence and security sector. The legal framework provides also a clear legal basis for implementing Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI), without explicit definitions through. In addition, the national guideline on innovation procurement issued by “LuxInnovation” provides a definition of pre-commercial-procurement applicable country wide and in line with the EU definition. Therefore the total score of the indicator “definition” is 58%.

Article 3 (2.p) of the Law on Public Procurement defines **innovation** as “the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is in line with the EU official definition and applicable country wide. Therefore the total score for this sub-indicator is 35%.

For non-defence procurers, the Law on Public Procurement identifies R&D via CPV codes for basic research, applied research and experimental development, in Chapter 2, section II, art.58. An official definition of **R&D** is provided in the Law on defence and security in public contracts (26 December 2012). Article 3.24 (Title I) defines R&D as: “the set of activities comprising basic research, applied research and experimental development, which may include the production of technological demonstrators, that is to say, devices intended to demonstrate the performance of a new concept or new technology in a relevant or representative environment; Basic research consists of experimental or theoretical work undertaken primarily to acquire new knowledge about the basis of phenomena and observable facts, without considering any particular application or use. Applied research also consists of original work undertaken to acquire new knowledge, especially directed towards a specific goal or practical objective. Experimental development consists of work based on existing knowledge gained through research and / or practical experience, with a view to launching the manufacture of new materials, products or devices, establishing new processes, systems and services or significantly improve those that already exist. Experimental development may include the realization of

technological demonstrators that is devices designed to demonstrate the performance of a new concept or new technology in a relevant or representative environment. The term "research and development" does not include the production and qualification of preproduction prototypes, tooling and industrial engineering, industrial design or manufacturing". This definition is in line with the EU official definition but is only applicable to public procurers in the defence sector, therefore the total score is 90%.

Article 58 in Chapter 2, section II also transposes the exclusion for R&D services, which forms the legal basis for implementing in PCP, namely: "the law only applies to R&D services procurements following the cumulative conditions of "(a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority". Therefore, even if the Luxembourg law on public procurement does not provide a definition of PCP, it provides a clear legal basis for all public procurers in the country to implement PCP. In addition the Guide published in 2017 by Luxinnovation "Promouvoir les solutions innovantes à travers les marchés publics" provides a definition of PCP which is in line with the EU definition and countrywide applicable. Therefore, the total score of this sub-indicator is 70%.⁵⁷⁵

Although there is no definition for PPI in the Luxembourg Law on Public Procurement, it enables public procurers to implement PPI by allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria. In particular, article 77 states that "The choice of the service provider can be made on the basis of the best quality / price ratio, also taking into account quality and sustainability criteria for social services." The total score for this sub-indicator is 35%.

Indicator 2 – Horizontal policies

Total score	0%	European Average	36%
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In Luxembourg, innovation procurement is not explicitly included as a strategic tool in any horizontal policy. Innovation, however, plays a key role in the implementation of the Rifkin strategic study⁵⁷⁶, where the role of public procurement to promote circular economy is underlined. Several working groups have been set up for this purpose, of which one for public procurement.

Indicator 3 – ICT policies

Total score	0%	European Average	47%
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The Digital Luxembourg strategy⁵⁷⁷ does not mention innovation procurement or public procurement as driver for innovation.

Indicator 4 – Sectorial policies

Total score	0%	European Average	14%
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In Luxembourg, sectorial policies do not include innovation procurement as a strategic objective.

However, some actions in the field of the construction sector, even if they are not explicitly foreseen for innovation procurement, shall be mentioned, as they can have an indirect impact in this domain and can be ground for a future development of the policy. The CRTI-B (GIE) is responsible for setting standards in terms of contracts for public procurement and for favouring cooperation between the different actors involved in the act of construction. The CRTI-B disseminates a sustainable construction guide, providing information on the ecological aspects of building materials, and ensures the link with the research through its technological monitoring of innovative solutions in this field.⁵⁷⁸ The CRTI-B has a specific focus for research and development, and it collaborates with the Tender Commission of the MDDI in what concerns public procurement.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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In Luxembourg there is no stand-alone action plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Luxembourg there is no spending target for innovation procurement.

Indicator 7 – Monitoring system

⁵⁷⁵ See, page 48 of <http://www.innovation.public.lu/fr/brochures-rapports/g/guide-marche-public/index.html>

⁵⁷⁶ http://imslux.lu/eng/nos-activites/pole-de-specialites/8_the-third-industrial-revolution-in-luxembourg

⁵⁷⁷ <https://digital-luxembourg.public.lu>

⁵⁷⁸ <http://www.crtib.lu/fr/crti-b/notre-histoire>

Total score 0% **European Average** 13%

In Luxembourg there are no systems for measuring innovation procurement expenditure and evaluating the impacts of completed innovation procurements. The public procurement portal does not collect data on public procurement.

Indicator 8 – Incentives

Total score 0% **European Average** 22%

In Luxembourg there are no financial or other personal incentives to reduce the risk for public procurers to undertake innovation procurements.

Indicator 9 – Capacity building and assistance measures

Total score 17% **European Average** 24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices							0%
Trainings/workshops							0%
Handbooks/guidelines	√	√	√	√	√		83%
Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers	√		√	√	√		67%
One-stop-shop/competence centre							

Although there is no structured support to innovation procurement, Luxembourg puts in place two out of nine capacity building measures to enhance procurers' know-how on innovation procurement.

Luxinnovation, the National Agency for Innovation and Research, is the only actor which, so far, has put in place some capacity building activities addressing innovation procurement. In particular, it published in 2015 the **guide** "*Promote innovative solutions through public procurement*"⁵⁷⁹, and in order to facilitate the dialogue between innovative companies and public procurers, it regularly publishes in its website innovative solutions realised in the country.⁵⁸⁰ The guide presents an overview of different types of innovation procurement and techniques that can stimulate innovation in public procurement, but does not provide detailed guidance or examples on how to implement these techniques and does not address how to scale up the effects of innovation procurements more widely. The score on sub-indicator is 83%.

Networking events are not designed yet to mainstream innovation procurement at large scale and there is no systematic networking of Luxembourg procurers at international level with procurers from other countries. The score for sub-indicator networking is 67%.

It shall be mentioned, in this context, the activity done by the **CRTI-B**, which, even if it does not have a specific focus on innovation procurement, puts in place a number of measures possibly indirectly enhancing the ability of public procurers to undertake innovation procurement in the construction sector. Specifically, as it was mentioned in Indicator 3, it disseminates a sustainable construction guide, providing information on the ecological aspects of building materials, and ensures the link with the research through its technological monitoring of innovative solutions in this field.⁵⁸¹

⁵⁷⁹ <http://www.innovation.public.lu/en/brochures-rapports/g/guide-marche-public/index.html>

⁵⁸⁰ http://www.innovation.public.lu/en/decouvrir/pourquoi/solutions-innovantes/index.html?utm_source=innovativesolutions.lu&utm_medium=301

⁵⁸¹ <http://www.crtib.lu/fr/crti-b/notre-histoire>

The new legal framework on innovation procurement, which entered into force in April 2018 in Luxembourg, is likely to boost a future development of the innovation procurement policy, both in terms of dedicated policy papers and in terms of further capacity building measures.

A structured framework for capacity building measure on innovation procurement is still missing in Luxembourg. Apart from a handbook and some networking, Luxembourg has not setup any other capacity building measures yet. On the basis of the evidence collected below, the total score for this indicator is 17%.

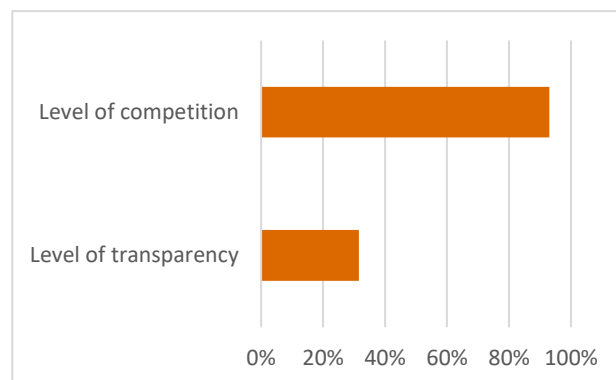
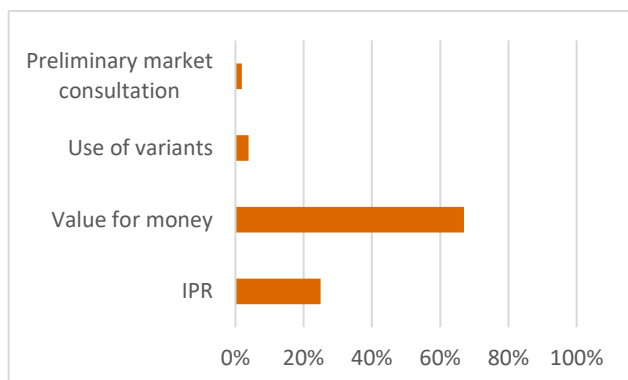
Indicator 10 – Innovation friendly public procurement market

Total score 43%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of innovation procurement. It is composed by two sub-indicators measuring:

I. The use of specific techniques to foster innovation in public procurement in Luxembourg

II. The openness of the national public procurement market to innovations from across the EU single market

With regards to sub-indicator I, Luxembourg shows the following evidence:

- IPR Default regime:** The score for this sub-indicator is 50% because the Luxembourg law, general terms and conditions for government contracts on public procurement do not define a default scenario for the distribution of IPR rights between procurers and suppliers but the Luxinnovation guide on innovation procurement explains that "The contracting authority may choose to acquire rights to use the results for its clearly defined needs and leave the ownership of the IPRs related to the results with the contractor (first option) instead of choosing to acquire the rights exclusively for himself preventing the contractor from exploiting them (second option). The contracting authority needs to ensure that the chosen option is not disproportionate to his real needs as the price will differ depending on the chosen option." The guide also explains that PCP uses the first option. This guidance is in line with the Luxembourg copyright law⁵⁸², which determines that copyrights belong in an inalienable way to the creator (cannot be waived, licensed or assigned to anyone else). Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. If a public procurer wants to use the commissioned work in a specific way, the procurer needs to clearly specify in the tender documents which economic rights (e.g. licensing, publication, modification, reproduction rights) he wants to obtain from the creator ((sub)contractors in his procurement). Copyright law protects also scientific work, software and database rights.
- Use of value for money award criteria:** According to the EU Single Market Scoreboard, only 31% of the procedures were awarded on criteria that not based only on the lowest price.⁵⁸³ This is below the European average of 42% and far below the 80% satisfactory level set out in the EU single market scoreboard. Luxembourg has an over-reliance on lowest price award criteria.
- Use of variants:** Luxembourg has allowed the use of variants in the 4% of the procedures. This percentage is in line with the European average.
- Preliminary Market Consultations:** Luxembourg has used Preliminary Market Consultations in the 6% of the procedures. This percentage is slightly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 23% which is in line with the European average of 23% This is mainly due to the underutilization of value for money award criteria and the fact that there is some promotion in guidelines to procurers for using an IPR default regime that fosters innovation in public procurement, but this is not anchored yet into legislation and general terms and conditions for government contracts.

With regard to sub-indicator II, Luxembourg shows the following evidence (based on the Single Market Scoreboard):

⁵⁸² http://www.wipo.int/wipolex/en/text.jsp?file_id=128653
⁵⁸³ [The EU Single Market, Single Market Scoreboard](#)

- e. **Level of competition:** The level of competition of the national public procurement is 93% which is above the European average 84% and above the 93% satisfactory level set by the EU single market scoreboard. Both sub-indicators are above the European average: the percentage of procurements that was conducted with a call for bids (100%) and the percentage of procurements with more than one bidder (86%).
- f. **Level of transparency:** The level of transparency of the public procurement market accounts for 32% which is below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. This results mainly from the total absence of buyer registration numbers in the public procurement procedures. This makes it difficult for suppliers to understand which public buyer wants to buy what. The percentage of procurements without missing call for bids info (93%) is above European average but still below the satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 62% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to the low transparency level.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 43% which is slightly below the European average 44%. This score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is average and the openness of the Luxembourg procurement market to innovations from across the EU single market is below the European average. Indeed, there is still an underutilization of the potential of value for money award criteria and, although there is some promotion in guidelines to procurers for using an IPR default regime that fosters innovation in public procurement, this is not anchored yet into legislation and general terms and conditions for government contracts. In addition, although the national public procurement market shows an above average level of competition, the level of transparency is below the European average.

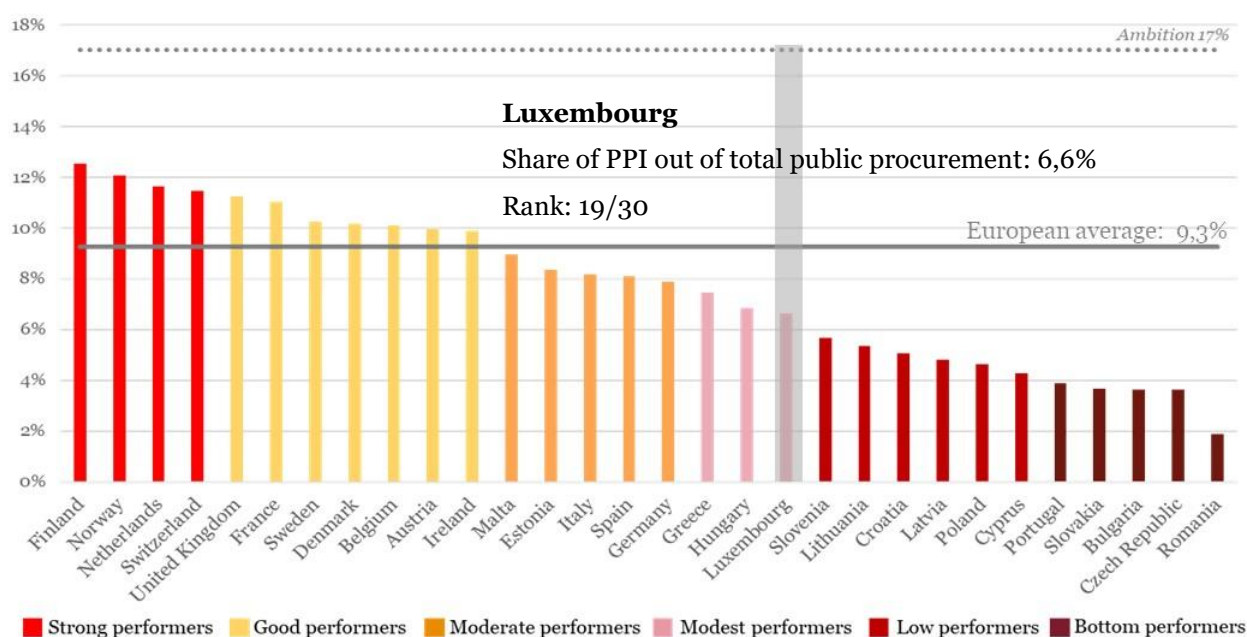
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Luxembourgish investments on public procurement of innovative solutions (PPI) and the benchmarking of Luxembourgish investments on public procurement of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 6,6% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,5 bn), **Luxembourg ranks 19th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁵⁸⁴ across Europe. Luxembourg falls within the group of **modest performers**, below the European average of 9,3%.⁵⁸⁵ **A considerable increase of investments in PPI** is still needed to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the public sector.⁵⁸⁶ When taking into account also PPI in the defence sector Luxembourg moves down to the 20th position.



The **main factors**⁵⁸⁷ explaining Luxembourg's modest performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

There were no investments in Luxembourg in the adoption of **incremental innovations**, i.e. 'existing solutions that are used in a new way or in a new sector' or 'innovative combinations of existing solutions', which is below the European average (16%). All innovations purchased in Luxembourg fall under the category of **transformative innovations** (100% of PPI investments), which is well above the European average (84%). This consists in the adoption of innovative solutions that are 'new to the market' (63% of PPI) as well as 'significantly improved' solutions (37% of PPI). However, as the total amount of investments in innovative solutions in Luxembourg is modest and below European average, the

⁵⁸⁴ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁵⁸⁵ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

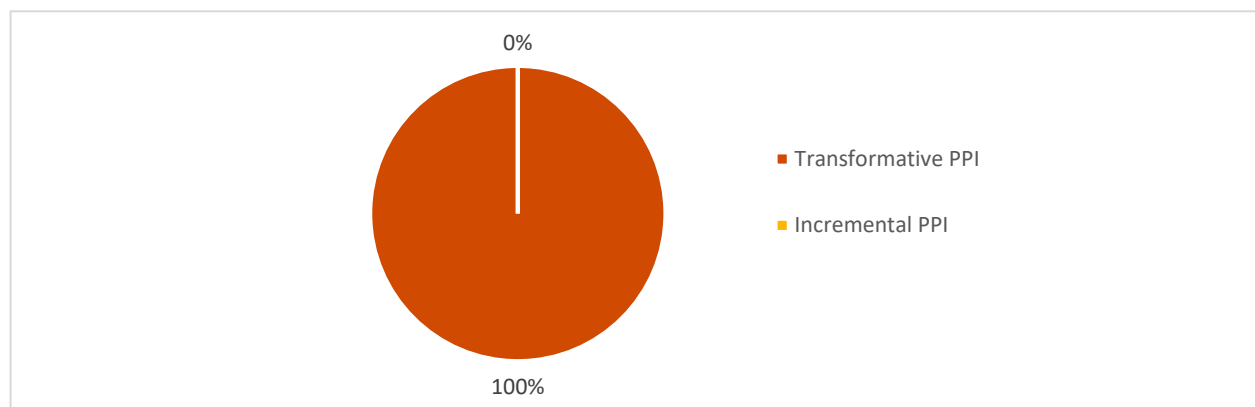
⁵⁸⁶ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁵⁸⁷ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

country still needs to step up considerably its investments in the adoption of both transformative and incremental innovations.

Considering all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Luxembourg is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Several domains of public sector activity⁵⁸⁸ in Luxembourg did not invest in the adoption of innovative solutions: PPI investments by public procurers that operate in the domain of ‘**Environment**’, ‘**Water**’, ‘**Public order, safety and security**’ and ‘**Postal services**’ were zero. Out of total PPI investments in the country, the shares of PPI investments made by procurers operating in ‘**Construction, housing and community amenities**’ (+13 pp) and ‘**Education, recreation, culture and religion**’ (+9 pp) are significantly above the European averages. Conversely, the share of PPI investments made by procurers operating in ‘**Healthcare and social services**’ (-18 pp) is significantly below the European average (21%).

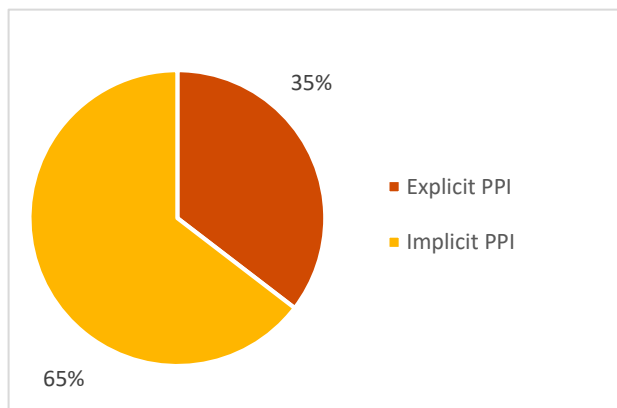
PPI investments by domains of public sector activity

Domain of public sector activity	Luxembourg	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	33%	35%	-2
Public transport	10%	10%	0
Healthcare and social services	3%	21%	-18
Energy	13%	6%	+7
Environment	0%	3%	-3
Construction, housing and community amenities	17%	4%	+13
Education, recreation, culture and religion	14%	5%	+9
Water	0%	4%	-4
Public order, safety and security	0%	8%	-8
Postal services	0%	1%	-1
Other	10%	3%	+7
Total PPI investments	100%	100%	-

⁵⁸⁸ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

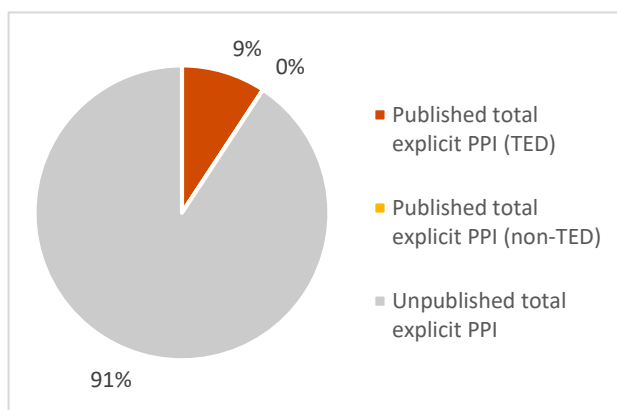


The share of **explicit PPI** investment (when a public procurer explicitly requests an innovative solution in the call for tenders) in Luxembourg (35%) is higher than the European average (29%). This indicates that Luxembourgish procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investment (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Luxembourg (65%) compared to the European average (71%). This indicates that Luxembourgish procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

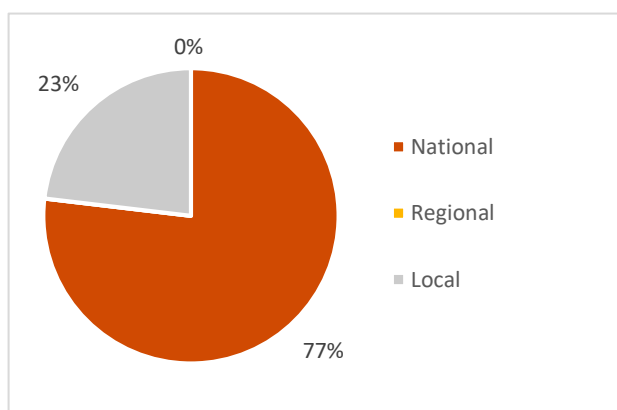


The share of PPI investments for which call for tenders is published, is very low (9%) and significantly below the European average (22%). The portion that is **published at European level** in the TED database (9%) is below the European average (18%). No PPI calls for tender were **published at national level** (0%), which is below the European average (5%). Accordingly, the share of PPI investments for which no calls for tenders were published in TED or at national level is very large (91%).

By not publishing all for tenders for PPI investments widely, **Luxembourg is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Luxembourgish and other European innovative suppliers that are not informed about the PPI business opportunities in Luxembourg.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

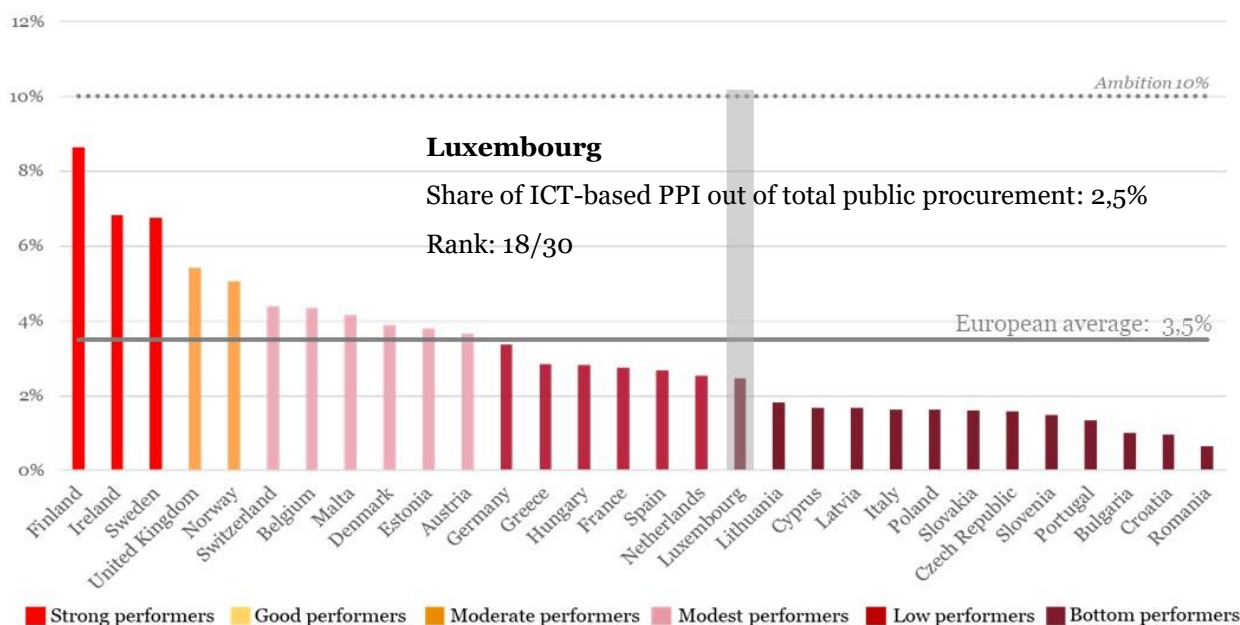


The lion share (77%) of PPI investments in Luxembourg is carried out by **large-scale entities at national level**, such as ministries and ICT integrators of governments departments. This is considerably above the European average (47%).

Procurers at **local level** account for a share of PPI investments (23%), which is in line with the European average (24%), while zero PPI investments were made at **regional level**.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment), Luxembourg falls within the group of **bottom level performers**. With € 0,01 bn or 2,5% of total public procurement invested in innovative ICT-based solutions, **Luxembourg ranks 18th** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT based solutions (37%), Luxembourg performs below the European average (38%). **A large increase of investments in buying innovative ICT-based solutions** is still needed to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the adoption of ICT-based innovations, which would enable Luxembourg to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁵⁸⁹

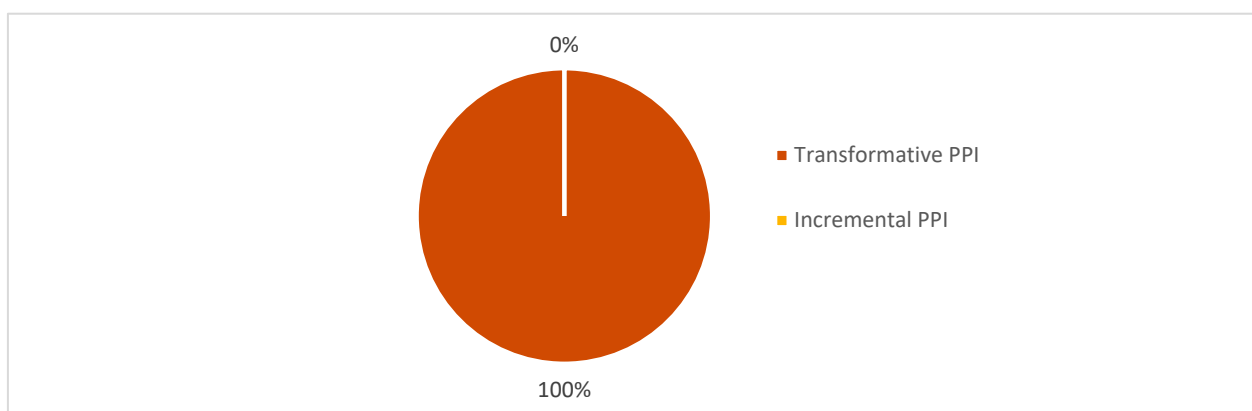


The **main factors**⁵⁹⁰ explaining Luxembourg's bottom level performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

There were no investments in Luxembourg in the adoption of **incremental ICT-based innovations**⁵⁹¹. All purchased ICT-based innovations fall under the category of **transformative innovations**. This consists in the adoption of innovative solutions that are 'new to the market' (83% of PPI) and 'significantly improved' (17% of PPI). However, as the total amount of investments in ICT-based innovative solutions in Luxembourg is low, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



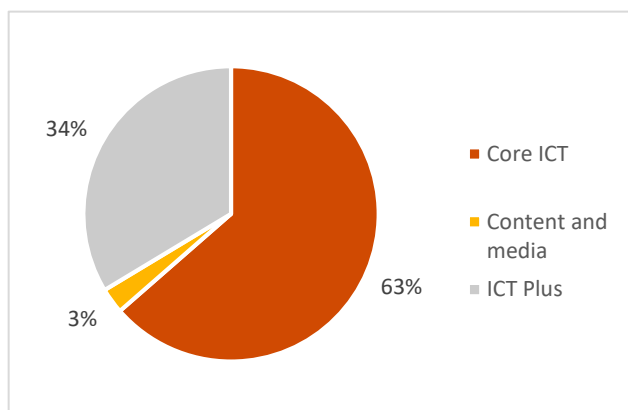
⁵⁸⁹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁵⁹⁰ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁵⁹¹ See definitions above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Luxembourg invested mainly in the adoption of innovations from the so-called **‘Core ICT’ sub-sector**⁵⁹² (63%), which is above the European average (54%).

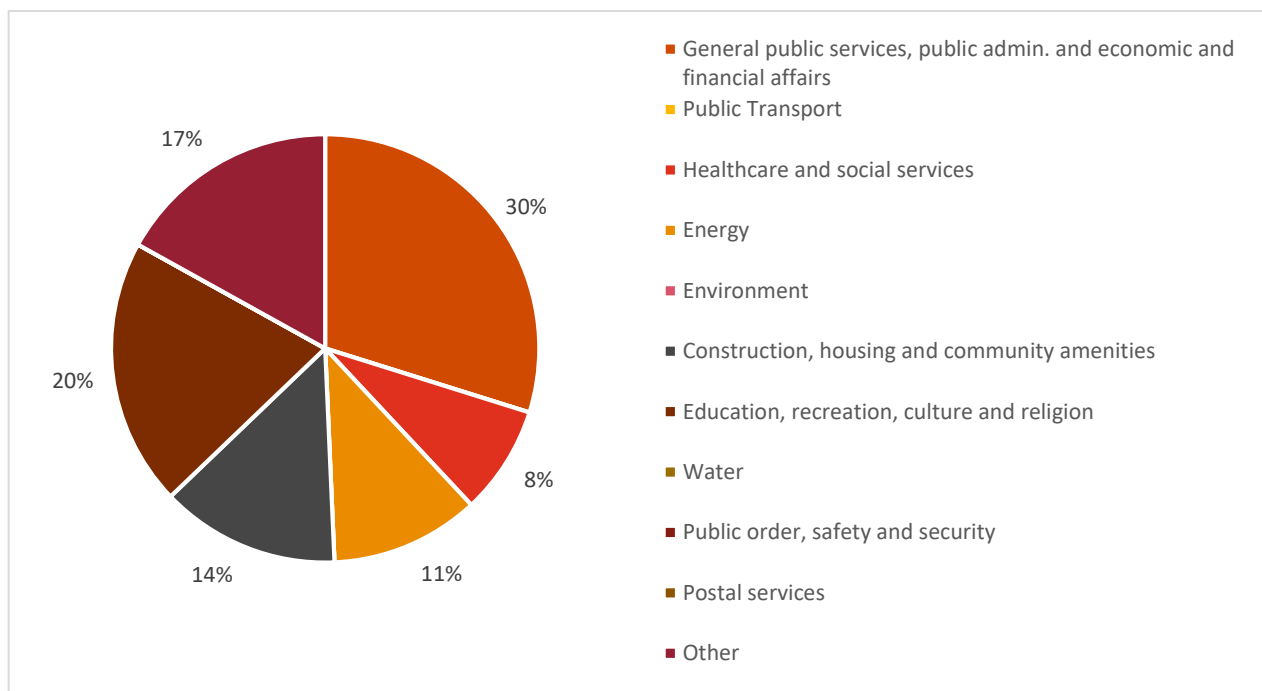
Luxembourg invested to a lesser extent in the adoption of innovations from the **‘ICT Plus’ sub-sector** (34%), which is below the European average (45%).

The share of investments spent on adopting innovations from the **‘Content & Media’ sub-sector** was low (3%), but slightly above the European average (1%).

Investment readiness across different domains of public sector activity

Several domains of public sector activity in Luxembourg did not invest in the adoption of ICT-based innovative solutions: ICT-based PPI investments made by public procurers that operate in the domains of **‘Public Transport’, ‘Environment’, ‘Water’, ‘Public order, safety and security’** and **‘Postal services’** were zero. The share of ICT-based PPI investments made by procurers in **‘Healthcare and social services’** were also significantly below the European average (- 22p). However, the share of ICT-based PPI investments made by procurers in Luxembourg operating in **‘General public services, public administration and economic and financial affairs’** (+14 pp), **‘Construction, housing and community amenities’** (+12 pp) and **‘Education, recreation, culture and religion’** (+12 pp) were significantly above the European averages.

ICT-based PPI investments by domains of public sector activity

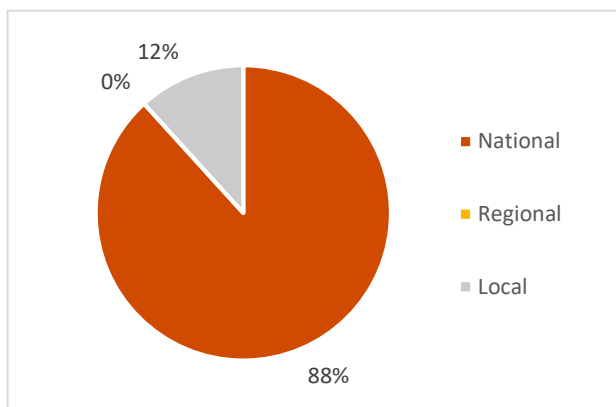


⁵⁹² The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for the 88% of ICT-based PPI investments, considerably above the European average (69%).

Similarly, the share of ICT-based PPI investments made by **procurers at local level** (12%) is slightly above the European average (10%). There were no investments **at regional level**.

Malta



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The field of public procurement in Malta is regulated by the Public Procurement Regulations (S.L. 174.04), issued in October 2016 that transpose into the national legal framework the EU procurement Directives (Directive 2014/23/EU, 2014/24/EU, 2014/25/EU). The regulation for Contracting Authorities or Entities in the fields of Defence and Security (S.L. 174.08 of 2011) transposed the Directive 2009/81/EC.

Malta's public procurement system is relatively centralised. The **Department of Contracts (DoC)** within the **Ministry of Finance**, is the central government authority that is charged with drafting procurement legislation and policy, collecting statistical data, preparing guidelines and instructions, monitoring the overall procurement system.

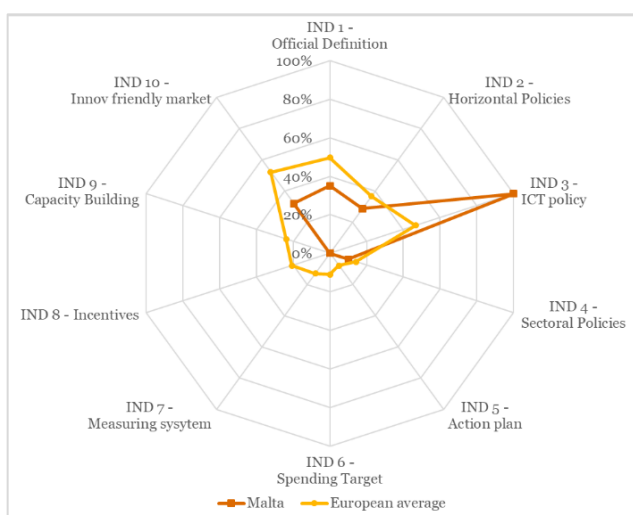
The DoC and the **Malta Information Technology Agency (MITA)** also acts as the central purchasing bodies for all contracts above 120.000 EUR excluding those of local councils. Indeed, the majority of contracts are still handled by individual central and local government contracting authorities. Thanks to its crucial role in the field of public procurement, the DoC is also responsible together with the Malta Council for Sciences and Technology (MCST) for promoting innovation procurement.

Beside the DoC, the **Institute for Public Services (IPS)**, formerly known as the Centre for Development, Research and Training (CDRT), the Malta College for Arts Science and Technology (MCAST) and the University of Malta (UoM) are responsible for the training of public administration officials on a wide range of topics, including e-procurement and green procurement.

While the Maltese sustainable procurement system is well developed, the country has limited experience with innovation procurement, and does not have a stand-alone innovation procurement policy. However, some individual procurers such as the Central Procurement Supplies Unit of the Ministry for Health have developed on their own initiative their own innovation procurement ambitions and strategy to modernize their own public service offering.

Innovation Procurement Policy Framework Benchmarking (2018)

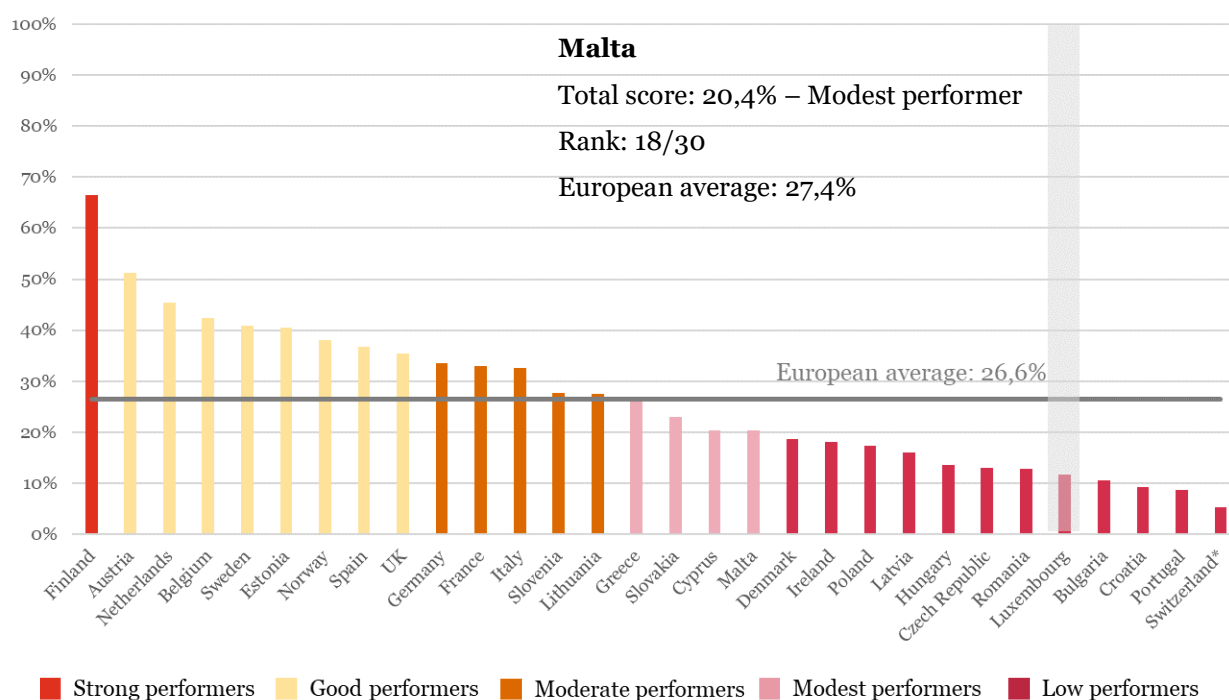
In the benchmarking of the national innovation procurement policy frameworks across Europe, **Malta is at the 18th position** of the overall ranking with a **total score of 20,4%**. From the 30 countries analysed, Malta is among the group of modest performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 20,6% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a strong reinforcement of the policy framework needed in Malta to reach its full 100% potential.



Strengths: The national R&D&I strategy 2020 and the National R&I Action plan recognize innovation procurement as an important instrument to boost demand side innovation

Weaknesses: Innovation procurement in Malta is still in an embryonal phase. Most structural measures to build an innovation procurement policy framework are not in place yet: national competence centre, action plan, spending target, monitoring system and systematic capacity building.

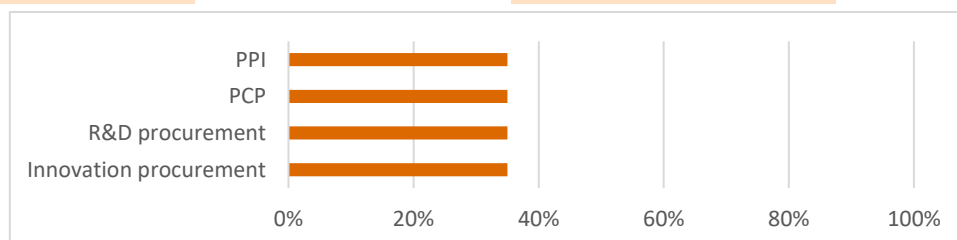
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score	35%	European average	50%
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In Malta, official definitions for innovation procurement, R&D procurement, PCP and PPI do not exist both in the legal framework and in guideline documents. However, the legislation provides a clear legal basis for implementing all these different types of procurement. As a result, the total score of this indicator is 35%.

The Public Procurement Regulations S.L. 174.04 introduces under the general provisions the definition of **innovation**. Innovation is defined as “the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations inter alia with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth.” The definition is applicable to all public procurers in the country and in line with the EU official definition, therefore the total score of this sub-indicator is 35%.

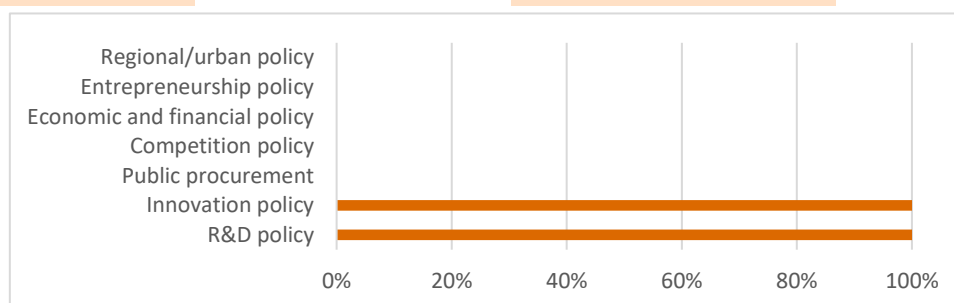
The same piece of legislation identifies under article 7(1) (v) **R&D** in the context of public procurement via the CPV codes for basic research, industrial research and experimental development in a way which is applicable to all public procurers in the country. Therefore, despite no specific official full sentence definition exists for R&D in the context of public procurement, the legal framework provides a clear legal basis for implementing R&D procurement and therefore the total score of this sub-indicator accounts for 35%. By implementing the exemption for R&D services, the same article also forms the legal basis for implementing **PCP** in the country. The regulations do not apply to public service contracts “whose benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, on condition that the service provided is wholly remunerated by the contracting authority”. Even though there is no official definition of PCP, this provision is applicable to all public procurers in the country, therefore the total score of this sub-indicator is 35%.

Article 164(6) of the Public Procurement Regulations S.L. 174.04 enables public procurers to implement **PPI** by enabling public procurers to take into account innovative characteristics in the award of any public procurement procedure: “contracting authorities may take into account the need to ensure quality, continuity, accessibility, affordability, availability and comprehensiveness of the services, the specific needs of different categories of users, including

disadvantaged and vulnerable groups, the involvement and empowerment of users and innovation. Again, even though there is no full PPI definition, this provision is applicable to all public procurers in the country, therefore the total score of this sub-indicator is 35%.

Indicator 2 – Horizontal policies

Total score 29% European average 36%



In Malta innovation procurement is recognized under 2 out of 7 horizontal policies, the R&D and innovation policy. Therefore, the total score for this indicator is 29%.

Malta's **National research and innovation strategy and action plan 2020**⁵⁹³ refer to innovation procurement as a tool of strategic importance to thrive the Maltese economy. The third action lines to increase the effectiveness of the national R&I strategy states "there needs to be a stronger awareness at all levels, in government, business and society, of the role of innovation in improving the quality of life and competitiveness, thereby generating increased demand for innovation, particularly through public procurement. Local experience to date indicates that whilst it is often more complex and time-consuming, procurement for innovation generates considerable benefits in terms of leveraging private sector R&I and providing greener, innovative and potentially cost-effective, public services."

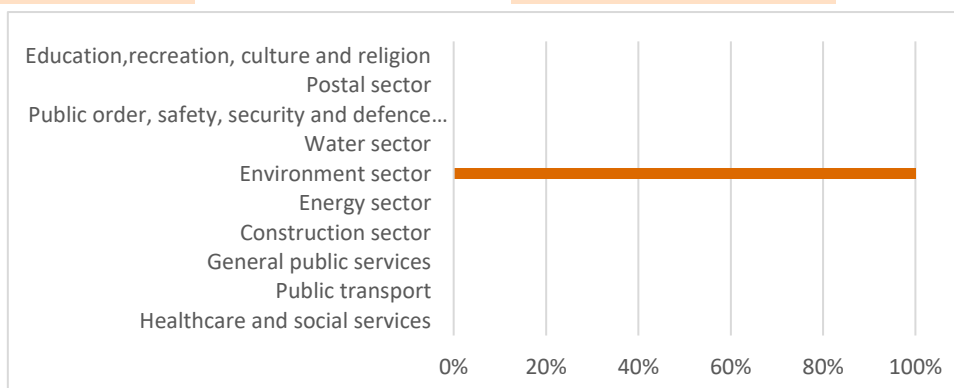
Indicator 3 – ICT policies

Total score 100% European average 47%

The Digital Malta strategy⁵⁹⁴ has set an explicit objective (nr 30) to encourage ICT innovation in public procurement: "Government will use its position as a major procurer to stimulate demand for innovative ICT. It will encourage collaboration between local players and, as an early adopter, it will act as a showcase for locally-produced technology. Innovative policies will improve procurement cycles and deliver better value." According to the reporting on the Digital Malta website, the implementation of this objective has started with a first such ICT innovation procurement ongoing.

Indicator 4 – Sectorial policies

Total score 10% European average 14%



Innovation procurement's strategic role is recognized under Maltese environmental policy framework. The total score of the indicator sectorial policies is therefore 10%. The **Green Public Procurement (GPP) Action Plan (2011)**⁵⁹⁵, besides its focus on sustainable procurement, also refers to the strategic use of innovation procurement to achieve Europe 2020 targets. As explained further in the **National Environmental Policy (2012)**: "The use of market-based instruments to promote green investment and innovation in order to promote eco-innovation and the creative industries: we have ensured that our Green Public Procurement (GPP) Action Plan promotes innovative procurement."

⁵⁹³ <http://mcst.gov.mt/wp-content/uploads/2017/02/National-RI-Strategy-2020-June-2014.pdf>

⁵⁹⁴ <https://digitalmalta.org.mt/en/Pages/Strategy/Digital-Government.aspx>

⁵⁹⁵ <https://msdec.gov.mt/en/decc/Documents/environment/gpp/GPP%20National%20Action%20Plan.pdf>

This will ensure that where possible GPP stimulates eco-innovation by specifying the desired innovation (for example, energy efficiency) without over-specifying the process for achieving this in tender document".⁵⁹⁶ It is worth mentioning that Malta has a more developed policy framework for sustainable procurement than for innovation procurement.

It is worth mentioning that the **National Strategy for Health, Research and Innovation** (2013)⁵⁹⁷ also enhances the use of public procurement to stimulate Research and Innovation:

- 1) Encourage proactive use of EU public procurement directives as a means for stimulating public and private sector investments in health research and innovation.
- 2) Enhance the role of the Public Service (both as a purchaser and regulator) as early user of health innovative products by developing capacities for implementing public procurement for research and innovation.
- 3) Support the Public Service to act as a catalyst in private procurement, through the establishment of credit guarantees for innovative health services, training in innovative procurement techniques and intellectual property protection, and the purchase for private use of innovative service and product.

However, this document, which has been commissioned in 2011 by the Malta Council for Science and Technology (MCST), has not been adopted by the Government so the score of healthcare policy is 0%.

Indicator 5 – Action plan

Total score	0%	European average	8%
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Malta does not have a stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European average	11%
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In Malta there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score	0%	European average	13%
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Malta does not have structured system for measuring innovation procurement expenditure and evaluating the impacts of completed innovation procurements.

Indicator 8 – Incentives

Total score	0%	European average	22%
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In Malta there are no financial or other types of personal incentives to encourage public procurers to undertake more innovation procurements.

Indicator 9 – Capacity building and assistance measures

Total score	0%	European average	24%
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Malta does not put in place targeted measures to enhance the adoption of innovation procurement.

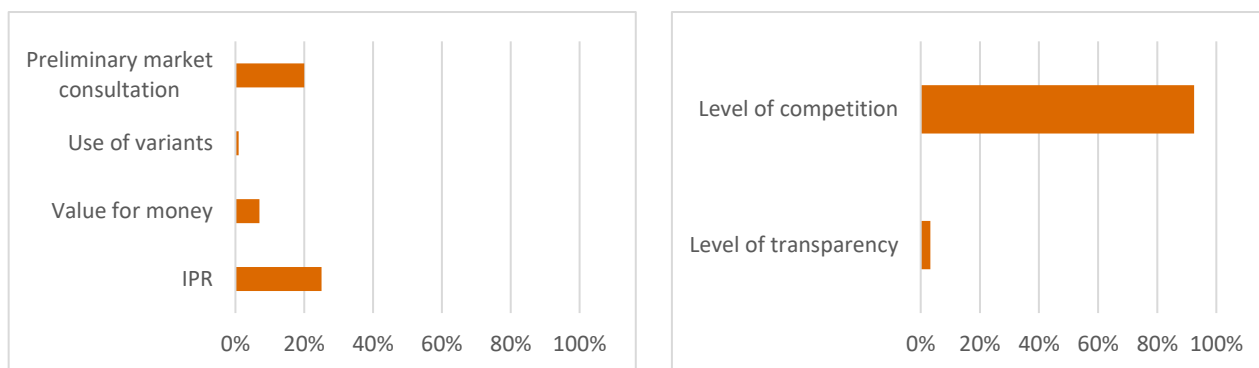
Indicator 10 – Innovation friendly public procurement market

Total score	31%	European average	44%
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I - Specific techniques to foster innovation in public procurement II – Openness of national public procurement market to innovations from across the EU single market

⁵⁹⁶ <https://msdec.gov.mt/en/decc/documents/environment/national%20environment%20policy.pdf>

⁵⁹⁷ <https://www.um.edu.mt/library/oar/handle/123456789/2015>



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators measuring:

- I. The use of specific techniques to foster innovation in public procurement in Malta
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Malta shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Malta. Maltese law, general terms and conditions for government contracts and guidelines on public procurement do not define how IPR allocation is best dealt with in public procurement. It is left to the individual responsibility of each Maltese procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Maltese copyright law⁵⁹⁸ determines that copyrights belong in an inalienable way to the creator even after transfer or licensing of economic rights. The economic rights can be transferred, assigned or licensed by the creator to another person/entity. If a public procurer wants to use the commissioned work in a specific way, the procurer needs to clearly specify in the tender documents which economic rights (e.g. licensing, publication, modification, reproduction rights) owned by the creator ((sub)contractors in his procurement) he wants to obtain. Copyright law protects also scientific work, software and database rights.
- b. **Use the value for money award criteria:** According to the single market scoreboard, in Malta only 7% of the public procurements have been awarded using criteria based not only on the lowest price. This result makes Malta the worst performer on the use of value for money award criteria together with Romania and Cyprus across the EU Member States.
- c. **Use of variants:** Malta has allowed the use of variants in less than 1% of the procedures (0,89%). This percentage is well below the European average.
- d. **Preliminary Market Consultations:** Malta has used Preliminary Market Consultations in the 20 % of the procedures. This percentage is significantly above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 13% which is far below the European average of 23%. This is mainly due to significant underutilization of value for money award criteria and the lack of IPR default regime to foster innovation in public procurement.

With regard to sub-indicator II, Malta shows the following evidence (based on the single market scoreboard):

- e. **Level of competition:** The level of competition is 93% which is above the European average 84% and reaches the 93% satisfactory level set by the EU single market scoreboard. This result is due to above average performance on both sub-indicators: the percentage of procurements conducted with a call for bids (100%) and the percentage of procurements with more than one bidder (85%). The latter sub-indicator is even though above European average still below the 90% satisfactory level set by the EU single market scoreboard.
- f. **Level of Transparency:** The level of transparency is 3% which is far below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. This is due to very low performance on the two sub-indicators that reflect the level of information that procurers publish about their procurements: the percentage of procurements without missing call for bids information (5%) and without missing buyer registration numbers (0%). The TED publication rate is above European average (5%) but still not reaching the satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 48% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to the low transparency level.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 31% which is significantly below the 44% European average. This score is explained firstly by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Maltese procurement market to innovations from across the EU single market is below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still seriously underused in public procurements. In addition, although the national public procurement market shows a satisfactory level of competition, the level of transparency is extremely low.

⁵⁹⁸ http://www.wipo.int/wipolex/en/text.jsp?file_id=128653

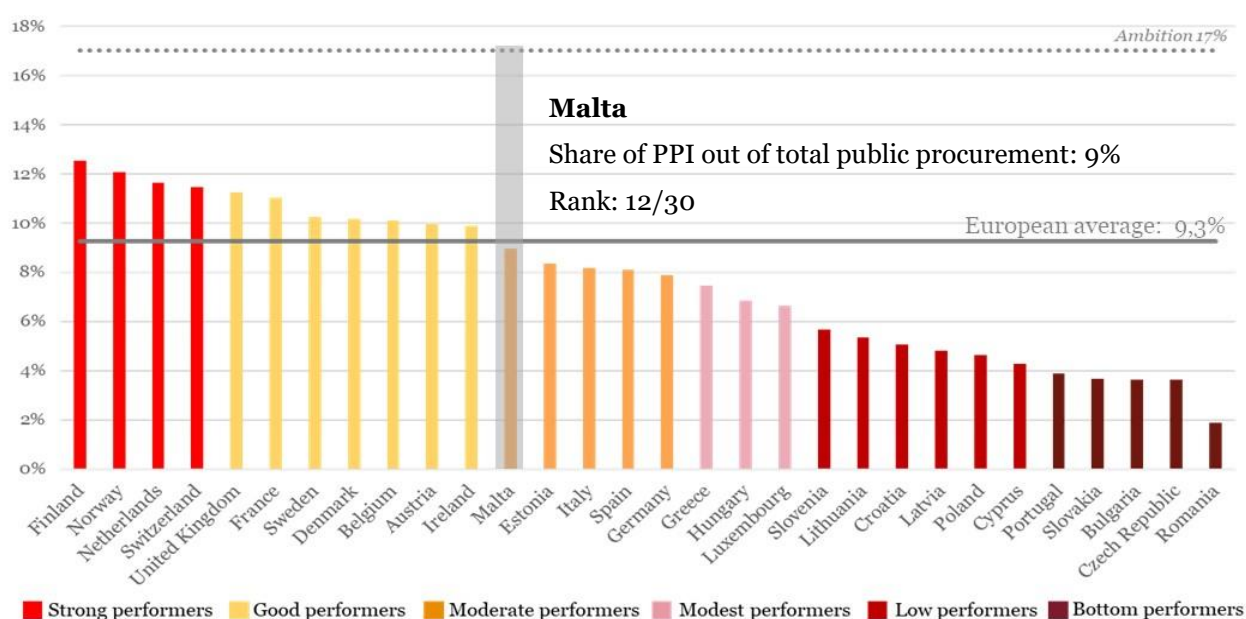
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Maltese investments on public procurement of innovative solutions (PPI) and the benchmarking of Maltese investments on public procurement of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 9% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,2 bn), **Malta ranks 12th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁵⁹⁹ across Europe. The country falls within the group of **moderate performers**, slightly below the European average of 9,3%.⁶⁰⁰ **A considerable increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Maltese public sector.⁶⁰¹ When taking into account also PPI in the defence sector Malta drops to the 13th position.



The **main factors**⁶⁰² explaining Malta's moderate performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** (49%) – which includes both innovative solutions that are 'new to the market' and 'significantly improved' solutions - is significantly below the European average (84%). This may be due to underinvestment in the adoption of innovative solutions that are 'new to the market', which represents only 8% of PPI. The share of PPI investments spent on the adoption of **incremental innovations** (51%) - which includes 'existing solutions that are used in a new way or in a new sector' and 'innovative combinations of existing solutions' – is significantly above the European average (16%). As the total amount of investments in innovative solutions in Malta is moderate and below EU average (9% versus 9,3% of total public

⁵⁹⁹ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁶⁰⁰ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

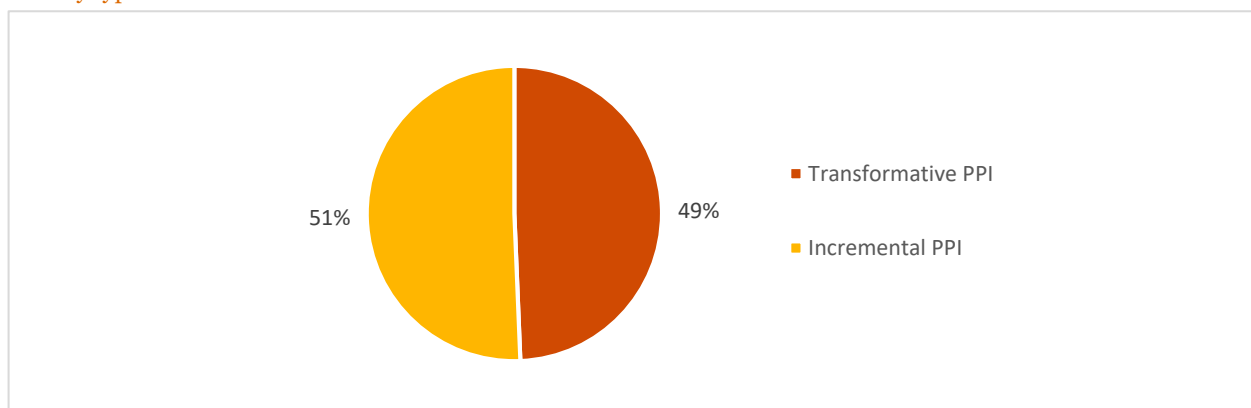
⁶⁰¹ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁶⁰² The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

procurement), the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is an important factor explaining why Malta is not yet at the level of PPI investment that would enable a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI by type of innovation



Investment readiness across different domains of public sector activity

Public procurers from **most public sector domains of public sector activity⁶⁰³ in Malta purchased innovation solutions**, except the categories ‘Energy’, ‘Construction, housing and communities’, ‘Postal services’ and ‘Other’ which made zero PPI investments. The shares of PPI investments made by different domains of public sector activity out of total PPI investments in the country are **mostly below the European averages** (in 6 out of 11 domains). Investments made by Maltese procurers in ‘Education, recreation, culture and religion’ are significantly above the European average (+19 pp).

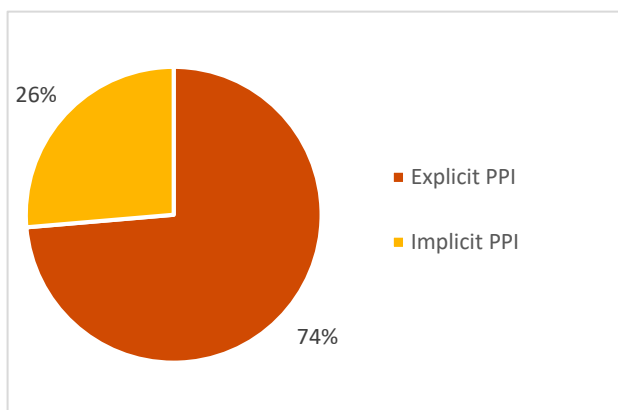
PPI investments by domains of public sector activity

Domain of public sector activity	Malta	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	30%	35%	-5
Public transport	11%	10%	+1
Healthcare and social services	22%	21%	+1
Energy	0%	6%	-6
Environment	5%	3%	+2
Construction, housing and community amenities	0%	4%	-4
Education, recreation, culture and religion	24%	5%	+19
Water	4%	4%	+0
Public order, safety and security	4%	8%	-4
Postal services	0%	1%	-1
Other	0%	3%	-3
Total PPI investments	100%	100%	-

⁶⁰³ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

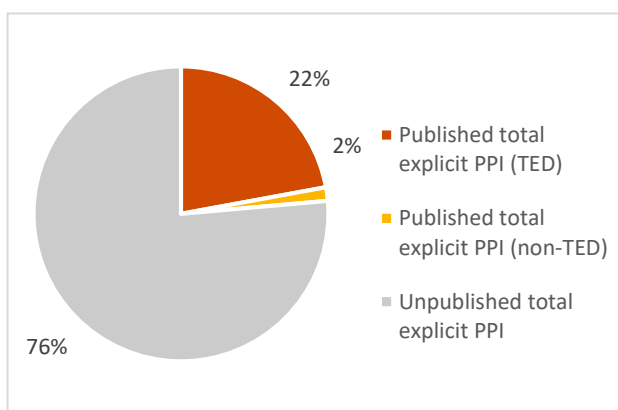


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly higher in Malta (74%) compared to the European average (29%). This indicates that Maltese procurers may be less risk-adverse in requesting innovative solutions than in the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is much lower in Malta (26%) compared to the European average (71%). This indicates that Maltese procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers than in the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

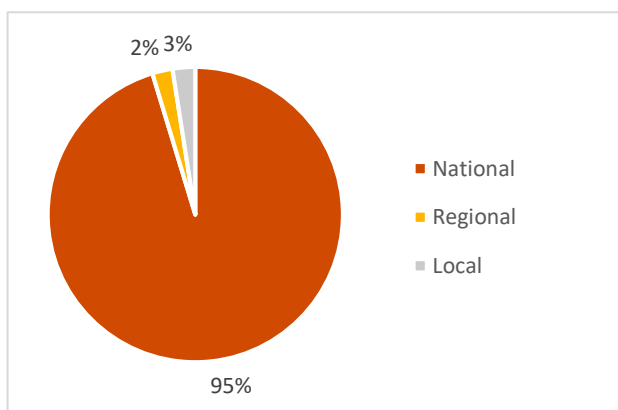


The share of Maltese PPI investments for which call for tenders are published (24%) is low, in line with the European average (22%). The portion that is **published at European level** in the TED database (22%) is above the European average (18%) while the portion that is **published at national level** (2%) remains below European average (5%). The share of PPI investments for which no call for tenders are published in TED or at national level is very large (76%).

By not publishing PPI call for tenders widely, **Malta is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Maltese and other European innovative suppliers that are not informed about the Maltese PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

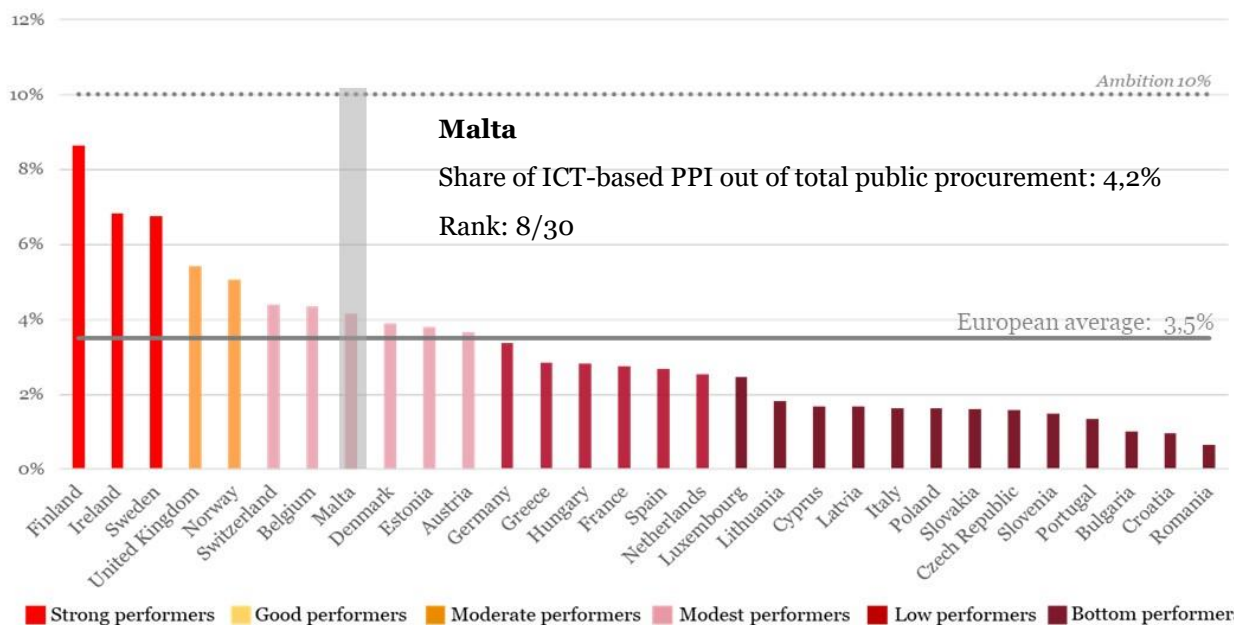


Almost the entire amount of PPI investment in Malta is carried out by **large-scale entities at national level** (95%), such as ministries and ICT integrators of government departments. This is considerably above the European average (47%).

Procurers at regional and local level account for marginal shares of PPI investments (respectively 2% and 3%), and both are well below the European averages (respectively, 24% and 29%). This may indicate that especially procurers at subnational level could still improve their performance on adopting innovations.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment), Malta falls within the group of **modest performing** countries. With € 0,02 bn or 4,2% of total public procurement invested in ICT-based PPI, **Malta ranks 8th** in the ranking of ICT-based PPI investments, slightly above the European average (3,5%). Malta performs also above the European average in terms of the share of total PPI procurement that is invested in ICT-based solutions (46% in Malta compared to 38% European average). However, **a significant increase of investments in ICT-based PPI is still needed** to reach the level of devoting 10% of total public procurement and 60% of total PPI procurement in the country to the purchase of ICT-based innovations, which would enable Malta to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁶⁰⁴

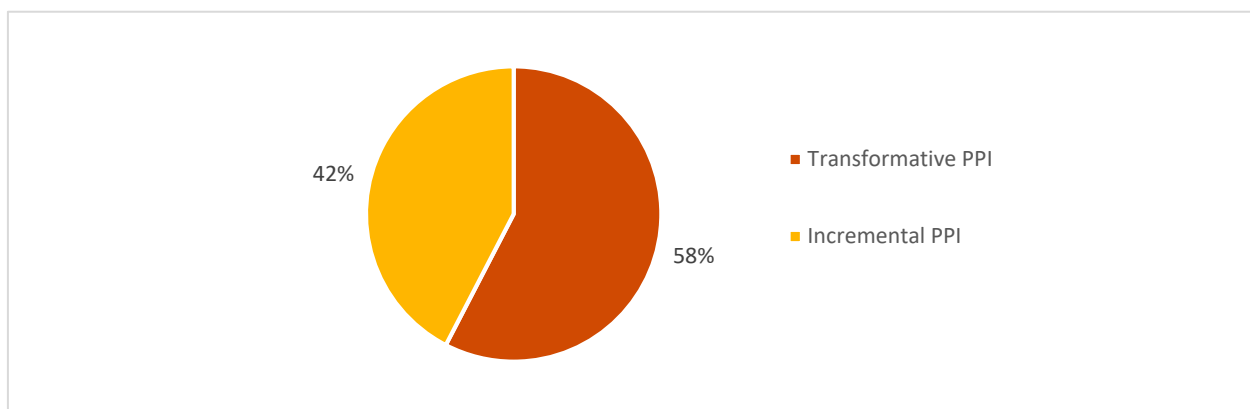


The **main factors**⁶⁰⁵ explaining Malta’s modest performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments spent on the adoption of **transformative ICT-based innovations** (49%) is significantly below the European average (79%). This may derive from the fact that the share of ICT-based PPI investments spent on the adoption of innovative solutions that are ‘new to the market’ is still low (12% of ICT-based PPI). Malta depends mainly on the adoption of **incremental ICT-based innovations** (51%), which is significantly above the European average (21%).

ICT-based PPI investments by type of innovation

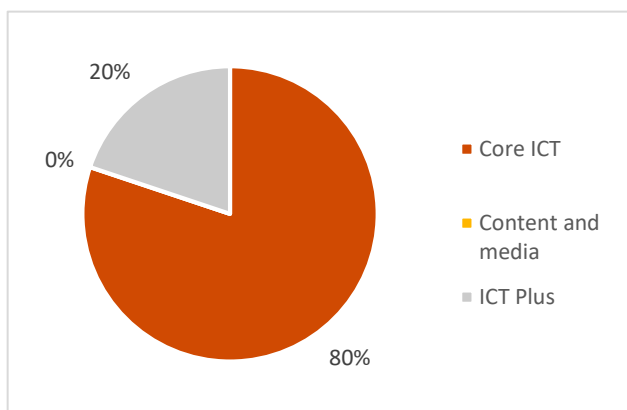


⁶⁰⁴ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁶⁰⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Malta invested mainly in the adoption of innovations in the **‘Core ICT’ sub-sector**⁶⁰⁶ (80%), well above the European average (54%).

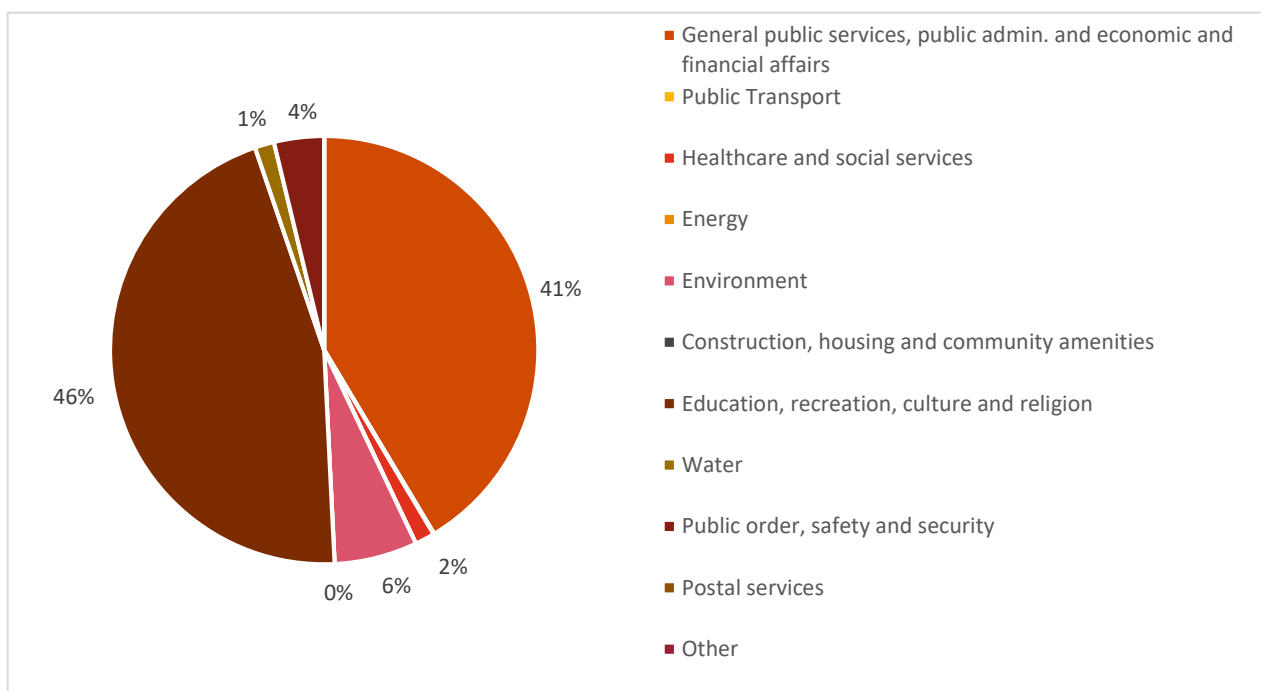
The share of Maltese investments in the **‘ICT Plus’ sub-sector** (20%) is below the European average (44%).

No investments were made to adopt innovations from the **‘Content & Media’ sub-sector**, which is below the European average (1%).

Investment readiness across different domains of public sector activity

In Malta, the procurement of innovative ICT-based solutions is concentrated in 7 out of 11 domains of public sector activity. Almost half of ICT-based PPI investments are made by procurers that operate in the domain of **‘Education, recreation, culture and religion’** (46%), followed by procurers active in **‘General public services, public administration and economic and financial affairs’** (41%). The shares of investments made by procurers that operate in these two domains are significantly above the European average (respectively 9% and 16%). Investments by procurers active in **‘Transport’** were limited (0,1%). Conversely, in 4 sectors no PPI investments on ICT-based solutions were made: **‘Energy’**, **‘Construction, housing and community amenities’**, **‘Postal services’** and **‘Other’**.

ICT-based PPI investments by domains of public sector activity

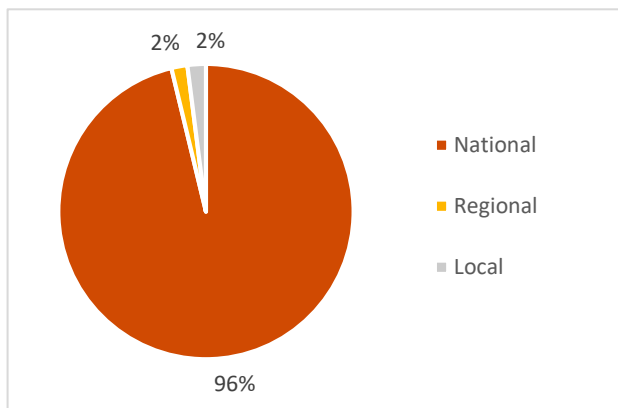


Investment readiness across levels of public sector activity

⁶⁰⁶ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

ICT-based PPI investments by level of public sector activity



National level procurers account for almost the total share of ICT-based PPI investments (96%), well above the European average (69%).

Procurers at regional and local level account for marginal shares of ICT-based PPI (both at 2%), which are significantly below the European averages (respectively 21% and 10%). This may indicate that especially procurers at subnational level could still improve their performance on adopting ICT-based innovations.

Norway



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

Norwegian legislation on public procurement is to a large extent based on EU public procurement directives in accordance with Norway's obligations under the European Economic Area (EEA) Agreement. The public procurement legal framework is composed by in the Norwegian Act on Public Procurement of 17 June 2017, No. 73 (LOV-2016-06-17-73); and in three regulations adopted on 20 December 2016, i.e. the Regulation on Public Procurement of 20 December 2016, No. 1744 (FOR-2016-12-20-1744), implementing Directive 2014/24/EU; the Regulation on Procurement Rules in the Utilities Sectors (FOR-2016-12-20-1745), implementing Directive 2014/25/EU; the Regulation on Concessions Contracts, (FOR-2016-12-20-1746), implementing Directive 2014/23/EU). The EU Directive on defence procurement (2009/81/EC) was implemented by the Regulation on Defence and Security Procurements, which came into force in 2014⁶⁰⁷.

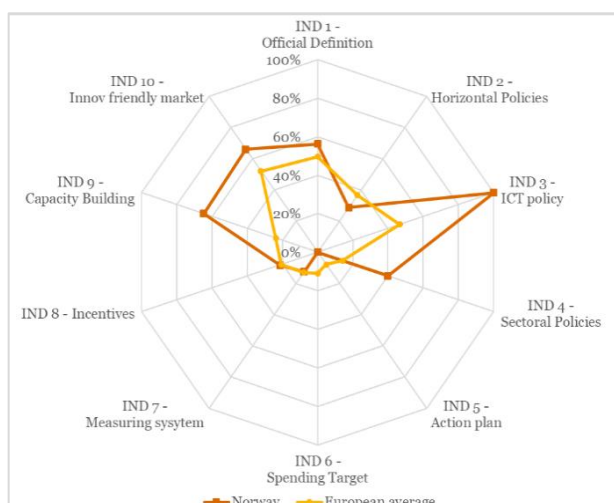
The key actors in the field of innovation procurement are the **Ministry of Trade and Industry (NHD)**, which defines the rules and regulations on public procurement and is responsible for innovation policy. The strategic use of public procurement to address innovation objectives is part of this. The **Agency for Public Management and eGovernment (Difi)**⁶⁰⁸ assists Government and key procurers in the modernization of the public sector and in the implementation of innovation procurement, via competence building and dissemination.

Difi in cooperation with the **Norwegian Association of Local and Regional Authorities (KS)** the and **Confederation of Norwegian Enterprise (NHO)** implement the “**National programme for supplier development**”, which is intended to encourage innovation and creativity within public sector through concrete innovation procurement projects, method development and competence building activities.

Another actor is **Innovation Norway (IN)**⁶⁰⁹, Norwegian Government's most important institution for innovation and development of Norwegian enterprises and industry, which also deals with innovation procurement from a supply-side point of view.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Norway is at the 7th position** in the overall ranking with a **total score of 38,1%**. From the 30 countries analysed, Norway is among the group of good performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 39% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Norway to reach its full 100% potential.



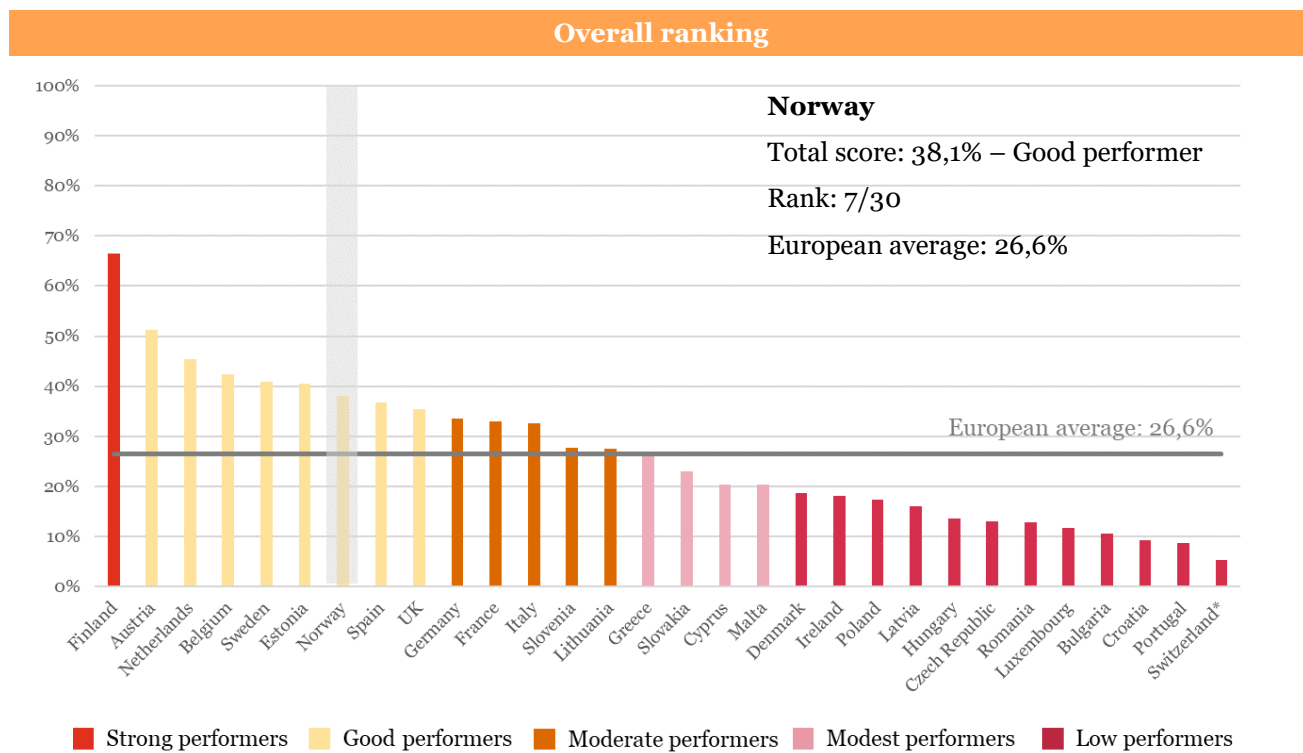
Strengths: Norway is structuring its support to enhance the use of innovation procurement, and has well-developed capacity building and assistance measures

Weaknesses: Underutilisation of potential synergies with several horizontal and sectorial policies, absence of dedicated action plan, spending target and structured monitoring system for innovation procurement. Lack of IPR policy in public procurement that encourages innovation.

⁶⁰⁷ <https://lovdata.no/dokument/SF/forskrift/2013-10-04-1185>

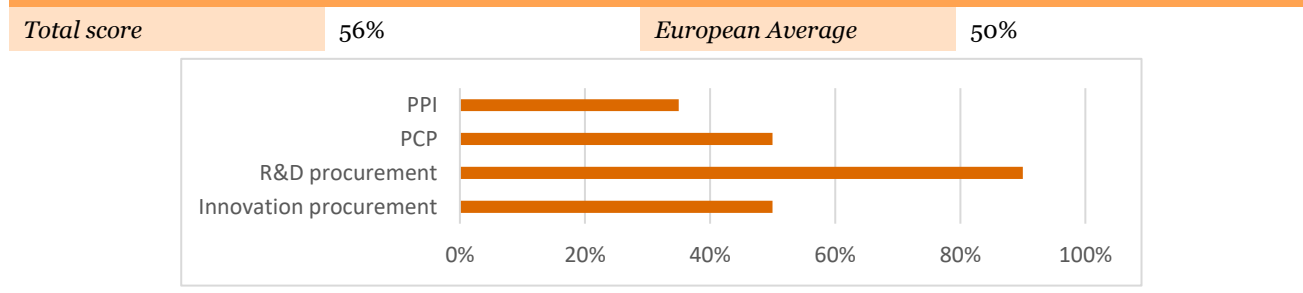
⁶⁰⁸ <https://www.difi.no/om-difi/about-difi>

⁶⁰⁹ <http://www.innovasjon Norge.no/en/start-page>



Overview per indicator

Indicator 1 – Official definition



In the Norwegian public procurement legislation, there is an official definition for innovation and an official definition of R&D procurement for defence procurers, but no official definitions for Public Procurement of Innovative solutions (PPI). Innovation procurement and Pre-Commercial Procurement (PCP) are defined in Difi guidance. The total score of the indicator is 56%.

The national legal public procurement regulation (FOR-2016-08-12-974) defines **innovation** as “the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is in line with the EU definition, and it is country-wide applicable

There is a definition of **innovative procurement** in guidance material on the Difi website⁶¹⁰. "Innovation is something new and useful that is used and creates value. Value can be assessed in several ways, e.g.:

- Economy and cost / benefit (what values does the solution create against what it costs to implement and operate it?)
- Quality and reduced error rate
- Efficiency and productivity
- Quality of life and satisfaction
- Reputation and customer friendliness
- Ease of use and simpler user interface

Based on the above definition of innovation, innovative procurement is a method or way of implementing procurement, in a way that promotes and/or results in innovation. Innovative procurement is therefore both about how the procurement process is carried out and what is procured.”

This definition of innovative procurement is broader than the EU definition of innovation procurement because it includes procurements that use new innovative approaches in the procurement process itself but do not result in the procurement

⁶¹⁰ <https://www.anskaffelser.no/innovasjon>

of any type of innovation. The definition of innovative procurement in Difi guidance is thus not completely in line with the EU definition of innovation procurement, therefore the total score for this sub-indicator is 50%.

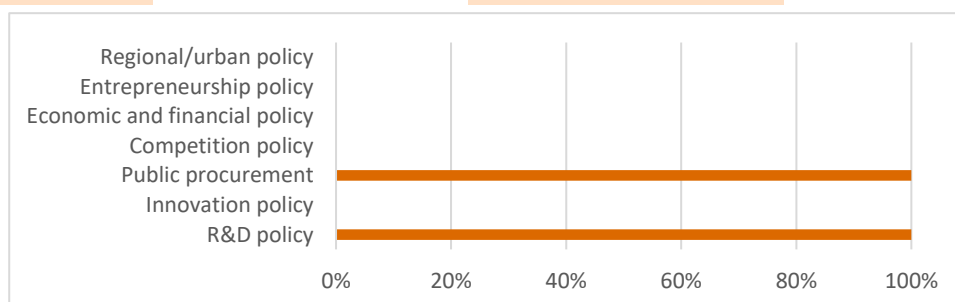
For non-defence procurers, Art § 2-5 of the Public Procurement Act identifies R&D as all the activities that have the CPV codes, for fundamental research, applied research and industrial development. A definition of **R&D** in the context of public procurement is provided by the Regulation on Defence and Security Procurements in Art § 4-1. of the section General definitions: research and development are “all activities involving basic research, applied research and experimental development, where the latter may include the development of technology demonstrators, i.e. devices that show the performance of a new concept or new technology in a relevant or representative environment”. The CPV codes and the definition are fully in line with the provisions in the EU public procurers’ directives, but the definition is only applicable to defence procurers. Therefore, the total score of this sub-indicator is 90%.

In national guidance on the Difi website⁶¹¹ there is a definition of PCP applicable to all public procurers in the country, but it is not fully in line with the EU definition as it does not recognise that the purchase of non-commercial volumes of solutions can be part of a PCP. Art § 2-5 transposes the exclusion for R&D services, which forms the legal basis for implementing **PCP**, namely: “the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. As the legal framework provides a clear legal basis to implement PCP for all public procurers in the country, the score for this sub-indicator is 50%.

Concerning **PPI**, although there is no official definition, the Public Procurement Act enables all procurers to implement PPI by allowing procurers to take into account innovative solutions characteristics in the award and performance monitoring: “the client may make appropriate requirements and criteria related to different stages of the procurement process, so that public contracts are implemented in a manner that promotes environmental, innovation, employment and social conditions, provided that the requirements and criteria are related to the delivery”. The total score of this sub-indicator is 35%.

Indicator 2 – Horizontal policies

Total score	29%	European Average	36%
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Innovation procurement is embedded in two out of seven horizontal enabling policies in Norway. Therefore the score of this indicator is 29%.

Under public procurement policy, innovation procurement has a main role in the **Strategy for increased innovation impact of public procurement** (2013)⁶¹². The national **Long-term plan for research and higher education 2015–2024**⁶¹³ states that: “Public procurements and public private cooperation are examples of collaboration that must be designed so they become instruments for addressing challenges that require research or innovation. The potential for using public procurements to mobilise the business community toward more research and innovation is considerable. A public sector that demands expert goods, services and solutions, and that cooperates with the business community, can be an important catalyst for more research and innovation. Continued development of public procurement schemes is an effective tool for promoting more R&D in trade and industry”.

Indicator 3 – ICT policies

Total score	100%	European Average	47%
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Under ICT policy, **Norwegian digital agenda** considers innovation procurement among its strategic tools: “A conservative estimate of ICT procurements in the public sector in Norway in 2014 is put at NOK 16.6 billion. It is important to secure the best possible returns on these investments. Creating more professionalised digitisation projects in the public sector is a key element to this end. Such professionalisation will also help stimulate innovation within industry [...]”⁶¹⁴. Action under Part III ICT policy for value creation and inclusion states that “The Government will strengthen innovation and business development inside welfare technology through the use of open standards and wider use of innovative procurements”.

⁶¹¹ <https://www.anskaffelser.no/innovasjon/metoder-gjennomforing-av-utviklingprosjekter/kommersielle-anskaffelser>

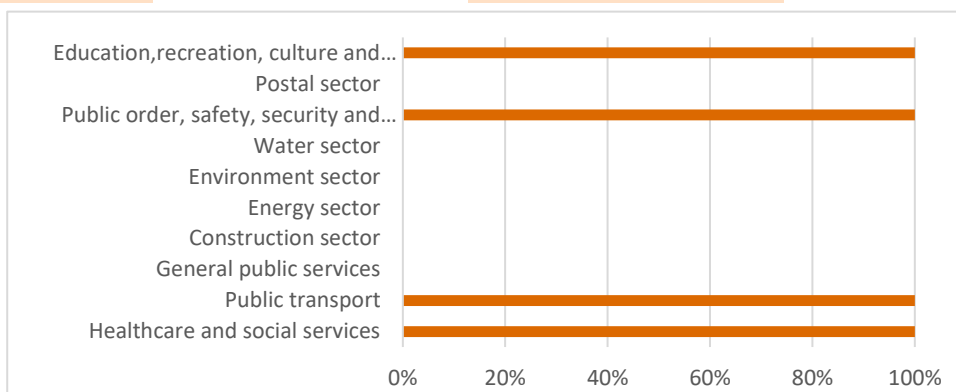
⁶¹² https://www.regjeringen.no/globalassets/upload/nhd/vedlegg/rapporter_2013/innovasjonseffektavoffentligeanskaffelser_2013.pdf

⁶¹³ <https://www.regjeringen.no/contentassets/e10e5d5e2198426788ae4f1ecbbbc20/en-gb/pdfs/stm201420150007000engpdfs.pdf>

⁶¹⁴ https://www.regjeringen.no/contentassets/07b212c03fee4d0a94234b101c5b8ef0/engb/pdfs/digital_agenda_for_norway_in_brief.pdf

Indicator 4 – Sectorial policies

Total score 40% **European Average** 14%



Innovation procurement is embedded as a strategic priority in frameworks and action plans of four horizontal policies. On the basis of the evidences, the total score of this indicator is 40%.

In particular, the **Government Action Plan for Implementation of the Health&Care21 Strategy**⁶¹⁵ (2015-2018) and the **National Transport Plan 2018–2029**⁶¹⁶, for healthcare and transport policy respectively, explicitly promote the use of innovation procurement among its actions. Under defence policy, the **strategy for the Norwegian Armed Forces** states that this part of the public sector will focus explicitly on innovative SMEs in their procurement in the coming years.⁶¹⁷ Concerning R&D and education policies, the **Long-term plan for research and higher education 2015–2024** also recognises the role of the public sector in increasing the demand of innovation and therefore promotes the use of innovation procurement.⁶¹⁸

Under environmental policy, Norway shows a great interest in the field of sustainable procurement⁶¹⁹, but not directly to innovation procurement.

Indicator 5 – Action plan

Total score 0% **European Average** 8%

Norway does not have a stand-alone action plan for innovation procurement.

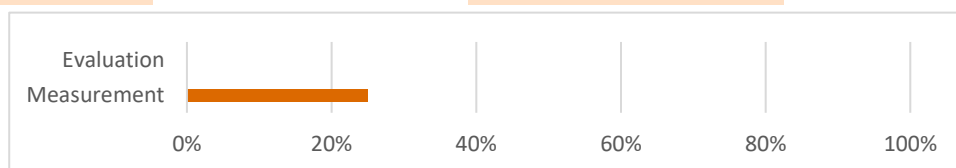
Indicator 6 – Spending target

Total score 0% **European Average** 11%

In Norway there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score 13% **European Average** 13%



Norway does not have a structured system to measure innovation procurement expenditure and evaluate the impacts of completed innovation procurements. However, there are several **measurement exercises**. In particular, an electronic-based survey performed in 2010 by KS and Difi got answers from 125 local municipalities (12%), 11 counties (31%) and by 147 state enterprises (57%). It showed a large under-utilised potential in the field on innovation procurement, as only 5% of the local municipalities and 10% of the counties have actively sought innovative solutions over the previous 2-3 years, and 3 out of 4 have not incorporated or formulated standard strategies to carry out innovation.⁶²⁰

Summing up, the Country does not regularly measure innovation procurement expenditure but has only conducted some pilot initiatives. Therefore, the total score for the sub-indicator measuring is 25%. Finally, due to the total **absence of an**

⁶¹⁵ https://tapahtumat.tekes.fi/uploads/5ef05118/Harbo_0711-1780.pdf

⁶¹⁶ https://www.regjeringen.no/en/dokumenter/meld.-st.-33-20162017/id2546287/sec5?q=procurement#match_o

⁶¹⁷ <http://www.anskaffelser.no/nyhet/2015-11-18/forsvaret-satsar-pa-innovative-smb>

⁶¹⁸ https://www.regjeringen.no/en/dokumenter/meld.-st.-7-2014-2015/id2005541/sec5?q=procurement#match_o

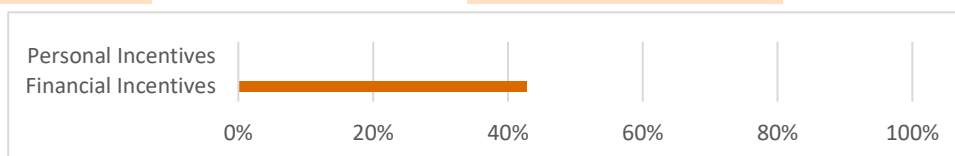
⁶¹⁹ https://www.regjeringen.no/globalassets/upload/md/vedlegg/planer/t-1467_eng.pdf

⁶²⁰ https://tapahtumat.tekes.fi/uploads/5ef05118/Harbo_0711-1780.pdf

evaluation system in place the score for the sub-indicator evaluation is 0% and the total score of the indicator "Monitoring system" is 13%.

Indicator 8 – Incentives

Total score 21% **European Average** 22%



In Norway there are financial incentives but no personal incentives for innovation procurement. The total score for this indicator is 21%.

The **National Programme for Supplier Development**⁶²¹ was set up to accelerate innovations and development of new solutions through the strategic use of public procurement, while at the same time contributing to new market opportunities for these innovations and enhancing procurers' competences about innovation procurement. It focuses on new ways of supporting both the public buyers and the suppliers through innovation procurement. The programme, started in 2010 for a period of 5 years and re-launched in 2015 until 2019, is a joint collaboration by three entities representing both the public and private sector:

- 1) **Agency for Public Management and eGovernment (Difi)** provides support in developing tools and guidance on public procurement as well as specifically on innovative procurement;
- 2) **Norwegian Association of Local and Regional Authorities (KS)** provides the link to both local and regional authorities and stimulates actors towards innovative public procurements. It provides inputs into strategic areas as a programme to pursue (e.g. upcoming procurements which may have a significant potential for climate-smart solutions) and systematically shares lessons learned.
- 3) **Confederation of Norwegian Enterprise (NHO)** provides the link to the private sector actors.

The programme brings together public buyers (in particular local authorities like cities and counties from across Norway) which may have a common agenda and similar challenges. In doing so, the needs are mapped jointly, and once identified, the market and relevant suppliers are invited for dialogue on how to solve this through joint procurement processes.

The programme acts as a broker and facilitator in joint procurement initiatives. It can facilitate some financial incentives for procurers for pilot innovation procurements but not for large scale mainstreaming of innovation procurement across the country. The programme is using national funds and does not use top-up EU funds like ESIF. Therefore the score on "financial incentives" is 43%. As there are no personal incentives in Norway to encourage public procurers to undertake more innovation procurements, the score for sub-indicator "personal incentives" is 0%.

This results in a total score for the indicator "incentives" of 21%.

Indicator 9 – Capacity building and assistance measures

Total score 65% **European Average** 24%

	Existence	Connection with relevant international/ EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	✓		✓	✓	✓	✓	83%
Good practices	✓		✓	✓	✓		67%
Trainings/workshops	✓		✓	✓	✓		67%
Handbooks/guidelines	✓		✓	✓	✓		67%
Assistance to public procurers	✓		✓	✓	✓		67%
Template tender documents	✓		✓		✓		50%
Coordination	✓		✓		✓		50%
Networking	✓	✓	✓	✓			67%

⁶²¹ <http://innovativeanskaffelser.no/> and <http://www.innobuild.eu/innobuild-project/partners/national-program-supplier-development.html>

One-stop-shop/ competence centre	✓		✓	✓	✓		67%
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Norway carries out several capacity-building measures to increase the procurer's know-how and promote the use of innovation procurement. The high score of the indicator reflects the well-structured capacity building system of the Norwegian procurement system.

The key actor in capacity building is the **Agency for public management and eGovernance (Difi)** which assists agencies and public authorities to set up solid procurement procedures and to undertake innovation procurements. On its **central website**⁶²² Difi publishes **official guides and handbooks**, provides **training sessions and courses** to procurers on the link with the Norwegian funding scheme for suppliers that are developing solutions for the public sector as developed by the National Programme for Supplier Development (cf. Indicator "Incentives") as well as on PCP. It also carries out a number of activities such as information, awareness rising, collection and awarding of good practices, individual consultancy and international networking.

Examples of Difi's guide on the topic are "Managing risk of public procurement of innovation" (2014).⁶²³

Under the Start Programme⁶²⁴ of the National Programme for Supplier Development, Difi provides **detailed instructions and templates** to perform innovation procurements and it uses **examples** from over 150 implemented innovation procurements to illustrate

- How to use functional specifications rather than detailed requirements;
- Acquisitions and innovation as strategic tools - how to use procurement to realize business goals and plans;
- Provide innovative procurement - tips for business executives;
- Dialogue with the market;
- Demand mapping and user involvement;
- Implementation of innovation procurements in practice.

There are regular events to network Norwegian local authorities also in the context of creating buyers groups that coordinate their procurement needs towards the market. In 2011 the Nordic Ministers of Industry also launched together a Nordic lighthouse initiative in the healthcare domain to strengthen collaboration between Norway, Finland, Sweden, Denmark and Iceland on innovation procurement. Nordic innovation and the national competence centres on innovation procurement in those countries organise from time to time meetings with procurers from different Nordic countries to discuss potential coordinated procurement possibilities. As both initiatives are not applicable to all types of procurers and not implemented yet at large scale the score for the **networking** sub-indicator is 67%,

The national supplier development programme, supported by Difi, coordinates the creation of buyers groups of small procurers (typically local authorities) and the preparation of joint procurements to create enough market pull for suppliers to bring innovative solutions to the market. The programme coordinates the identification and specification of joint needs and helps those buyers groups organise open market consultations, promotes the calls for tenders based on template tender documents for PCPs and other types of innovation procurements provided by Difi. This is happening so far however only at small scale. The score for sub-indicator coordination is 50%.

On the basis of the evidence collected above, the total score for this indicator is 65%. The score is affected by the fact that usually there is no connection with relevant EU initiatives, and these measures are often not conceived to mainstream innovation procurement at large scale in the country.

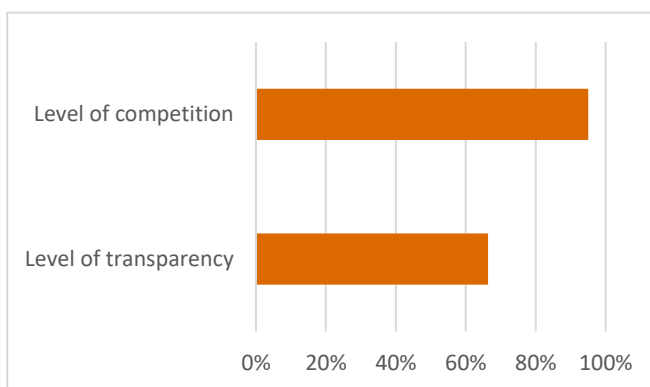
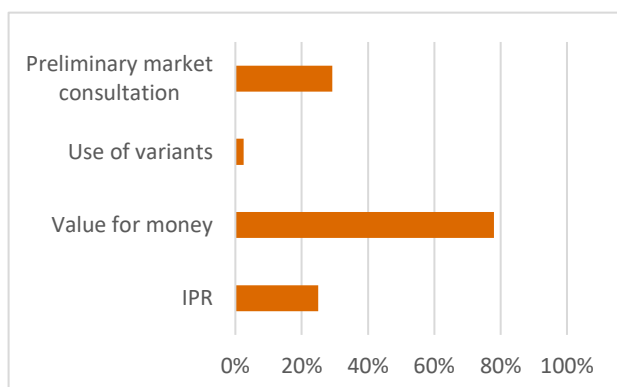
Indicator 10 – Innovation friendly public procurement market

Total score 57%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



⁶²² <https://www.anskaffelser.no>

⁶²³ <https://www.innovation->

[procurement.org/resources/search?country=176&category=0&topic=0&language=0&product=0&level=0&q](https://www.innovation-procurement.org/resources/search?country=176&category=0&topic=0&language=0&product=0&level=0&q)

⁶²⁴ <http://innovativeanskaffelser.no/startprogram/>

This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Norway
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Norway shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers defined in the Norwegian law, general terms and conditions for government contracts and guidelines on public procurement. It is left to the individual responsibility of each Austrian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. The Norwegian copyright act⁶²⁵ assigns copyright to the creator and determines that the moral rights can only be waived to a limited extent by the creator when the use of the work in question is limited in nature and extent. If the procurer wants to use the commissioned work, he must require in the tender specifications the transfer, assignment or a license of the economic rights (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright protects also scientific work (product designs, product specifications, tests etc.), computer programs and databases. The Difi guidelines about PCP explain that in PCPs the contractors should retain IPR ownership rights and the public procurer retains usage and licensing rights⁶²⁶. There also some template tender documents for some other types of procurements on the Difi website where IPR ownership is left with the contractors, but these are not for all types of procurements that can involve innovation and also informational only.
- b. **Use of value for money criteria:** According to the EU single market scoreboard, 78% of the public procurement procedure have been awarded using criteria that are not only based on the lowest price. This is well above the European average of 42% and almost reaching the 80% satisfactory level set out in the EU single market scoreboard.
- c. **Use of variants:** Norway has allowed the use of variants in the 3% of the procedures. This percentage is below the European average.
- d. **Preliminary Market Consultations:** Norway has used Preliminary Market Consultations in the 29% of the procedures. This percentage is significantly above the European average of 9%

Based on this evidence, the score for sub-indicator I is 34% which is above the European average of 23% This is mainly due to the above average performance in the use of value for money criteria and Preliminary Market Consultation, despite a below average performance on adopting a IPR default regime that fosters innovation in public procurement and the improvement that can still be made to obtain wider scale use of value for money award criteria.

With regard to sub-indicator II, Norway shows the following evidence (based on the single market scoreboard):

- e. **Level of competition:** The level of competition is 95% which is above the European average 84% and above the 92,5% satisfactory level set by the EU single market scoreboard. This high score is driven by above average and satisfactory scores on both sub-indicators: the percentage of procurements for which a call for bids was organised (100%) and the percentage of procurements for which there was more than one bidder (90%).
- f. **Level of Transparency:** The level of transparency is 66% which is above the European average 45% and exactly equal to the 66% satisfactory level set by the EU single market scoreboard. This score is driven by the above European average level of information provided to bidders: above average percentage of procurements without missing call for bids information (94%) and without missing buyer registration numbers (99%).

Based on this evidence, the score for sub-indicator II is 81% which is above the European average of 65% and above the satisfactory level 79% set by the EU single market scoreboard. This is due to good levels of competition and transparency.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 57% which is above the 44% European average. This score is explained by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Norwegian procurement market to innovations from across the EU single market is above the European average, but the first is still below the satisfactory level. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and the use value for money criteria can still be further improved. The national public procurement market shows an above European average and satisfactory level of competition and transparency.

⁶²⁵ <http://www.wipo.int/wipolex/en/details.jsp?id=15949>

⁶²⁶ <https://www.anskaffelser.no/metoder-gjennomforing-av-utviklingprosjekter/kommersielle-anskaffelser/kontraktinngaelse>

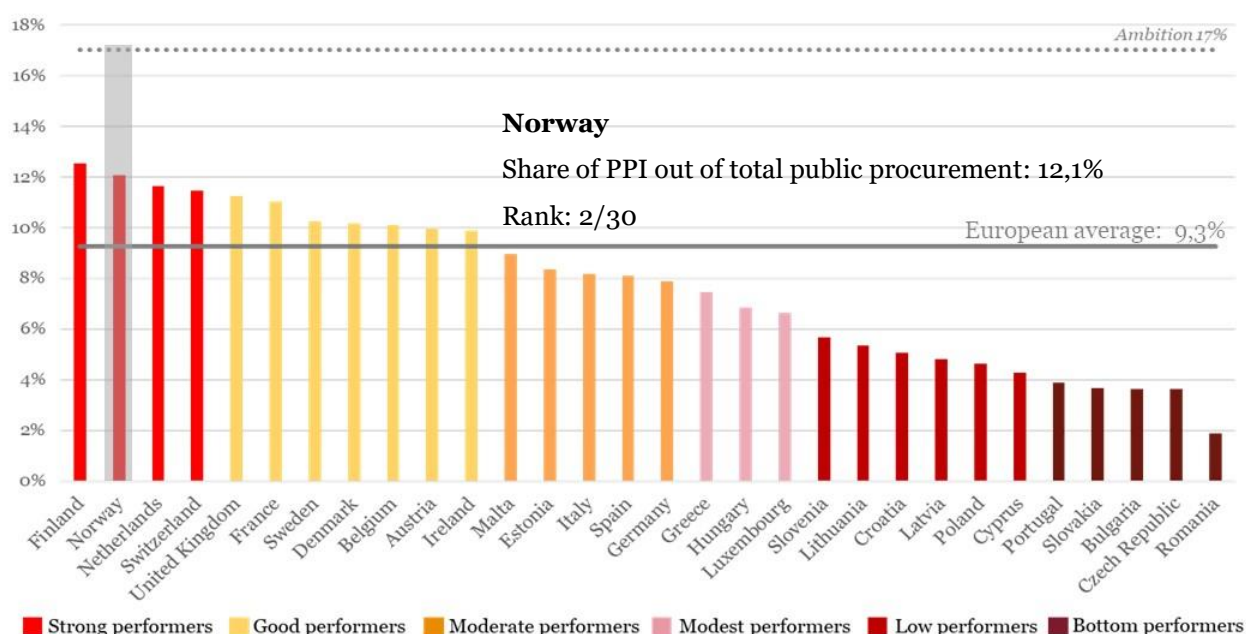
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Norwegian investments on public procurement of innovative solutions (PPI) and the benchmarking of Norwegian investments on public procurement of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 12,1% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 8,2 bn), **Norway ranks 2nd** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁶²⁷ across Europe. Norway falls within the group of **strong performers**, performing well above the European average of 9,3%.⁶²⁸ However, **a modest increase of investments in PPI is still be needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Norwegian public sector.⁶²⁹ When taking into account also PPI in the defence sector Norway moves up to the 1st position.



The **main factors**⁶³⁰ explaining Norway's strong performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** represent almost the entire amount the PPI occurred Norway (97%) and is clearly above the European average (84%). This may be explained by the high adoption of 'significantly improved' solutions (91%) and to a lesser extent of innovative solutions that are 'new to the market' (6%). Accordingly, the share of PPI investments spent on the adoption of **incremental innovations** (16%) is marginal (3%). This consist of 'existing solutions used in a new way or in a new sector' or 'innovative combinations of existing solutions'.

⁶²⁷ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

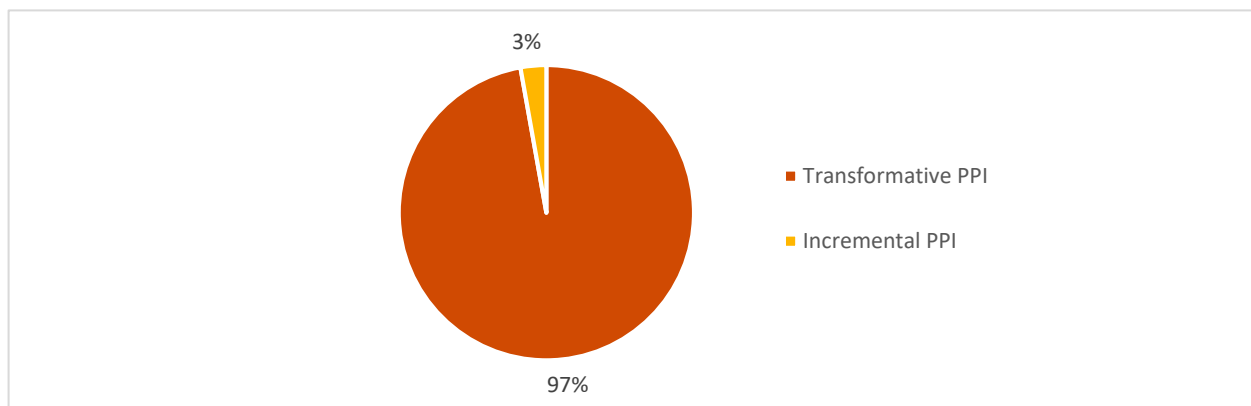
⁶²⁸ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁶²⁹ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁶³⁰ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Despite the strong performance compared to other European countries, **additional growth could be achieved through a wider adoption of ICT technologies**, which are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity⁶³¹ in Norway purchased innovation solutions, except in the categories 'Postal services' and 'Other' with zero PPI investments. However, Norwegian PPI investments were very concentrated in one domain of public sector activity, namely '**General public services, public administration and economic and financial affairs**' which made the lion share of the investments (86%), significantly above the European average (35%). Conversely, the shares of PPI investments made by other sectors were below the European averages, such as '**Healthcare and social services**' (-17 pp), '**Public transport**' (-7 pp), '**Energy**' (-5,9 pp), '**Public order, safety and security**' (-6 pp) etc.

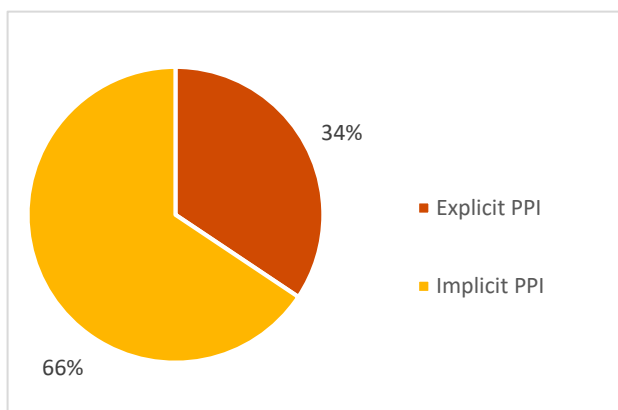
PPI investments by domains of public sector activity

Domain of public sector activity	Norway	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	86%	35%	+51
Public transport	3%	10%	-7
Healthcare and social services	4%	21%	-17
Energy	0% (0,1%)	6%	-6
Environment	0% (0,3%)	3%	-3
Construction, housing and community amenities	0% (0,2%)	4%	-4
Education, recreation, culture and religion	4%	5%	-1
Water	0% (0,4%)	4%	-4
Public order, safety and security	2%	8%	-6
Postal services	0%	1%	-1
Other	0%	3%	-3
Total PPI investments	100%	100%	-

⁶³¹ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

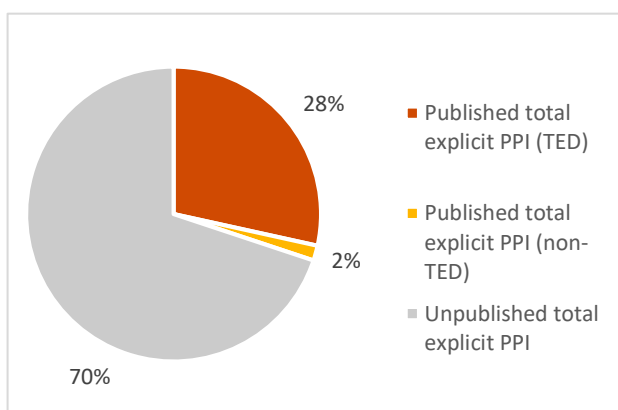


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is higher in Norway (34%) compared to the European average (29%). This indicates that Norwegian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Norway (66%) compared to the European average (71%). This indicates that Norwegian procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

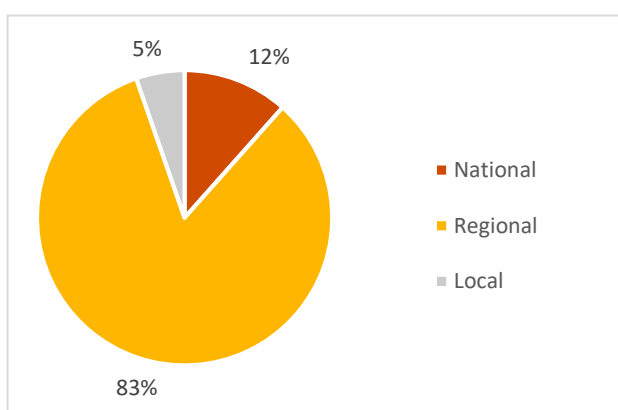


The share of Norwegian PPI investments for which calls for tenders are published (30%) is moderate and a little higher than the European average (22%). The share **published at European level** in the TED database (28%) is considerably above the European average (18%), while the share **published at national level** (4%) is below the European average (5%). The share of PPI investments for which no call for tender is published is very high (70%).

By not published PPI call for tenders more widely, Norway is **missing out on potential innovative solutions** that could speed up public sector modernisation, both from Norwegian and other European innovative suppliers that are not informed about the Norwegian PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

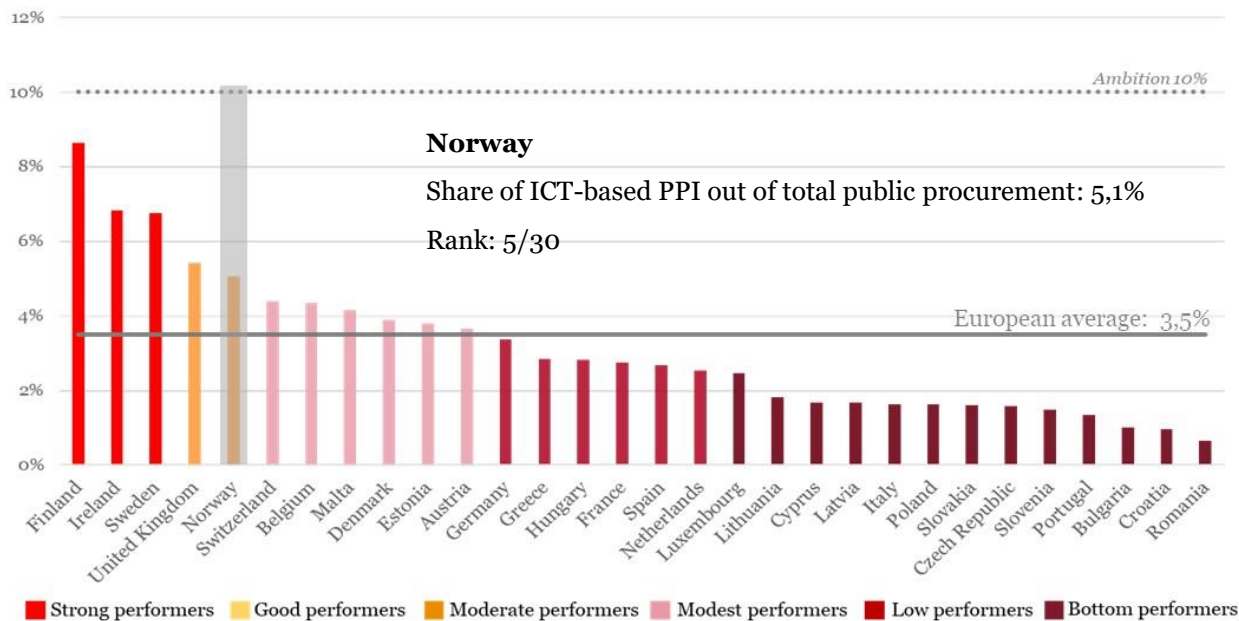


The share of PPI investments which are carried out by **large-scale entities at national level** (12%) is small compared to the European average (47%).

The share of PPI investments that is carried out by **regional level procurers** (83%) is much higher than the European average (24%). The share of PPI investments carried out by **procurers at local level** (5%) is small compared to the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Norwegian public sector shows a **good level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 5,1% of public procurement invested in innovative ICT-based solutions, Norway ranks 5th in the benchmarking of ICT-based PPI investments, well above the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions, Norway performs (42%) just above the European average (38%). **A significant increase of investments in buying innovations ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Norway to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁶³²

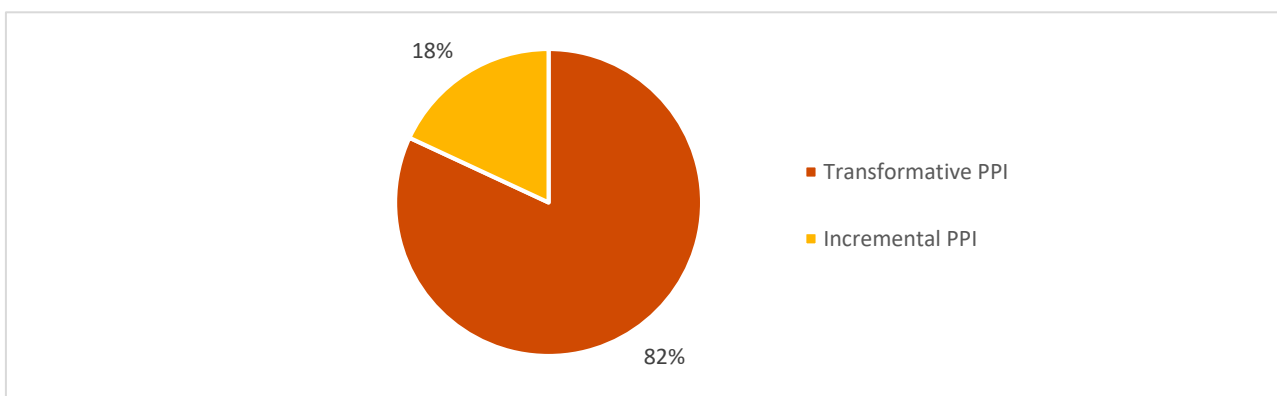


The **main factors**⁶³³ explaining Norway’s good performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Norway (82%) is just above the European average (79%). The wide majority of these investments (44%) are ‘significantly improved solutions’ followed by innovative solutions that are ‘new to the market’ (38%). The share of ICT-based PPI investments that is spent on the adoption of **incremental ICT-based innovations** (18%) is slightly below the European average (21%).⁶³⁴

ICT-based PPI investments by type of innovation



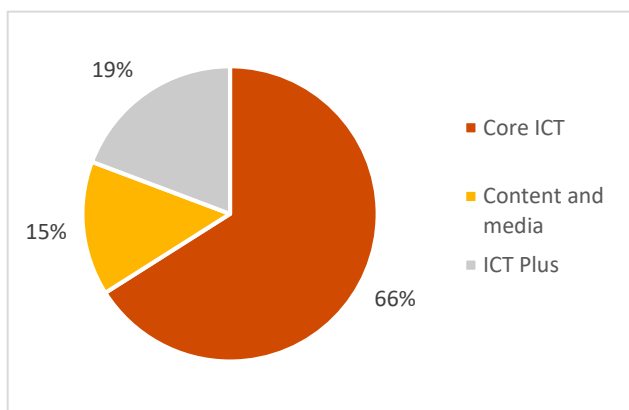
⁶³² It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁶³³ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁶³⁴ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Norway invested mainly in the adoption of innovations from the **‘Core ICT’ sub-sector**⁶³⁵ (66%), above the European average (54%).

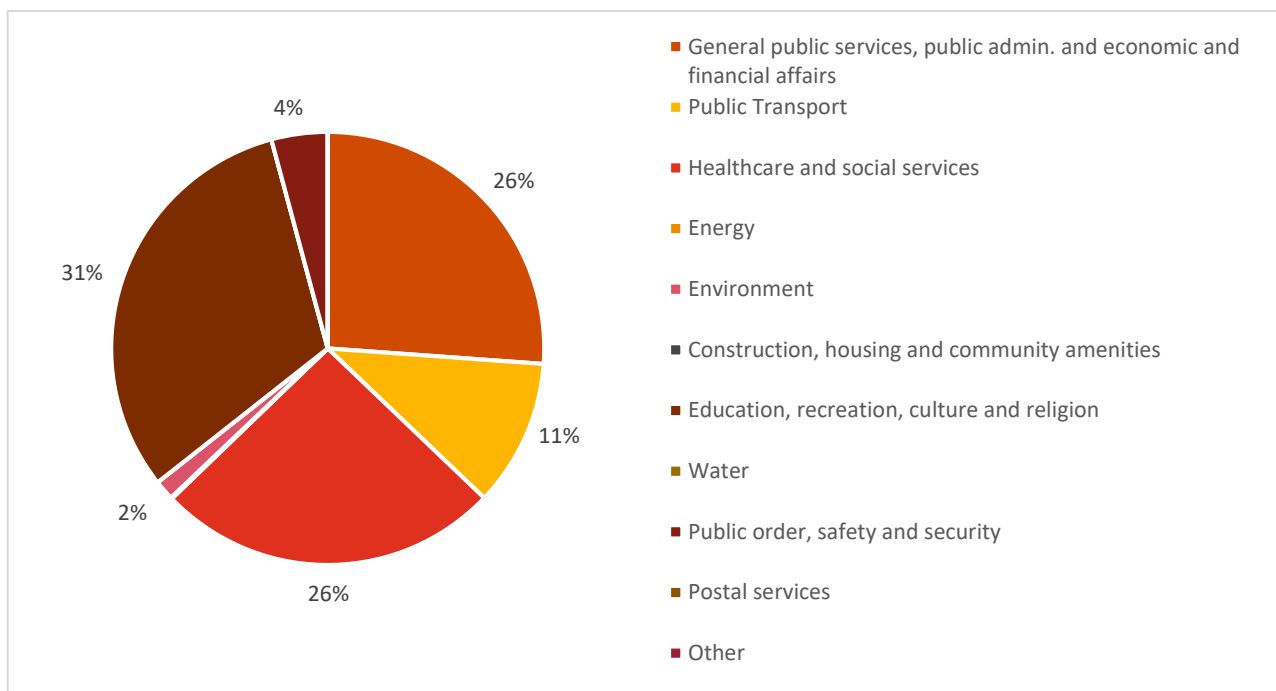
Norway invested significantly less in the adoption of innovations from the **‘ICT Plus’ sub-sector** (19%) compared to the European average (45%).

Investments in adopting innovations from the **‘Content & Media’ sub-sector** were modest (15%), but considerably above the European average (1%).

Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity in Norway purchased innovation solutions, except in the categories **‘Postal Services’**, **‘Water’** and **‘Other’** with zero PPI investments. The highest shares of procurements of innovative ICT-based solutions, which are also significantly above the European averages, come from procurers that operate in **‘Education, recreation, culture and religion’** (29% against a 9% European average), followed by **‘General public services, public administration and economic and financial affairs’** (24% against the European average of 16%). Conversely, the most relevant gap with the European average is experienced in the **‘Public order, safety and security’**, where investments were 8% below from the European average. The shares of investments made by procurers in **‘Energy’** (0,1%) and **‘Environment’** (1,4%) were small.

ICT-based PPI investments by domains of public sector activity

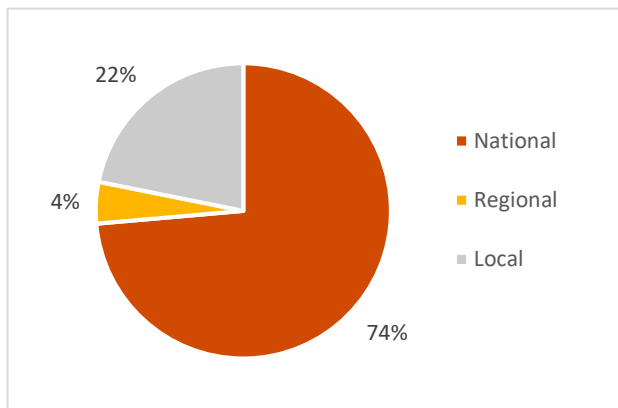


⁶³⁵ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 74% of ICT-based PPI investments, quite above the European average (69%).

Procurers at local level account for 22% of the ICT-based PPI, which is more than double than the European average (10%). To the contrary, **regional procurers** account for only a small fraction of ICT-based PPI (4%), significantly below the European average (21%).

Poland



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

Innovation procurement in Poland is regulated by the Public Procurement Law (PPL) of 2016 that transposed the EU Procurement Directives (Directives 2014/23/EU, 2014/24/EU 2014/25/EU) in the national jurisdiction⁶³⁶. The PPL also transposed the EU Directive 2009/81/EC on defence procurement.

The public procurement system in Poland is highly decentralised and all contracting authorities (including local administrations) are free to set their own secondary policies and objectives. In 2018, the total number of contracting authorities was approximately 33,000.

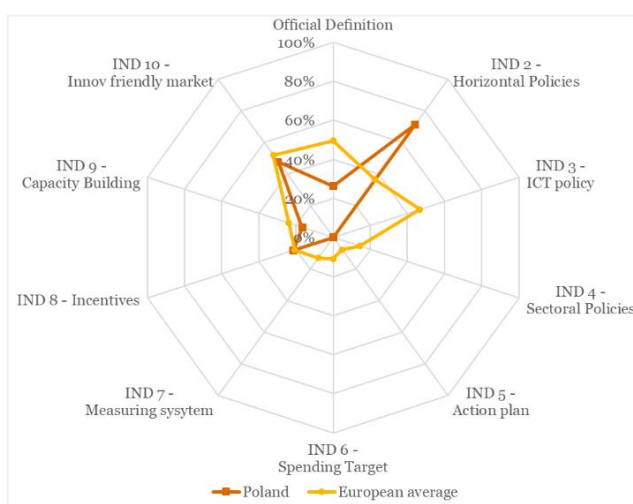
The **Government Administration Service Centre (COAR)** is the central purchasing body for governmental level entities. In Poland a new national purchasing policy, addressing also innovation procurement, is currently in the process of elaboration.

The **Ministry of Entrepreneurship and Technology** is responsible for the national innovation policy, including the innovation procurement policy. The **Public Procurement Office (PPO)**, a government agency under the supervision of the ministry, is in charge for its implementation and is responsible for the Public Procurement Law and its revisions. The PPO also undertakes initiatives to raise awareness and enhance capacity of public procurers in the field of innovation procurement. Other relevant actors in the innovation procurement ecosystem are the **Ministry of Investment and Development**, which is responsible for financing innovations, and the **Polish Agency for Entrepreneurship Development (PARP)**, a government agency under the supervision of this Ministry, supporting innovative entrepreneurs and contractors.

Moreover, the **Ministry of Science and Higher Education** is in charge of R&D policy and its executive agency, the **National Centre for Research and Development (NCBR)**⁶³⁷, manages large innovation projects (PPI) with the involvement of public, private and academic partners and is also involved in management and support of supply side R&D grant projects aimed at addressing public sector challenges.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Poland is at the 21st position** in the overall ranking with a **total score of 17.4%**. From the 30 countries analysed, Poland is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 18.3% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a very strong reinforcement of the policy framework needed in Poland to reach its full 100% potential.

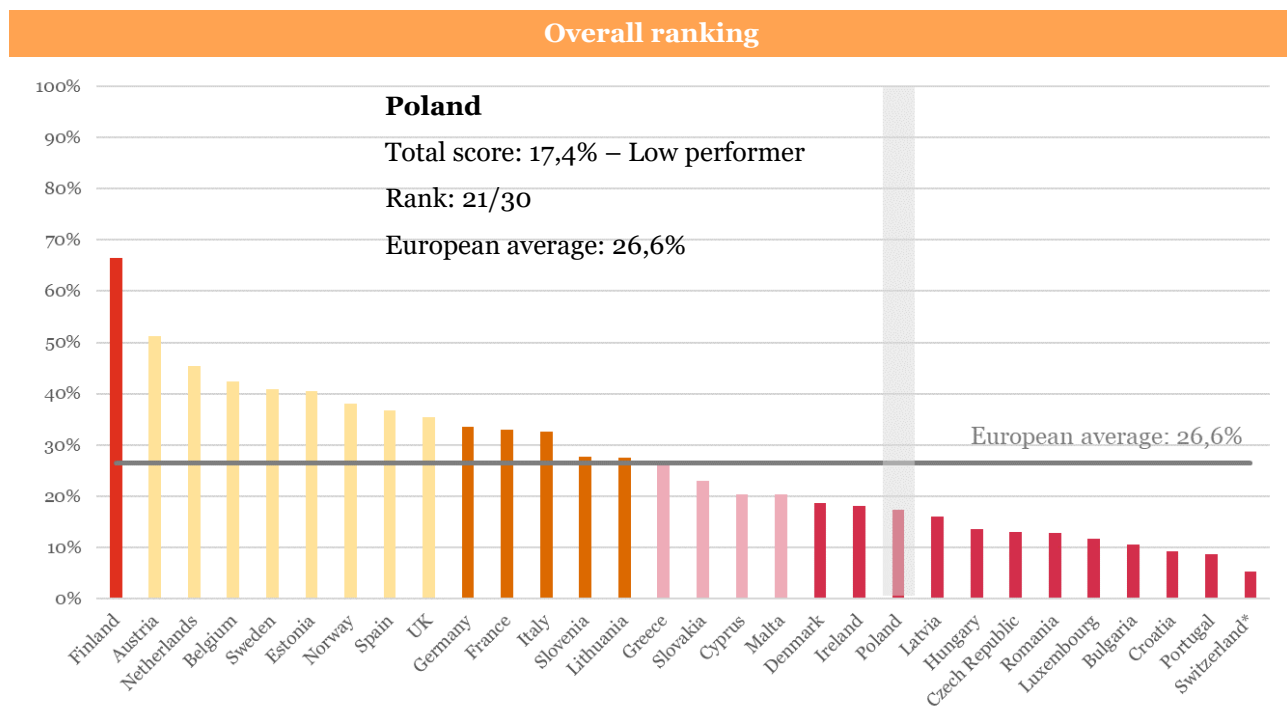


Strengths: In Poland there is a rising awareness on the strategic importance of innovation procurement in horizontal enabling policies, innovation procurement is put forward as strategic priority in the public procurement, innovation and economic policy and ESIF funding is being mobilised for innovation procurements.

Weaknesses: Innovation procurement is not strategically taken up yet in sectorial policies to move to wide scale implementation across all sectors, capacity building and assistance measures are not mainstreamed widely yet, lack of action plan, spending target and monitoring system. Lack of IPR policy in public procurement that encourages innovation.

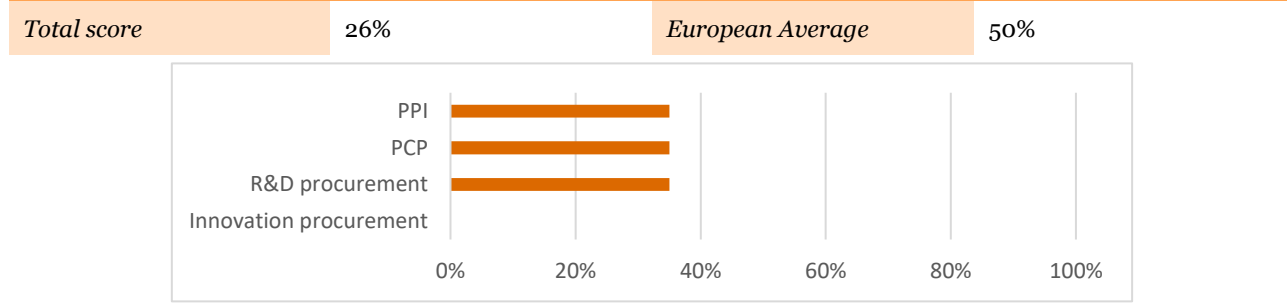
⁶³⁶ The Act of 22 July 2016 amending the law on the minimum wage and some other acts (Journal of Laws of 2018, item 1986, 2215): https://www.uzp.gov.pl/_data/assets/pdf_file/0019/40177/Public_Procurement_Law_2018_consolidated.pdf

⁶³⁷ <http://www.ncbr.gov.pl/en/>



Overview per indicator

Indicator 1 – Official definition



The Polish public procurement law does not provide official definitions for R&D, innovation, innovation procurement, PCP or PPI. Nevertheless it provides for all types of public procurers in the country a clear legal basis to implement R&D procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). Therefore, the total score for this indicator is 26%.

Polish public procurement law has not completely correctly transposed the **definition of innovation** from the EU public procurement directives that can be used in combination with all public procurement procedures. The only reference to innovation in Polish public procurement law is found in art 73 of the law on the innovation partnership procedure⁶³⁸. Questions to EU have shown that this situation has created confusion among Polish public procurers, several of which are assimilating innovation procurement only with the innovation partnership procedure. There is however a much wider range of procurement procedures and approaches available under the public procurement legal framework that can be used to implement innovation procurements, ranging from simple-to-start-with procedures (to buy R&D or innovative solutions separately) to more elaborate and complex ones such as the innovation partnerships⁶³⁹. The way in which innovation is defined in art 73 of the Polish public procurement law is also different in scope from how it is defined in the EU public procurement directives. The EU public procurement directives define innovation as the implementation of a new or significantly improved product, service... (which includes under innovation procurement also procurements that procure only the activity of implementing/creating an innovative solution, without necessarily buying this solution) whereas art 73 of the Polish public procurement law defines innovation more narrowly as only the outcome of an innovation activity (the new or significantly improved product, service...). This also fuels misunderstandings that only procurements that buy an innovative solution are considered innovation procurements and contributes to misconceptions that R&D procurements are not innovation procurement. Avoiding these confusions in the future will be important to prevent misconceptions and disorientation in Poland about what is considered

⁶³⁸ The Polish Public Procurement Law, Article 73a.3: An innovative product, service, or work shall mean a new or significantly improved product, service, or process, including manufacturing, construction, or installation process, or a new marketing method or a new organisational method in business activities, work organisation or external relations.

⁶³⁹ https://ec.europa.eu/info/policies/public-procurement/support-tools-public-buyers/innovation-procurement_en

innovation procurement and what is not. Therefore, the score on sub-indicator innovation procurement definition is 0%.

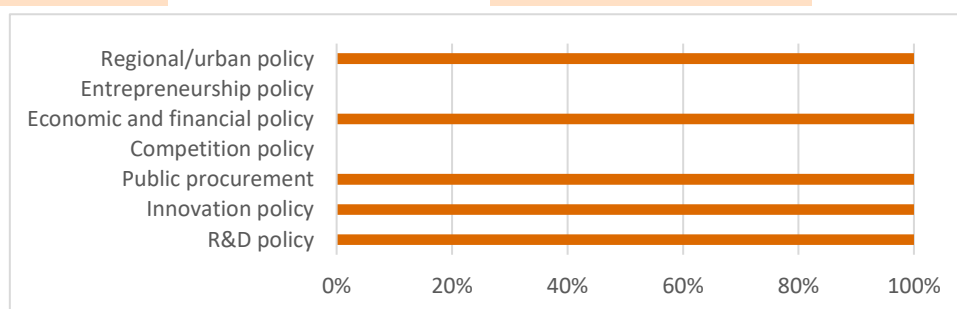
The Polish Public Procurement Law identifies in *Article 4 (3) letter e R&D* as “activities that have the CPV codes for fundamental research, applied research and industrial development”. This reference via CPV code is in line with the EU definitions for the CPV codes for R&D and represents the legal basis to implement R&D procurement for all public procurers in the country. The total score for the sub-indicator R&D procurement definition is therefore 35%.

This *Article 4 (3) letter e* also transposes the exclusion for R&D services, which forms the legal basis for implementing in **PCP**, namely: “the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. Therefore, even if national law does not provide a definition of PCP, it provides a clear legal basis for implementing PCP which is in line with the provisions in the EU public procurement directives and applicable to all public procurers in the country, resulting in a total score for the PCP sub-indicator of 35%.

The Public procurement Act provides a legal basis for the implementation of **PPI** in Poland, allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria. In particular the *article 91. P. 4* states that: “1. 2. Tender evaluation criteria shall be price or price and other criteria linked to the subject-matter of the contract, in particular: 1) quality, including technical parameters, aesthetic and functional characteristics; 2) social aspects, including social and occupational integration of persons referred to in *Article 22.2*, accessibility to disabled persons, and responding to user needs; 3) environmental aspects, including energy efficiency of the subject-matter of contract; 4) innovation aspects”. The total score of the sub-indicator PPI definition is thus 35%.

Indicator 2 – Horizontal policies

Total score	71%	European Average	36%
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In Poland five horizontal policies recognise innovation procurement as part of their strategy. These are regional, economic and financial policy, public procurement and R&D&I policies. Thus, the total score for this indicator is 57%.

Regional policy supports innovation procurement as several national **operational programmes** for the ESIF funds foresee actions on innovation procurements as well (cf. Indicator "Incentives"). These programmes are the Infrastructure and Environment Programme, the Intelligent Development Programme, the Knowledge Education Development Programme, the Digital Poland Programme, the Eastern Poland Programme, the Rural Development Programme and the Fish and Sea Programme.

In the field of economic policy, the **Responsible Development Plan**⁶⁴⁰ which formed the basis for the **Strategy for Responsible Development 2020 (with the perspective 2030) SOR** adopted by the Council of Ministers on 14th February 2017⁶⁴¹, identifies innovation procurement as a tool that should be used more to spur development of the national economy and labour market by boosting innovation. The SOR sets out as one of the priorities for the new “intelligent public procurement” policy that public procurement in Poland will provide an important impulse to innovation through “the State as a demanding customer, oriented towards technology creating a demand innovation stimulus through procurement of high-quality goods.” The Strategy has a horizontal impact on all policy sectors, especially transport, environment, energy and ICT. The objective to develop an intelligent public procurement policy was adopted in the **State Purchasing Policy**⁶⁴² in June 2018, with as main objective “Optimizing public purchases by giving procurers controllability/navigability and focusing on innovation and sustainable products and services”. The principle of the state as a demanding customer - the public sector is an entity creating demand for high-quality products, services and construction works - is elaborated further in:

1. The principle of preference for innovative and ecological solutions - when planning and preparing procurement procedures, the contracting authorities put their preferences on innovative and ecological products reducing adverse environmental impact.

⁶⁴⁰ See: https://www.mii.gov.pl/media/14873/Responsible_Development_Plan.pdf (summary in English)

https://www.mii.gov.pl/media/16403/uchwala_plan_odp_rozw_16022016.pdf (full version in Polish)

⁶⁴¹ <https://rio.jrc.ec.europa.eu/en/library/strategy-responsible-development>; in English:

https://www.mii.gov.pl/media/51477/SOR_2017_streszczenie_en.pdf

See: https://www.mii.gov.pl/media/14873/Responsible_Development_Plan.pdf (summary in English)

https://www.mii.gov.pl/media/16403/uchwala_plan_odp_rozw_16022016.pdf (full version in Polish)

⁶⁴² https://www.mpit.gov.pl/media/58301/Zalozenia_Polityki_Zakupowej_Panstwa.pdf

2. The principle of facilitating access to the procurement market for the SME sector - public sector takes into account solutions offered by SMEs and having a positive impact on the economy of the region.
3. The principle of avoiding dependence on one supplier - contracting authorities plan procurements in a manner avoiding long-period dependence on one supplier, especially technological supplier. For this reason, solutions that ensure interoperability and standardization are preferred.

Procurements pursue both a quality goal (the maximization of functional requirements of purchased products while minimizing costs in the product life cycle) and an efficiency goal (improving the purchasing process through its digitization, by introducing incentives for innovative solutions and cost estimation in the product life cycle).

With regard to R&D&I, the national R&I strategy 2013-2020 (**Strategy for innovation and efficiency of the economy “Dynamic Poland 2020”**)⁶⁴³ explicitly considers public procurement as a key driver for innovation. In particular, it refers to public procurement as an important element for “new, pro-innovation approaches” and encourages public authorities to draft tender documents such that the terms allow the adoption of new technologies and innovative goods and services.

Indicator 3 – ICT policies

<i>Total score</i>	0%	<i>European Average</i>	47%
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The Polish **National Integrated Digitalisation Program 2016-2020**⁶⁴⁴, which is an implementing document the Efficient and Modern State Strategy, contains objectives that are related to public procurement in general (e.g. objectives on open government, standards and conditions for effective and secure e-administration, e-public services and digitalisation of public entities). However, the programme does not specifically mention or encourage innovation procurement. The **Digital Poland programme** (Poland’s funding programme for advancing digital public services funded by ESIF), does recognise innovation procurement as strategic priority, however this is not a national ICT policy/strategy document but a funding programme.

Indicator 4 – Sectorial policies

<i>Total score</i>	0%	<i>European Average</i>	14%
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The Polish public administration is currently revising several sectorial policies to include the innovation procurement objectives of the Strategy for Responsible Development, including: The Sustainable Transport Development Strategy, the Polish Energy Policy 2040, the Strategy for the sustainable development of rural areas, agriculture and fisheries and the Ecological Policy of the State 2030. As this process is not completed yet, the score for the indicator is currently still 0%.

Indicator 5 – Action plan

<i>Total score</i>	0%	<i>European Average</i>	8%
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Poland has not developed a stand-alone Action Plan for innovation procurement.

The government is currently drafting a new national purchasing policy and innovation procurement is expected to be included as a tool to support innovation in the public sector. As a result, innovation procurement is likely to be addressed using a more systematic approach. Despite that, so far, no specific action plan on innovation procurement is planned.

Indicator 6 – Spending target

<i>Total score</i>	0%	<i>European Average</i>	11%
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In Poland there is no specific spending target for innovation procurement at central level.

Indicator 7 – Monitoring system

<i>Total score</i>	0%	<i>European Average</i>	13%
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Poland does not have a structured system to measure the total amount of public procurement expenditure in the country that is spent on innovation procurement across the country and to evaluate the impacts achieved by completed innovation procurements across the country.

While Poland has no comprehensive monitoring systems yet, it does measure certain elements that allow some assessments i.e.: (1) application by contracting authorities of innovation criteria for tender assessment (Article 91.1 of PPL) and (2) application by contracting authorities of requirements of innovative contract performance (Article 29.4 of PPL). Both information is delivered by contracting authorities in their Annual Reports on Awarded Contracts forwarded to the Public Procurement Office.

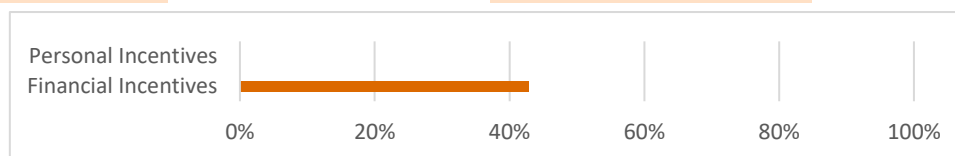
⁶⁴³ <https://rio.jrc.ec.europa.eu/en/file/7277/download?token=71dsihwP>

⁶⁴⁴ <https://www.gov.pl/web/cyfryzacja/program-zintegrowanej-informatyzacji-panstwa>

Furthermore, the monitoring of actions within innovative procurement, as specified by SOR is the task of the Government Office for Project Monitoring (RBMP) set up in the Prime Minister's Office. Having developed a dedicated software system encompassing data from all public institutions involved, they conduct a wide range of activities pertaining to training, development and oversight over strategic projects including procurement.

Indicator 8 – Incentives

Total score 21% **European Average** 22%



In Poland there are no dedicated national financial support schemes for public procurers to incentivise the launch of innovation procurements. However, in several Polish operational programmes under ESIF (e.g. in the Digital Poland programme) some resources have been mobilised for innovation procurements. They are however only in sectors set as smart specialisation priorities under ESIF and not designed for mainstreaming innovation procurement widely across all procurers and all sectors of public procurement activity in the country. There is no national funding for innovation procurement that is not linked to EU funded ESIF budgets. The total score for the sub-indicator **financial incentives** is therefore 43%.

Due to the absence of **personal incentives** for public procurers, the total score for this indicator is 0%.

Indicator 9 – Capacity building and assistance measures

Total score 17% **European Average** 24%

	Existence	Connection with relevant international/ EU initiatives	Free of charge	Covering all aspects and types of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices							0%
Trainings/ workshops	√	√	√		√		67%
Handbooks/ guidelines	√	√	√	√	√		83%
Assistance to public procurers							0%
Template tender documents							0%
Coordination/ pre-approval							0%
Networking of procurers							0%
One-stop-shop/ competence centre							0%

Poland is in the process of building up capacity building measures for innovation procurement. In the context of general trainings and workshops on public procurement, there is some training devoted to innovation procurement, but this is not covering all aspects and types of innovation procurement. The overall set of capacity building measures is not scaled up yet to mainstream innovation procurement widely.

In Poland there is not really one **central website** that provides all relevant information on innovation procurement and there is no **one-stop-shop / national competence centre** dedicated to innovation procurement yet.

At the central level the main actor dealing with capacity building measures for public procurement in Poland is the **Public Procurement Office (PPO)**. The PPO provides trainings, seminars and develops supporting material for public procurers.

Some workshops on the new possibilities for innovation in the new public procurement system were offered after the transposition of the public procurement directives, e.g. "Innovative public procurement - implementation of projects using modern solutions" co-organized by the Public Procurement Office and the Chancellery of the President of the

Republic of Poland in September 2017.⁶⁴⁵ The PPO delivers together with PARPA agency **regular raining and other knowledge dissemination activities (conferences and workshops)** to advance the level of green, social, electronic and innovation procurement. This takes place under the ESIF Operational Programme “Knowledge, Education and Development” (PO WER – The Knowledge, Education, Development Program 2014-2020), under the investment priority no. 11 “Investment in institutional capacity and in the efficiency of public administrations and public services at the national, regional and local levels with a view to reforms, better regulation and good governance”. In addition, the PPO has teamed up with several universities, including the Warsaw School of Economics, to offer a postgraduate programme in public procurement. The programme covers the entire procurement process, including some topics related to innovation in public procurement.⁶⁴⁶ With the use of ESF funds the PPO also implemented the project “Effective public procurement 2017-2018”. The project provided 52 trainings of two-days dedicated to central, regional and local administrations. Nearly 1.700 public officials were targeted by these trainings. Most of the above trainings are parts of more general procurement trainings and not separate dedicated in-depth innovation procurement trainings and do not comprehensively cover all aspects and types of innovation procurement (e.g. trainings for procurers on how to implement PCPs are missing): they typically cover all the basic topics on how to organise an entire procurement process with then in addition some selected innovation related aspects e.g. using non-price criteria for bid evaluation, negotiation procedures, innovation partnership procedure and SMEs involvement. The score for the sub-indicator trainings/workshops is therefore 67%.

The PPO has published a number of support and **guidance materials** about innovation procurement (e.g. on PCP and PPI, organising market consultations etc.)⁶⁴⁷. The score for the sub-indicator handbooks/guidelines is 83%.

Networking of procurers at national or at international level with procurers from other countries, in order to encourage collaborative/joint procurement with higher market impact, is not systematically organised. The score for the sub-indicator networking is therefore 0%.

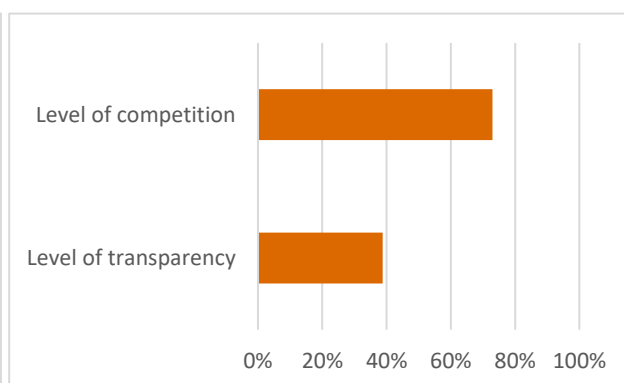
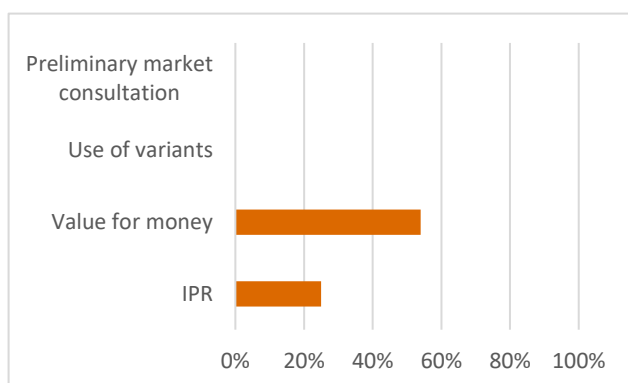
Indicator 10 – Innovation friendly public procurement market

Total score 38%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is composed of two sub-indicators that show evidence on

- I. the use of specific techniques to foster innovation in public procurement in Poland
- II. the openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Poland shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% EU average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Poland. The Polish law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Polish procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Polish copyright law⁶⁴⁸ determines that copyright ownership belongs in an inalienable way to the creator (cannot be

⁶⁴⁵ <https://www.uzp.gov.pl/baza-wiedzy/przedswiezicia-edukacyjne/konferencje,-seminaria/warsztaty-innowacyjne-zamowienia-publiczne-realizacja-projektow-wykorzystujacych-nowoczesne-rozwiazania>

⁶⁴⁶ <https://www.uzp.gov.pl/baza-wiedzy/przedswiezicia-edukacyjne/studia-podyplomowe-pod-patronatem-prezesa-uzp/wzorcowy-program-studiow-podyplomowych>

⁶⁴⁷ Some examples of guidance documents for procurers include:

Why to use demand approach to the creation of innovations?: <http://www.parp.gov.pl/files/74/81/545/20508.pdf> (PL);

Innovative public procurement in Poland – expertise: <http://badania.parp.gov.pl/files/74/75/76/487/495/12686.pdf> (PL);

Innovative and pre-commercial public procurement: <https://www.parp.gov.pl/storage/publications/pdf/15742.pdf> (PL);

Model documents for market consultations: <https://www.uzp.gov.pl/baza-wiedzy/wzorcowe-dokumenty/wzorcowe-dokumenty-dotyczace-dialogu-technicznego> (PL);

⁶⁴⁸ http://www.wipo.int/wipolex/en/text.jsp?file_id=129378

waived, licensed or assigned to anyone else). Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity. Therefore, if a procurer wants to obtain specific economic rights owned by the creator (subcontractors in his procurement), he must require in the tender specifications the transfer, assignment or a license of those economic rights (e.g. licensing, publication, modification, reproduction) at equitable payment. Copyright law protects also scientific work, software and database rights.

- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, only 54% of the procurement procedure were not awarded on the base of the lowest price only. This is above the EU average of 42% but still not reaching the 80% satisfactory level set out in the EU single market scoreboard. There is still a structural over-reliance on lowest price award criteria in Poland.
- c. **Use of variants:** Poland has allowed the use of variants in less than 1% of the procedures (0%). This percentage is well below the EU average.
- d. **Preliminary Market Consultation:** Poland has used Preliminary Market Consultations in the 0,16% of the procedures. This percentage is significantly below the EU average of 9%.

Based on this evidence, the score for sub-indicator I is 20% which is below the EU average of 23%. This is mainly due to the below average performance on IPR default regime and the improvement that can still be made to obtain wide scale use of value for money award criteria. Also, the extremely low percentages in the use of variants and Preliminary Market Consultations significantly contribute to this performance.

With regard to sub-indicator II, Poland shows the following evidence:

- e. **Level of competition:** The level of competition of the national public procurement market is 73% which is below the EU average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This performance is mainly affected by the low percentage of procurements with more than one bidder (51%). The percentage of procurements for which a call for bids was used is satisfactory (95%).
- f. **Level of transparency:** The level of transparency of the public procurement market is 39% which is below the EU average 45% and below the 66% satisfactory level set by the EU single market scoreboard. This is mainly due to the very low percentage of procurements that publish the buyer registration numbers (18%) which makes it hard for suppliers to identify which public buyer wants to buy what. The TED publication rate (6,4%) and the percentage of procurements without missing call for bids information (92%) are above EU average, although the latter is still below the 97% satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 56% which is below the EU average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is due to below average performance on both competition and transparency.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 38% which is below the 44% EU average. This score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is around EU average but the openness of the Polish procurement market to innovations from across the EU single market is below the EU average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still underused in public procurements. In addition, the national public procurement market shows a below average level of competition and transparency.

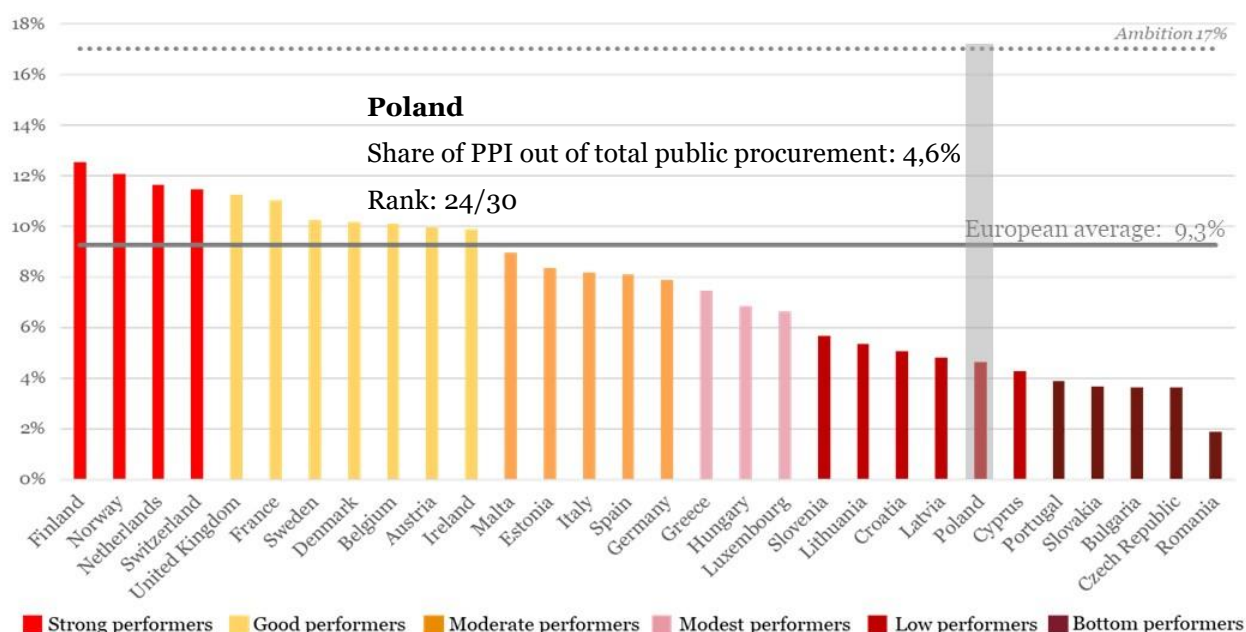
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Polish investments on public procurement of innovative solutions (PPI) and the benchmarking of Polish investments on public procurement of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 4,6% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 3,5 bn), **Poland ranks 24th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁶⁴⁹ across Europe. Poland falls within the group of **low performers**, which is below the European average of 9,3%.⁶⁵⁰ Reaching the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Polish public sector⁶⁵¹ **requires a large increase of investments in PPI**. When taking into account also PPI in the defence sector Poland moves up to the 21st position.



The **main factors**⁶⁵² explaining Poland's low performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Poland (59%) is significantly below the European average (84%). This may be due to the fact that, despite of significant adoption of 'significantly improved' solutions (39% of PPI) the adoption of 'new to the market' solutions is still low (20% of PPI). Polish PPI investments depend much more than the European average (16%) on the adoption of **incremental innovations** (41%). This includes the purchase of 'existing solutions that are used in a new way or in a new sector' or 'using an innovative combination of existing solutions'. As the total amount of investments in innovative solutions in Poland is

⁶⁴⁹ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁶⁵⁰ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

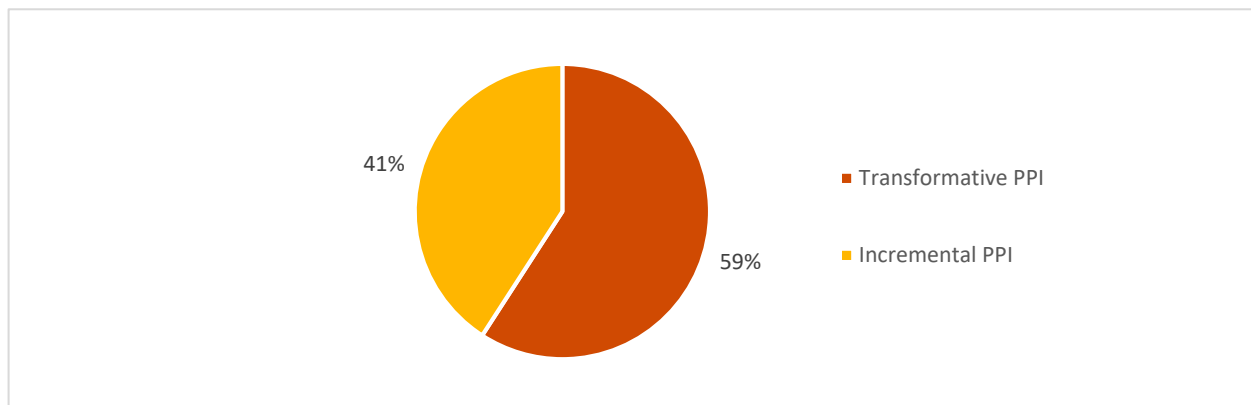
⁶⁵¹ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁶⁵² The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

low and considerably below EU average, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Poland is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Almost all domains of public sector activity⁶⁵³ in Poland purchased innovative solutions, except for ‘Postal Services’ which made zero PPI investments. The shares of PPI investments out of total PPI investments in the country varies considerably across public sector domains. In ‘Healthcare and social services’, ‘General public services, public administration and economic and financial affairs’, ‘Public transport’ and ‘Public order, safety and security’ the shares of PPI investments made by Polish procurers are significantly below the European average (respectively -17 pp, -15 pp, -6 pp and -5 pp). Conversely, the shares of PPI investments made by procurers in the ‘Water’, ‘Construction, housing and community amenities’ and ‘Energy’ domains are significantly above the European averages (respectively +18 pp, +9 pp and +6 pp).

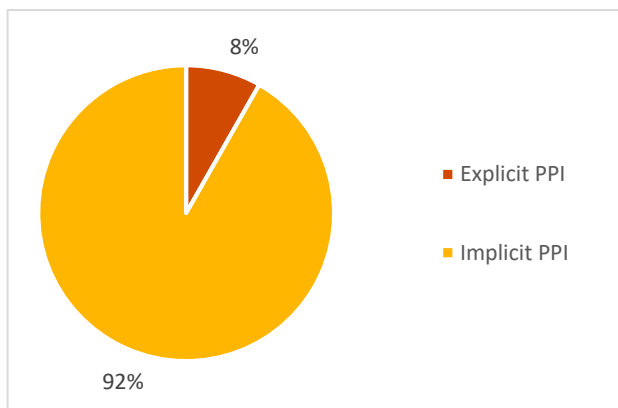
PPI investments by domains of public sector activity

Domain of public sector activity	Poland	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	20%	35%	-15
Public transport	4%	10%	-6
Healthcare and social services	4%	21%	-17
Energy	12%	6%	+6
Environment	7%	3%	+4
Construction, housing and community amenities	13%	4%	+9
Education, recreation, culture and religion	10%	5%	+5
Water	22%	4%	+18
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	5%	3%	+2
Total PPI investments	100%	100%	-

⁶⁵³ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

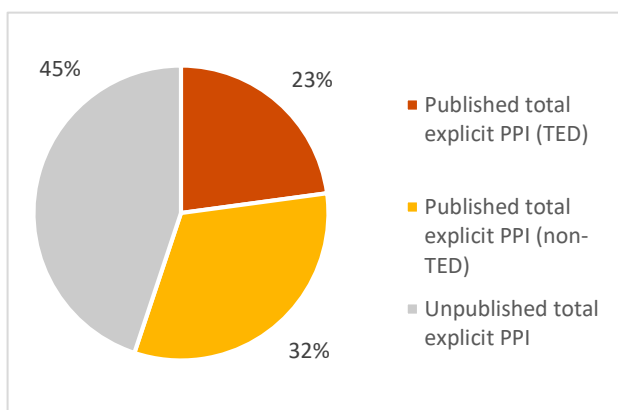


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly lower in Poland (8%) compared to the European average (29%). This indicates that Polish procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is higher in Poland (92%) compared to the European average (71%). This indicates that Polish procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

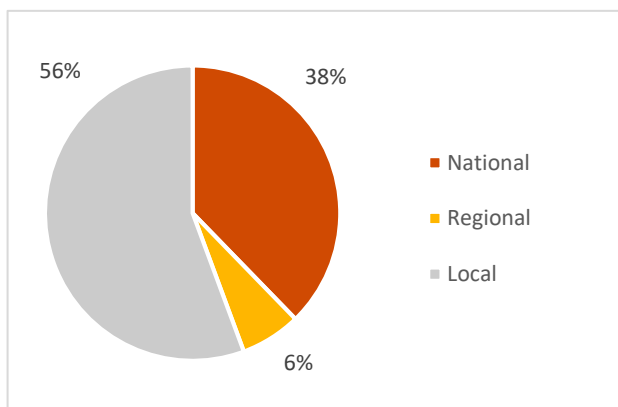


The share of Polish PPI investments for which calls for tenders are published (55%), is considerably higher than the European average (22%). Both the portion that is **published at European level** in the TED database (23%) and the portion that is **published at national level** (32%) are above European average (respectively 18% and 5%). Nonetheless, the share of PPI investments for which no call for tenders are published in TED or at national level is high 45%.

By publishing calls for tenders for roughly half the amount of PPI investments, **Poland still misses out on innovative solutions** from Polish and other European innovative suppliers that are not aware about the Polish PPI business opportunities. Further enhancing the share of published PPIs would help Poland reach a good path for the adoption of potential innovative solutions that could speed up public sector modernisation.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

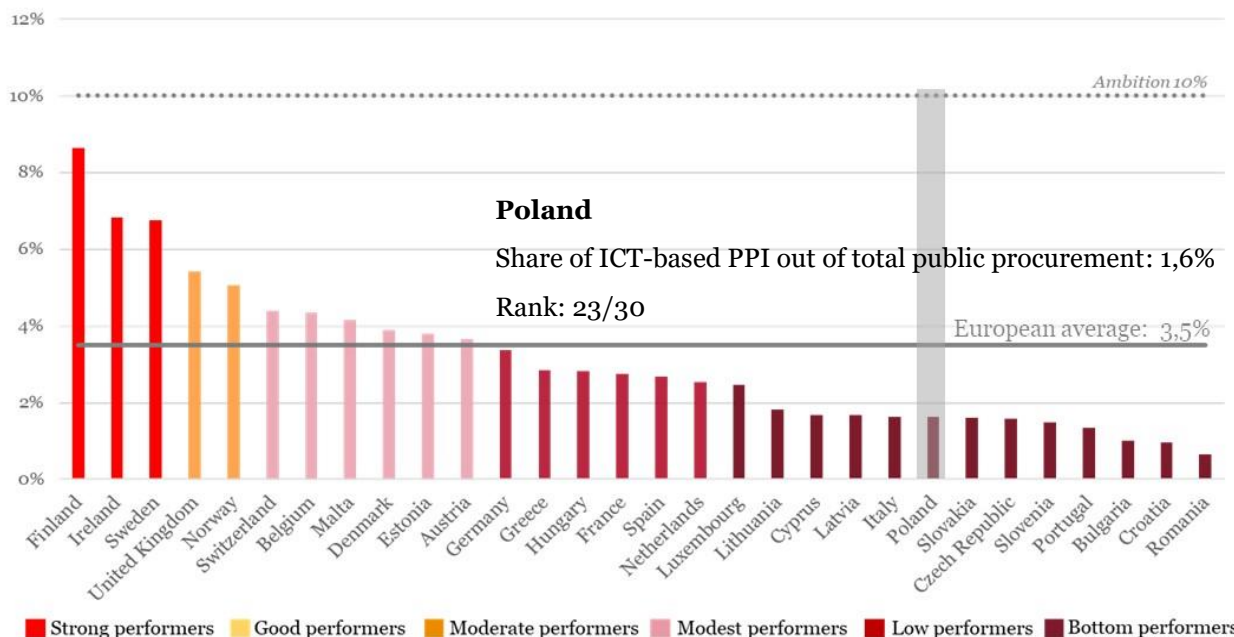


38 % of the total PPI investments in Poland are carried out by **large-scale entities at national level**, such as ministries and ICT integrators of governments departments. This is below the European average (47%).

Procurers at regional level account for a marginal share of PPI investments (6%), well below the European average (24%). Conversely, **procurers at local level** account for the highest fraction of PPI investments (56%), significantly above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment), Poland falls within the group of **bottom performing** countries. With € 0,1 bn or 1,6% of total public procurement invested in innovative ICT-based solutions, **Poland ranks 23rd** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (35%), Poland performs below the European average (38%). Hence, **a large increase of investments in buying innovative ICT-based solutions** is needed to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Poland to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁶⁵⁴

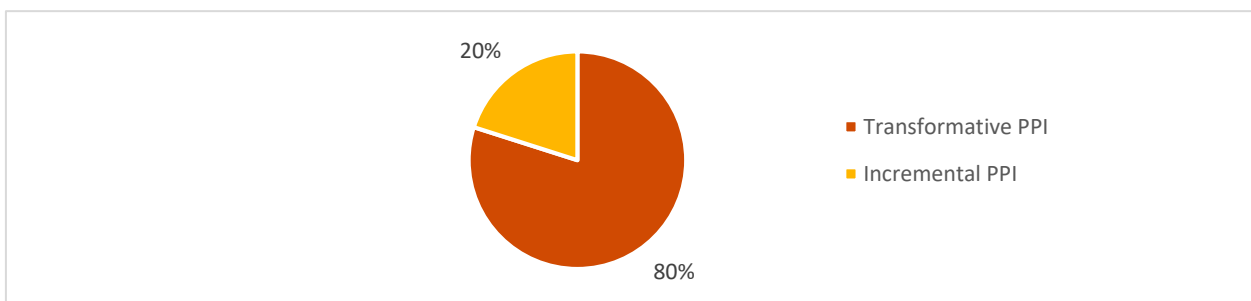


The **main factors**⁶⁵⁵ explaining Poland’s bottom performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments spent on the adoption of **transformative ICT-based innovations** in Poland (80%) is in line with the European average (79%). This consists of the adoption of ‘significantly improved solutions’ (50%) and innovative solutions that are ‘new to the market’ (30%). The share of ICT-based PPI investments that is spent on the adoption of **incremental ICT-based innovations**⁶⁵⁶ (20%) is in line with the European average (21%). However, as the total amount of investments in ICT-based innovative solutions in Poland is really low, the country is still lagging behind considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI by type of innovation



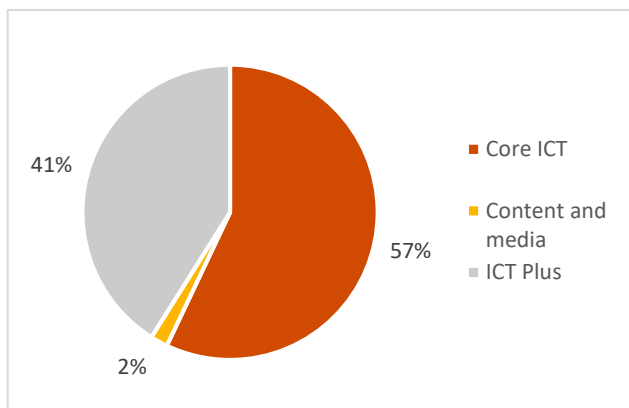
⁶⁵⁴ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁶⁵⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁶⁵⁶ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Poland invested mainly in the adoption of innovations from the **‘Core ICT sub-sector’**⁶⁵⁷ (57%), slightly above the European average (55%).

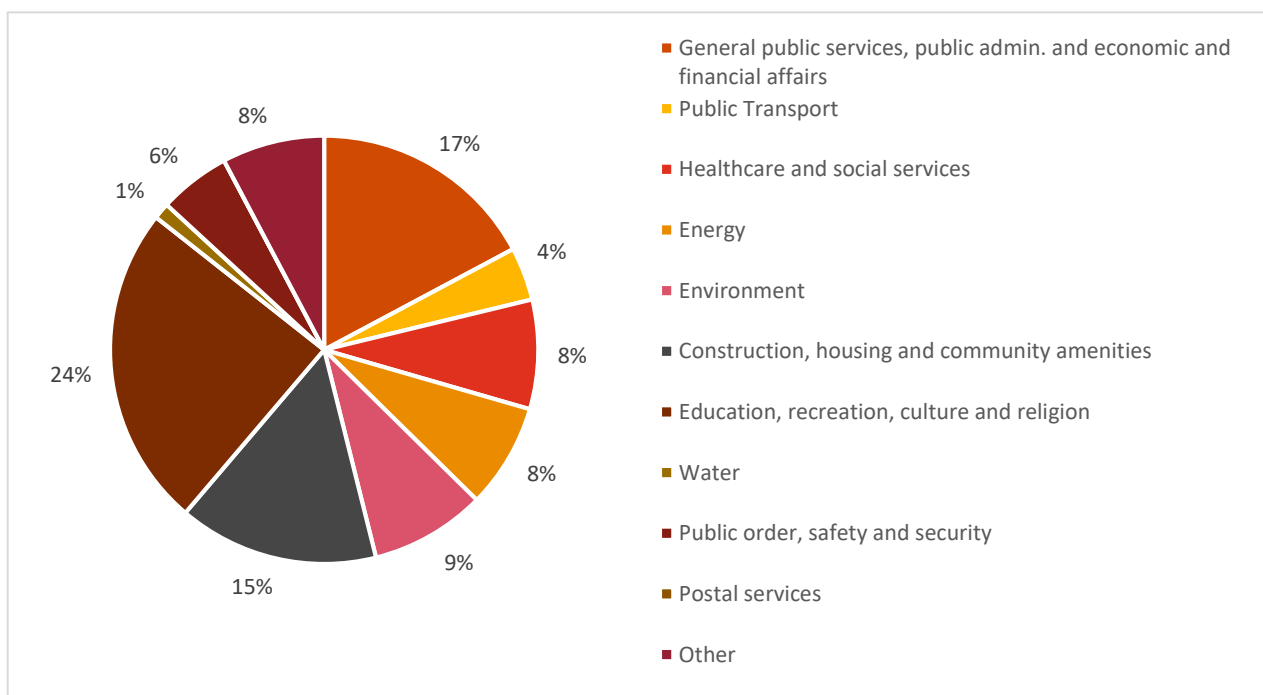
Poland invested also in the adoption of innovations from the **‘ICT Plus’ sub-sector** (41%), slightly below the European average (44%).

Conversely, the share of investments that was spent on innovations from the **‘Content & Media’ sub-sector** was small (2%), in line with the European average (1%).

Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity in Poland purchased innovative ICT-based solutions, except for **‘Postal services’** with zero investments. The shares of PPI investments made by procurers active in **‘Education, recreation, culture and religion’** (24%) and **‘Construction, housing and community amenities’** (15%) which are significantly above the European averages (respectively 9% and 2%). However, the share of PPI investments made by procurers in **‘Healthcare and social services’** (8%) is significantly below the European average (30%).

ICT-based PPI investments by domains of public sector activity

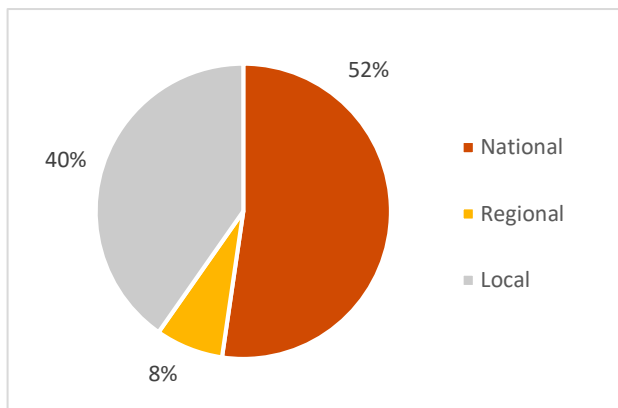


⁶⁵⁷ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 52% of ICT-based PPI investments, quite below the European average (69%).

Conversely, ICT-based PPI investments in the country mainly occur at **local level** (40%), four times higher than the share corresponding to the European average (10%).

Regional procurers account for only a modest fraction of ICT-based PPI (8%), which is significantly below the European average (21%). This may indicate that especially procurers at local level could still improve their performance on adopting ICT-based innovations.

Portugal



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The public procurement framework in Portugal is regulated by the Public Contracts Code (composed by a complex normative corpus) and by the Decree-Law n°111-B/2017, which transposed the EU directives 2014/23/EU, 2014/24/EU 2014/25/EU. The Decree law n° 153/2012 transposed the Defence and security Directive 2009/81/EC.

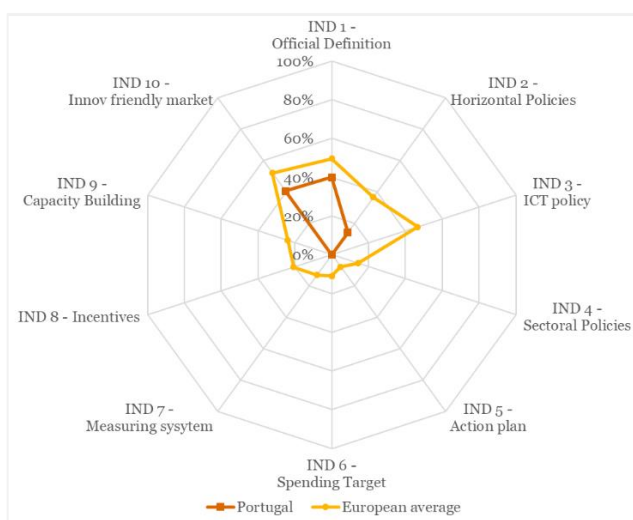
The **Ministry of the Economy** is in charge of the development and definition of the procurement policy. Together with the **Institute of Public Markets, Real Estate and Construction (IMPIC)**, the Ministry supervises and monitors public procurement in the country. Another, major actor of the public procurement system is the **Ministry of Finance**, which is responsible for communication activities in the field of public procurement to the civil society and for data collection and reporting activities to the EU.

The **Government Shared Services Entity (eSPap)** is the Central Purchasing Body, which manages a number of large framework contracts through which central government agencies are required to purchase standardized goods. Public procurement is only one of the shared services provided by the eSPap to different government bodies. All the bodies joining the National System of Public Procurement (NSPP), including regional and municipal contracting authorities, have access to the services provided by the eSPap. A role in the area of public procurement is also played by the **Portuguese Competition Authority (PCA)**, which has the mission to ensure that public procurement procedures comply with the national competition policy. Finally, public procurement is also supported by the work carried out by the **Agency for Development and Cohesion (AD&C)**, operating under the Ministry for Regional Development. The Agency coordinates the regional development policy and ensures, at the technical level, the general coordination of the ESI Funds for the 2014-2020 programming period.

In the field of innovation policy, the main actor is expected to be by the National innovation agency (**ANI**), which is going to become the national competence centre for innovation procurement. In this specific field a role is also played by the **National Office for the Promotion of the EU R&I Framework Program (GPPQ)**. The Office promotes and monitors national participation on the Horizon 2020 Programme, including participation to EU projects in the area of PPI, PCP and R&D procurement.

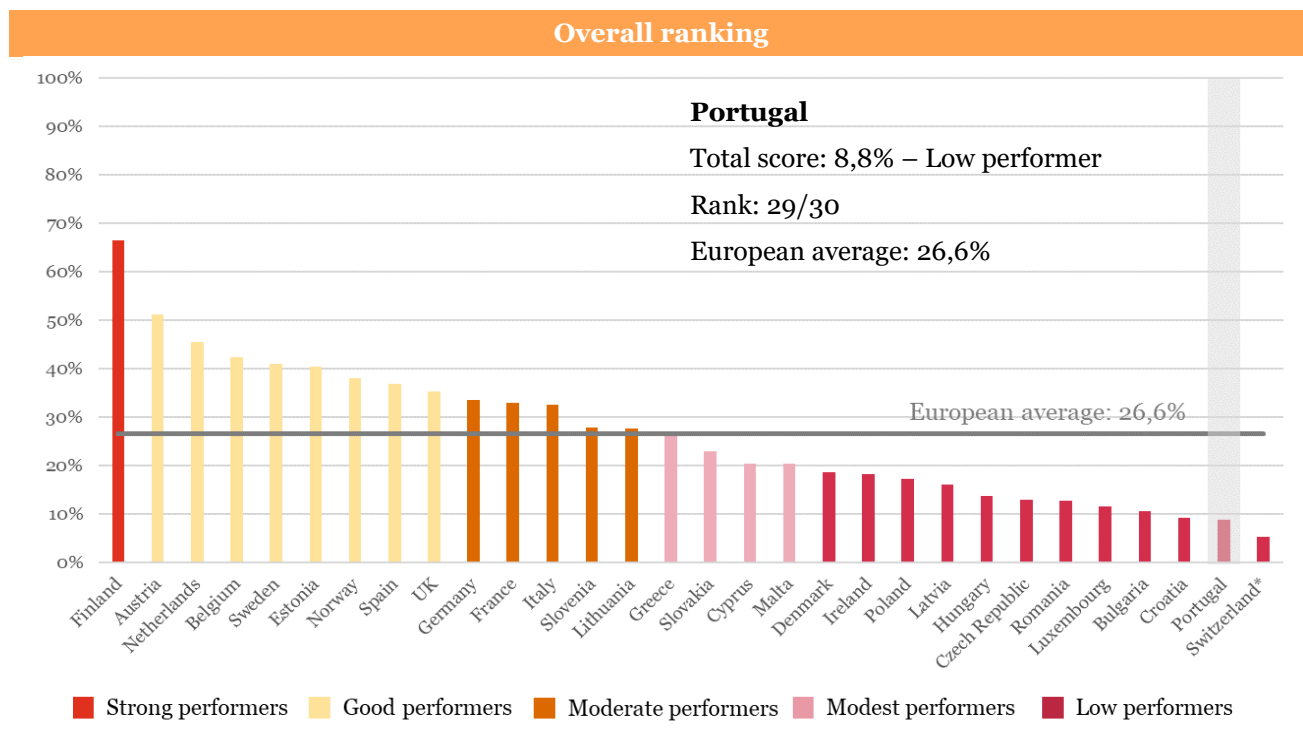
Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Portugal is at the 29th position** of the overall ranking with the **total score of 8,8%**. From the 30 countries analysed, Portugal is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on all indicators. Having implemented only 8,8% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a very strong reinforcement of the policy framework needed in Portugal to reach its full 100% potential.



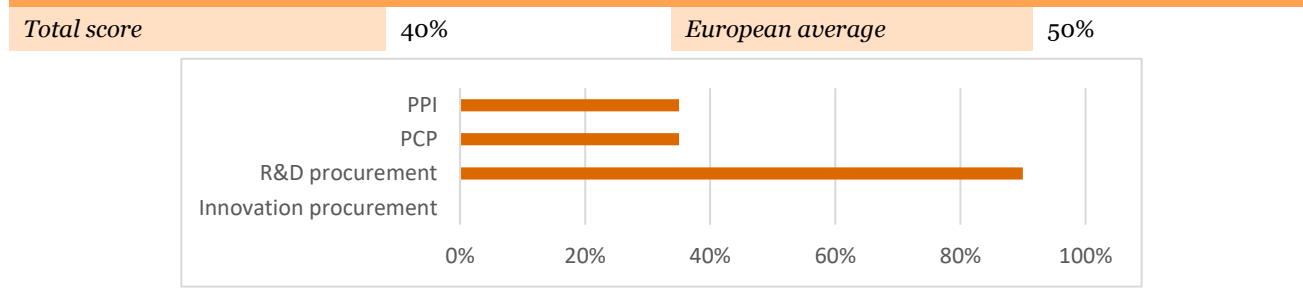
Strengths: Portugal has the legal basis to start developing an innovation procurement policy, Portugal is preparing itself to use ESIF funds to incentivise the use of innovation procurement

Weaknesses: A structured set of measures to foster innovation procurement is still missing; no dedicated capacity building and assistance for innovation procurement yet, no action plan, spending target or monitoring system for innovation procurement. Lack of IPR policy in public procurement that encourages innovation.



Overview per indicator

Indicator 1 – Official definition



The Portuguese public procurement legal framework or guidance documents do not provide an official definition of innovation in the context of public procurement, nor of innovation procurement, PCP or PPI. The legal framework only provides a definition of R&D procurement. Despite the lack of definitions, the legal framework provides a clear legal basis to implement Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). Therefore, the total score of the indicator is 40%.

The Decree law n° 111/2017 did not transpose the definition of **innovation** in the context of public procurement from the EU public procurement directives. There is no definition of innovation or innovation procurement in Portuguese legal framework or official national guidance documents. The score for this sub-indicator is therefore 0%.

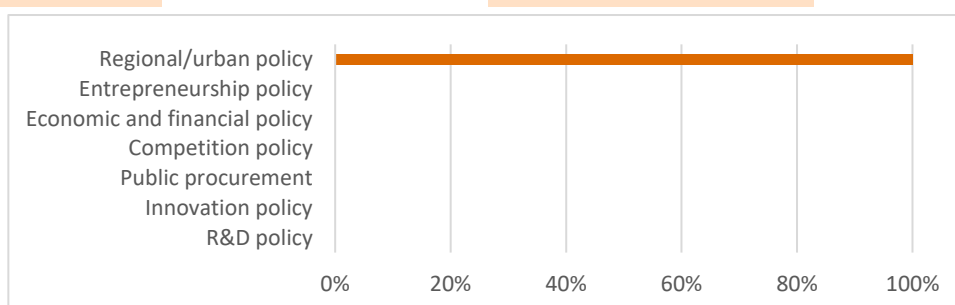
For non-defence procurers, there is no full sentence defining R&D in the Decree-Law n° 111-B/2017, Article 5 P. 4 (J), but Annex 8 identifies R&D as activities that have the CPV codes for fundamental research, applied research and industrial development. The Decree law n° 153/2012 which transposed the Defence and security Directive 2009/81/EC defines, in its articles M121 and M1 22, **Research and Development** as "*Fundamental scientific research: experimental or theoretical work, undertaken mainly to acquire new knowledge about the fundamental principles of observable phenomena or facts, and not specially oriented towards a specific purpose or objective*" and "*Development: an operation linked to all stages preceding series production, such as: design (design), design research, design analysis, design concepts, prototype assembly and testing, pilot, design data, process of transforming design data into a product, configuration design, integration design and plans*". This definition is in line with the EU definition but is not applicable to all public procurers (only defence sector) in the country. Therefore, the total score for this sub-indicator R&D is 90%.

Article 5 P. 4 (J) in The Decree-Law n° 111-B/2017 also transposes the exclusion for R&D services, which form the legal basis for implementing PCP in Portugal: The law only applies to R&D services procurements "*(a) the results of which are the exclusive property of the contracting authority for its use in the performance of its own activities; and (b) which are wholly remunerated by the contracting authority*". Although there is no **definition of pre-commercial procurement** in Portuguese procurement law, the above provisions for R&D services provide the legal basis for all types of procurers in Portugal to implement PCPs. The total score for this sub-indicator PCP is 35%, because the legal basis is applicable to all public procurers in the country.

With regard to **Public Procurement of Innovative solutions (PPI)** a definition is not available in the legal framework, and neither present in any policy document or guideline. However, The Decree-Law n. ° 111-B/2017 enables all public procurers in the country to implement PPI by allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria. In particular, article 301 (A) specifies that for contracts with a strong innovation component, i.e. contracts whose services are particularly linked to innovation in any form (such as contracts innovation partnerships, or related to the acquisition of social, health or educational services, or of research and development services) public procurers have the possibility of defining contractual services by referring to results to be achieved, rather than a specific product or process. Therefore, the total score for the sub-indicator PPI is 35%.

Indicator 2 – Horizontal policies

Total score	14%	European average	36%
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In Portugal, innovation procurement is explicitly recognised as a tool of strategic importance to foster the competitiveness of the economy in only one horizontal policy: regional policy. Therefore, the total score of this indicator is 14%

In the field of regional/urban policy the **National Smart Specialization Strategy (ENEI)** refers to public procurement as a demand-side instrument to foster the competitiveness of the economy and support the modernisation of public sector.⁶⁵⁸ Portuguese **public procurement policy** focuses especially on GPP (Green Public Procurement) but not on innovation procurement. The National Strategy for Green Public Procurement (2016) aims at mainstreaming environmental criteria in the public procurement process.

Indicator 3 – ICT policies

Total score	0%	European average	47%
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The Portugal Digital strategy⁶⁵⁹ and the Portuguese government resolution on the digital agenda⁶⁶⁰ do not recognize innovation procurement as a priority in their action plans or strategic documents.

Indicator 4 – Sectorial policies

Total score	0%	European average	14%
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At sectoral level, the role of innovation procurement is not defined as a strategic tool or objective. The total score of this indicator is 0%.

Indicator 5 – Action plan

Total score	0%	European average	8%
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Portugal does not have a stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European average	11%
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In Portugal there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score	0%	European average	13%
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Portugal does not have a structured approach for measuring innovation procurement expenditure and evaluating the impact of completed innovation procurements. However, future developments are expected as the **eSPap⁶⁶¹** and the **ANI** are currently developing a monitoring and evaluation framework in the area of innovation procurement. In 2008, the

⁶⁵⁸ <https://ani.pt/en/innovation-in-portugal/research-and-innovation-policy/>

⁶⁵⁹ <http://www.portugaldigital.pt/>

⁶⁶⁰ <https://dre.pt/application/file/66991457>

⁶⁶¹ <https://www.espap.pt/Paginas/home.aspx>

Public Procurement Code created a Commission in order to monitor and supervise projects in the area of research and development, including innovation procurement projects. However, it stopped in 2017.

Indicator 8 – Incentives

<i>Total score</i>	0%	<i>European average</i>	22%
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There is no formal political mandate for the establishment of innovation procurement demand financial support in Portugal. As there are no financial incentives or personal incentives in the country, the total score for the overall indicator is 0%.

Indicator 9 – Capacity building and assistance measures

<i>Total score</i>	0%	<i>European average</i>	24%
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On the basis of the evidence collected, the total score for this indicator is 0%. Portugal is still lacking a structure approach to capacity building on innovation procurement across the country. Apart from some limited awareness raising sessions that are not specifically tailored for innovation procurement, no dedicated capacity building measures for innovation procurement have been implemented yet in a systematic, regular way.

The **National Office for the Promotion of the EU R&I Framework Program** is the responsible entity for providing training and assistance for the participation to the national scientific and technological community in Horizon 2020, and in this framework the agency also disseminates the Horizon 2020 financing opportunities in the area of PPI and PCP procurement.

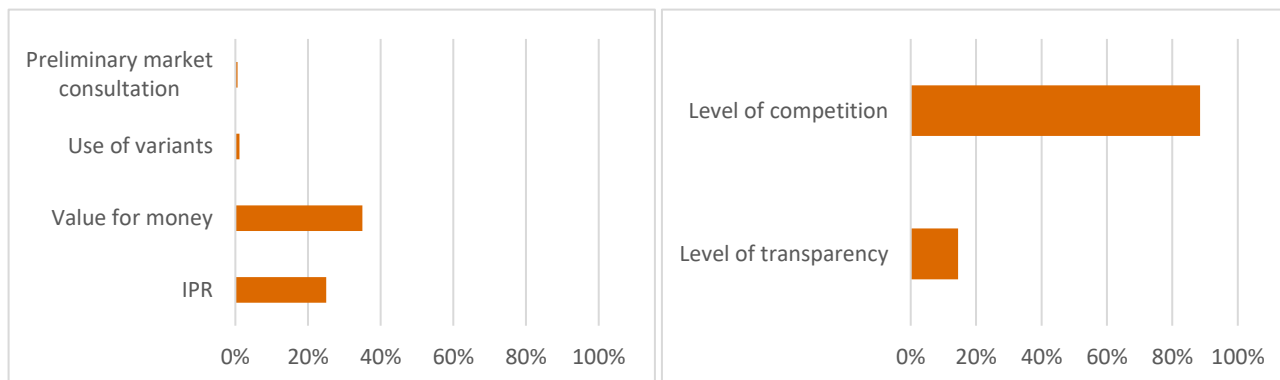
In the next years, the creation of a national innovation procurement competence centre within the ANI, is expected to increase the amount of capacity building activities implemented in this field. ANI is participating in the EU-funded project “*Procure2Innovate - European network of competence centres for innovation procurement*” to learn from experiences other countries about setting up a competence centre.

Indicator 10 - Innovation friendly public procurement market

<i>Total score</i>	34%	<i>European average</i>	44%
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I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Portugal
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Portugal shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Portugal. The Portuguese law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Portuguese procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Portuguese copyright law⁶⁶² determines that the moral rights related to copyrights belong in an inalienable way to the creator. Even in the existence or conclusion of an agreement for a commissioned work (e.g. public procurement) and even if economic rights are transferred, the creator shall continue to enjoy his moral rights. Only the economic rights can be transferred, assigned or licensed by the creator to another person/entity, on condition that there is a written agreement specifying this (e.g. a public procurement contract). In the absence

⁶⁶² http://www.wipo.int/wipolex/en/text.jsp?file_id=129419

of such written agreement, the Portuguese copyright law assigns by default copyright ownership to the creator. Therefore if the procurer wants to use the work or the copyright owned by the creator, he needs to require in the tender specifications the assignment or a license of the economic rights that he needs (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific work, software and database rights.

- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only the 35% of the public procurement procedures have been awarded using criteria that are not only based on the lowest price. This is below the European average of 42% and significantly below the 80% satisfactory level set out in the EU single market scoreboard. There is still a structural underutilization of value for money award criteria in procurement procedures.
- c. **Use of variants:** Portugal has allowed the use of variants in the 1% of the procedures. This percentage is well below the European average.
- d. **Preliminary Market Consultation:** Portugal has used Preliminary Market Consultations in less than 1% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 15% which is below the European average of 23%. This is mainly due to underutilization of value for money criteria and the fact that there is no default IPR regime defined that fosters innovation in public procurement.

With regard to sub-indicator II, Portugal shows the following evidence:

- e. **Level of competition:** The level of competition of the national public procurement market is 89% which is slightly above the European average 84% but still below the 93% satisfactory level set by the EU single market scoreboard. This is due to the fact that even though the percentage of procurements for which a call for bid was organised is satisfactory and above European average (99%), the percentage of procurements with more than one bidder (78%) is below European average.
- f. **Level of Transparency:** The level of transparency of public procurement is 14% which is significantly below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. This is because all sub-indicators are below European average: the level of information provided by the public authorities on the procurement procedure is limited and the negative performance is mainly driven by the low portion of procurements without missing information about the call for bids (33%) and the low portion of procurements without missing buyer registration numbers (9%). This makes it very hard for suppliers to find out which public buyer wants to buy what.

Based on this evidence, the score for sub-indicator II is 51% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to very low level of transparency.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 33% which is below the European average. This score is explained by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Portuguese procurement market to innovations from across the EU single market is below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still seriously underused in public procurements. In addition, even though the level of competition is slightly above European average, the level of transparency is far below the European average.

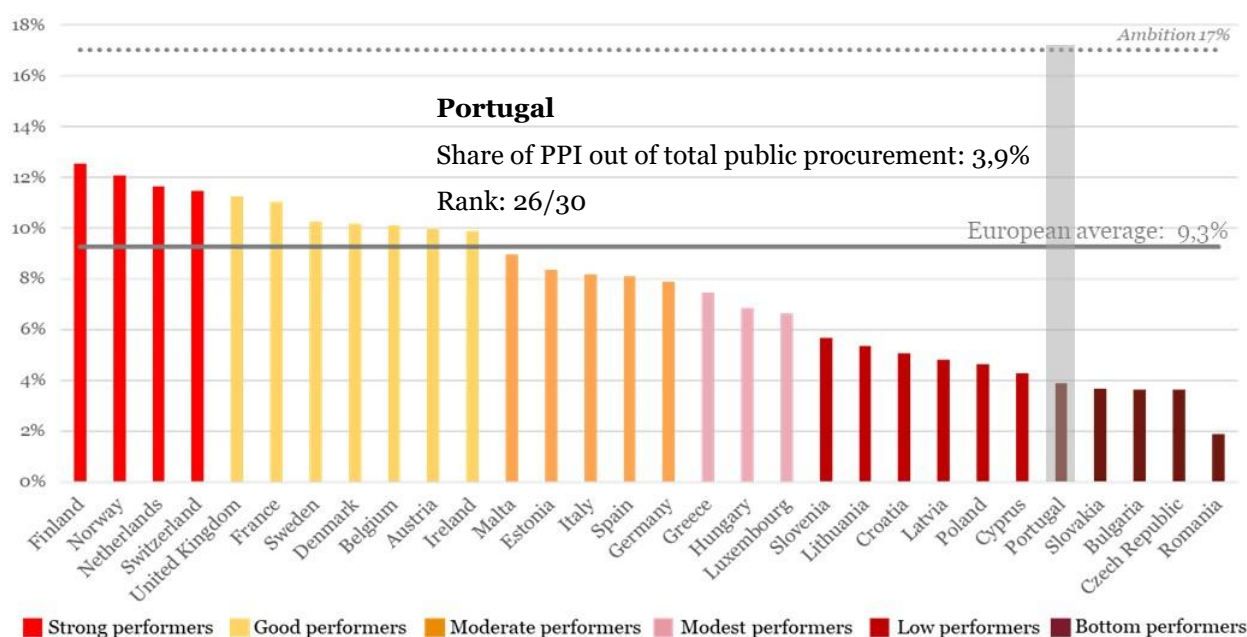
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Portuguese investments on public procurements of innovative solutions (PPI) and the benchmarking of Portuguese investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 3,9 % of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 1,2 bn), **Portugal ranks 26th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁶⁶³ across Europe. Portugal falls within the group of **bottom performers**, below the European average of 9,3%.⁶⁶⁴ **A large increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Portuguese public sector.⁶⁶⁵ When taking into account also PPI in the defence sector Portugal drops to the 27th position.



The **main factors**⁶⁶⁶ explaining Portugal's bottom performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Portugal (76%) is still below the European average (84%). This due to lower investment in the adoption of innovative solutions that are 'new to the market' and 'significantly improved' solutions. Portuguese PPI investments depend to a larger extent than the European average on the adoption of **incremental innovations** (24%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. As the total amount of investments in innovative solutions in Portugal is considerably below EU average, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

⁶⁶³ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

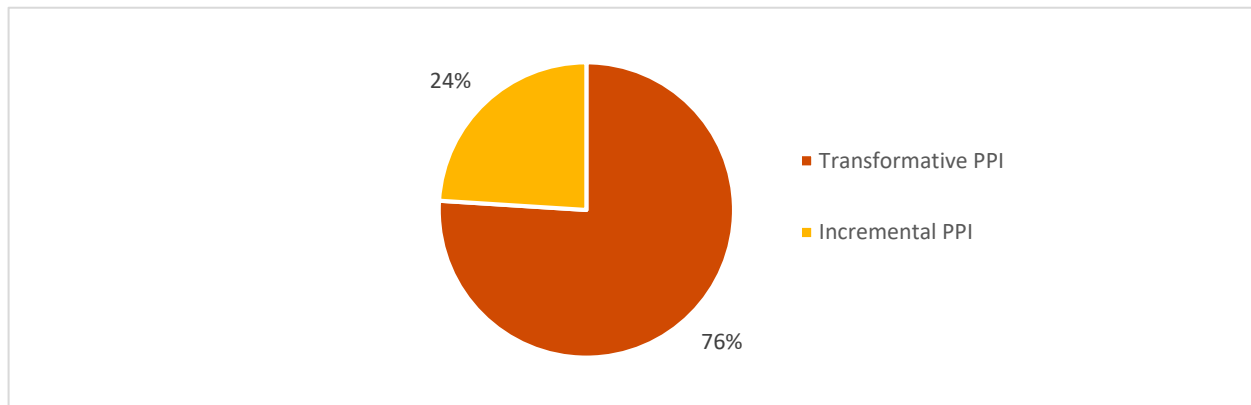
⁶⁶⁴ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁶⁶⁵ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁶⁶⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Portugal is not yet at the level of PPI investments that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Despite the low overall level of PPI investment in the country, **nearly every domain of public sector activity⁶⁶⁷ in Portugal purchased innovative solutions**, except the ‘**Construction, housing and community amenities**’ and ‘**Postal services**’ domain where PPI investments were zero. The shares of PPI investments made by different domains of public sector activity out of total PPI investments in the country **are mostly below the European average** (in 6 out of 11 domains). In particular, the share of PPI investments made by procurers operating in ‘**General public services, public administration and economic and financial affairs**’ (16%) and ‘**Healthcare and social services**’ (13%) is considerably below the European average (- 19 pp and -8 pp respectively). In the other hand, in ‘**Education, recreation, culture and religion**’ (19%) and ‘**Water**’ (12%) the share of PPI investments is significantly above the European average (+14 pp and +12 pp respectively).

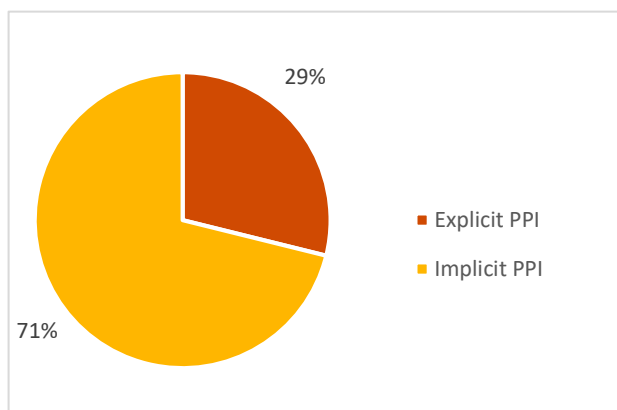
PPI investments by domains of public sector activity

Domain of public sector activity	Portugal	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	16%	35%	-19
Public transport	6%	10%	-4
Healthcare and social services	13%	21%	-8
Energy	9%	6%	+3
Environment	7%	3%	+4
Construction, housing and community amenities	0%	4%	-4
Education, recreation, culture and religion	19%	5%	+14
Water	16%	4%	+12
Public order, safety and security	5%	8%	-3
Postal services	0%	1%	-1
Other	9%	3%	+6
Total PPI investments	100%	100%	-

⁶⁶⁷ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

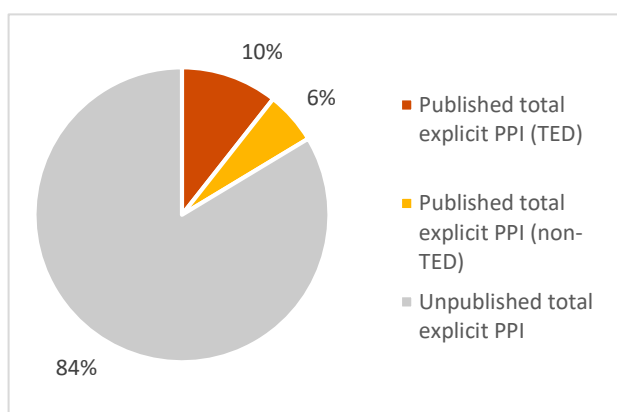


In Portugal, both the share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) and the share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer), equal the European average (respectively 29% and 71%).

This indicates that Portuguese procurers show levels of risk-adversity in requesting innovative solutions, and openness to acceptance of unsolicited innovative proposals which are in line with the average across Europe as a whole.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

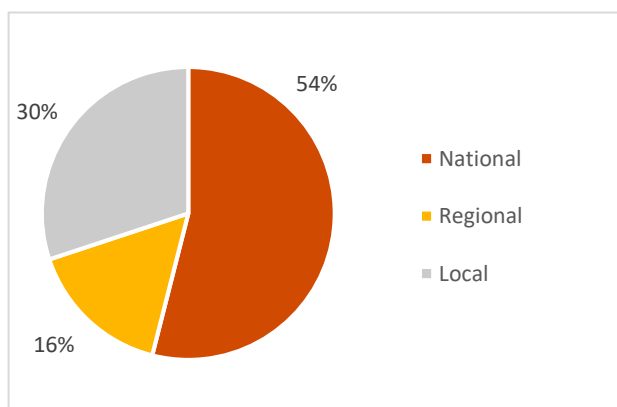


The share of Portuguese PPI investments for which calls for tenders are published is small (16%) and significantly below the European average (22%). The portion that is **published at European level** in the TED database (10%) is below the European average (18%), while the portion that is **published at national level** (6%) is slightly above average (5%). The share of PPI investments for which no call for tender is published in the TED or at national level is very large (84%).

By not publishing PPI widely, **Portugal is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Portuguese and other European innovative suppliers that are not informed about the Portuguese PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

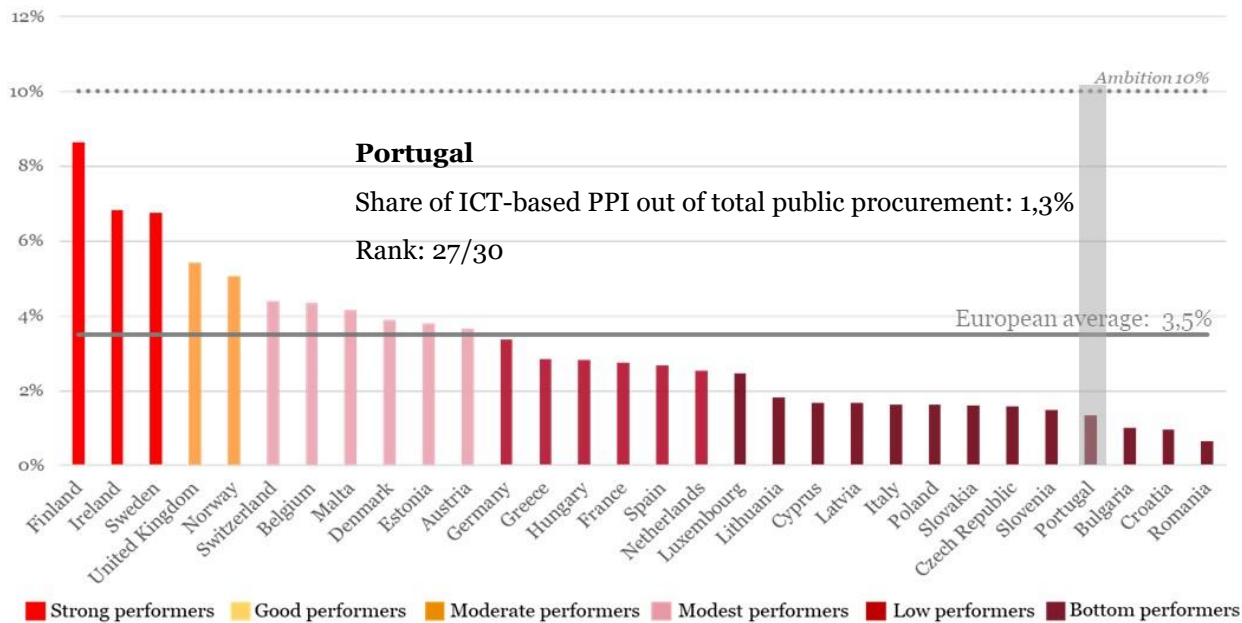


54% of the total PPI investments in Portugal is carried out by **large-scale entities at national level**, such as ministries and ICT integrators of governments departments. This is above the European average (47%).

Procurers at regional level account for a share of PPI investments (16%) which is below the European average (24%), while **procurers at local level** account for the highest fraction of PPI investments at sub-national level (30%), in line with the European average (29%). This may indicate that procurers at subnational level could still improve their performance on adopting innovations.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Portuguese public sector shows a **bottom level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,02 bn or 1,3% of total public procurement invested in innovative ICT-based solutions, **Portugal ranks 27th** in the benchmarking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (34%), Portugal performs below the European average (38%). **A large increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Portugal to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁶⁶⁸

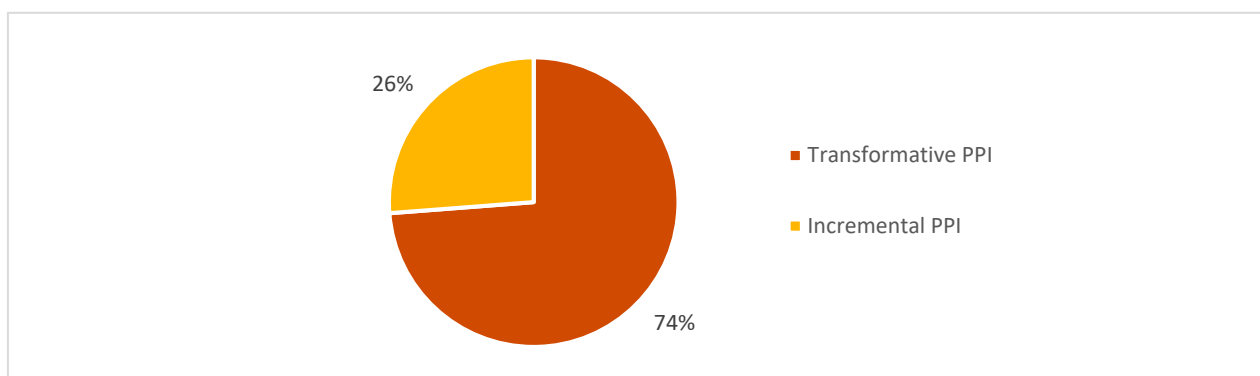


The **main factors**⁶⁶⁹ explaining Portugal’s bottom performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of investments made in the adoption of **transformative ICT-based innovations** in Portugal (74%) is below the European average (**79%**). This consists of ‘significantly improved solutions’ (42%) and innovative solutions that are ‘new to the market’ (32%). Portuguese PPI investments depend to a larger extent than the European average (21%) on the adoption of **incremental ICT-based innovations**⁶⁷⁰ (26%). As the total amount of investments in ICT-based innovative solutions in Portugal is really low, the country is still lagging behind considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



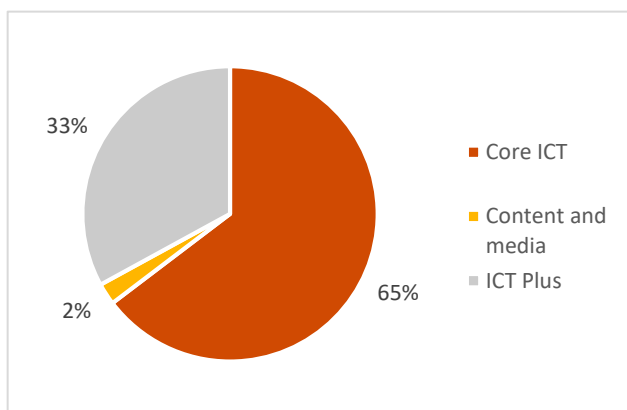
⁶⁶⁸ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁶⁶⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁶⁷⁰ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Portugal invested mainly in the adoption of innovations from the so-called ‘**Core ICT**’ sub-sector⁶⁷¹ (65%), above the European average (54%)

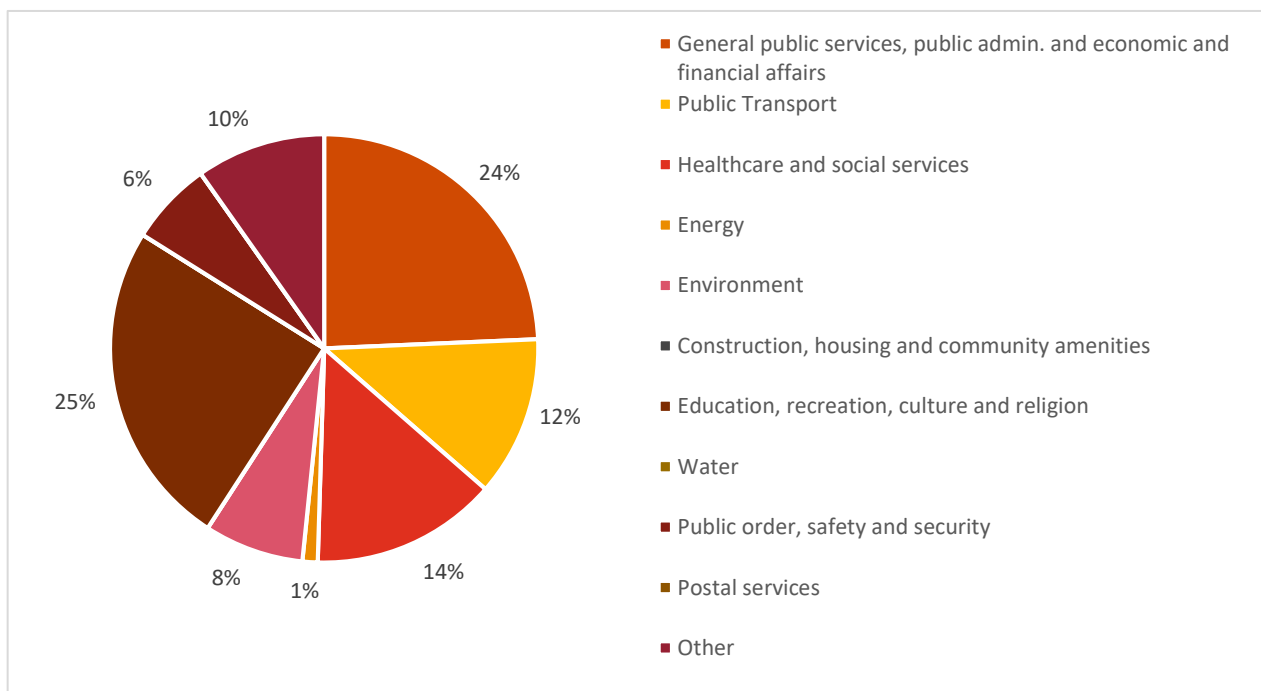
Portugal invested to a lesser extent in the adoption of innovations from the ‘**ICT Plus**’ sub-sector (33%), below the European average (45%).

Investments in adopting innovations from the ‘**Content & Media**’ sub-sector were small (2%), in line with the European average (1%).

Investment readiness across different domains of public sector activity

Despite the low overall level of PPI investment in the country, **nearly every domain of public sector activity in Portugal purchased innovative ICT-based solutions**, except the ‘**Construction, housing and community amenities**’, ‘**Water**’, and ‘**Postal services**’ domains where ICT-based PPI investments were zero. The highest share of ICT-based PPI investments was made by procurers that operate in the domain of ‘**Education, recreation, culture and religion**’ (25%) followed by procurers in the ‘**General public services, public administration and economic and financial affairs**’ domain (24%), both are well above the European averages (respectively 9% and 16%). The share of ICT-based investments made by procurers operating in ‘**Healthcare and social services**’ and ‘**Public order, safety and security**’ are instead significantly above the European averages (respectively 30% and 19%).

ICT-based PPI investments by domains of public sector activity

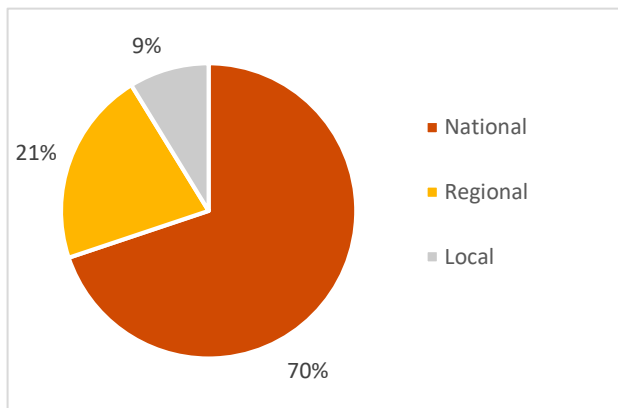


⁶⁷¹ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 70% of ICT-based PPI investments, which is in line the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI investments at sub-national level (21%), still in line with the European average (21%). Accordingly, also **local procurers** account for a modest fraction of ICT-based PPI (9%), as in the European average (10%).

Romania



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

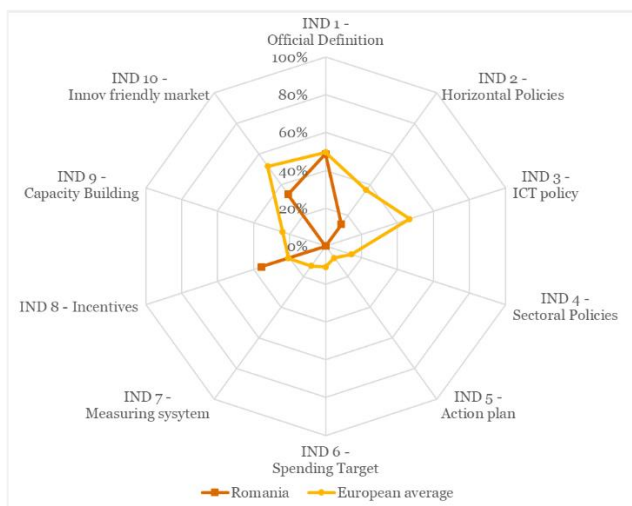
The EU procurement directives (Directive 2014/23/EU, 2014/24/EU and 2014/25/EU) were transposed in the national public procurement legislation in 2016 (Law no. 98/2016 on public procurement, Law no. 99/2016 on utilities procurement, Law no. 100/2016 on work concession contracts and services concession contracts), and they have given a first input to the development of the innovation procurement system in the country. The EU directive on defence procurement (Directive 2009/81/EC) was transposed by the Emergency Government Ordinance no. 114/2011 published in the Official Gazette no.932 on 29th December 2011.

The Romanian public procurement system is highly decentralized, with the exception of some areas of public interest which are partially dealt directly by the central Government (for examples, the healthcare and transport sectors).

The key actor in the national procurement system is the **National Agency for Public Procurement (ANAP)**, a regulating body which provides advisory and operational support, ex ante and ex post verifications, monitoring and international representation. The ANAP is under the authority of the **Ministry of Public Finance**, as the main institution to oversee the management of public investment and to ensure the quality of public spending. Other key institutions in the public procurement system are the **National Council for Solving Complaints**, a non-judiciary administrative body solving complaints lodged within the awarding procedure before the contract is concluded and the **Courts of Appeals**, which is a judicial instance for solving complaints. Finally, the **Romanian Agency for Digital Agenda** (under the Ministry for Communication) is the operator of the Electronic System for Public Procurement.

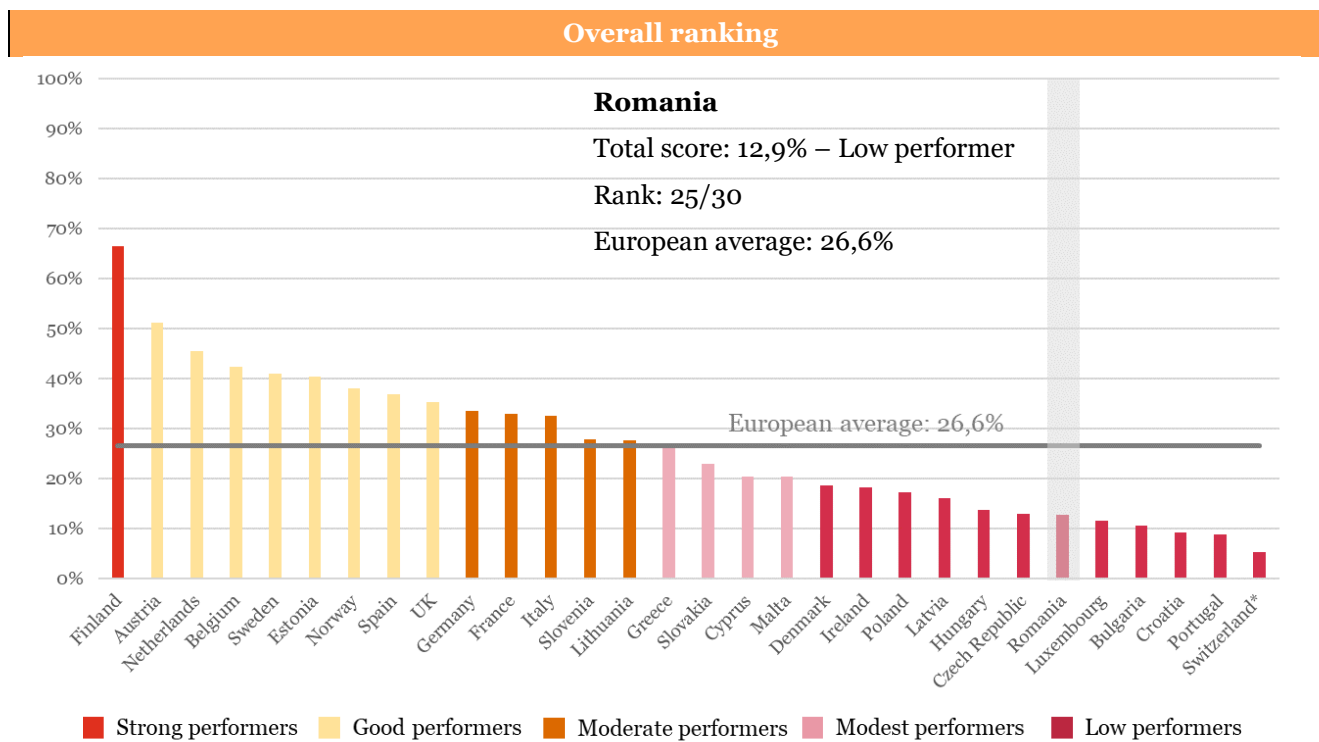
Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Romania is at the 25th position** in the overall ranking with a **total score of 12,9%**. From the 30 countries analysed, Romania is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance on 9 out of 10 indicators is below European average. Having implemented only 12,9% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a very strong reinforcement of the policy framework needed in Romania to reach its full 100% potential.



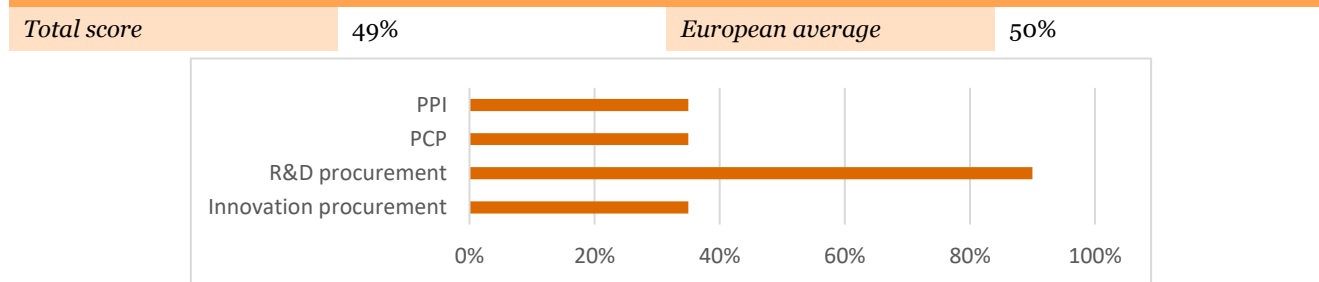
Strengths: In Romania there is a first awareness to the topic of innovation procurement, introduced thanks to the transposition of the EU procurement directives. This can be a good ground for building a future innovation procurement policy.

Weaknesses: Innovation procurement is not developed yet, nor as a stand-alone policy nor as a strategic part of other policies (e.g. public procurement or innovation policies). Lack of national action plan, target, monitoring system and structured capacity building measures. Lack of IPR policy in public procurement that encourages innovation.



Overview per indicator

Indicator 1 – Official definition



The Romanian public procurement legal framework provides a legal definition for innovation but not for innovation procurement. It provides also a legal definition for R&D in the defence sector and identifies R&D via the CPV codes for non-defence procurers. The public procurement legislation provides a clear legal a basis also for implementing Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI) although without explicit official definitions for PCP or PPI. Therefore, the total score of this indicator innovation is 49%.

Innovation procurement is not defined in the national legal framework. However, **innovation** in the context of public procurement is defined by article 3, section a.a. of the Law 98/2016 as “the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is applicable to all public procurers in the country and in line with the definition of the EU public procurement directives. Therefore, the total score of this sub-indicator is 35%.

The current Romanian law for non-defence/security procurements has no full sentence defining R&D but article 36 of the Public Procurement law identifies R&D as activities that have the CPV codes for fundamental research, applied research and industrial development in line with the EU public procurement directives CPV codes for R&D. For defence/security procurements, the Emergency Government Ordinance no.114/2011, provides a definition of **R&D** in Article 17 (Chapter 1 Definitions): “all activities that include fundamental research, applied research and experimental development, the latter may include the production of some technological demonstrators, these being devices that demonstrate the performance of a new one concept or new technology in a representative or relevant environment”. This definition is in line with the EU definition but is not applicable countrywide (i.e. is applicable only in the defence sector). Therefore, the total score of this sub-indicator R&D is 90%.

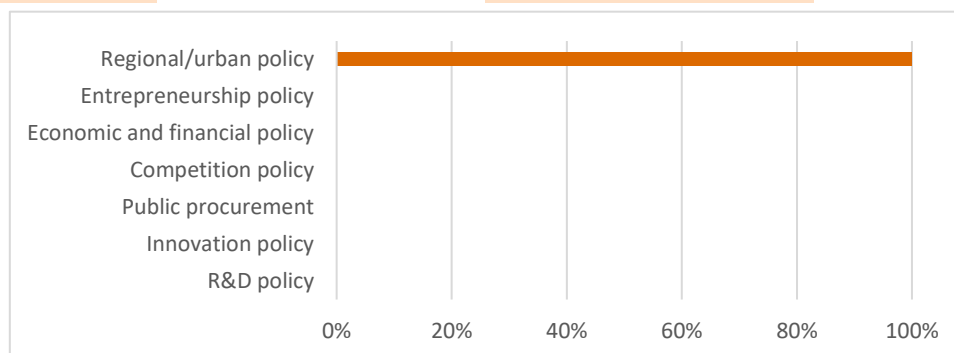
Article 17 implements also the exemption for R&D services and thereby forms also the legal basis for the implementation of **PCP** in Romania: “This law applies to public service contracts that have as subject to the provision of research and development services ... only if the following conditions are met cumulatively: (a) the results are for the exclusive use of the contracting authority for use in their own activities; and (b) the service provided is fully remunerated by the

contracting authority." The R&D services exemption is applicable to all public procurers in the country and in line with the provisions in the EU public procurement directives. Therefore, the total score of this sub-indicator PCP is 35%.

The public procurement Law 98/2016 enables public procurers to implement **PPI** by allowing procurers to award contracts and monitor contract performance not only based on price but also on innovation criteria. Article 18.7 (5) states that among the award criteria should be taken into consideration also "quality, including technical advantages, aesthetic characteristics and functional, accessibility, design concept for all users, social, environmental and innovative features and marketing and conditions thereof". The total score of the sub-indicator PPI is therefore 35%.

Indicator 2 – Horizontal policies

Total score	14%	European average	36%
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In Romania innovation procurement is embedded only in the regional/urban policy. The total score for this indicator is therefore 14%.

Indeed, EU funds (ESIF) are channelled to finance innovation activities of the public sectors, so contracting authorities can use them to finance innovation procurements. The **Competitiveness Operational Programme 2014 – 2020** is the main enabling tool in this field. The **National Strategy on Public Procurement** (adopted by Government Decision no. 901/2015) does not contain any specific provision on innovation procurement.⁶⁷²

Indicator 3 – ICT policies

Total score	0%	European average	47%
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The **national strategy on the digital agenda** recognises as core priorities "increase efficiency and reduce costs in the public sector in Romania by modernizing the administration" and research, development and innovation in ICT - area aimed at regional comparative advantages of Romania, and backs growth in the private sector" but it does not make the link between the two and does not recognise how innovation procurement is a key instrument to make these two objectives happen. Therefore, the total score of this indicator is 0%.

Indicator 4 – Sectorial policies

Total score	0%	European average	14%
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In Romania no sectorial policy explicitly recognises the role of innovation procurement within its strategy.

Indicator 5 – Action plan

Total score	0%	European average	8%
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Romania does not have a stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European average	11%
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In Romania there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

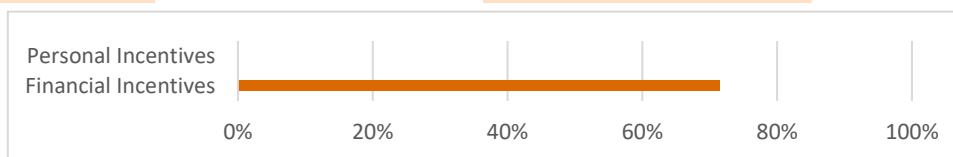
Total score	0%	European average	13%
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Romania does not have structured system for measuring innovation procurement expenditure and for evaluating the impacts of completed innovation procurements.

⁶⁷² <http://anap.gov.ro/web/strategia-nationala-in-domeniul-achizitiilor-publice/>

Indicator 8 – Incentives

Total score 36% **European average** 22%



Romania has set up **financial incentives**, in the form of grants, to encourage public procurers to undertake more innovation procurements. These Incentives are for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), applicable to all public procurers in all sectors and levels of government, using ESIF and national funds, but they are not able to incentivize large scale implementation of innovation procurement. The total score for this sub-indicator is 71%

In particular, the public procurers may undertake innovation procurements within the following programs:

- Competitiveness Operational Programme (co financed through ESIF)⁶⁷³.
- The National R&D and Innovation III Plan for the period 2015-2020 (co-financed through national budget)⁶⁷⁴.

Finally, the country does not have **personal incentive schemes**. The total score of the indicator “incentives” is 36%.

Indicator 9 – Capacity building and assistance measures

Total score 0% **European average** 24%

Romania does not put in place targeted measures to enhance the adoption of innovation procurement at the moment, but developments are likely to occur in the future.

However, a number of initiatives are planned. The **National Agency of Public Procurement**⁶⁷⁵ (under the Ministry of Public Finance) is elaborating an action plan for the **professionalization of public procurers**, which will contribute to foster the culture of innovation procurement and enhance its adoption in the future, together with the concepts of sustainable and green procurement.

Furthermore, the project “*Increasing the administrative capacity of the National Agency for Public Procurement and the public institutions responsible for the implementation of the National Strategy in the field of public procurement*”⁶⁷⁶, funded by the ESF aims at developing, with the technical support of the World Bank, a **Guide for public procurement** outlining definitions, explanations and procedures. This Guide is likely to include a section on innovation procurement as well. The end of the project, and the completion of the Guide published in the website of the National Agency for Public Procurement⁶⁷⁷, is expected in 2019.

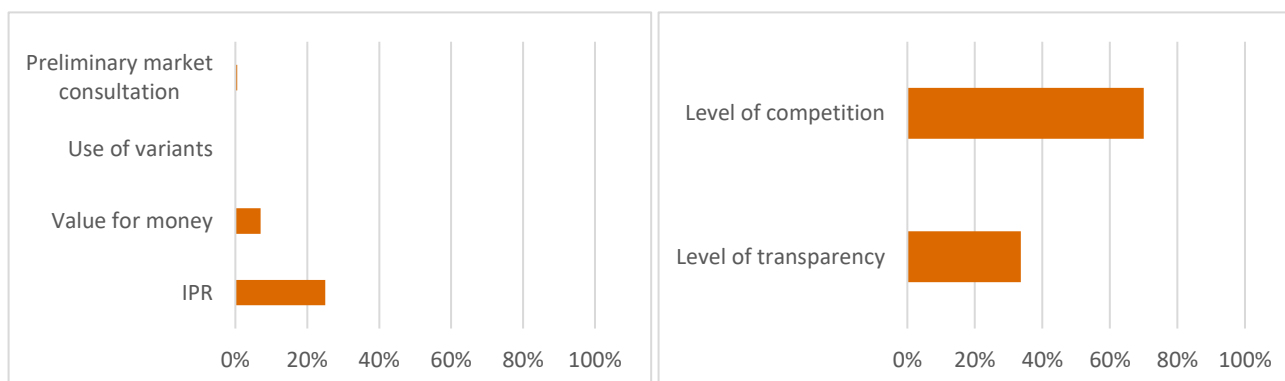
As all these activities are not in place yet, the total score for this indicator is 0%.

Indicator 10 – Innovation friendly public procurement market

Total score 30% **European average** 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



⁶⁷³ <http://www.fonduri-ue.ro/poc-2014>

⁶⁷⁴ <http://www.research.gov.ro/ro/articol/1434/programe-nationale>

⁶⁷⁵ ANAP, set up by the Government Emergency Ordinance no. 13/2015.

⁶⁷⁶ <http://anap.gov.ro/web/prezentare-proiect-poca/>

⁶⁷⁷ The Guidelines for innovation procurement will be part of the Guidelines for Public Procurement <https://achizitiipublice.gov.ro/home>

This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Romania
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Romania shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Romania. The Romanian law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Romanian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with IPR/copyright law. The Romanian copyright act determines that copyright ownership belongs in an inalienable way to the creator (the moral rights may not be renounced or disposed of). The owner of the copyright, the creator, may transfer, assign or license only his economic rights by contract (e.g. public procurement contract) to other persons. If the procurer wants to use work and/or the copyright owned by the creator he therefore needs to require in the tender specifications the assignment or a license of those economic rights that he needs (e.g. usage, licensing, publication, modification, reproduction rights) at equitable payment. Copyright law protects also scientific work, software and database rights
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 7% of the public procurement processes have been awarded using value for money award criteria. This is far below the European average of 42% and the 80% satisfactory level set out in the EU single market scoreboard. This result makes Romania the worst performer on this aspect together with Malta and Cyprus across the EU Member States.
- c. **Use of variants:** Romania has allowed the use of variants in less than 1% of the procedures (0,06%). This percentage is well below the European average.
- d. **Preliminary Market Consultation:** Romania has used Preliminary Market Consultations in the 0,5% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 8% which is far below the European average of 23% and below the satisfactory level set by the EU single market scoreboard. This is mainly due to below average performance on adopting an IPR default regime that fosters innovation in public procurement and a serious underutilization of value for money criteria.

With regard to sub-indicator II, Romania shows the following evidence (based on the EU single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 70% which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This is due to below European average performance on both sub-indicators: the scarce percentage of procurements with more than one bidder (57%) and the percentage of procurements for which a call for bids was done (83%).
- f. **Level of Transparency:** The level of transparency of the national public procurement market is 34% which is below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. There is a lack of clear information provided to bidders. The amount of procurements without missing call for bids information (5%) and without missing buyer registration number (0%) is very low.

Based on this evidence, the score for sub-indicator II is 52% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is due to a lack of competition and transparency.

Based on the scores for sub-indicators I and II, the total score of the indicator "innovation friendly public procurement market" is 30% which is below the 44% European average and below the satisfactory level for the total of the EU single market indicators. This score is firstly by the fact that both the use of specific techniques to foster innovation in the country and the openness of the Romanian procurement market to innovations from across the EU single market is below the European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are seriously underused in public procurements. In addition, the national public procurement market shows as below average level of competition and transparency.

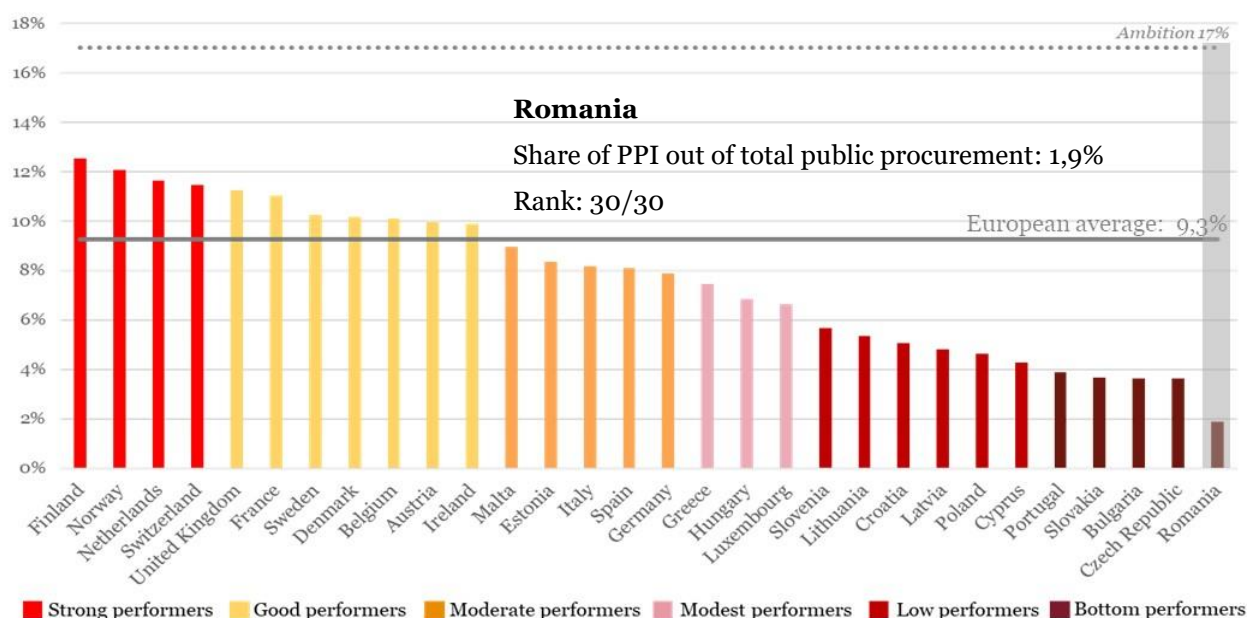
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Romanian investments on public procurements of innovative solutions (PPI) and the benchmarking of Romanian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 1,9% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,5 bn), **Romania ranks 30th**, taking the last position in the benchmarking of investments on public procurement of innovative solutions (PPI)⁶⁷⁸ across Europe. Romania closes the group of **bottom performers**, with the largest gap from the European average of 9,3%.⁶⁷⁹ **A remarkable increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Romanian public sector.⁶⁸⁰ When taking into account also PPI in the defence sector Romania still remains in the 30th position.



The **main factors**⁶⁸¹ explaining Romania's bottom performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investment that is spent on the adoption of **transformative innovations** in Romania (74%) is **below the European average** (84%). It consists mostly of the purchase of 'significantly improved' solutions (63%). The adoption of innovative solutions that are 'new to the market' (11%) is still very low in Romania. PPI investments in Romania depend much more than in other European countries (16%) on **incremental innovations** (26%). This includes the purchase of existing solutions that are used in a new way or in a new sector as well as innovative combinations of existing solutions. As the total amount of investments in innovative solutions in Romania is low, the

⁶⁷⁸ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁶⁷⁹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

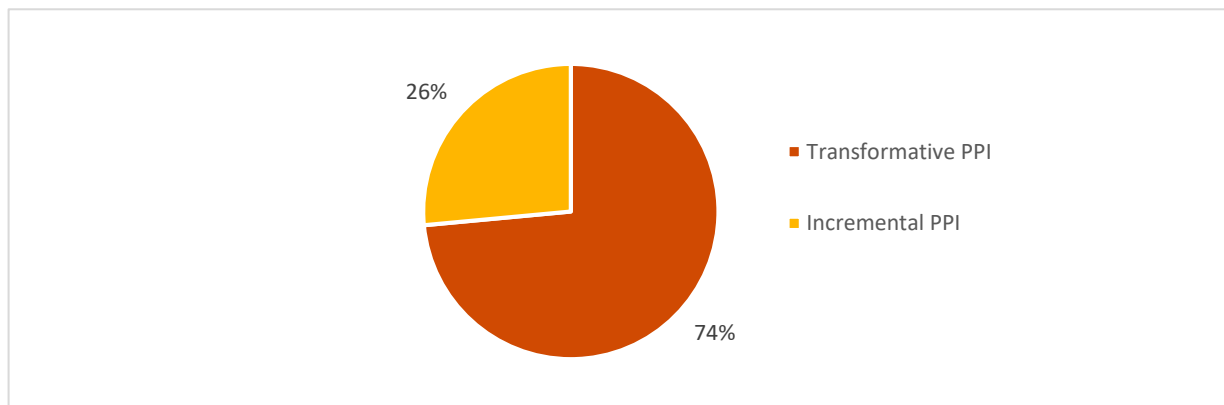
⁶⁸⁰ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁶⁸¹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

country still needs to step up considerably its investments in the adoption of both transformative and incremental innovations.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Romania is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Despite the fact that the total investments in public procurement of innovative solutions in the country are very limited, **every domain of public sector activity⁶⁸² in Romania purchased some innovative solutions.** The PPI investments made by different domains of public sector activity are **mostly below the European averages** (in 6 out of 11 domains). The share of PPI investments made by procurers that operate in the domains of **'Healthcare and social services'** (9%) and **'Public order, safety and security'** (3%) are significantly below the European averages (-12 pp and -5 pp respectively). The share of PPI investments made by procurers that operate in the domains of **'General public services, public administration and economic and financial affairs'** (45%) and **'Energy'** (11%) are significantly above the European averages (+10 pp and +5 pp respectively). Investments in **'Postal services'** were very small (0,1%)

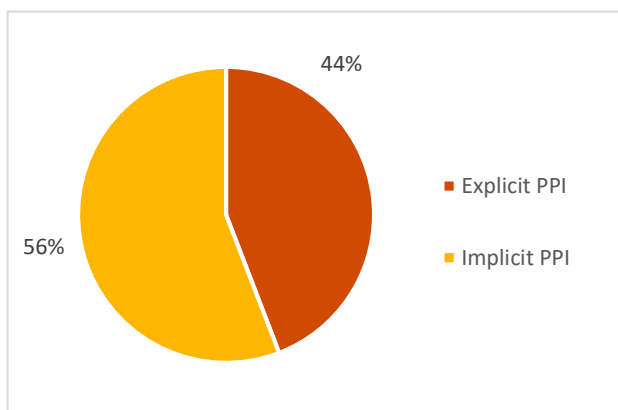
PPI investments by domains of public sector activity

Domain of public sector activity	Romania	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	45%	35%	+10
Public transport	11%	10%	+1
Healthcare and social services	9%	21%	-12
Energy	11%	6%	+5
Environment	7%	3%	+4
Construction, housing and community amenities	2%	4%	-2
Education, recreation, culture and religion	7%	5%	+2
Water	3%	4%	-1
Public order, safety and security	3%	8%	-5
Postal services	0% (0,1%)	1%	-1
Other	2%	3%	-1
Total PPI investments	100%	100%	-

⁶⁸² The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI (as % of the total amount of PPI)

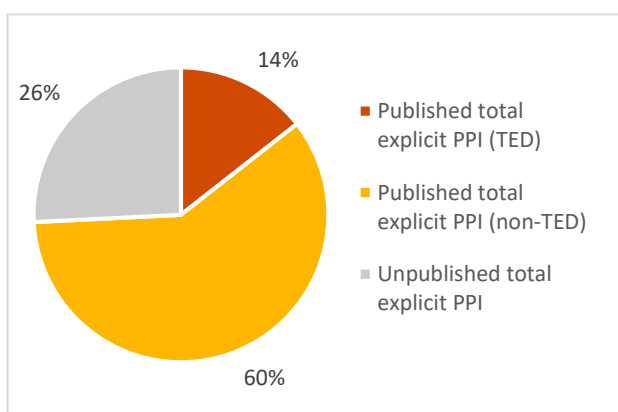


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly higher in Romania (44%) compared to the European average (29%). This indicates that Romanian procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Romania (56%) than in the European average (71%). This indicates that Romanian procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI (as % of the amount of explicit PPI)

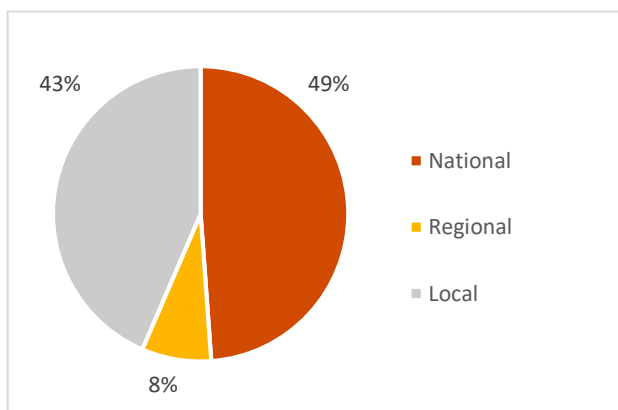


The share of Romanian PPI investments for which calls for tenders are published is very high (74%), especially compared to the European average (22%). This is mainly due to the portion that is **published at national level** (60%) which is well above European average (5%), while the portion **published at European level** in the TED database (14%) remains below the European average (18%). The share of PPI investments for which no call for tenders is published in TED or at national level is less than one-third of the total.

By publishing PPI calls for tenders widely, **Romania is on a good path** to receive good offers both from Romanian and other European innovative suppliers with potential innovative solutions that could speed up public sector modernisation.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

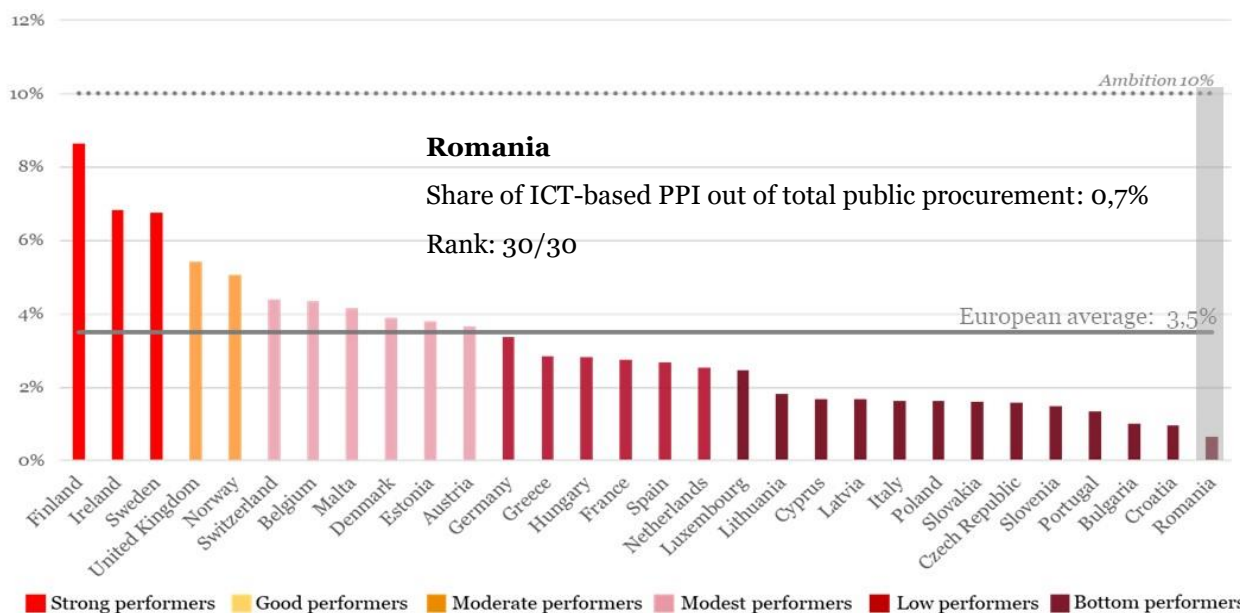


Almost half of the total PPI investments in Romania are carried out by **large-scale entities at national level** (49%), such as ministries and ICT integrators of governments departments. This is in line with the European average (47%).

Procurers at local level account for a slightly smaller share of PPI investments (43%), but this time well above the European average (29%). **Procurers at regional level** account for the smallest fraction of PPI at sub-national level (8%), well below the European average (24%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Romanian public sector shows the **lowest level of performance** in Europe in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 0,7% of total public procurement invested in innovative ICT-based solutions, **Romania ranks 30th** in the ranking of ICT-based PPI investments, well below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (34,7%), Romania performs below the European average (38%). **A large increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Romania to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁶⁸³

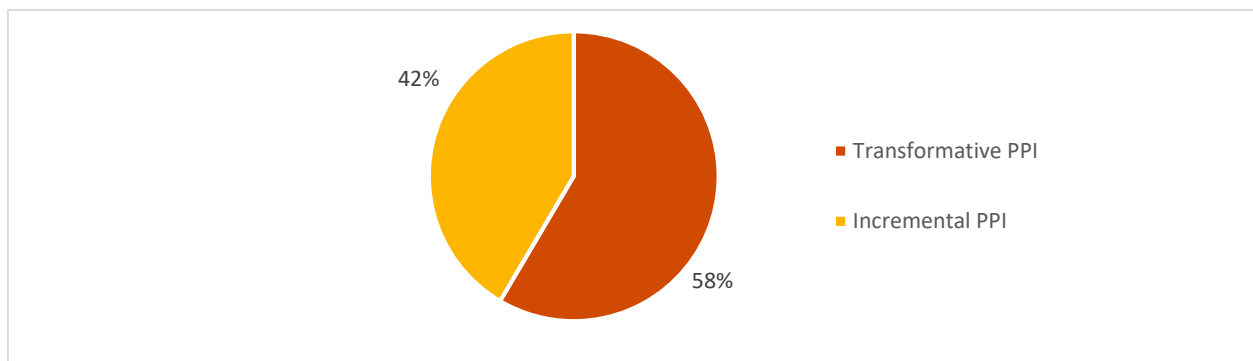


The **main factors**⁶⁸⁴ explaining Romania’s bottom performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Romania (52%) is considerably below the European average (79%). Both the adoption of ‘significantly improved solutions’ (33%) and innovative solutions that are ‘new to the market’ (25%) is still low. Romania’s PPI investments depend to a much larger extent than other European countries (21%) on the adoption of **incremental ICT-based innovations**⁶⁸⁵ (42%). As the total amount of investments in ICT-based innovative solutions in Romania is very low, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



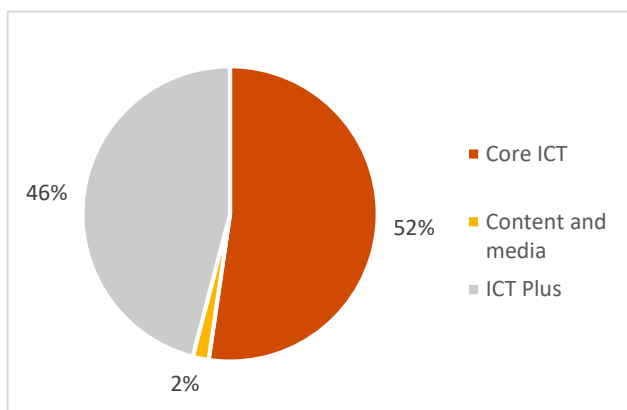
⁶⁸³ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁶⁸⁴ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁶⁸⁵ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Romania invested mainly in the adoption of innovations from the so-called **‘Core ICT’ sub-sector**⁶⁸⁶ (52%), in line with the European average (54%).

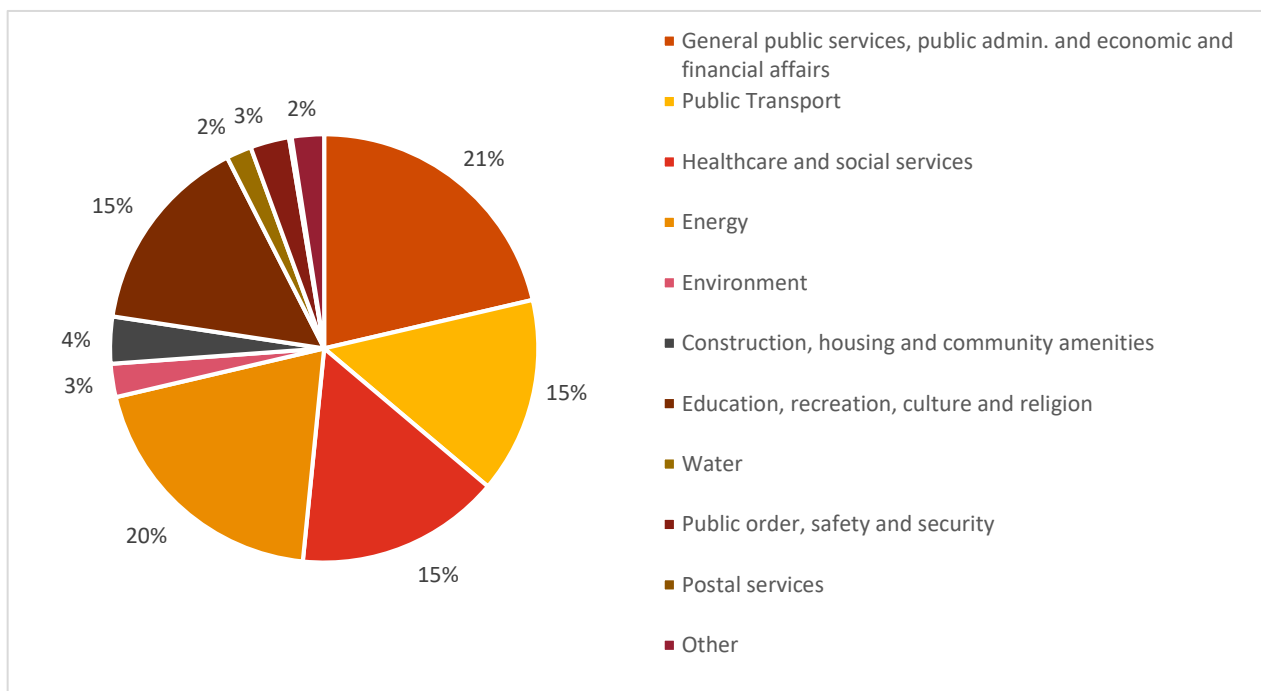
Romania invested to a lesser extent in the adoption of innovations from the **‘ICT Plus’ sub-sector** (46%), in line with the European average (44%).

The share of investments in adopting innovations from the **‘Content & Media’ sub-sector** was small (2%), similar to the European average (1%).

Investment readiness across different domains of public sector activity

Despite the fact that the total investments in public procurement of innovative solutions of ICT-based innovations in the country are the lowest in Europe, **every domain of public sector activity in Romania purchased some innovative ICT-based solutions**. In particular, the highest share of ICT-based PPI investments is made by procurers that operate in the domain of **‘Energy’** (20%) followed by procurers in the **‘Education, recreation, culture and religion’** domain (15%), both above the European averages (+5 pp and + 6 pp respectively). However, in the share of ICT-based PPI investments coming from procurers in **‘Public order, safety and security’** and **‘Healthcare and social services’** is significantly below the European average (-16 pp and -14 pp respectively). The share of investments in **‘Postal services’** (0,2%) was the lowest.

ICT-based PPI investments by domains of public sector activity

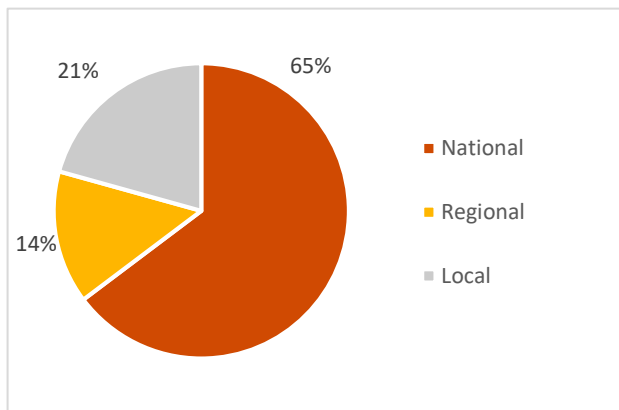


⁶⁸⁶ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 65% of ICT-based PPI investments, slightly below the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (21%), more than double the European average (10%). **Regional procurers** account for only a modest fraction of ICT-based PPI investments (14%), below the European average (21%).

Slovenia



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

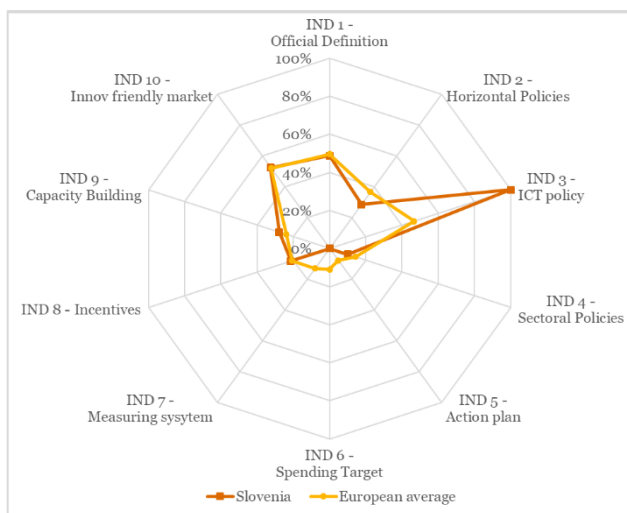
In Slovenia public procurement is regulated by the Public Procurement Act, the ZJN-3 ("Procurement Act"), entered into force on 1 April 2016. It transposes the EU Directives 2014/24/EU and 2014/25/EU. After a long period of dual regulation of the general and utility areas of public procurement, the new Procurement Act unifies both areas in a single act, thus invalidating the existing Public Procurement Act - ZJN-2, and the Act Regulating Public Procurement in Water, Energy, Transport and Postal Services - ZJNVETPS. The EU Directive 2009/81/EC has been transposed in the Slovenian legal framework by Public procurement law in the field of defence and security (*Zakon o javnem naročanju na področju obrambe in varnosti – ZJNPOV*) entered into force the 30. 11. 2012.

More than half of all procedures were awarded using the national procurement procedure for low-value contract (below the EU threshold). Other commonly used procedures were the open procedure, which represented a quarter of all awarded contracts, and the negotiated procedure without prior publication. The above-mentioned public procurement procedures accounted for approximately 96% of all awarded contracts in 2016. In 2016, 241 procurements awarded were co-financed by the European Union through various funds and programs (€ 132 million).

The key actor in the field of public procurement is the **Ministry of Public Administration** and in particular the **Public Procurement Directorate**. It is responsible for the regulatory framework and provides support to contracting authorities in the area of public procurement. The Directorate is also responsible for the development and management of the IT services which support the e-public procurement system.

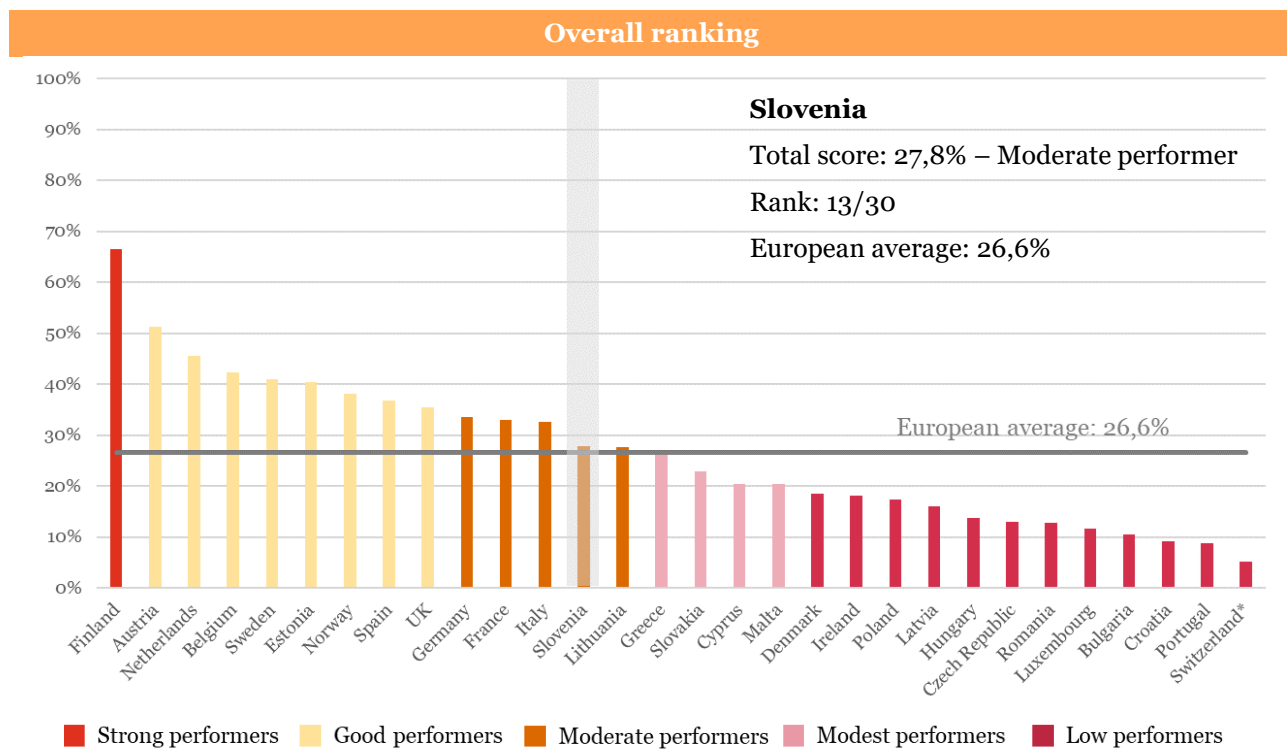
Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Slovenia is at the 13th position** of the overall ranking with a **total score of 27,8%**. From the 30 countries analysed, Slovenia is among the group of moderate performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 27,8% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a significant reinforcement of the policy framework needed in Slovenia to reach its full 100% potential.



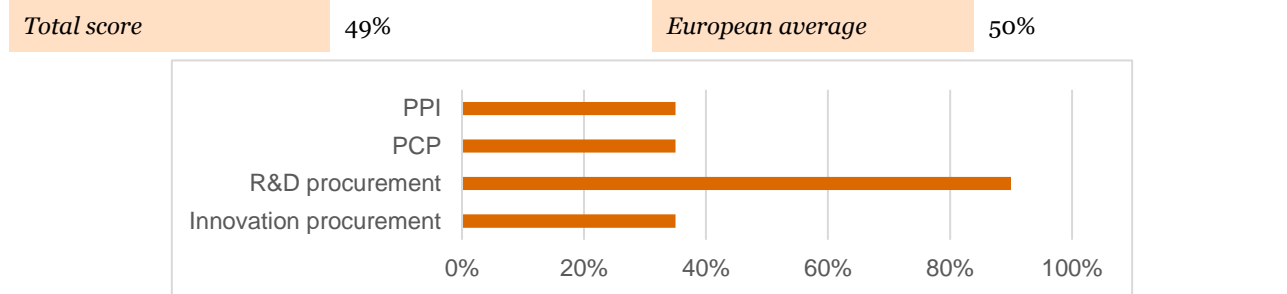
Strengths: The strategic importance of innovation procurement is recognized by several horizontal policies. National guidelines promote an approach to IPR allocation that fosters innovation in public procurement.

Weakness: Strategic importance of innovation procurement not picked up yet by sectorial policies. Lack of a structured approach to foster innovation procurement: no action plan, targets, structured capacity building and monitoring system for innovation procurement.



Overview per indicator

Indicator 1 – Official definition



In Slovenia, there is an official definition for R&D procurement, while the legal framework only provides a legal basis for “innovation procurement”, “Pre-Commercial Procurement” (PCP) and “Public Procurement of Innovative solutions” (PPI). Therefore, the total score of this indicator is 49%.

The Public Procurement Act (PPA) has introduced the notion of **innovation** in the Slovenian legal framework. In particular, Article 2(1) (18) defines innovation as “the implementation of a new or significantly improved product, service or process, inter alia production, building or construction processes, a new marketing method, or a new organizational method in business practices, workplace organization or external relations, with, for example, the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is applicable countrywide and coherent with the EU definition, therefore the score for this sub-indicator is 35%.

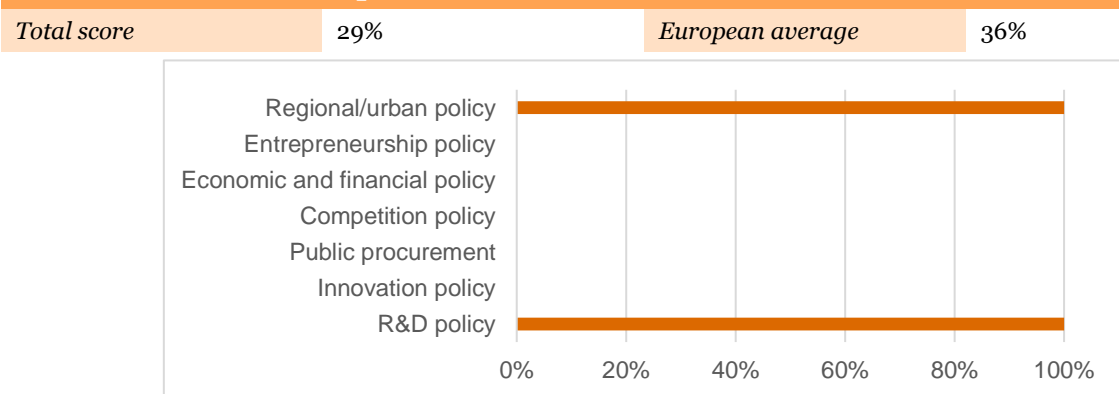
A definition of **R&D** is only provided in the Public procurement law in the field of defence and security (Zakon o javnem naročanju na področju obrambe in varnosti) that transposes the Defence and security Directive 2009/81/EU. Article 3.10 provides a definition of Research and development “as all the activities involved basic research, applied research and experimental development, where the latter may include the implementation of technological demonstration projects, that is to say devices that will demonstrate the performance of a new method or technology to relevant or representative environment”. This definition is only applicable in the defence sector (i.e. not countrywide) and is in line with the EU definition, therefore the total score of this sub-indicator is 90%.

The Slovenian Public procurement act identifies in Article 27(1)(6) R&D as “activities that have the CPV codes for fundamental research, applied research and industrial development”. This article also transposes the exclusion for R&D services, which forms the legal basis for implementing in PCP, namely: “the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. Therefore,

although no definition of PCP exists, there is a legal basis which is applicable to all public procurers in the country, resulting in a total score for this indicator of 35%.

A PPI definition is not available in the legal framework, and neither present in any policy document or guideline. However, the Public procurement act provides the legal basis to implement PPI. In particular, article 84.1 (a) states that contracting may award contracts not only based on price but also based “quality, including technical merit, aesthetic and functional characteristics, accessibility, and design for all users, social, environmental and innovative characteristics”. In addition, article 43 of the PPA, determines that the contracting authority shall identify the need for an innovative product, service or works which is not already available on the market. Therefore, no definition of PPI exists, but there is a legal basis which is applicable to all public procurers in the country, resulting in a total score for this indicator of 35%.

Indicator 2 – Horizontal policies



Overall, two horizontal policies are currently enabling innovation procurement in the country: R&D and regional policy. The total score for this indicator is 29%.

The Partnership Agreement between Slovenia and the European Commission for the period 2014–2020⁶⁸⁷ recognizes public procurement as a crucial area in committing European **cohesion funds**, and for this reason Slovenia is paying special attention to training activities oriented to green and innovative public procurement. The Thematic objective 1: *Strengthening research, technological development and innovation*, considers innovation and the public support for innovation as one of the main strategic objectives in Slovenia. The Smart specialization strategy (S4)⁶⁸⁸ gives particular relevance to public procurement of innovation as a demand-side instrument to drive and support the development of new and innovative solutions. The strategy aims to: a) strengthen the competitiveness of the economy by enhancing its innovation capacity b) diversify existing industries and service activities c) boost growth of new and fast-growing industries and enterprises. In all these objectives public procurement for innovation has a crucial role.

In the field of **R&D**, the Resolution on the National Research and Development Programme 2011-2020⁶⁸⁹ states that systemic measures for the development of market through innovative public procurements have to be encouraged. It further states that public procurements can enable the development and testing of new products and services in the national market and therefore accelerate the development of new products, services or processes in the global market. In this perspective, public procurements are perceived as crucial to face wide societal challenges, such as ageing population, environmental management and energy. In addition, the document shows the willingness to define a specific action plan on innovation procurement. The objective of this action plan would be to mainstream innovative public procurement.

Regional policy supports innovation procurement with several national operational programmes financed by ESIF funds. In particular, the Rural Development Program 2014-2020⁶⁹⁰ (financed by the European Agricultural Fund for Rural Development) foresees a support to pilot projects for the development of new products, practices, processes and technologies in the agriculture and forestry sectors. The “Development of environment and transport infrastructure” Operational Programme for the 2007-2013 also co-financed some interesting pilot projects, such as the Regional Waste Management Centre Ljubljana - RCERO Ljubljana.

Indicator 3 – ICT policies

Total score	100%	European average	47%
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In the ICT field, the **Agenda Digital Slovenia 2020 - The strategy for the development of the information society by 2020** defines innovation procurement as a strategic priority to achieve its objectives.⁶⁹¹ In the strategy, pre-commercial public procurement for the development of innovative solutions is encouraged through the use of open public and research data, open platforms and cloud computing for faster transfer of solutions to the market. “By means of PCP in cloud computing, the future internet and big data, and by financial incentives to RDI projects for making

⁶⁸⁷ <http://www.eu-skladi.si/sl/dokumenti/kljucni-dokumenti/partnership-agreement-english-version.pdf>

⁶⁸⁸ http://www.svrk.gov.si/en/areas_of_work/slovenian_smart_specialisation_strategy_s4

⁶⁸⁹ http://www.mizs.gov.si/fileadmin/mizs.gov.si/pageuploads/Znanost/doc/Strategije/01.06_RISSdz_ENG.pdf

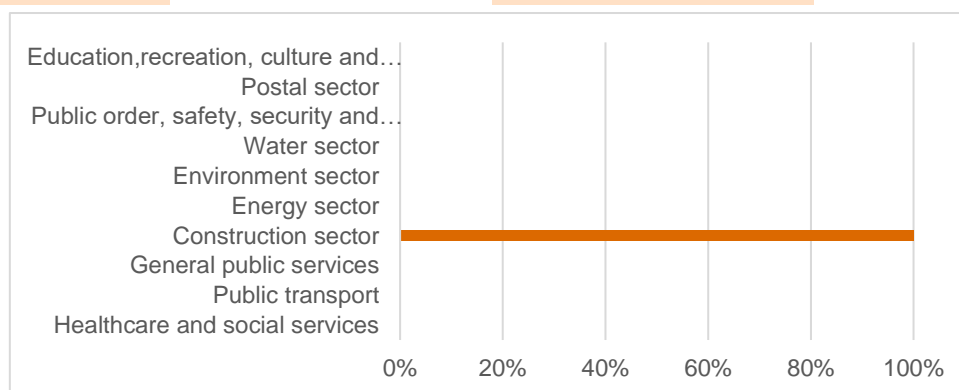
⁶⁹⁰ gbkeegbaiigmenfjfcldgdpimamgkj/views/app.html

⁶⁹¹ http://www.mju.gov.si/fileadmin/mju.gov.si/pageuploads/DID/Informacijska_druzba/pdf/DSI_2020_3-2016_pic1.pdf

open standardised platforms and development of new technologies, products and services, Slovenia will encourage the private sector to develop innovative products and services and make a prompt transition of results of data technologies to the market." 4 Mio EURO is foreseen (from ESIF) for supporting PCP projects in ICT. Therefore, the total score of this indicator is 100%.

Indicator 4 – Sectorial policies

Total score	10%	European average	14%
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The **Slovenia's Smart Specialization Strategy (S4)** can be considered a comprehensive national development policy to which several sectorial policies are connected. As already explained, the Strategy gives particular relevance to public procurement of innovation as a demand-side instruments to drive and support the development of new and innovative solutions.

For example, the Strategy sets out the objective "to implement by 2017 at least three public procurements by applying innovation partnerships in the area of healthy living and working environment, followed by transferring best practices to all public procurement procedures with the aim of promoting innovation". Furthermore, the objectives set out by the Strategy in the field of "**Smart buildings and homes, including wood chain**" are (i) to develop integrated management systems for buildings, homes and the working environment of the future, and smart appliances for energy efficiency and self-sufficiency of buildings and Internet of things as a horizontal orientation and (ii) inter-sectoral networking and integration of the wood chain in the design of homes and working environment of the future by also promoting research and innovation deriving from traditional knowledge and skills of the use of wood and wood-compatible natural materials. According to the Strategy, these objectives will be achieved "by establishing stronger links with knowledge institutions, connecting stakeholders in the supply and demand side, as well as through innovative and pre-commercial public procurements in synergy with the planned investments under the (OP) thematic objective 4". Based on the evidence collected, the score for the sub-indicator construction is 100%.

As a result of the evidence collected above, the overall score of the sectorial policy indicator accounts for 10%.

Indicator 5 – Action plan

Total score	0%	European average	8%
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Slovenia has not a stand-alone Action Plan for innovation procurement.

However, the **Resolution on the National Research and Development Programme 2011-2020** envisages the development of a specific action plan on innovation procurement with the aim to mainstream innovative public procurement in the country.

Indicator 6 – Spending target

Total score	0%	European average	11%
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In Slovenia no specific spending target has been set on innovation procurement.

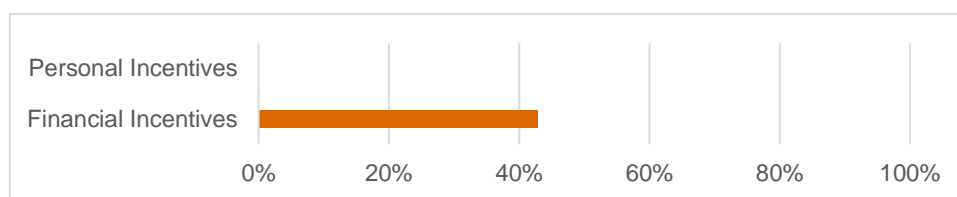
Indicator 7 – Monitoring system

Total score	0%	European average	13%
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The Country does not have structured monitoring and evaluating systems of innovation procurement.

Indicator 8 – Incentives

Total score	21%	European average	22%
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In Slovenia there are **financial incentives** to encourage public procurers to undertake more innovation procurements. The **Rural Development Program 2014-2020** – financed by the European Agricultural Fund for Rural Development – EAFRD – foresees a support to pilot projects for the development of new products, practices, processes and technologies in the agriculture and forestry sectors. The “Development of environment and transport infrastructure” Operational Programme for the 2007-2013 also co-financed some interesting pilot innovation procurement projects, such as the Regional Waste Management Centre Ljubljana - RCERO Ljubljana.

These incentives are mainly used to support pilot projects in certain sectors (only available to procurers in sectors that are prioritised in the country's smart specialisation strategy) but not able to mainstream innovation procurement across the country. These incentives rely fully on EU financing (ESIF). There are no national funds mobilised for incentivizing innovation procurements that are not EU co-financed. Thus, the total score of the sub-indicator “financial incentives” is 43%.

Finally, due to the absence of personal or **non-financial incentives** to public procurers the score for sub-indicator “personal incentives” is 0%.

The total score of the indicator “incentives” is 21%.

Indicator 9 – Capacity building and assistance measures

Total score		European average					24%	
	Existence	Connection with relevant international /EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score	
Central website							0%	
Good practices							0%	
Trainings/workshops	✓	✓	✓				50%	
Handbooks/guidelines	✓	✓	✓		✓		67%	
Assistance to public procurers	✓		✓	✓	✓		67%	
Template tender documents							0%	
Coordination / pre-approval							0%	
Networking of public procurers	✓		✓	✓	✓		67%	
One-stop-shop/competence centre							0%	

Slovenia foresees four out of nine of the measures generally adopted to build up the know-how of public procurers on innovation procurement.

Several capacity building activities in the form of **trainings and workshop** have been developed at national and sectoral level. For example, the Public Procurement Directorate provides training and workshops on innovation procurement. Specific trainings for the efficient implementation of PCP are also envisaged by the 2020 national strategy document for the development of the information society. The **networking** opportunities provided for example through these trainings and workshops provide are not connected to EU initiatives in this field, and therefore the score for sub-indicator networking is 50%. Additional training and workshops activities in the field of innovation procurement are also organized within specific projects (mainly European). In this context the most relevant is the EU project PPI2Innovate, which provides trainings and workshops to equip national public procurers with skills and competences the launch innovation procurement. These activities are provided free of charge and cover all aspects of innovation procurement. The number of workshops provided by PPI2Innovate so far has been very low and focusing mainly on specific sectors (health, energy, ICT), there has not been able to reach all types of procurers yet nor to mainstream innovation procurement across the country. As a result, the total score of this sub-indicator is 50%.

At country level, a number of **guidelines and handbooks** have been developed to facilitate the use of innovation procurement. The Ministry of Public Administration in cooperation with public and private stakeholders has prepared guidelines on innovative public procurement in the field of construction, engineering services and ICT. These guidelines explain how to conduct innovative public procurement in those fields.⁶⁹² Sector-specific guidance documents have also been developed within the PPI2Innovate project. As part of the project three thematic guidelines have been prepared to support the use of innovation procurement in the areas of health, energy and ICT. These documents are offered free of charge and are available to all public procurers in the country while they focus on specific aspects of innovation. Therefore, the total score for this sub-indicator is 67%.

Capacity building activities in the country also include **assistance to public procurers** for every kind of procurement procedure. In particular, the Public Procurement Directorate provides telephone consultations on public procurement for contracting authorities and gives non-binding interpretations of the Public Procurement Act (publishing views and opinions on its webpage). Assistance activities are offered free of charge to all public procurers in the country and cover all aspects of innovation procurement. Thus, the total score for this sub-indicator is 67%.

The participation in EU funded projects is expected to have a positive role in the use of innovation procurement at national level. For example, the participation of the Ministry of Public Administration to the PPI2Innovate project is going to produce tools to support contracting authorities in the preparation of the documentation for procurements involving innovative solutions.

On the basis of the evidence collected above, the total score for this indicator is 26%. The score is affected by the fact that there is no one-stop-shop/competence centre for innovation procurement or a dedicated central website, nor template tender documents and guidelines, and no coordination activities are offered. References to recent EU initiatives (e.g. Eafip, procure2innovative network of competence centres, European initiative to benchmark national policy frameworks for innovation procurement across Europe, EU guidance on innovation procurement, EU funding opportunities for innovation procurements (e.g. H2020, ESIF, EIB) and recent EU funded projects (e.g. Horizon 2020 funded projects) are often also still missing. Resources dedicated to capacity building and networking of procurers are not yet at the level for mainstreaming innovation procurement at large scale.

Indicator 10 – Innovation friendly public procurement market

Total score

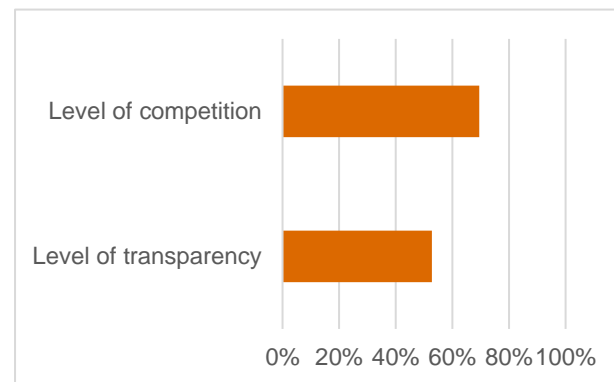
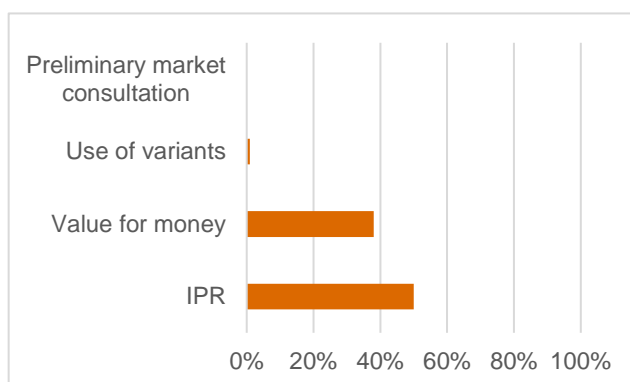
42%

European average

44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is composed of two sub-indicators that show evidence on

- I. The use of specific techniques to foster innovation in public procurement in Slovenia
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, Slovenia shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 50% because the law and general terms and conditions for government contracts do not define a default scenario for allocation of IPRs but the Slovenian ministry of public administration's guidelines on innovative / IT procurement states that that requiring more IPR than needed however negatively affects the price of offers and that the IPR requirements of the public procurer shall respect applicable IPR/copyright law and the principle of proportionality. Therefore, it recommends that "*the public procurer requires only so much intellectual property (ownership of the source code) as it needs for fulfilling its basic objectives in using, maintaining and upgrading its solutions. This transfer to the public procurer should be non-exclusive, limited in time linked to the procurement need and the mandate of the public procurer's tasks. The contracting authority should not regulate the IPR rights of*

⁶⁹² <http://www.djn.mju.gov.si/sistem-javnega-narocanja/smernice>

the contractor to ensure that contractors can also further commercialise products that result from the public procurement, according to their free entrepreneurship." Slovenian public procurement law foresees that procurers can require in the tender specifications the transfer of IPR rights to the procurer. However according to the Slovenian copyright act⁶⁹³, copyrights belong to the creator (moral rights are non-transferable and only single economic rights (not all economic rights) may be transferred). Therefore the copyright act determines that in the case of commissioned work, like in a public tender, (1) the public procurer obtains automatically the right to use/distribute the commissioned work and the creator maintains the copyright as well as the right to use and further develop and commercialise the commissioned work.

- b. **Use of value for money award criteria:** According to the EU Single Market Scoreboard, 38% of the procedures were not awarded on the basis of lowest price only. This is below the European average of 42% and far below the 80% satisfactory level set out in the EU single market scoreboard. Slovenia is still over-reliant on lowest price criteria.
- c. **Use of variants:** Slovenia has allowed the use of variants in less than 1% of the procedures (0,98%). This percentage is well below the European average.
- d. **Preliminary Market Consultations:** Slovenia has not used Preliminary Market Consultations in procurement procedures in 2018.

Based on this evidence, the score for sub-indicator I is 22% which is slightly below the European average of 23% but still below the satisfactory level set by the EU single market scoreboard. This is mainly due to the underutilization of value for money award criteria and the absence of any use of Preliminary Market Consultation. There is some promotion in guidelines to procurers for using an IPR default regime that fosters innovation in public procurement, but this is not anchored yet into legislation and general terms and conditions for government contracts.

With regard to sub-indicator II, Slovenia shows the following evidence (according to the single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 70% which is below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This result derives from the fact that both the sub-indicators are below the European average: the percentage of procurements where there was only one bidder (63%) and the percentage of procurements for which a call for bids was organised (76%).
- f. **Level of Transparency:** The level of transparency of the national public procurement market is 53% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. This is mainly due to the fact that the amount of procurements without missing call for bids information (81%) is below European average. The TED publication rate (4%) and the amount of procurements without missing buyer registration numbers (73%) are above European average but below the satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 61% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to below average level of competition.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 42% which is slightly below the European average. This score is explained firstly by the fact that, although the use of specific techniques to foster innovation in the country is slightly above the European average, the openness of the Slovenian procurement market to innovations from across the EU single market is below the European average. Indeed, the country value for money criteria are still underused in public procurements and, although there is some promotion in guidelines to procurers for using an IPR default regime that fosters innovation in public procurement, this is not anchored yet into legislation and general terms and conditions for government contracts. Secondly, the use of variants in procedures is rarely allowed and Preliminary Market Consultations have not been held. In addition, the national public procurement market shows a below average level of competition, and the level of transparency still needs improvement as well to reach the satisfactory level set by the EU single market scoreboard.

⁶⁹³ <http://www.wipo.int/wipolex/en/details.jsp?id=3699>

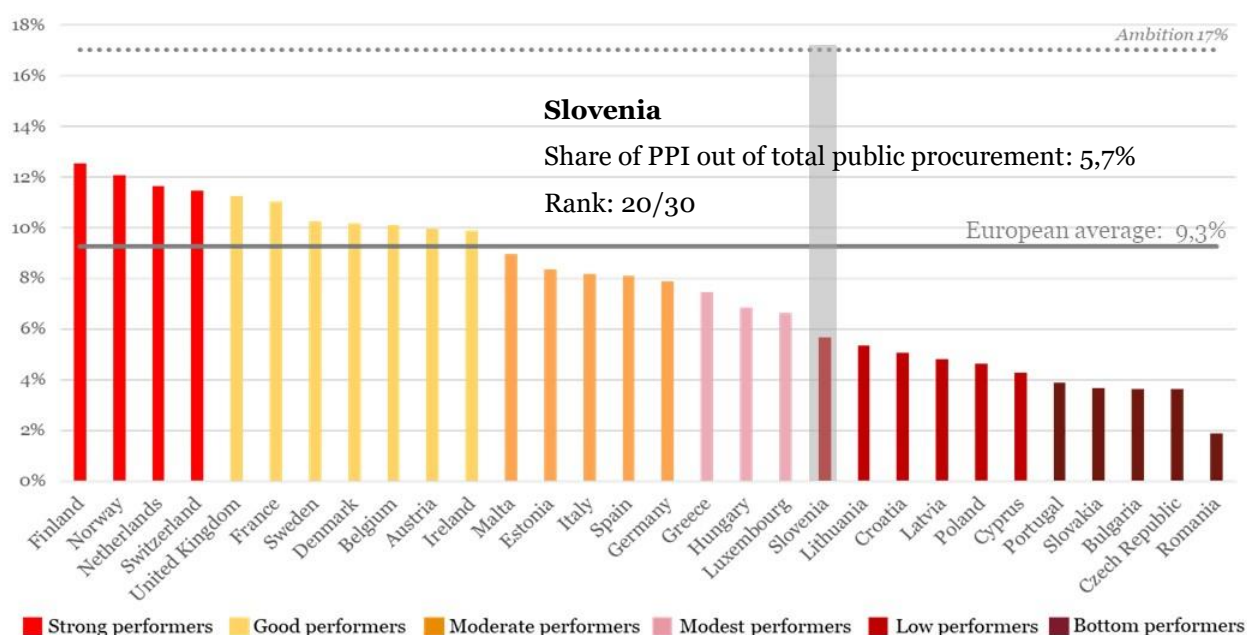
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Slovenian investments on public procurements of innovative solutions (PPI) and the benchmarking of Slovenian investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 5,7% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,4 bn), **Slovenia ranks 20th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁶⁹⁴ across Europe. Slovenia falls within the group of **low performers**, below the European average of 9,3%.⁶⁹⁵ **A large increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Slovenian public sector.⁶⁹⁶ When taking into account also PPI in the defence sector Slovenia drops to the 22nd position.



The **main factors**⁶⁹⁷ explaining Slovenia's low performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Slovenia (44%) is significantly below the European average (84%). This is due to the fact that the adoption of both 'significantly improved solutions' and 'new to the market solutions' is still low (34% and 10% of PPI respectively). PPI investments in Slovenia depend much more than other European countries (16%) on the adoption of **incremental innovations** (56%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. As the total amount of investments in innovative solutions in Slovenia is considerably below EU average, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

⁶⁹⁴ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

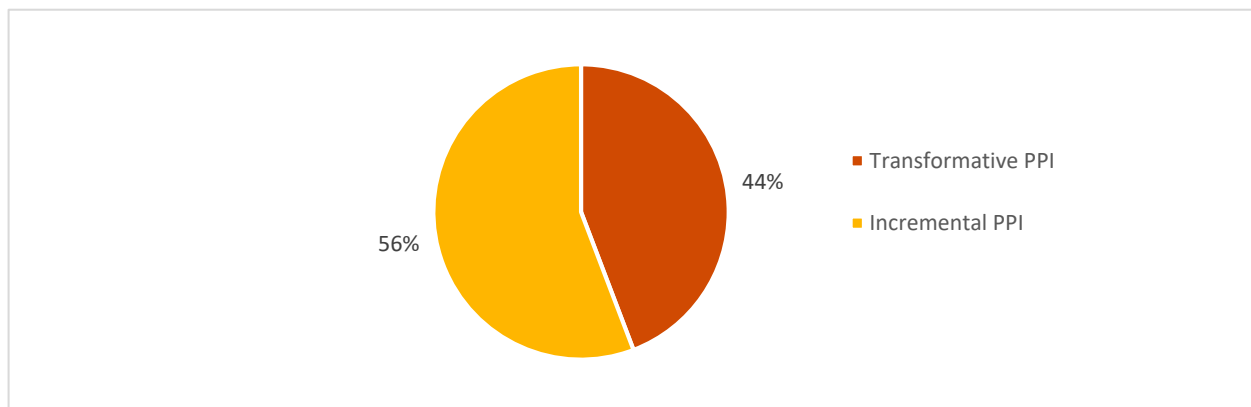
⁶⁹⁵ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁶⁹⁶ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁶⁹⁷ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Slovenia is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Despite the low volume of total PPI investments, **nearly every domain of public sector activity⁶⁹⁸ in Slovenia purchased innovation solutions**, except in 'Water' and 'Postal services' with zero PPI investments. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly below the European average** (in 8 out of 11 domains). The shares of PPI investments made by Slovenian procurers in the 'Environment', 'General public services, public administration and economic and financial affairs' and 'Education, recreation, culture and religion' domains are significantly higher than the corresponding European averages (respectively, +16 pp, +13 pp and +10 pp). At the same time, the shares of PPI investments by Slovenian procurers in the 'Healthcare and social services' and 'Public order, safety and security' domains are significantly below the European averages (respectively, -15 pp and -7 pp).

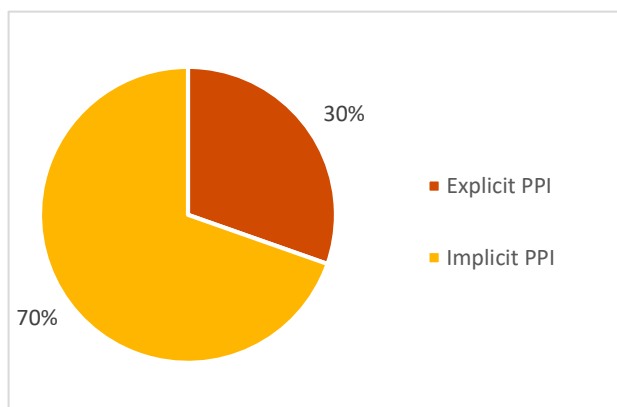
PPI investments by domains of public sector activity

Domain of public sector activity	Slovenia	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	48%	35%	+13
Public transport	4%	10%	-6
Healthcare and social services	6%	21%	-15
Energy	4%	6%	-2
Environment	19%	3%	+16
Construction, housing and community amenities	1%	4%	-3
Education, recreation, culture and religion	15%	5%	+10
Water	0%	4%	-4
Public order, safety and security	1%	8%	-7
Postal services	0%	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁶⁹⁸ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

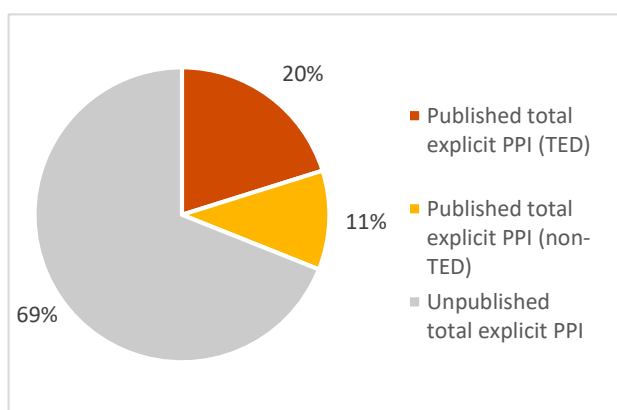


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is 30%, in line with the European average (29%). Similarly, also the share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is very close (70%) to the European average (71%).

This indicates that Slovenian procurers may be risk-averse in requesting innovative solutions or open to accepting unsolicited innovative proposals from tenderers, with the same likelihood as across Europe as a whole.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

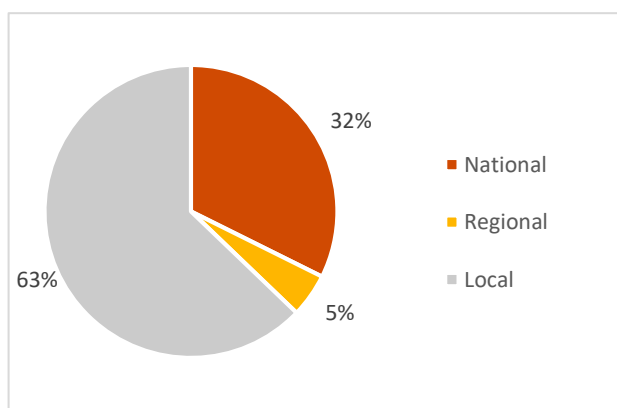


The share of Slovenian PPI investments for which call for tenders are published is modest (31%), but above the European average (22%). Both the portion that is **published at European level** in the TED database (20%) and the portion that is **published at national level** (11%) are above European average (respectively 18% and 5%). Nevertheless, the amount of PPI investments for which no call for tenders is published (69%) is high.

By not publishing PPI widely, **Slovenia is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Slovenian and other European innovative suppliers that are not informed about the Slovenian PPI business opportunities.

Investment readiness across different levels of public sector activity

PPI investments by level of public sector activity

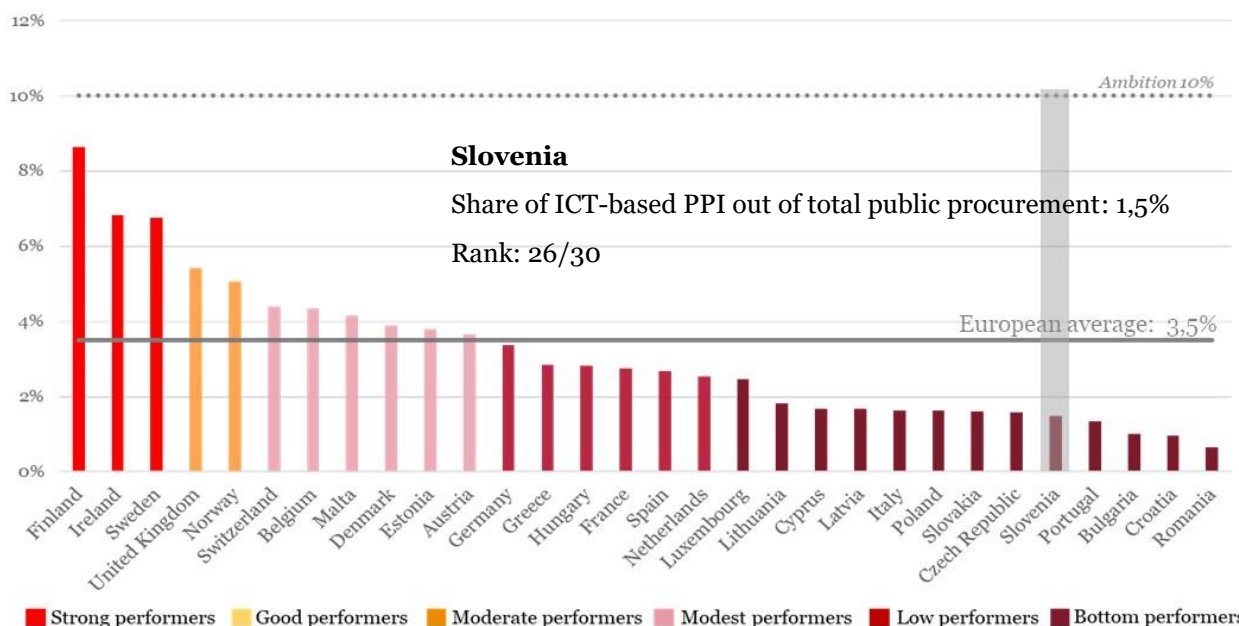


More than one third of the total PPI investments in Slovenia is carried out by **large-scale entities at national level** (32%), such as ministries and ICT integrators of governments departments. This is below the European average (47%).

Procurers at regional level account for a small share of PPI investments (5%), considerably lower than European average (24%). **Procurers at local level** account for the highest fraction of PPI investments (63%), considerably above the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of the adoption of innovative solutions in the field of ICT (ICT-based PPI), Slovenia falls within the cluster of **bottom performers**. With € 0,01 bn or 1,5% of total public procurement invested in innovative ICT-based solutions, **Slovenia ranks 26th** in the benchmarking of ICT-based PPI investments, considerably below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (26%), Slovenia performs significantly below the European average (26%). **A large increase of investments in buying innovative ICT-based solutions is needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Slovenia to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁶⁹⁹

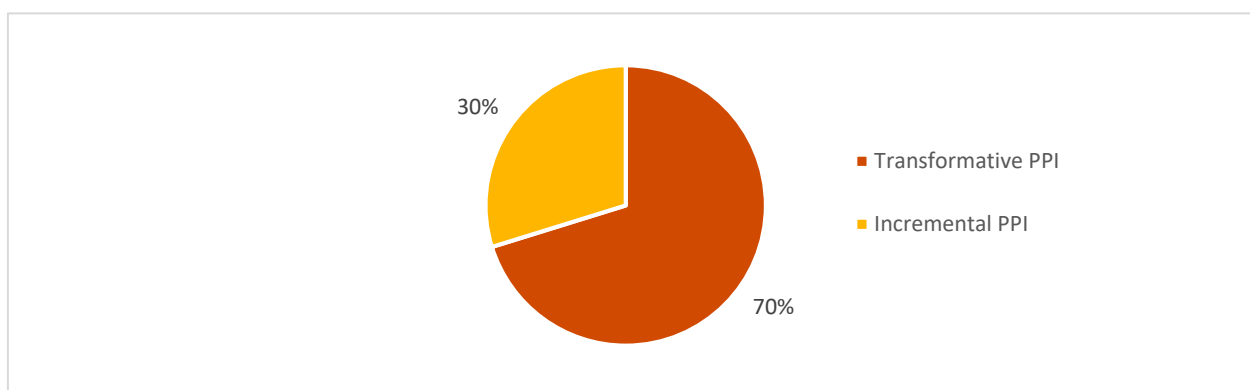


The **main factors**⁷⁰⁰ explaining Slovenia’s bottom level performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments spent on the adoption of **transformative ICT-based innovations** in Slovenia (70%) is still below the European average (79%). PPI investments in Slovenia still depend considerably more than the European average (16%) on the adoption of **incremental ICT-based innovations**⁷⁰¹ (30%). As the total amount of investments in ICT-based innovative solutions in Slovenia is low, the country is still lagging behind considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



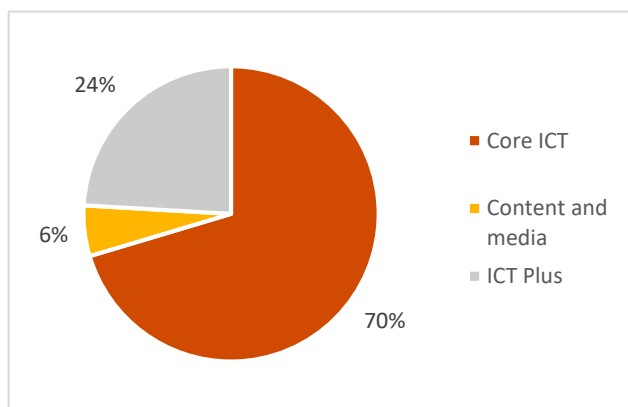
⁶⁹⁹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁷⁰⁰ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁷⁰¹ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Slovenia invested mainly in the adoption of innovations from the so-called **'Core ICT' sub-sector**⁷⁰² (70%), above the European average (54%)

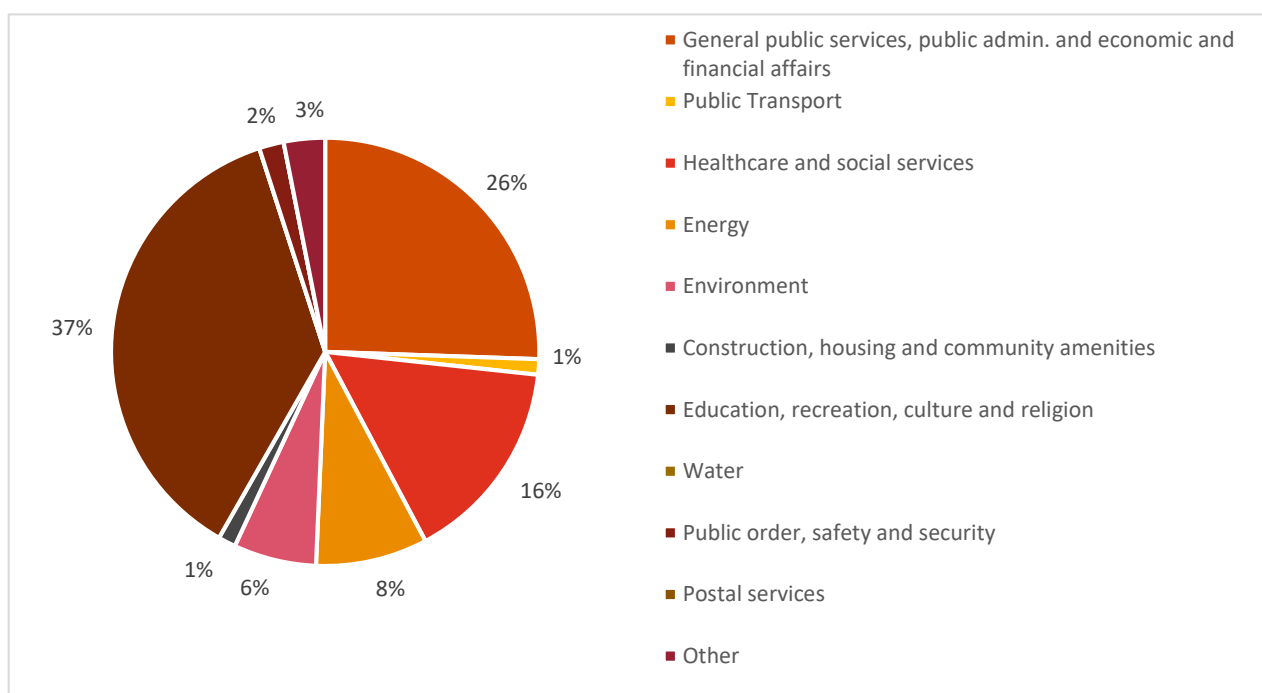
Slovenia invested to a lesser extent in the adoption of innovations from the **'ICT Plus' sub-sector** (24%), significantly below the European average (45%).

The share of investments in adopting innovations from the **'Content & Media' sub-sector** were small (6%), but above the European average (1%).

Investment readiness across different domains of public sector activity

Despite the low volume of total ICT-based PPI investments, **nearly every domain of public sector activity in Slovenia purchased innovation ICT-based solutions**, except in **'Water'** and **'Postal services'** with zero investments. The highest share of ICT-based PPI investments was made by procurers that operate in the domain of **'Education, recreation, culture and religion'** (37%), which is considerably above the European average (9%). In the **'Public order, safety and security'**, **'Healthcare and social services'** and **'Public transport'** domains, the shares of ICT-based PPI investments were significantly below the European averages (with -17 pp, -14 pp and -9 pp).

ICT-based PPI investments by domains of public sector activity

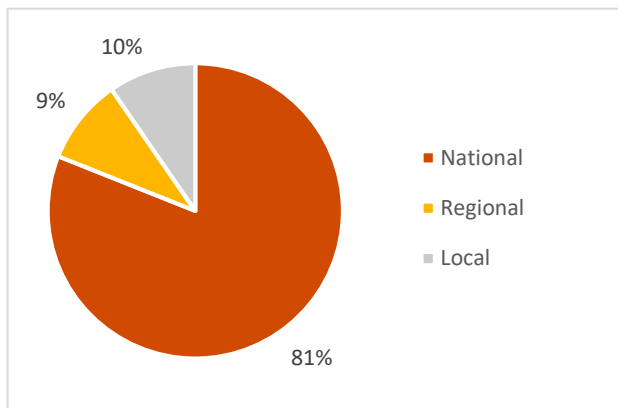


⁷⁰² The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across different levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 81% of ICT-based PPI investments, well above the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI investments at sub-national level (10%), in line with the European average (10%). To the contrary, **regional procurers** account for only a modest fraction of ICT-based PPI investments (9%), which is below the European average (21%). This may indicate that especially procurers at subnational level could still improve their performance on adopting ICT-based innovations.

Slovakia



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The field of public procurement in Slovakia is regulated by the Public procurement Act (No 343/2015) which entered into force on April 2016. The Act transposed the EU procurement directives (2014/24/EU and 2014/25/EU). The EU Directive 2009/81/EC on defence and security procurement has been transposed through several acts.

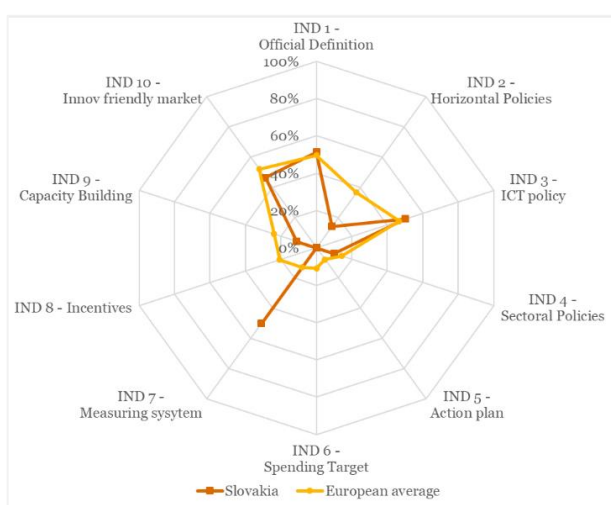
The main actor in the field of Public procurement is the Slovak **Public Procurement Office (UVO)**. The Office was established in 2000 and represents the Slovak Republic on public procurement issues at international level, including expert working group activities with the European Commission. It works to ensure the compliance of the "Public Procurement Act", overseeing the principles of transparency, equal treatment and non-discrimination of tenderers and candidates, as well as the principles of economy and efficiency in the spending of funds.

The main actors in the area of innovation are the **Ministry of Economy** and the **Ministry of education, science, research and sport**. The ministry of economy is setting the innovation policy. The ministry of education, science, research and sport is responsible for the research policy and is also the managing authority for the operational programme for research and innovation funded by the European Structural and Investment Funds. The Ministry of economy is supported in the implementation of the national innovation policy by three executive agencies, namely the Slovak Business Agency (SBA), the Slovak Investment and Trade Development Agency (SARIO) and the Slovak Innovation and Energy Agency (SIEA). The Slovak Research and Development Agency (SRDA) is responsible for R&D promotion in all research fields, including international research cooperation. It also plays a key role in managing R&D grant schemes.

In the field of innovation procurement, the UVO carries out capacity building activities to increase procurers' skills and competences on innovation procurement procedures.⁷⁰³ Within the UVO, the **Working group in Innovation Procurement** directly supports contracting authorities to engage in more innovation procurement procedures.⁷⁰⁴ The transposition of EU procurement directive has given a primary input to the development of Innovation procurement in the country.

Innovation Procurement Policy Framework Benchmarking (2018)

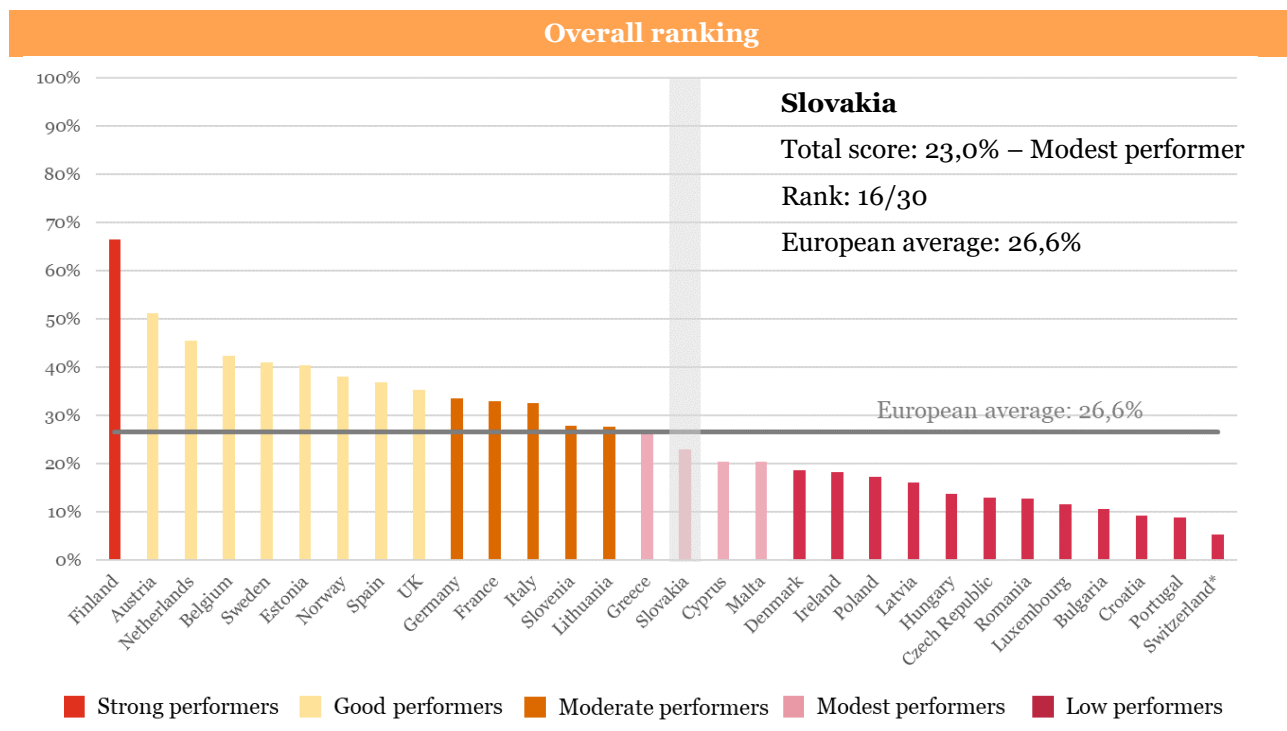
In the benchmarking of the national innovation procurement policy frameworks across Europe, the **Slovak Republic is at the 16th position** of the overall ranking with a **total score of 23,0%**. Among the 30 countries analysed, the Slovak Republic is among the group of modest performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented only 23,0% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a strong reinforcement of the policy framework needed in the Slovak Republic to reach its full 100% potential.



Strengths: The Slovak Republic's public procurement legal framework provides the basis for developing an innovation procurement policy. Some measures have started to increase the awareness and know-how on innovation procurement

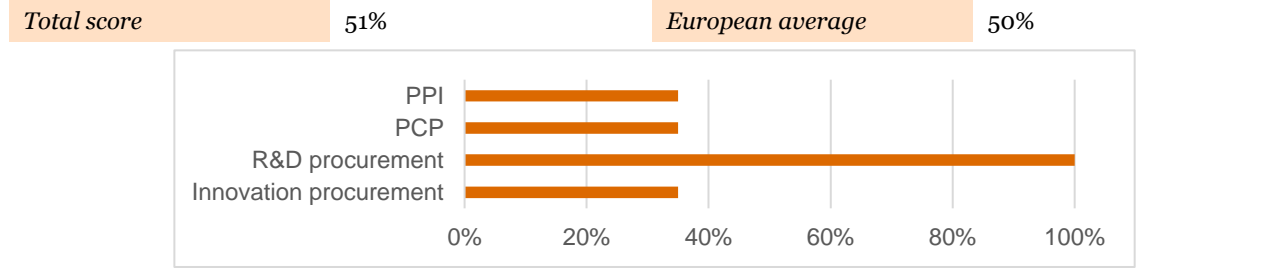
Weaknesses: Absence of a policy framework for innovation procurement (no action plan, target, financial incentives for procurers, monitoring system). No structured dedicated capacity building measures. The link between innovation procurement and other horizontal or sectorial policies is limited. Lack of an IPR policy in public procurement that encourages innovation.

⁷⁰⁴<https://www.uvo.gov.sk/legislativametodika-dohlad/zodpovedne-verejne-obstaravanie/pracovna-skupina-pre-inovacie-vo-verejnom-obstaravani-5d2.html>



Overview per indicator

Indicator 1 – Official definition



In Slovakia the legislative framework for public procurement provides a definition for R&D procurement but not for innovation Pre-Commercial Procurement (PCP) and Public Procurement of Innovative Solutions (PPI). As a result, the total score for this indicator is 51%.

In national legislation or official guidance documents there is no definition of innovation procurement, but § 2 ods. 5 písm. m. of the Public procurement Act No 343/2015 on public procurement provides a definition of **innovation** in the context of public procurement. In this article innovation is defined as “the introduction of a new or significantly improved product, service or process, which may include a production, building or construction process, a new marketing method, or a new organizational approach to business practice, the organization of a working environment or external relations”. The article is in line with the EU definition and applicable to all public procurers in the country. The total score of this sub-indicator is therefore 35%.

With regard to **R&D** procurement, article § 2 (4)(l) of the Public Procurement Act No 343/2015 defines **R&D** as “all activities involving basic research, applied research and experimental development; experimental development may involve the implementation of equipment demonstrating the performance of a new concept or new technology in the appropriate environment, or in a representative environment”. This definition is applicable to all public procurers in the country and coherent with the EU definition. As a result, the score for this sub-indicator is 100%.

The Public Procurement Act No 343/2015 does not provide a definition for PCP but Article 1(2) letter d of the act provides the legal basis for implementing **PCP** via the following R&D services exemption: “The public procurement rules are not applied to public service contracts in the field of research and development unless (a) the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, and (b) the service provided is wholly remunerated by the contracting authority”. This is in line with the provision in the EU public procurement directives and is applicable to all public procurers in the country. The total score of this sub-indicator is therefore 35%.

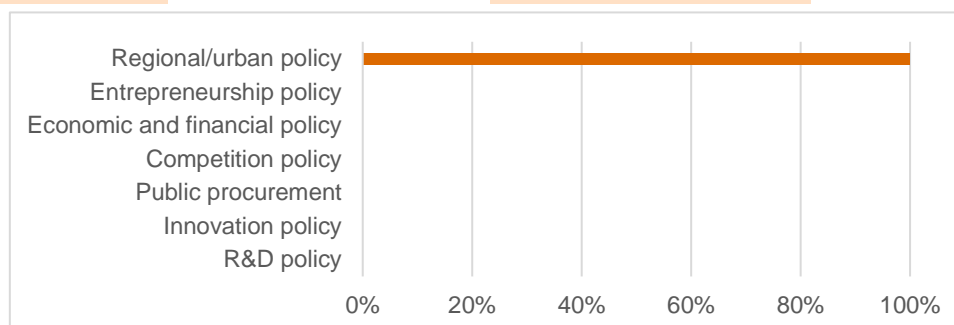
The Public Procurement Act No 343/2015 does not provide a definition of PPI, but under article 44 (Criteria for the evaluation of tenders) enables public procurers to implement **PPI** by allowing procurers to take into account innovative solution characteristics. According to this article “the best price/quality ratio will be judged on the basis of price or cost and other criteria, which include qualitative, environmental or social aspects related to the subject matter contracts, and in particular quality, including technical merit, aesthetic and functional properties, accessibility, solutions

suitable for all users, social, environmental and innovative characteristics". This provision is in line with the provision in the EU public procurement directives and is applicable to all public procurers in the country. The total score of this sub-indicator is therefore 35%.

Despite the absence of an official definition for PCP and PPI in the legal framework, the Public Procurement Office has developed a report entitled "Innovation in Public Procurement". The report makes a reference to PPI and PCP as defined in the rules for participation of the European Framework Programme.

Indicator 2 – Horizontal policies

Total score	14%	European average	36%
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In the Slovak Republic innovation procurement is only embedded in one of seven horizontal policies: innovation policy. The total score of this indicator is therefore 14%.

In particular, the **Research and Innovation Strategy for Smart Specialisation of the Slovak Republic (RIS3, 2013)** foresees innovation procurement as a tool to foster the competitiveness of the country.⁷⁰⁵ In this document, innovation procurement is also described as an important instrument for the development of the sector of information and communication technologies. The RIS3 is implemented by regional and local authorities according to their specific priorities. In addition to the above-mentioned RIS3, another policy document attesting the interest in the field of innovation procurement is the "**Support for innovative solutions in Slovak cities**" (Ministry of Economy of the Slovak Republic, 2017)⁷⁰⁶, which recommends the establishment of an Institute for Public Procurement for Innovation.

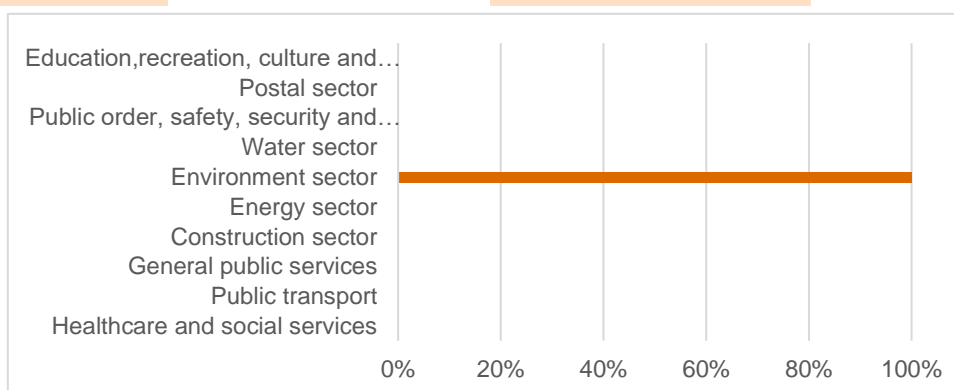
Indicator 3 – ICT policies

Total score	50%	European average	47%
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Slovakia's **digital growth and Next Generate Access infrastructure strategic document 2014-2020** identifies that "increasing the openness of ICT public procurements towards technology innovation and approaches is desirable, which would lead to simpler and less expensive solution variants than originally planned. The modalities of electronic public procurement will be updated in order to easily implement demand-driven projects in public administration in the form of innovative solutions and to encourage effective participation of small and medium-sized businesses in such areas as open data, mobile applications for eGovernment services, green information and telecommunication technologies and applications for social networks." Because of this indirect reference to innovation procurement, the score for this indicator is 50%.

Indicator 4 – Sectorial policies

Total score	10%	European average	14%
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⁷⁰⁵ <http://www.economy.gov.sk/uploads/files/81edIx1h.pdf>

⁷⁰⁶ <http://www.economy.gov.sk/uploads/files/n5m7duxS.pdf>

In the Slovak Republic green public procurement policy recognises the role of innovation procurement within its strategy.

Innovation procurement is indirectly addressed by the National Action Plan for Green public procurement (2016-2019), i.e. the NAP III strategy⁷⁰⁷, in which government-induced demand is considered a source for environmentally friendly technology and eco-innovation. Therefore, the score for this indicator is 10%.

Indicator 5 – Action plan

Total score 0% **European average** 8%

The Slovak Republic does not have a dedicated/stand-alone Action Plan for innovation procurement.

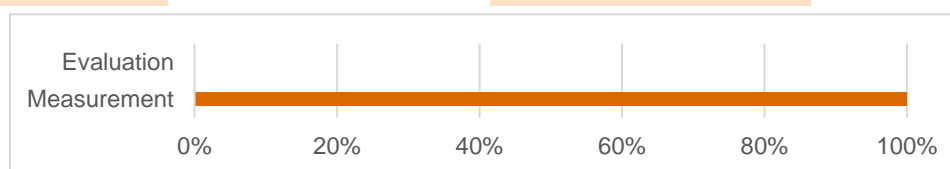
Indicator 6 – Spending target

Total score 0% **European average** 11%

In the Slovak Republic there is no specific spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score 50% **European average** 13%



In 2017 the Slovak Republic has introduced a system to flag green, social and/or innovation procurements in the form used by procurers to publish their tenders. This measurement system, which has not produced statistical results yet, is applicable countrywide. The score of the sub-indicator “measurement” is 100%.⁷⁰⁸ It is worth mentioning that for Green Public Procurement other monitoring activities are also put in place, as the Ministry of Environment conducts annually a survey to measure its amount.

The score for the evaluation sub-indicator is 0% as the Slovak Republic does not have a system for evaluating the impacts of completed innovation procurements. Therefore, the total score of this indicator is 50%.

Indicator 8 – Incentives

Total score 0% **European average** 22%

The Slovak Republic does not have incentive schemes to encourage public procurers to undertake more innovation procurements, but improvements are likely to occur in the near future, as the Public Procurement Office is moving towards this objective.

Indicator 9 – Capacity building and assistance measures

Total score 11% **European average** 24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices							0%
Trainings/workshops	√		√	√			50%
Handbooks/guidelines	√		√		√		50%

⁷⁰⁷ <http://www.sazp.sk/en/the-environment/environmental-management.html>

Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers							0%
One-stop-shop/competence centre							0%

The Slovak Republic carries out two out of the nine measures generally adopted to build up public procurers' know-how on innovation procurement.

The Slovak Public Procurement Office (UVO) has published a **Guide on innovation procurement**, which includes definitions and explanations on all types of innovation procurement (R&D procurement, PCP and PPI).⁷⁰⁹ Beyond providing this short overview of different types of innovation procurement, the guide lacks however guidance on how to deal with the different steps in an innovation procurement and does not address how to scale up innovation procurements across the country to achieve large scale impact. The score of sub-indicator guidance is therefore 50%.

The Office has also created a **Working group on Innovation Procurement** with the aim of fostering the use of PPI, PCP and R&D procurement in the country.⁷¹⁰ To achieve this objective, the working group regularly carries out workshop and **training** activities for contracting authorities. As these trainings are however not linked to relevant EU initiatives, not available to all public procurers in the country and not able to mainstream innovation procurement widely across the country, the score for sub-indicator trainings is 50%.

Slovakia is still lacking a structured framework for capacity on innovation procurement across the country. Apart from a guide and some training activities all other types of capacity building measures are still missing. On the basis of the evidence collected below, the total score in this indicator is 13%.

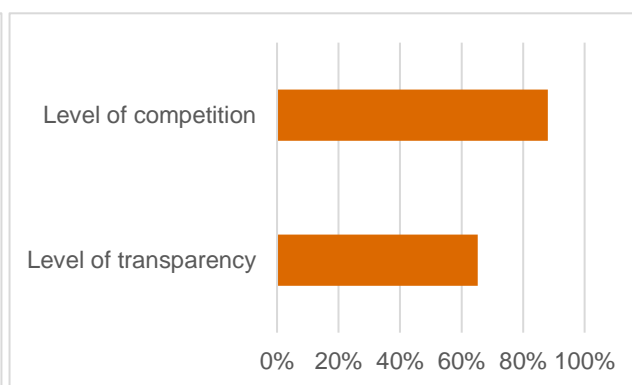
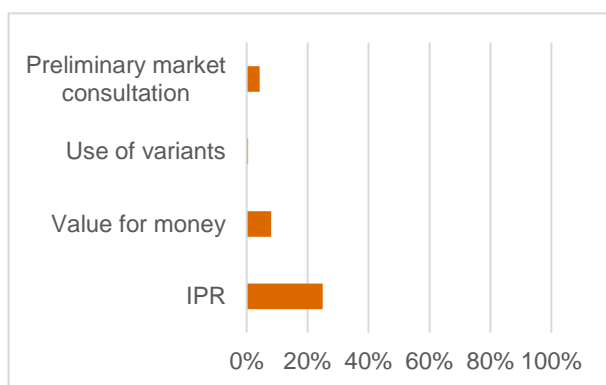
Indicator 10 - Innovation friendly public procurement market

Total score 43%

European average 44%

I - Specific techniques to foster innovation in public procurement

II - Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators reflecting:

- I. The use of specific techniques to foster innovation in public procurement in Slovakia
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, the Slovak Republic shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the 38% European average, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in the Slovak Republic. The Slovakian law, general terms and conditions for government contracts and guidelines on public procurement do not define how allocation of IPRs is best dealt with in procurement contracts. It is left to the individual responsibility of each Slovakian procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with IPR/copyright law. The Slovakian copyright act⁷¹¹ determines that the entire copyright (both moral and economic rights) belongs

⁷⁰⁹ <https://www.uvo.gov.sk/legislativametodika-dohlad/zodpovedne-verejne-obstaravanie/materialy-na-stiahnutie-5d5.html>

⁷¹⁰ <https://www.uvo.gov.sk/legislativametodika-dohlad/zodpovedne-verejne-obstaravanie/pracovna-skupina-pre-inovacie-vo-verejnom-obstaravani-5d2.html>

⁷¹¹ http://www.wipo.int/wipolex/en/text.jsp?file_id=451097

in an inalienable way to the creator (both moral and economic rights are non-transferable and may not be waived by the creator). Therefore the copyright act determines that in the case of commissioned work, like in a public tender, (1) the public procurer obtains automatically the right to use the commissioned work but no other rights from the creator and (2) as the creator maintains the entire copyright, he also maintains the right to use and further develop and commercialise the commissioned work. Copyright law protects also scientific work, software and database rights.

- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 8% of the public procurement procedure have been awarded using criteria that are not based only on the lowest price. This is far below the European average of 42% and below the 80% satisfactory level set out in the EU single market scoreboard. Together with Romania, Malta and Cyprus, the Slovak Republic is among the worst performers on using value for money award criteria. The country shows a structural over-reliance on lowest price criteria.
- c. **Use of variants:** Slovakia has allowed the use of variants in less than 1% of the procedures (0,53%). This percentage is well below the European average.
- d. **Preliminary Market Consultations:** Slovakia has used Preliminary Market Consultations in the 4% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 10% which is significantly below the European average of 23% and below the satisfactory level set by the EU single market scoreboard. This is mainly due to both the below average performance on IPR default regime and to the underutilization of value for money award criteria.

With regard to sub-indicator II, the Slovak Republic shows the following evidence (based on the single market scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 88% which is slightly above the European average 84% and but still below the 93% satisfactory level set by the EU single market scoreboard. Both the sub-indicators are above European average but below the satisfactory level set by the EU single market scoreboard: the percentage of procurements with more than one bidder (81%) and the percentage of procurements for which a call for bids was organised (95%).
- f. **Level of Transparency:** The level of transparency of the national public procurement market is 65% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. All three sub-indicators are above European average: TED publication rate (6%), percentage of procurements without missing buyer registration numbers (99%) and percentage of procurements without missing call for bids information (91%). The latter one is however still below the 97% satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 77% which is above the European average of 65% but still below the satisfactory level 79% set by the EU single market scoreboard. This is due to both improvements that are still needed to increase the level of transparency and competition.

Based on the scores for sub-indicators I and II, the total score the indicator is 43% which is almost in line with the 44% European average and below the satisfactory level for the total of the EU single market indicators. This score is explained by the fact that the openness of the Slovakian procurement market to innovations from across the EU single market is above the European average but the use of specific techniques to foster innovation in the country is significantly below European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still seriously underused in public procurements. In addition, the national public procurement market levels of competition and transparency which are above the European average but still below the satisfactory levels set by the EU single market scoreboard.

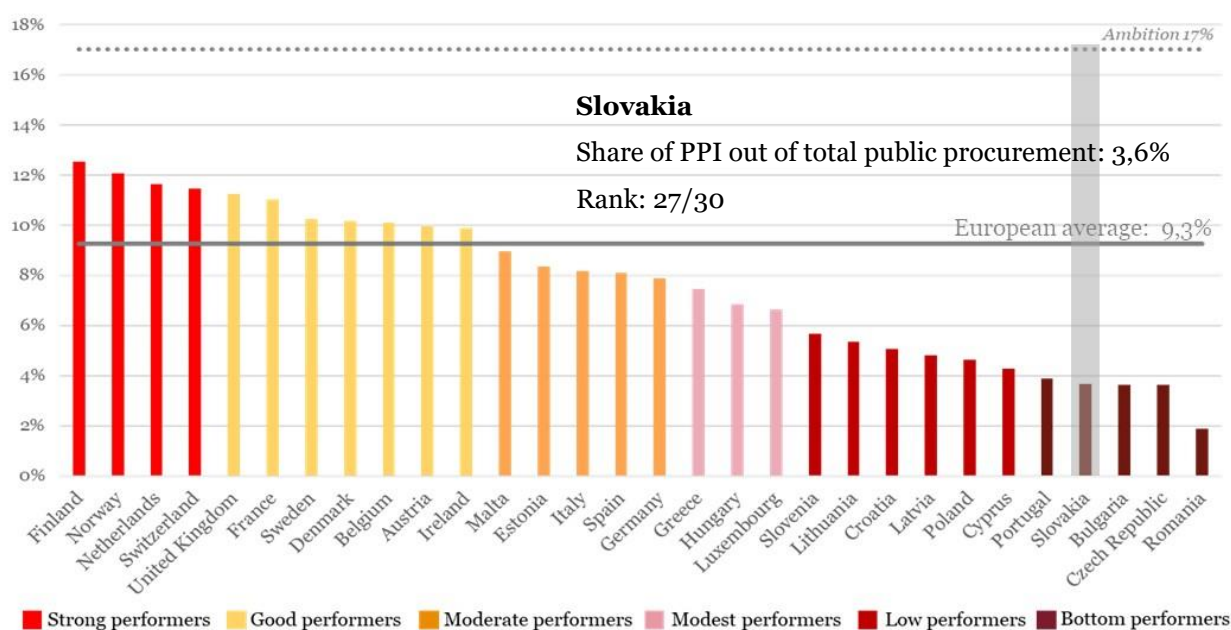
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Slovak investments on public procurements of innovative solutions (PPI) and the benchmarking of Slovak investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 3,6% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 0,8 bn), **Slovakia ranks 27th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁷¹² across Europe. Slovakia falls within the group of **bottom performers**, below the European average of 9,3%.⁷¹³ **A large increase of investments in PPI is needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Slovak public sector.⁷¹⁴ When taking into account also PPI in the defence sector Slovakia drops to the 29th position.



The **main factors**⁷¹⁵ explaining Slovakia's bottom level performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Slovakia (57%) is significantly below the European average (84%). This is due to lower adoption of both innovative solutions that are 'new to the market' and 'significantly improved' solutions. PPI investments in Slovakia depend to a larger extent than in Europe on average (16%) on the adoption of **incremental innovations** (43%), which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions'. As the total amount of investments in innovative solutions in Slovakia is considerably below EU average, the country still needs to step up considerably its investments in the adoption of both transformative and incremental ICT-based innovations.

⁷¹² Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

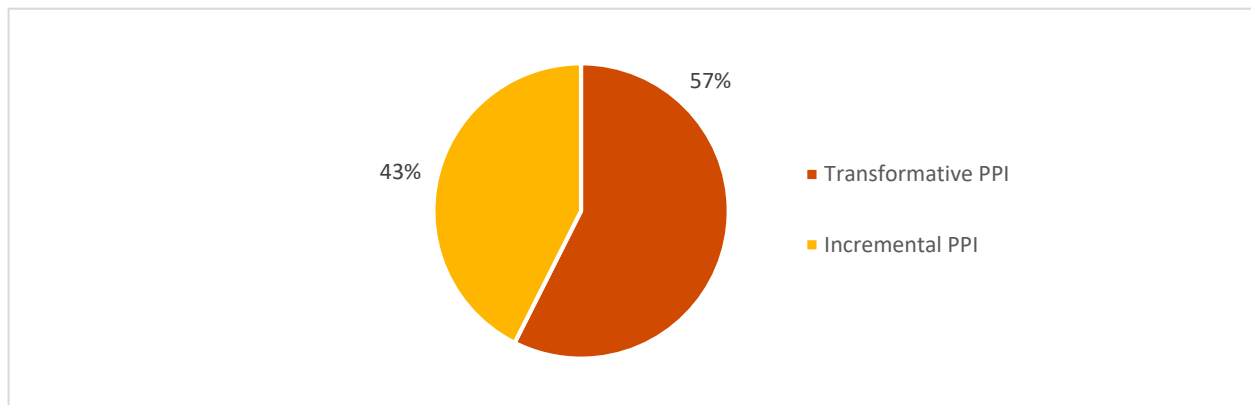
⁷¹³ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁷¹⁴ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁷¹⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Slovakia is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Despite the low volume of total PPI investments, **nearly every domain of public sector activity⁷¹⁶ in Slovakia purchased innovation solutions**, except in 'Postal services' with zero PPI investments. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly below EU average** (in 7 out of 11 domains). Especially in the 'Healthcare and social services' and 'General public services, public administration and economic and financial affairs' domains the shares of investments are considerably below the European average (-16 pp and -17 pp respectively). However, the share of PPI investments by Slovak procurers is particularly high in the 'Construction, housing and community amenities' domain (37%), and considerably above the European average (+33 pp).

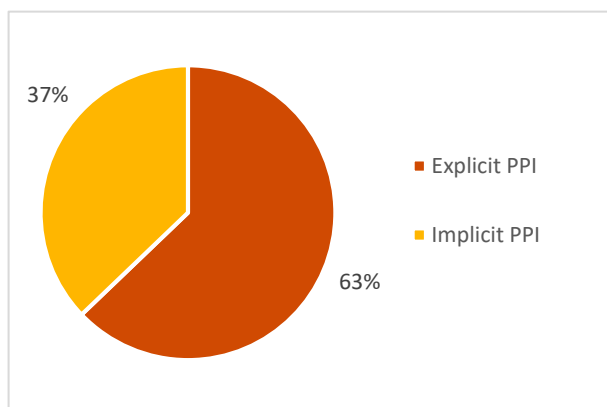
PPI by domains of public sector activity

Domain of public sector activity	Slovakia	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	18%	35%	-17
Public transport	3%	10%	-7
Healthcare and social services	5%	21%	-16
Energy	5%	6%	-1
Environment	8%	3%	+5
Construction, housing and community amenities	37%	4%	+33
Education, recreation, culture and religion	6%	5%	+1
Water	2%	4%	-2
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	13%	3%	+10
Total PPI investments	100%	100%	-

⁷¹⁶ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

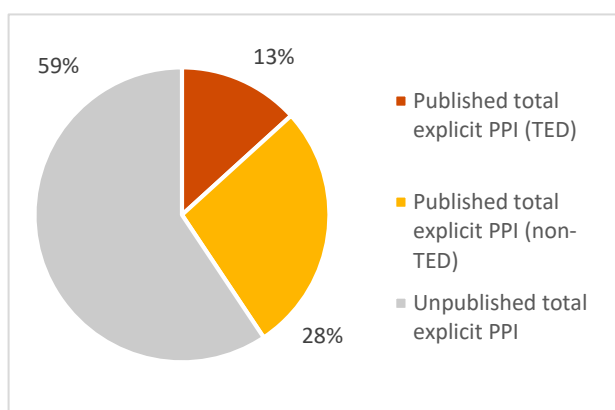


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly higher in Slovakia (12%) compared to the European average (29%). This indicates that Slovak procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is much lower in Slovakia (37%) compared to the European average (71%). This indicates that Slovak procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

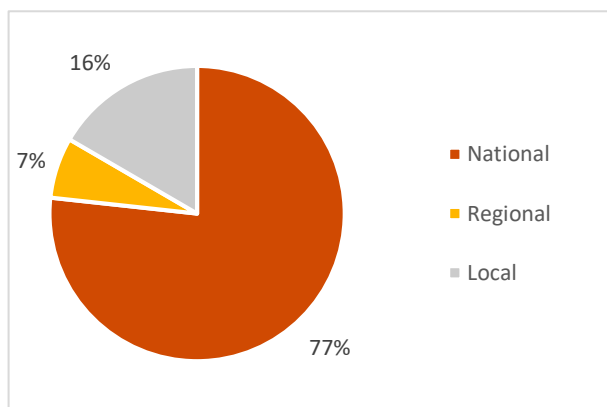


The share of Slovak PPI investments for which calls for tenders are published (41%) is considerably above the European average (22%). The portion that is **published at European level** in the TED database (13%) is lower than European average (18%) while the portion that is **published at national level** (28%) is above European average (5%). Nonetheless, the share of PPI investments for which no calls for tenders are published in the TED database or at national level is high (59%).

By not publishing calls for tenders for the largest part of PPI investments, **Slovakia is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Slovak and other European innovative suppliers that are not informed about the Slovak PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

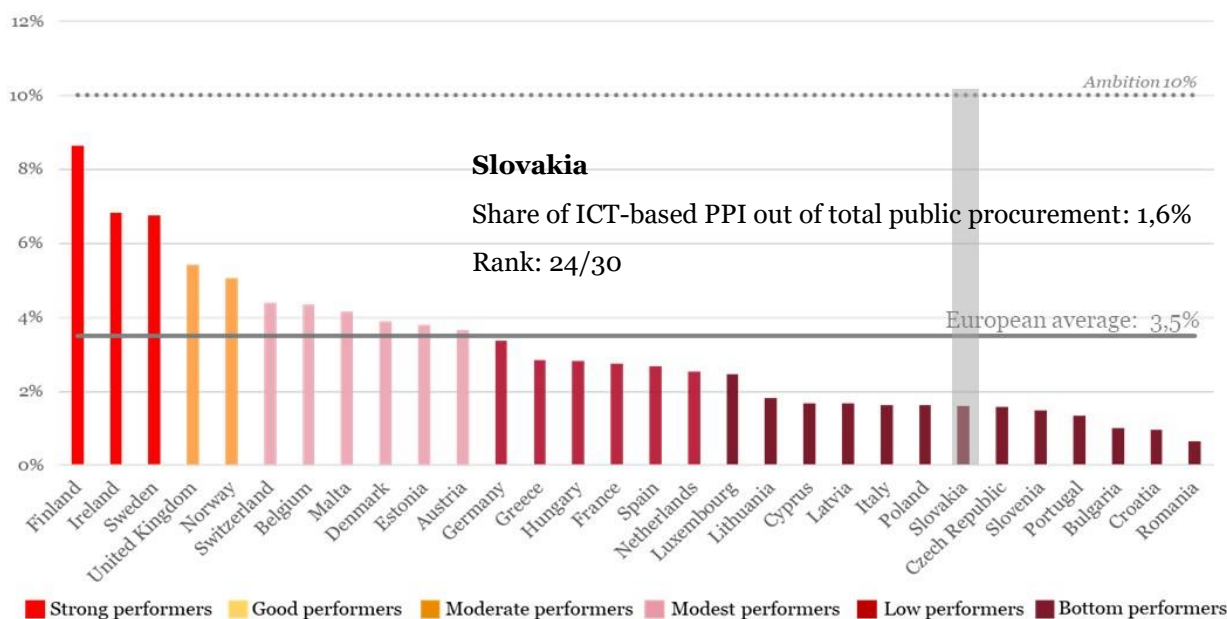


The lion share of the total PPI investments in Slovakia (77%) is carried out **by large-scale entities at national level**, such as ministries and ICT integrators of governments departments. This is considerably above the European average (47%).

Procurers at local level account for the largest share of PPI investments at sub-national level (16%), below the European average (29%). Procurers at **regional level** account for the smallest fraction of PPI (7%), significantly below the European average (24%). This may indicate that especially procurers at subnational level could still improve their performance on adopting innovations.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of adoption of innovative solutions in the field of ICT (ICT-based PPI investment), Slovakia ranks in the cluster of **bottom performers**. With € 0,1 bn or 1,6% of total public procurement invested in innovative ICT-based solutions, **Slovakia ranks 24th** in the benchmarking of ICT-based PPI investments, considerably below the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (44%), Slovakia performs above the European average (38%). However, **a large increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Slovakia to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁷¹⁷

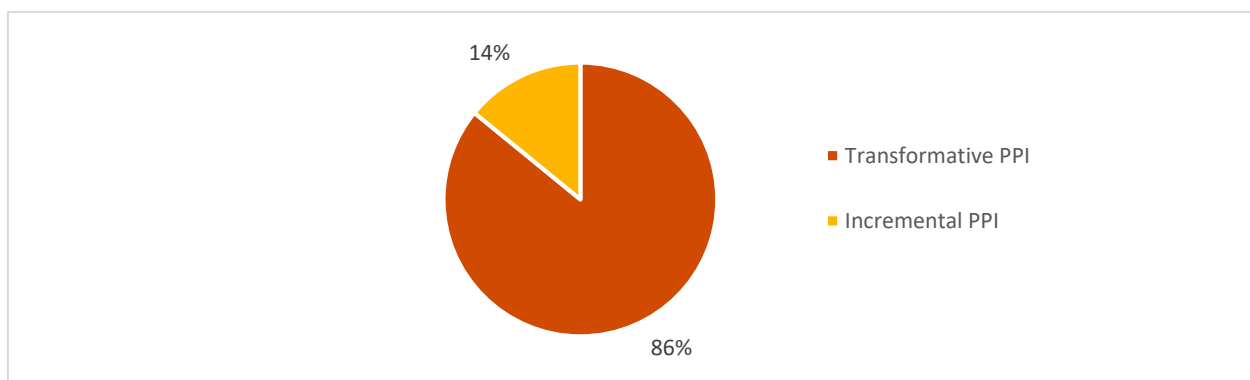


The **main factors**⁷¹⁸ explaining Slovakia’s bottom level performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Slovakia (86%) is above the European average (79%). This may derive from the fact that a solid share (58%) represents the adoption of innovative solutions that are ‘new to the market’ followed by ‘significantly improved solutions’ (28%). The share of ICT-based PPI investments spent on the adoption of **incremental ICT-based innovations**⁷¹⁹ (14%) is below the European average (21%). As the total amount of investments in ICT-based innovative solutions in Slovakia is low, the country is still lagging behind considerably in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI by type of innovation (as % of the amount of published explicit ICT-based PPI)



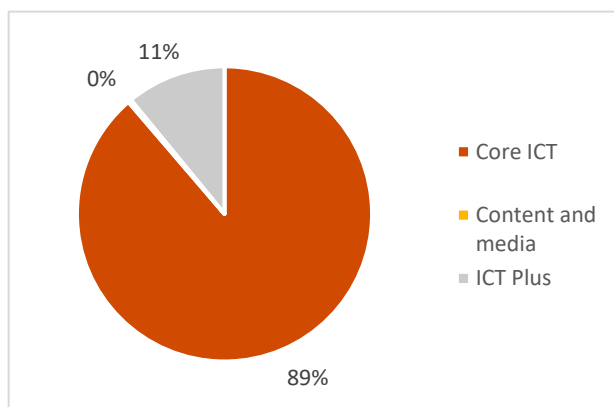
⁷¹⁷ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁷¹⁸ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁷¹⁹ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Slovakia invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector⁷²⁰ (89%), above the European average (54%).

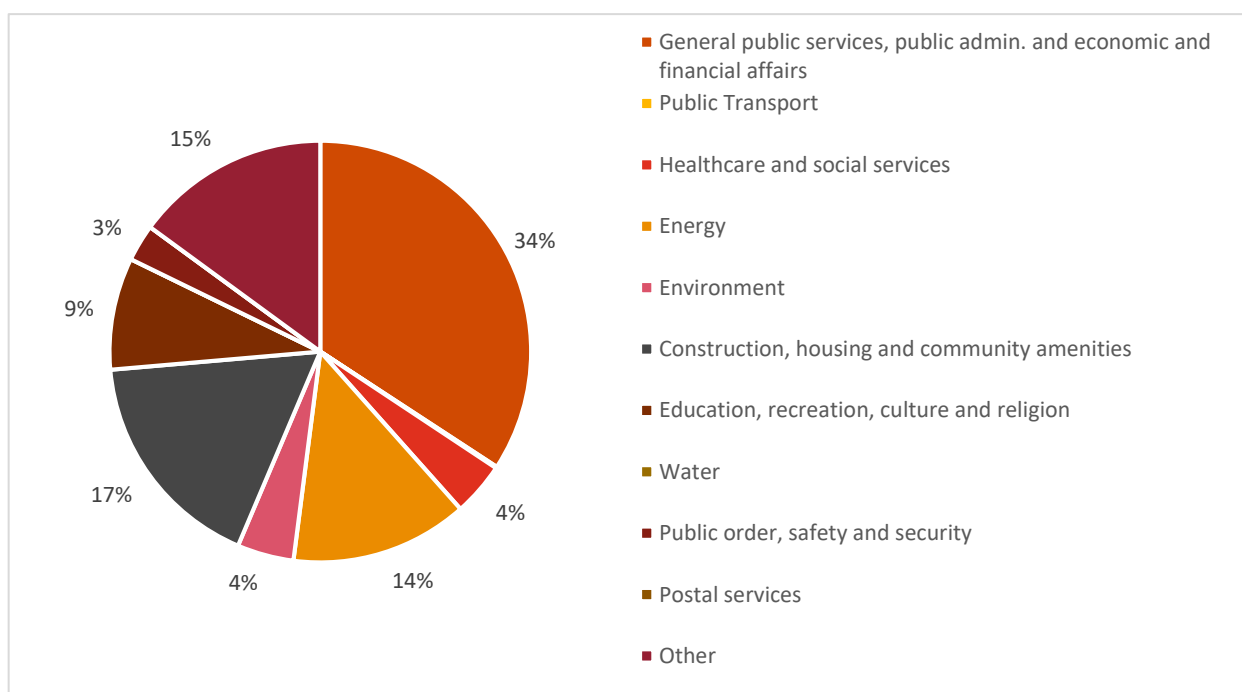
Slovakia invested to a lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (11%), which is below the European average (45%).

No investment was made to adopt innovations from the '**Content & Media**' sub-sector.

Investment readiness across different domains of public sector activity

Despite the low volume of total ICT-based PPI investments, **nearly every domain of public sector activity in Slovakia purchased innovation ICT-based solutions**, except in '**Water**' and '**Postal services**' with zero investments. The highest share of ICT-based PPI investments is made by procurers that operate in the domain of '**General public services, public administration and economic and financial affairs**' (34% which is significantly above the European average of 16%) and in the domain of '**Construction, housing and community amenities**' (17%) which is 16 percentage points higher than on European average.

ICT-based PPI investments by domains of public sector activity

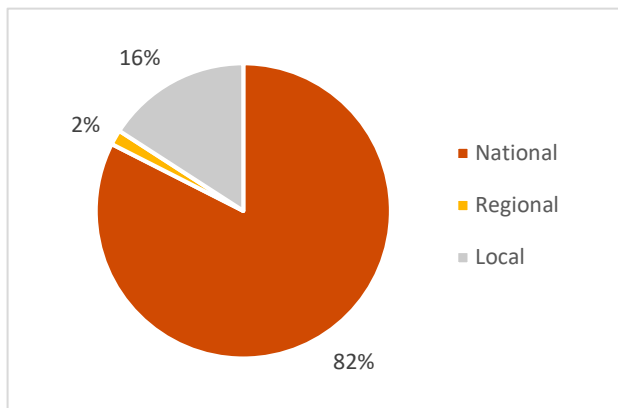


⁷²⁰ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for the largest share of total ICT-based PPI investments (82%), quite above the European average (69%).

Procurers at local level account for the highest share of the ICT-based PPI at sub-national level (16%), slightly above the European average (10%). To the contrary, **regional procurers** account for only a marginal fraction of ICT-based PPI (2%), significantly below the European average (21%). This may indicate that especially procurers at subnational level could still improve their performance on adopting ICT-based innovations.

Spain



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The Law 9/2017 of Public Sector Contracts transposes the EU Directives 2014/23/UE, 2014/24/UE and 2014/25/UE, in the national legal framework. The Law 9/2017 has come in force on 2018, March 9th. Further developments, when necessary, need the initiative of the Spanish Ministers Council. Autonomous Communities could develop issues in accordance to their own competencies. The Law 24/2011 on public procurement for defence and security transposed the Directive 2009/81/EC.

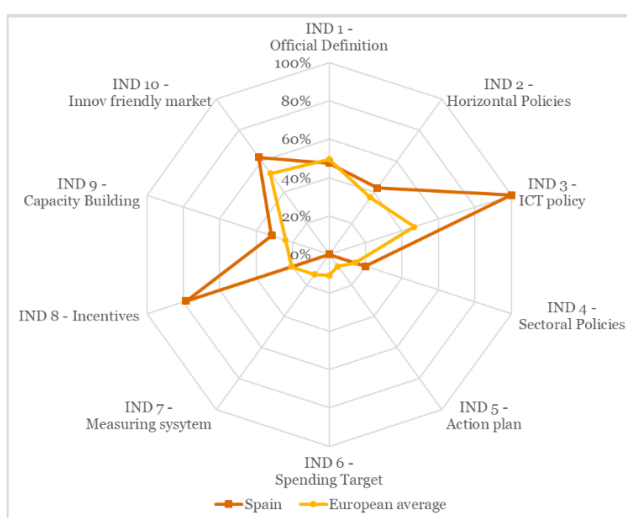
Overall, the Spanish public procurement system is decentralised: the system is based on more than 8,000 contracting authorities at national, regional, and local level, including the central administration and its agencies, public-funded bodies, universities, and healthcare services.

The **Ministry of Economy, Industry and Competitiveness (MEIC)** is responsible for providing the financing of Spanish Innovation Procurement projects under the ESI funds, through its General Secretariat of Science and Innovation. Since 2014, Spain is preparing a new set of innovation procurement proposals for a global amount of € 300 million (for the EU current budget period 2014-20) to be co-financed with this FEDER Technological Fund of ESIF, through the Spanish Programme (INNOCOMPRA-FID) for 2014-20. The **Centre for Development of Industrial Technology (CDTI)** – a public business entity depending on the MEIC – has been appointed by MEIC as national competence centre for innovation procurement in Spain together with ISCIII (National Institute Carlos III for Health) and INTA (National Institute Esteban Terradas for Aerospace Techniques), acting these three entities as a concerted network under the guidance of MEIC

Finally, **Regional Governments** of the seventeen Autonomous Communities and two Autonomous Cities have also competencies in the field of innovation procurement and are progressively devoting greater budget amounts to this aim. As an example, in Barcelona, the **Generalitat de Catalunya** (and in particular AQUAS) is playing a key role in promoting PCP and PPI and in Galicia, the **Galician Innovation Agency (GAIN)** is playing a key role in promoting PCP and PPI.

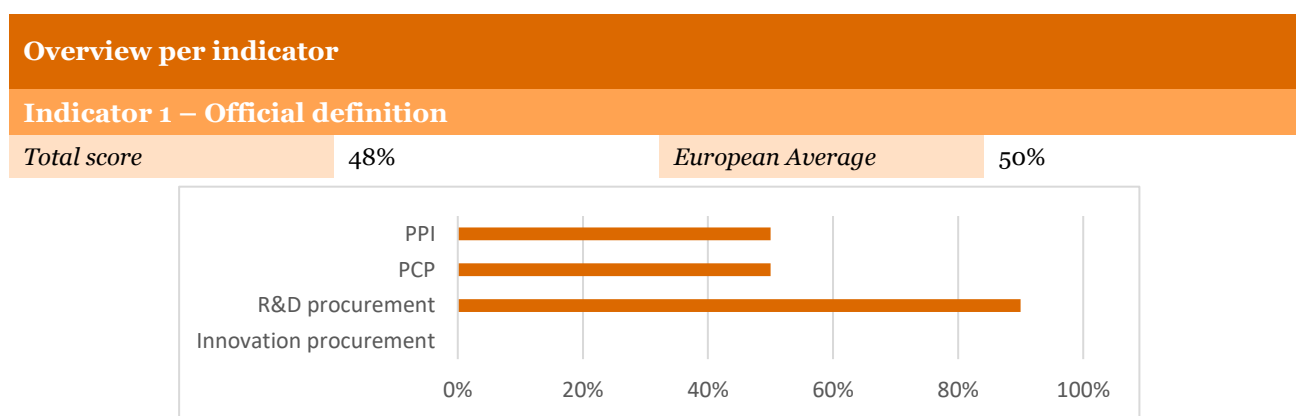
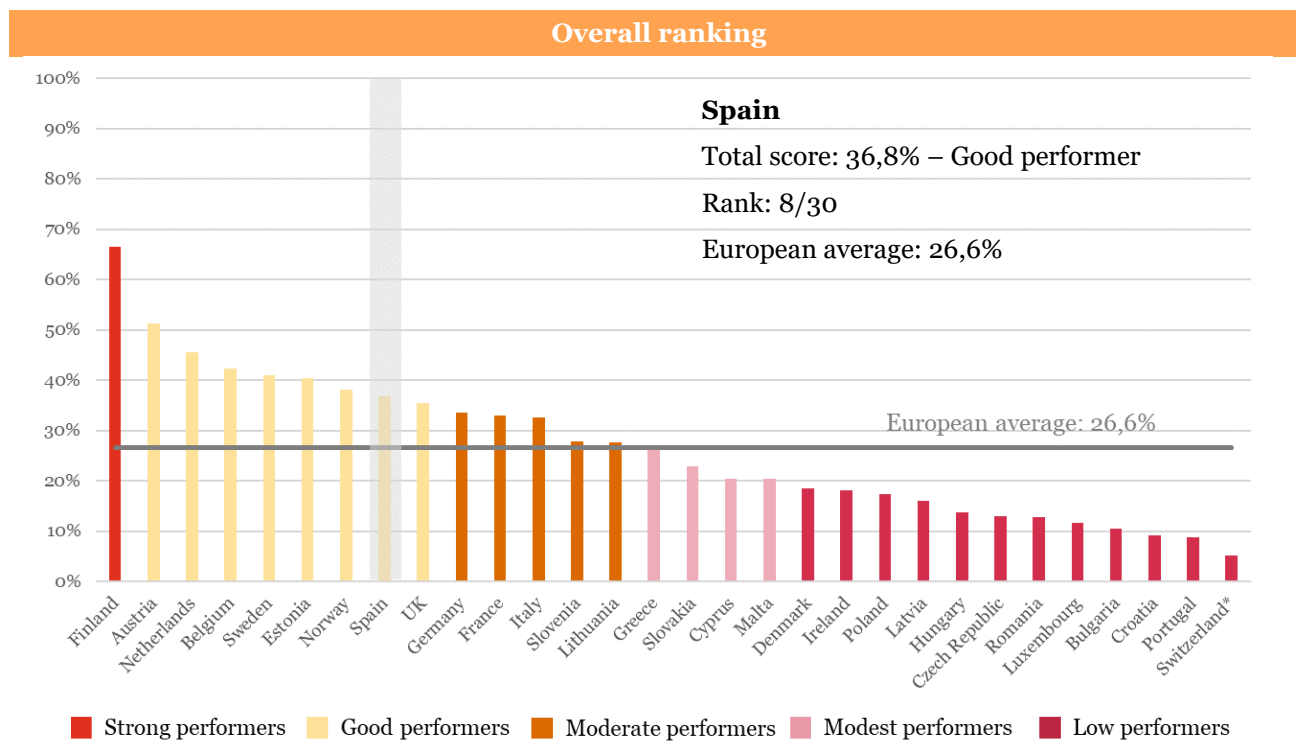
Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Spain is at the 8th position** in the overall ranking with a **total score of 36,8%**. From the 30 countries analysed, Spain is among the group of good performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 36,8% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Spain to reach its full 100% potential.



Strength: Application of regional ESIF funds for encouraging innovation procurement. Establishment of a national competence centre. Default IPR regime that is halfway there in promoting innovation is anchored into public procurement law.

Weakness: Absence of a structured innovation procurement policy for the whole country that is not for ESIF funded projects only: lack of action plan, spending target, monitoring system for innovation procurement, lack of financial incentives and capacity building outside of the ESIF context.



In the Spanish public procurement legal framework, there is a clear official definition for Research and Development but not for innovation, innovation procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). The national “Innovative Public Purchase, Guide 2.0” embeds the definitions of innovation procurement (Compra publica innovadora), PCP (compra publica pre-comercial) and PPI (compra publica de tecnologia innovadora). The definition of PCP and PPI are not in line with the EU definition, whereas all the other definitions are in line with the EU official definitions. The total score of the indicator “Official definition” is 48%.

No definition of innovation or **innovation procurement** exists in the national public procurement legal framework or guidance documents. Therefore, the score of this sub-indicator is 0%.

The Spanish public procurement law 9/2017 for non-defence procurers does not provide a definition for **R&D** but it identifies in article 8 R&D via the CPV codes for basic research, applied research and experimental development in line with the CPV provisions in the EU public procurement directives. Law 24/2011 on public procurement for defence and security in Title VI, comma 11 defines R&D as: “all activities that involve basic research, applied research and experimental development. Experimental development may include the production of technological demonstration systems, which are devices for demonstrating the performance of a new concept or technology in a relevant or representative environment”. This definition is coherent with the EC definition, but it is only applicable to defence procurers, therefore the total score of this sub-indicator is 90%.

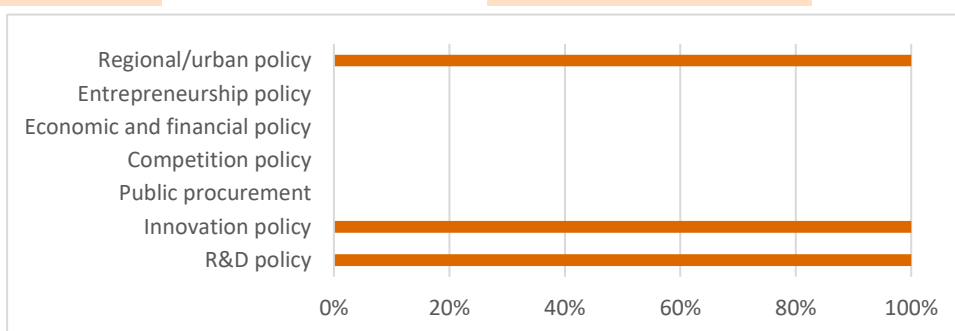
Pre-commercial procurement (PCP) is not defined in the national framework. However, a definition of PCP is provided in the “Innovative Public Purchase, Guide 2.0”. The **Pre-commercial procurement** (PCP) is defined as “the procurement of an R&D activities, fully remunerated by the contracting authority characterized by the fact that [...] the contracting authority shares with the companies’ risks and benefits of the R&D activities which are necessary to develop an innovative solutions not available in the market”. This definition embeds three elements: (i) the activities of R&D, (ii) sharing risks and benefits between contracting authorities and the company winning the tender and (iii) the separation from the subsequent purchase of the developed solutions. The definition is applicable to all public procurers in the country

but not fully in line with the EU definition because it does not recognise that the purchase of non-commercial volumes of solutions can be part of the PCP. Therefore, the total score of this sub-indicator is 50%

In national legislation no definition of PPI exists. However, the national guidance document "Innovative Public Purchase, Guide 2.0" defined PPI (compra publica de tecnologia innovadora) as "The procurement of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. The procurement of a good or service that does not exist in the market but that can be developed over a reasonable period of time. This procurement requires the development of new technology or a significant improvement to an existing one made to meet the requirements of by the procurer." The definition is applicable to all public procurers but is not in line with the EU definition. Existing products that are not widely commercialised yet are not covered by Spanish definition, instead it limits PPI to the case of products that still need to be developed. This assimilates PPI with the innovation partnership procedure which creates confusion among public procurers and limits the potential of PPI. Therefore, the score of this sub-indicator is 50%.

Indicator 2 – Horizontal policies

Total score	43%	European Average	36%
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This indicator reflects the extent to which innovation procurement is considered of strategic importance in horizontal policies. As this is only the case in 3 out of 7 horizontal policies, the total score of the indicator is 43%.

In the field of **regional policy**, the **Spanish 2014-2020 ERDF Operational Programme on Smart Growth**⁷²¹ and the **Regional Smart Specialization Strategies (RIS3)**⁷²² foresee innovation procurement among their instruments. There are also regions, alike Catalunya, that have developed their own regional policy for innovation procurement with their own regional budgets.

In the field of **R&D&I**, national political commitment to innovation procurement is very high since the endorsement of the **State Strategy of Innovation (E2i) in 2010** and the **Spanish Strategy on Science, Technology and Innovation 2013-2020**⁷²³, currently implemented and executed by the State Secretary for Research, Development and Innovation of the Ministry of Economy, Industry and Competitiveness (MINECO). The strategy specifically plans wider deployment of PCP and PPI.

Indicator 3 – ICT policies

Total score	100%	European Average	47%
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The Spanish **Digital Agenda**⁷²⁴, managed by the Ministry of Energy, Tourism and Digital agenda, confers to innovation procurement a role to boost the development of the ICT sector. "Goal 5: Boost R&D&I in Information and Communications Technologies. It is a basic principle that public investment in R&D&I in ICT would lead to a greater amount of investment by the private sector. This is why the proposal here is to use public procurement and public - private collaboration strategically...". The national Spanish plan for encouraging the development of natural language processing, machine translation and conversational systems in Spanish official and co-official languages, the **Plan de Impulso a la Tecnologia del lenguaje**⁷²⁵, also refers to innovation procurement "with the aim to bring Spanish industry to the innovation frontier to make it competitive on a global scale, while taking advantage of these innovative capabilities to substantially improve public service. For this we must (using innovation procurement) overcome the paradox by which the supplier does not invest in innovative products, which previously require an investment in R & D, for lack of clear demand, and the buyer does not demand innovative products because there is no available offer, adequate and economical for the pending challenges." Therefore, the score for this indicator is 100%.

⁷²¹ http://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/spain/2014es16rfop002

⁷²² <http://s3platform.jrc.ec.europa.eu/home>

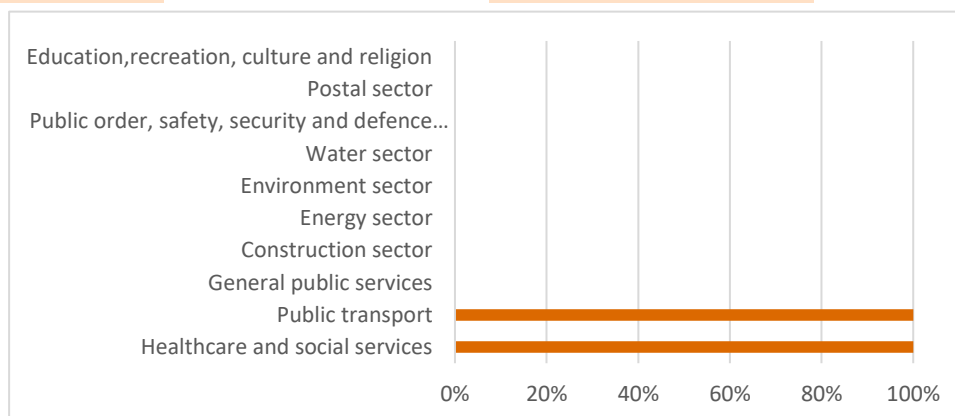
⁷²³ http://www.ciencia.gob.es/stfls/MICINN/Investigacion/FICHEROS/Estrategia_espanola_ciencia_tecnologia_Innovacion.pdf

⁷²⁴ <http://www.agendadigital.gob.es/digital-agenda/Documents/digital-agenda-for-spain.pdf>

⁷²⁵ <http://www.agendadigital.gob.es/tecnologias-lenguaje/Paginas/plan-impulso-tecnologias-lenguaje.aspx>

Indicator 4 – Sectorial policies

Total score 20% **European Average** 14%



Public transport and healthcare and social service are the only two out of ten sectors that embed innovation procurement in their action plans or strategic frameworks. Therefore, the score for this indicator is 20%.

The Program **FID SALUD** is an example of action plan aiming at systematically improving public health services through yearly PPI calls. The program involves every regional health service (18, including Ceuta and Melilla) and is co-ordinated by the Ministry of Health in order to prevent duplication and foster synergies. Structural financing and oversight is provided by the Ministry of Economy and Competitiveness. In 2015, more than 40 proposals have been assessed independently by ISCIII (Health Institute Carlos III), of which 15 have been approved mobilising € 34 million.⁷²⁶

The **Innovation Plan on Transport and Infrastructure (Plan de Innovación por el transporte y las infraestructuras 2018-2020)**⁷²⁷ implemented by the Ministerio de Fomento also recognizes the strategic importance of innovation procurement in fostering the development of innovative solutions.

Indicator 5 – Action plan

Total score 0% **European Average** 8%

In Spain, a dedicated action plan for innovation procurement has not been developed yet.

There are specific measures to encourage innovation procurement in other horizontal policies (see indicator "horizontal policies") or specific sectors (see indicator "sectorial policies" and "ICT policy"), but a stand-alone action plan is currently lacking. However, the National law 9/2017 expresses the political commitment to adopt a general strategy on public procurement in which innovation procurement could potentially become a milestone

Indicator 6 – Spending target

Total score 0% **European Average** 11%

In Spain there is no specific spending target for innovation procurement.

On July 8, 2011, the Spanish government passed a regulation on the public purchase of innovation, whereby all ministries and their public bodies were obliged to specify in their budgets, and in different multiannual action programs, the amounts allocated to the acquisition of innovative products, goods and services. The regulation established that the 3% of the procurement budget of the General State Administration should have been spent on innovation. However, in 2013, due to the effects of the economic crisis, the new administration has not continued supporting that target.

Indicator 7 – Monitoring system

Total score 0% **European Average** 13%

The Country does not have a structured system for measuring innovation procurement expenditure and for evaluating the impacts of completed innovation procurements.

Before 2013, all central government ministries were obliged to specify the amounts allocated to innovation procurement (while regional and local procurers were exempted). The contracting authority determined the innovative connection of every contract notice and contract award notice in a central public procurement register. The public procurement authority ticked in a web portal (PACE) whether the tender concerned CPI or CPP. However contracting authorities are no more obliged to make use of this system therefore monitoring activity is no more effective. In addition, several public agencies and regional authorities have been operating using their own competing procurement platforms (often via

⁷²⁶ http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=47191

⁷²⁷ https://www.fomento.gob.es/recursos_mfom/paginabasica/recursos/innovation_plan_20182020_1.pdf

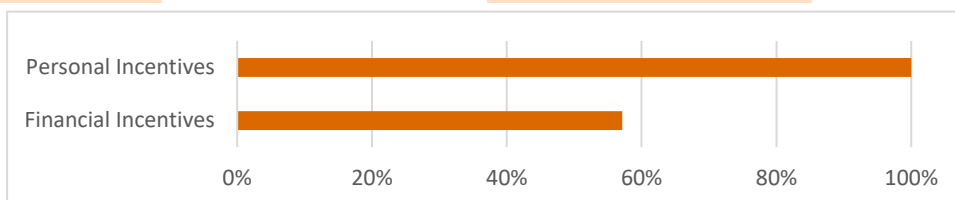
private IT providers). Today, a new method to monitor and evaluate innovation procurement across the country is under discussion. Today, only single cases of innovation procurements, which have been funded by the INNOCOMPRA-FID programme are monitored and audited in compliance to the procedure foreseen by DG REGIO. As there is no structured system for measuring innovation procurement expenditure in the whole country (covering also non ESIF funded procurements), the total score of the sub-indicator “measurement system” is 0%.

Due to the **absence of an evaluation system**, the overall score of the indicator “monitoring system” is 0%.

Indicator 8 – Incentives

Total score 79%

European Average 22%



Spain has set up both financial and personal incentives to promote the use of innovation procurement among procurers.

The **financial incentives** in Spain are not open to all types of public procurers and procurements in the country (only open to projects that are eligible for co-financing from the EU ESIF program as indicated in the smart specialisation priorities of Spain, not for projects that are eligible for Horizon 2020 funding and not for projects that are not eligible for ESIF funding) and focuses on specific sectors (health and security). Therefore, the total score of the sub-indicator “financial incentives” is 79%.

In the health domain they have been able to stimulate wider implementation of innovation procurement. Under the programme INNOCOMPRA-FID, there are financial incentives for CPI, CPTI and CPP, co-financed with ESI funds through ERDF financed FID (Fostering Innovation through Demand). During the last budgetary period 2007-13, 21 innovation demand driven actions have been developed for an overall amount exceeding € 230 million. In the current Programme 2014-2020, 11 projects have been financed so far, and the overall dedicated budget has increased to € 300 million. The Spanish 2014-2020 ERDF Operational Programme on Smart Growth established a specific support in the form of grants or loans to public bodies at the national, regional and local levels to foster the use of innovation procurement. In addition, the Regional Smart Specialization Strategies (RIS3) foresee innovation procurement among its instruments. The most active regions are Galicia and Andalusia.

In addition to the above-mentioned financial incentive financed with EU funds, Spain offers loans granted to procurers with national budget.⁷²⁸ The loan covers max. 50-85% in case of PCP and max. 70% for other types of innovation procurement.

In the field of **personal incentives**, there are annual calls of the National Prizes for innovation and Design that have a specific modality focused on Innovation Procurement, evaluated directly by the Deputy DG for Innovation Promotion of the General Secretariat of Science and Technology of MEIC.⁷²⁹ The score for the sub-indicator “personal incentives” is therefore 100%.

Based on this evidence, the overall score of the indicator “incentives” is therefore 79%.

⁷²⁸ https://rio.jrc.ec.europa.eu/en/file/11731/download?token=imE_ToBS slide 8

⁷²⁹ https://rio.jrc.ec.europa.eu/en/file/11731/download?token=imE_ToBS slide 6

<http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.8c7b21bf4d10094b7b381d10026041a0/?vgnnextoid=od63ffa939cf6410VgnVCM1000001d04140aRCRD>

Indicator 9 – Capacity building and assistance measures

Total score

31%

European Average

24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	√		√	√	√		67%
Good practices							0%
Trainings/workshops							0%
Handbooks/guidelines	√	√	√		√	√	83%
Assistance to public procurers							0%
Template tender documents							0%
Coordination / pre-approval							0%
Networking of public procurers	√		√	√		√	67%
One-stop-shop/competence centre	√	√	√	√			67%

As concerns capacity building measures, the “**Innovative Public Purchase Guide 2.0**”⁷³⁰ is addressed to public administrations and to other public sector agencies. The guide describes the European legislation on innovation procurement, providing guidelines on all types of innovation procurement and describing the best and most appropriate application of the contracting and adjudication procedures both in the case of CPTI and CPP. The guide however lacks guidance on some key implementation aspects for innovation procurements: for example, even though there is a default IPR allocation regime for public procurements in Spain that is conducive to innovation (IPR ownership is left with suppliers) there is no guidance on IPR handling in innovation procurements in the guide. The score for sub-indicator guidance is 83%

In Spain there is not really one **central website** that provides all relevant information on innovation procurement. There is a dedicated page on the website of the ministry of innovation that promotes the ministry's guide on innovation procurement and explains the ESIF funding for innovation procurement for procurers (INNOCOMPRA). The website is not linked to other EU initiatives on innovation procurement though.⁷³¹ A second page on the CDTI site⁷³² explains why the country encourages public procurers to undertake innovation procurement, that provides info about the financial support for companies to develop solutions for the public sector (INNODEMANDA) and that links to the above ministry of economy website for info about ESIF funding for procurers (INNOCOMPRA) and the guide. A third separate page on the CDTI website, not linked to the previous two pages, provides info about Horizon 2020 funding for innovation procurement⁷³³. If we consider the second webpage on the CDTI website to be the closest to a central website that links to most initiatives, then it lacks still links to relevant EU initiatives (besides the EU funding) and it is not yet conceived to address mainstreaming innovation procurement at large scale. Based on this, the score for sub-indicator central website is 67%.

In terms of **networking activities** aimed at fostering innovation procurement, the Country has a structure of interconnected centres specialized in the field, forming a network led by MINECO, with a specialized Deputy Directorate General for fostering innovation, CDTI and supported by two national specialized nodes, namely:

- Node for health: the Ministry for Health, Social Security and Equality;
- Node for dual technologies: the INTA – National Institute for Aerospace Technologies, depending from the Ministry of Defence.

As the networking activities focus on health and defence and the ESIF funding opportunities, they are not addressed equally at all public procurers in the country. Networking procurers at international level with procurers from other countries is also not systematically organised. The score for sub-indicator networking is therefore 67%.

This network is also acting as a **competence centre / one stop shop** for innovation procurement, providing assistance to public procurers at national level. At local level, MEIC also supports capacity building for municipalities through the

⁷³⁰

<http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.8ce192e94ba842bea3bc811001432ea0/?vgnnextoid=8108c3dad5fa2310VgnVCM1000001d04140aRCRD&vgnnextchannel=d7e6c3f020682310VgnVCM1000001d04140aRCRD>

⁷³¹ <http://www.ciencia.gob.es/portal/site/MICINN/menuitem.7eeac5cd345b4f34f09dfd1001432ea0/?vgnnextoid=9caa777e0abe5610VgnVCM1000001d04140aRCRD>

⁷³² <https://www.cdti.es/index.asp?MP=4&MS=0&MN=1&textobuscado=innodemanda&tipo=1&TR=A&IDR=38&tipoO=Contenido&id=1549&xtmc=innodemanda&xtcr=2>

⁷³³ <https://www.cdti.es/index.asp?MP=101&MS=841&MN=2>

network INNPULSO. In addition, Health Ministry has a specialized network for attending IP proposals from the 18 regional health services.

MINECO is participating in the EU-funded project “*Procure2Innovate - European network of competence centres for innovation procurement*” to reinforce the activities of the Spanish competence existing centre and collaborate and interchange best practices with other countries.

As the competence centre focuses mainly on health and defence and the ESIF funding opportunities, it is not applicable to all public procurers in the country and not mainstreaming innovation procurement at large scale across the whole country. This explains the score for sub-indicator one stop shop is 67%.

Certain Autonomous Communities are advanced in local capacity building on innovation procurement with institutions such as GAIN in Galicia region, several entities in Andalucía, AQUAS in Catalonia, City Halls of Barcelona and Madrid, among others. There are also Municipalities, as for example the Generalitat de Catalunya, which use ESIF budget to offer trainings to public officers on Innovation Procurement.⁷³⁴

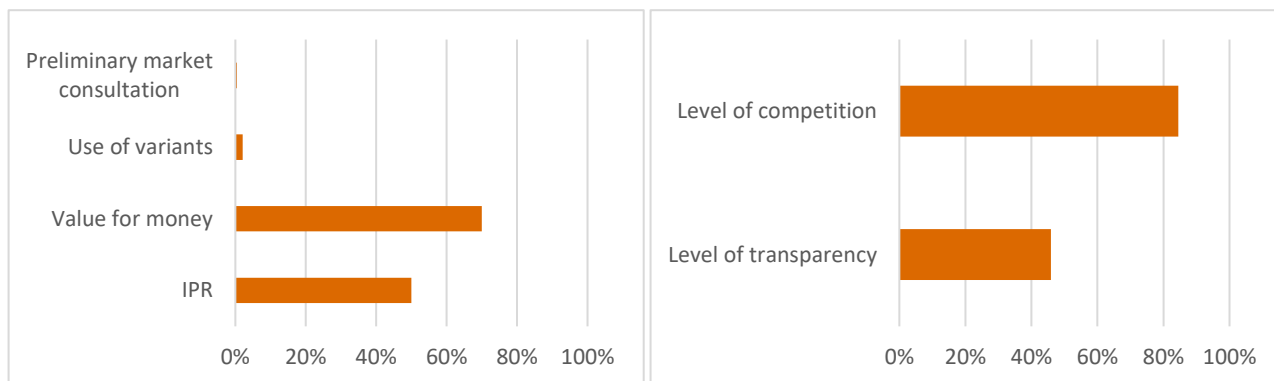
On the basis of the evidence collected above, the total score for this indicator is 31%. The score is affected by the fact that, among all measures considered, the provision of good practice examples, training, assistance, template tender documents and of coordination activities is not offered and the link with EU initiatives is often missing. Mainstreaming capacity building activities at large scale is also often missing as most capacity building activities focus only on procurers in ESIF funded innovation procurements.

Indicator 10 – Innovation friendly public procurement market

Total score 48% **European Average** 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of innovation procurement. It is composed by two sub-indicators measuring:

- I. The use of specific techniques to foster innovation in public procurement
- II. The openness of the national public procurement market to innovations from across the EU single market

With regards to sub-indicator I, Spain shows the following evidence:

- g. **Default IPR regime:** The score for this sub-indicator is 50% because the Spanish public procurement legislation contains half of a default regime for the allocation of IPRs that stimulates innovation while enabling the public procurer to use the results of the procurement in the execution of its public tasks: the Spanish law assigns by default always usage rights to the public procurer. There is however no default regime for all types of public procurements for the allocation of IPR ownership rights. Spanish innovation procurement guidelines don't inform public procurers about the benefits leaving IPR ownership with suppliers and keeping usage rights with the public procurer.⁷³⁵ Using such an approach that leaves IPR ownership with suppliers is also important in order to ensure compliance with the Spanish intellectual property rights act⁷³⁶ which determines that copyright belong in any case inalienably to the creator (moral rights cannot be waived or transferred, only economic rights may be transferred). The fact that a work has been commissioned (e.g. in a public procurement) does not alter the creator's rights. Copyright law protects also scientific work, software and database rights.
- h. **Use of value for money award criteria:** According to the EU single market scoreboard, 70% of the procedures were awarded not only on the basis of the lowest price.⁷³⁷ This is significantly above the European average of 42% but still below the 80% satisfactory level set out in the EU single market scoreboard.
- i. **Use of variants:** Spain has allowed the use of variants in the 2% of the procedures. This percentage is below the European average.

⁷³⁴ <http://formacio.eapc.gencat.cat/infoactivitats/AppJava/DetalleActividad.do?codi=10251&ambit=1&edicio=1&any=2017>

⁷³⁵ p. 123, 2° <https://boe.es/buscar/pdf/2017/BOE-A-2017-12902-consolidado.pdf>

⁷³⁶ http://www.wipo.int/wipolex/en/text.jsp?file_id=469891

⁷³⁷ [Single Market Scoreboard](#)

- j. **Preliminary Market Consultation:** Spain has used Preliminary Market Consultations in less than 1% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 31% which is above the European average of 23%. This is due to the effort done to reach satisfactory levels mainly in the first two sub-components of the sub-indicator I.

With regard to sub-indicator II, Spain shows the following evidence (according to the Single Market Scoreboard):

- k. **Level of competition:** The level of competition of the national public procurement market is 85% which is slightly above the European average 84% but still below the 93% satisfactory level set by the EU single market scoreboard. This result is due to the fact that the percentage of procurements where a call for bid was used is below European average (92%) and the percentage of procurements with more than one bidder (77%) is slightly above European average but still below the satisfactory level set by the EU single market scoreboard.
- l. **Level of transparency:** The level of transparency of the public procurement market accounts for 46% which is slightly above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. This result is due to fact that two sub-indicators – TED publication rate (2%) and amount of tenders without missing call for bids information (81%) - are below European average whereas one sub-indicator – amount of procurements without missing buyer registration numbers (55%) – is above European average. All three indicators are however below the satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 65%, which corresponds to the European average but still below the satisfactory level 79% set by the EU single market scoreboard.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 48% which is above the 44% European average. This score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is above European average and the openness of the Spanish procurement market to innovations from across the EU single market is exactly on the European average. Indeed, the country doing some effort to define a default IPR regime in public procurement and to increase the use of value for money criteria but not to a satisfactory level yet. In addition, although the national public procurement market shows slightly above European average levels of competition and transparency, they are also not at the satisfactory level yet.

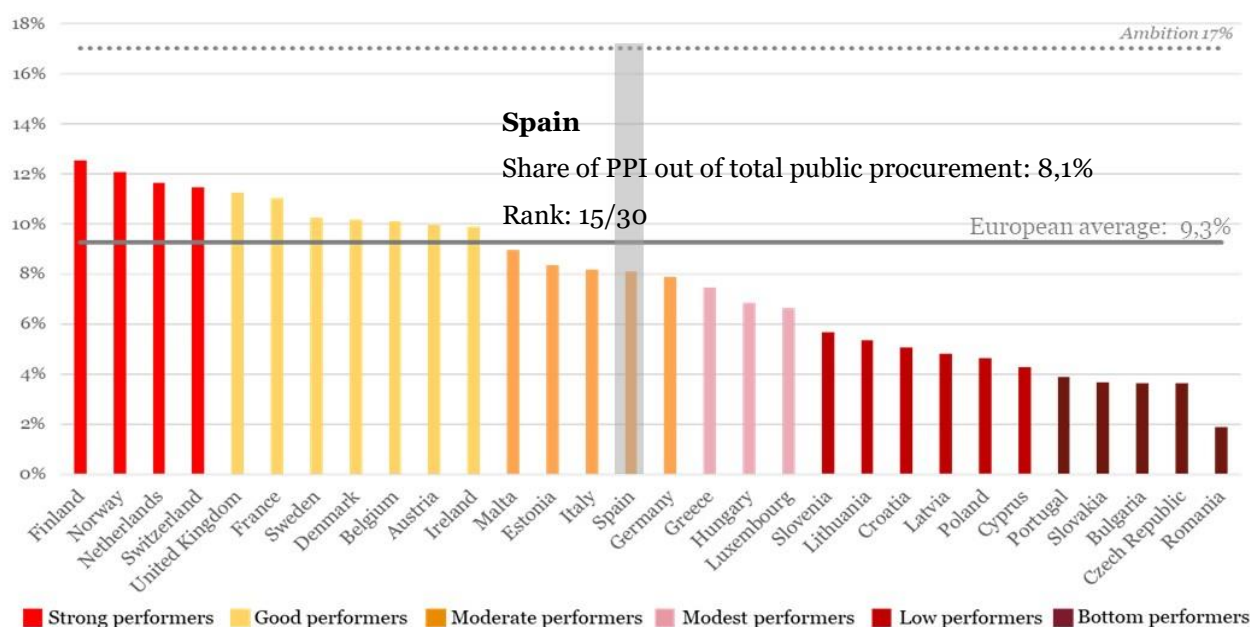
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Spanish investments on public procurements of innovative solutions (PPI) and the benchmarking of Spanish investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, except when explicitly mentioned, due to the confidentiality of the data collection approach used.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 8,1% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 12,6 bn), **Spain ranks 15th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁷³⁸ across Europe. Spain falls within the group of **moderate performers**, slightly below the European average of 9,3%.⁷³⁹ **A considerable increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Spanish public sector.⁷⁴⁰ When taking into account also PPI in the defence sector Spain moves up to the 12th position.



The **main factors**⁷⁴¹ explaining Spain's moderate performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** in Spain (92%) is above the European average (84%). This is due to significant shares of 'significantly improved' solutions (65% of PPI) and innovative solutions that are 'new to the market' (27% of PPI). The share of PPI investments spent on the adoption of **incremental innovations** (8%) - which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions' - is below the European average (16%). Given its

⁷³⁸ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country - namely the amount of R&D procurement plus the amount of PPI - is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁷³⁹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

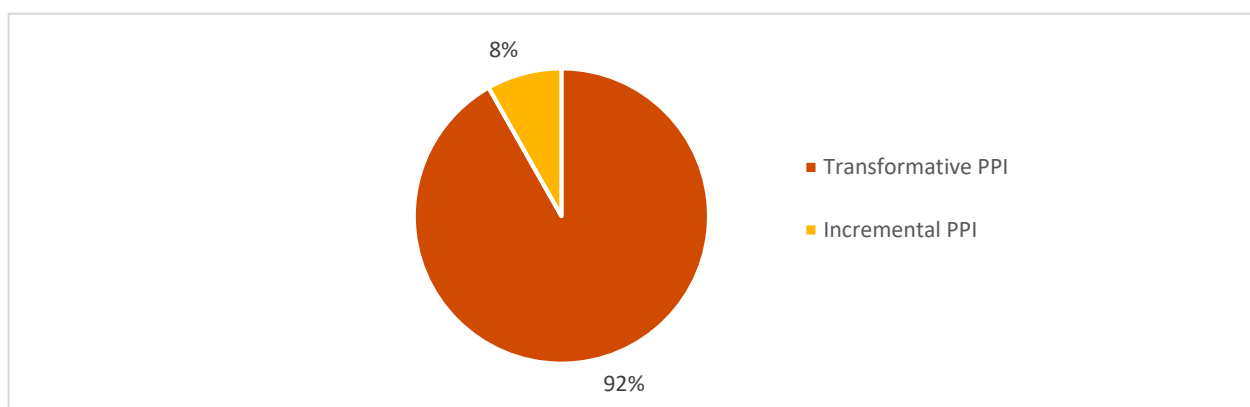
⁷⁴⁰ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation - including 3% of R&D procurement and 17% of PPI - to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁷⁴¹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

overall moderate level of performance, Spain still needs to step up its efforts both on the adoption of transformative and incremental innovations in order to become a strong performer.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. **Underinvestment in the adoption of innovative ICTs** is therefore an important factor explaining why Spain is not yet at the level of PPI investment that would allow a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Every domain of public sector activity⁷⁴² in Spain purchased innovation solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **largely in line with the European average** (in 7 out of 11 sectors). At the same time, the share of PPI investments by Spanish procurers in the **'Public transport'** domain is significantly above the European average (+26 pp), while the share of PPI investments by Spanish procurers in the **'Public order, safety and security'**, **'Energy'** and **'Water'** domains falls short in comparison with the corresponding European averages (with respectively -8 pp, -6 pp and -4 pp).

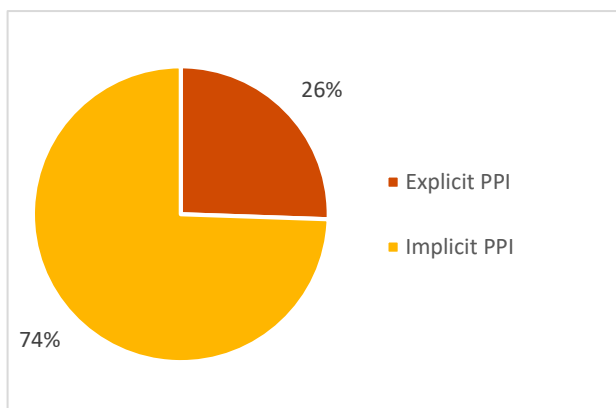
PPI investments by domains of public sector activity

Domain of public sector activity	Spain	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	36%	35%	+1
Public transport	36%	10%	+26
Healthcare and social services	21%	21%	0
Energy	0% (0,2%)	6%	-6
Environment	2%	3%	-1
Construction, housing and community amenities	1%	4%	-3
Education, recreation, culture and religion	2%	5%	-3
Water	0% (0,4%)	4%	-4
Public order, safety and security	0% (0,4%)	8%	-8
Postal services	0% (0,2%)	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁷⁴² The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

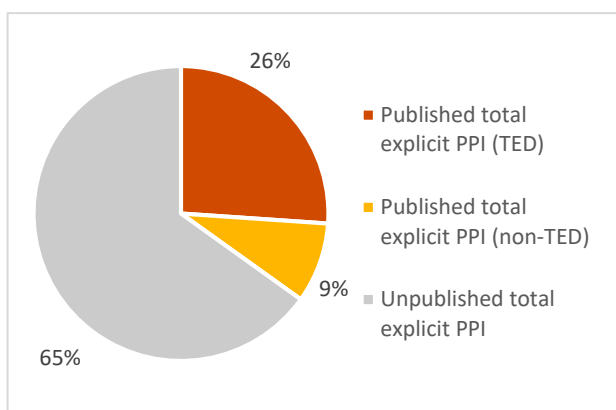


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) in Spain (26%) is almost in line with the European average (29%). This indicates that Spanish procurers may be slightly more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is slightly higher in Spain (74%) compared to the European average (71%). This indicates that Spanish procurers may tend to be slightly more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

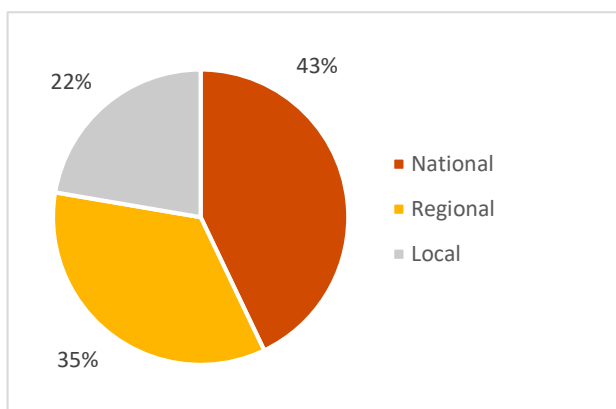


The share of Spanish PPI investments for which call for tenders are published (35%), is above the European average (22%). Both the portion that is **published at European level** in the TED database (26%) and the portion that is **published at national level** (9%) are above European average (respectively 18% and 5%). The share of PPI investments for which no call for tenders are published in TED or at national level is still large (65%).

Despite performing above the European average, by not publishing PPI call for tenders in the most cases, **Spain is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Spanish and other European innovative suppliers that are not informed about the Spanish PPI business opportunities.

Investments readiness across levels of public sector activity

PPI investments by level of public sector activity

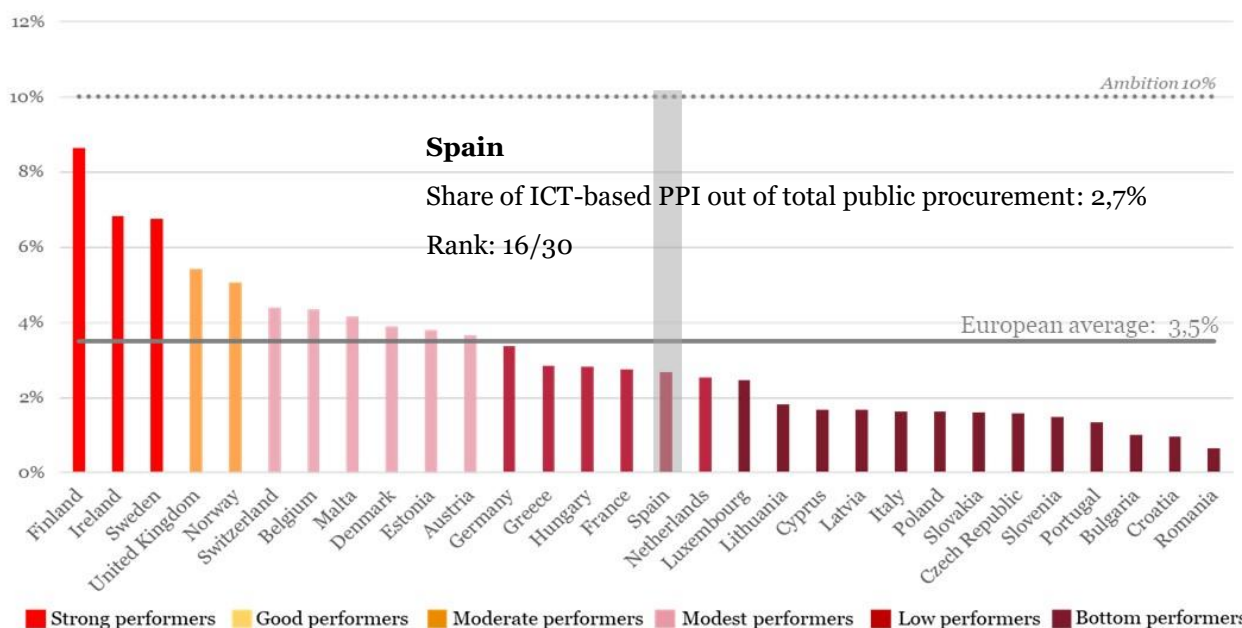


43% of the total PPI investments in Spain is carried out by large-scale entities at **national level**, such as ministries and ICT integrators of governments departments. This is slightly below the European average (47%).

Procurers at **regional level** account for a slightly smaller share of PPI investments (35%), but this time well above the European average (24%). Procurers at **local level** account for the smallest fraction of PPI (22%), below the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

In terms of adoption of innovative solutions in the field of ICT (ICT-based PPI investment), Spain falls within the cluster of **low performers**. With € 0,4 bn or 2,7% of total public procurement invested in innovative ICT-based solutions, **Spain ranks 16th** in the benchmarking of ICT-based PPI investments, below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (33%), Spain performs below the European average (38%). **A considerable increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Spain to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁷⁴³

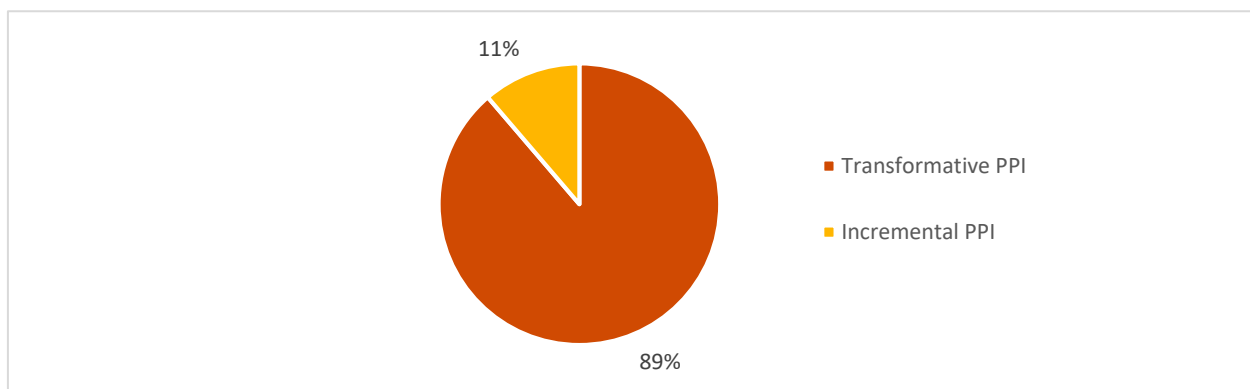


The **main factors**⁷⁴⁴ explaining Spain’s low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Spain (89%) is above the European average (79%), as a result of adoption of ‘significantly improved solutions’ (63%) and ‘new to the market’ solutions (26%). The share of investments in ICT-based solutions that is spent on the adoption of **incremental ICT-based innovations**⁷⁴⁵ (11%) is below the European average (21%). Given the low performance on the total amount of investments in ICT-based innovative solutions, Spain still needs to step up considerably its efforts on the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



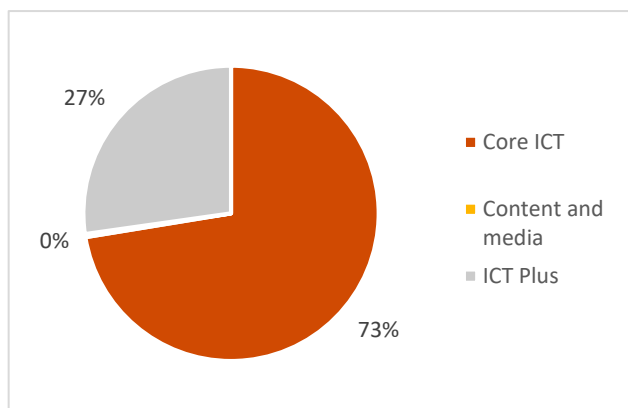
⁷⁴³ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁷⁴⁴ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁷⁴⁵ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Spain invested mainly in the adoption of innovations from the so-called ‘**Core ICT**’ sub-sector⁷⁴⁶ (73%), well above the European average (55%)

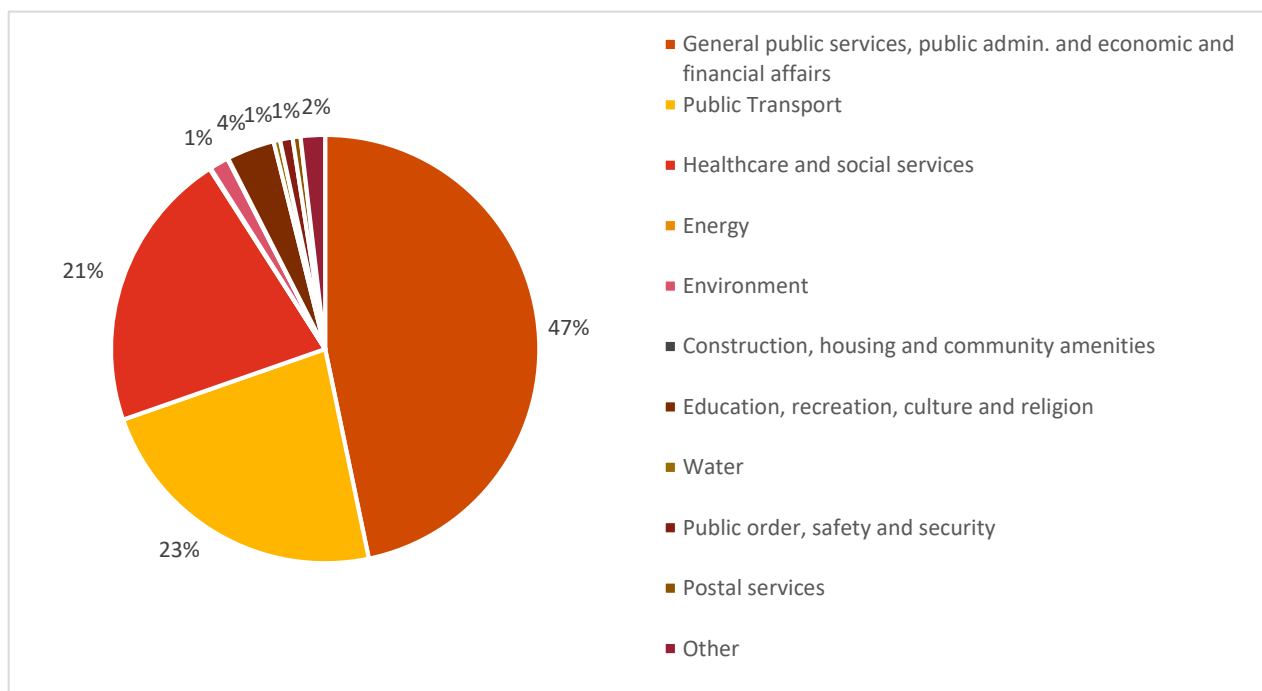
Spain invested to a lesser extent in the adoption of innovations from the ‘**ICT Plus**’ sub-sector (27%), well below the European average (45%).

No investment was made in adopting innovations from the ‘**Content & Media**’ sub-sector.

Investments readiness across different domains of public sector activity

All domains of public sector activity in Spain purchased innovative ICT-based solutions. In particular, the highest share of ICT-based PPI investments is made by Spanish procurers that operate in ‘**General public services, public administration and economic and financial affairs**’ (47% against a European average of 16%). The largest gap from European average is instead in the share of ICT-based PPI investments made by Spanish procurers in ‘**Public order, safety, security and defence**’ (only the 1% against a European average of 19%).

ICT-based PPI investments by domains of public sector activity

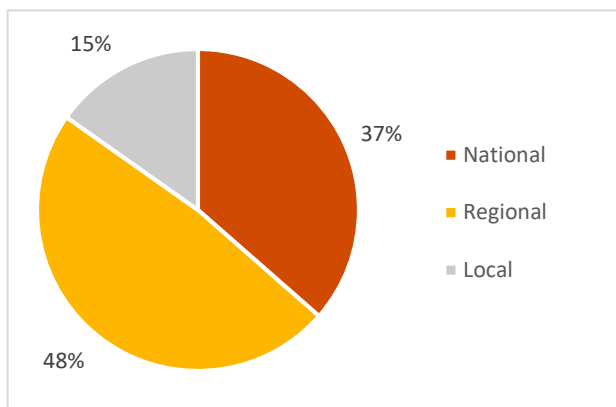


⁷⁴⁶ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 37% of ICT-based PPI investments, below the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI investments at sub-national level (48%), more than double the European average (21%).

Local procurers account for only a modest fraction of ICT-based PPI investments (15%), which is still above the European average (10%).

Sweden



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Sweden three fundamental acts govern public procurement, namely the Public Procurement Act (SFS 2016:1145), the Utilities Procurement Act (SFS 2016:1146) and the Concessions Procurement Act (SFS 2016:1147). The first act is applicable to the public sector while the second act regulates the utility sectors of water, transport, energy and postal services. Eventually, the Concessions Procurement Act is applicable to work and service concessions. These acts transpose the EU Directives 2014/23/EU, 2014/24/EU and 2014/25/EU into national legislation. Law (2011: 1029) on defence and security procurement transposed the EU directive 2009/81/EC.

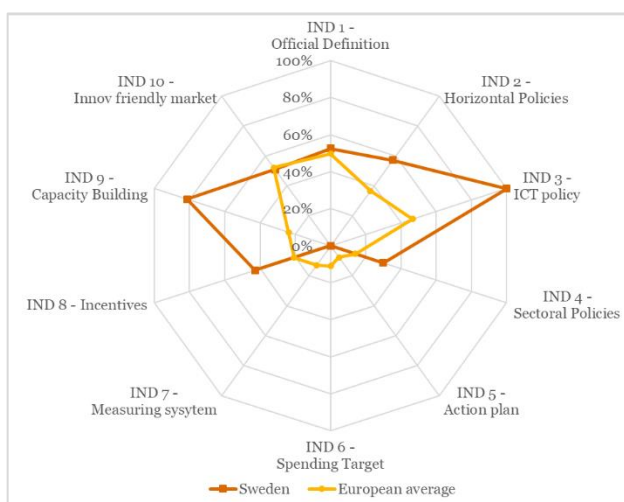
The field of public procurement in Sweden is fostered by the **National Public Procurement Strategy**, adopted by the Government in 2016, which gives an important role to “*Public procurement that enhances innovations and alternative solutions*” (Regeringskansliet 2016).

The key actors in the Swedish innovation procurement framework are the national **Government** and **Agency for Public Procurement** (Upphandlingsmyndigheten, UHM). The first leads the political commitment while the second is the national competence centre for innovation procurement and is responsible for the implementation of the procurement strategy at national level.

The UHM cooperates with **Vinnova**⁷⁴⁷, i.e. the Swedish Innovation Agency, and **Kammarkollegiet**, i.e. the national purchasing body, through agreements and action plans. Vinnova provides financial support for the implementation of innovation procurement projects. In addition, together with the **Swedish Association of local Authorities and Regions (SALAR)**, UHM and Vinnova foster innovation procurement at local level by financing and stimulating purchasing groups of local and regional authorities. Kammarkollegiet supports innovation procurement through framework agreements for national, regional and local authorities. However, while national authorities are obliged to use the national purchasing body, regional and local authorities can use it on a voluntary basis.

Innovation Procurement Policy Framework Benchmarking (2018)

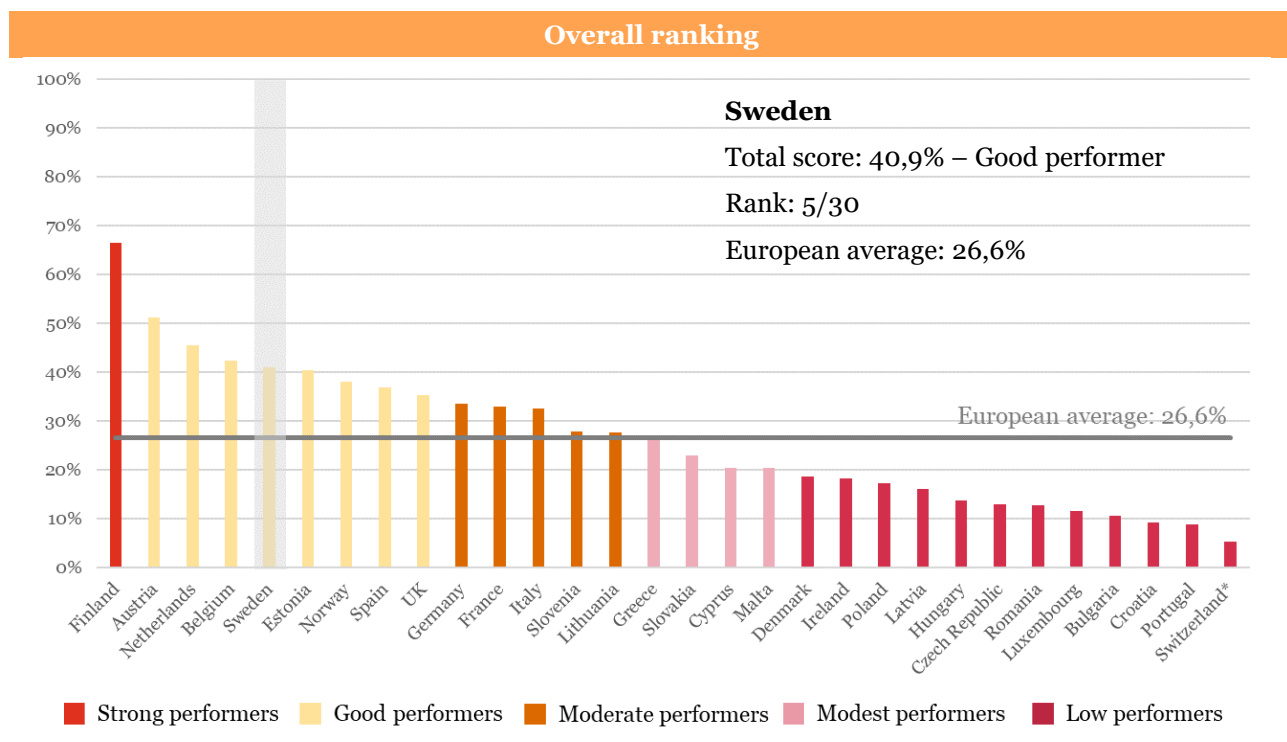
In the benchmarking of the national innovation procurement policy frameworks across Europe, **Sweden is at the 5th position** of the overall ranking with a **total score of 40,9%**. From the 30 countries analysed, Sweden is among the group of good performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 40,9% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in Sweden to reach its full 100% potential.



Strengths: Sweden has clear political commitment for innovation procurement, a national competence centre that is particularly active in increasing innovation procurement know-how among procurers through capacity building and assistance measures and financial incentives for public procurers to engage in more innovation procurements

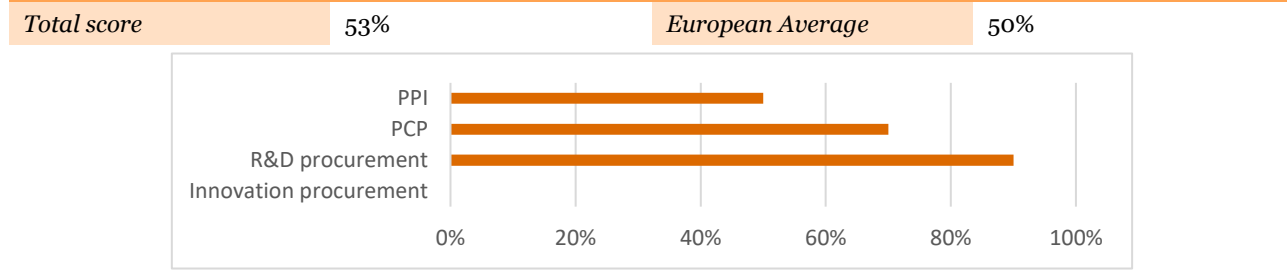
Weaknesses: Sweden lacks an action plan, spending target and a centralised monitoring system to mainstream innovation procurement widely across all sectors and across all levels of public procuring entities in the country. Lack of IPR policy in public procurement that encourages innovation.

⁷⁴⁷ <https://www.vinnova.se/en>



Overview per indicator

Indicator 1 – Official definition



The Swedish public procurement legislation provides an official definition for R&D procurement, which is applicable to the defence and security sector, but no definitions for innovation, innovation procurement, Pre-Commercial Procurement (PCP) or Public Procurement of Innovative solutions (PPI). Some definitions are available in guidance documents: The National agency for Public procurement provides definitions of innovation procurement and PPI which are only partially in line with the EU definition. The guide published by Vinnova on Pre-commercial procurement provides a definition of PCP which is in line with the EU definition and applicable country wide. Therefore, the total score of this indicator is 53%.

The Swedish legal tradition builds on a limited number of laws, complemented by official legal discussion papers. These are known as “förarbeten” (legislative history) and are used by courts to interpret national legislation. In the area of procurement law, the legislative history outlines that “the definition (of **innovation**) has not been incorporated into the new public procurement laws, since the definition [...] does not contribute to any actual clarification of the term in relation to normal language use [...] What is covered by the term cannot be determined with any precision”. As the legal framework does not provide any legally binding definition of innovation or innovation procurement, the total score of this indicator is 0%.

The Swedish National Agency for Public Procurement (together with Vinnova and local public authorities) uses a definition of **innovation procurement** that consists of three levels, “depending partly on how active a contracting authority or entity is regarding obtaining new solutions, and partly on the purpose of the purchase”:

- The first level is the “developmental procurement stage”, in which the contracting authority is open to procuring an innovative solution without explicitly requiring innovation.
- During the second level i.e. procurement of new solutions, the contracting authority acts as a reference customer or first customer of innovative solutions.
- In the third level, i.e. acquisition of research and development, the contracting authority obtains development or research services with the aim of arriving at new solutions.

However, this definition is not in line with the EU definition: it is wider than the EU definition, without a clear boundary that indicates where innovation procurement stops.

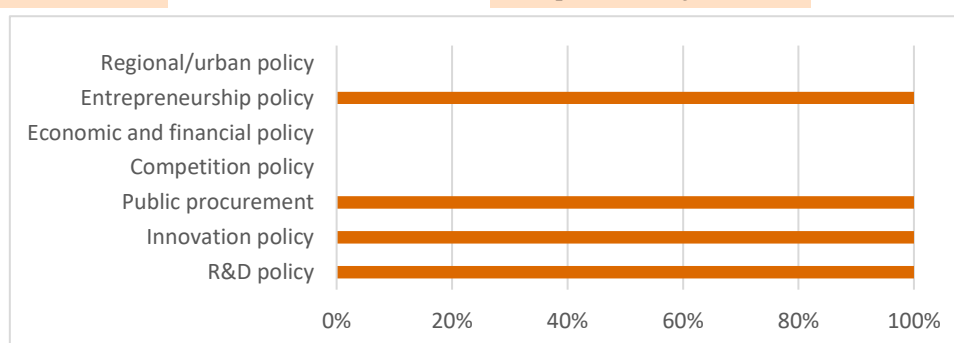
For non-defence procurers, the Public procurement act identifies in Chapter 1, section V, R&D as “activities that have the CPV codes for fundamental research, applied research and industrial development” which are in line with the R&D CPV codes of the EU public procurement directives. A full definition of **R&D** is only provided in the Law (2011: 1029) on defence and security procurement in chapter 2, point 9: “activities involving basic research, applied research and experimental development.” This definition is only applicable in the defence sector (i.e. not countrywide) but is in line with the EU definition, therefore the total score of this sub-indicator is 90%.

Chapter 2, point 9 also transposes the exclusion for R&D services, which forms the legal basis for implementing **Pre-Commercial Procurement**: “the law only applies to R&D services procurements following the cumulative conditions of (a) products belong exclusively to the contracting authority for its own use at pursuing its activity; and (b) the service is wholly remunerated by the contracting authority”. A precise definition of PCP is provided by the Guide on Pre-commercial procurement published by Vinnova.⁷⁴⁸ This definition is applicable to all public procurers in the country and in line with the EU definition. Therefore, the total score of the sub-indicator PCP is 70%.

In national public procurement legislation there is no definition of **PPI**, but the legislation enables procurers to implement PPI by allowing contract award and monitoring performance based on innovative solution characteristics. These provisions are applicable to all public procurers in the country and in line with the provisions in the EU public procurement directives. Therefore, the total score of the indicator is 50%. The guide published by Agency for Public Procurement (Upphandlingsmyndigheten, UHM) provides a definition of PPI which is applicable to all public procurers in the Country but is not in line with the EU official definition.

Indicator 2 – Horizontal policies

Total score 57% European Average 36%



Four out of seven horizontal policies recognise innovation procurement as a strategic objective in the country. The total score of the indicator is therefore 57%.

The **National Public Procurement Strategy** (Regeringskansliet 2016)⁷⁴⁹, adopted by the Swedish Government in June 2016, gives guidance on a variety of innovation procurement aspects to suppliers and to national, regional and local public institutions. Since regional and local levels of government are independent, the Strategy is mostly directed to governmental agencies. One of the seven objectives identified in the Strategy is “public procurement that enhances innovations and alternative solutions”. Furthermore, the Strategy highlights the importance of functional specifications in the call for tenders, stating that “setting criteria by function rather than setting specific criteria for goods and services stimulates creativity and innovative capacity on the part of potential suppliers”. The Strategy is also used as a guideline by other public institutions and entities, such as the Ministries and national agencies, working on different aspects of innovation procurement according to their own objectives.

In the field of entrepreneurship policy, the **Smart Industry Strategy**⁷⁵⁰ lists “increasing the use of innovation-friendly procurement practices” among the best practices to be implemented to achieve its overall objectives.

The **Swedish national research and innovation strategy**⁷⁵¹ recognises the strategic importance of innovation procurement within one of its three core objectives: “2. Innovation in public services and the public sector generating demand for innovation. This concerns first of all the capability of public services to be innovative. Secondly, it is about the public sector contributing to the demand for innovation in society at large. This includes setting political goals, influencing the formulation of standards, designing procurement processes so that they are open for new solutions, carrying out innovation procurements or designing processes for social planning in ways that promote new solutions.”

⁷⁴⁸ See page 5 of https://www.vinnova.se/contentassets/6dd6aab4aa7e4aa99bc677420a21cf74/vr_13_09.pdf

⁷⁴⁹ http://www.upphandlingsmyndigheten.se/globalassets/english/procurement/national_public_procurement_strategy_english_web.pdf

⁷⁵⁰ http://www.government.se/498615/contentassets/3be3b6421c034b038dae4a7ad75f2f54/nist_statsformat_160420_eng_webb.pdf

⁷⁵¹ <https://www.government.se/contentassets/cbc9485d5a344672963225858118273b/the-swedish-innovation-strategy>

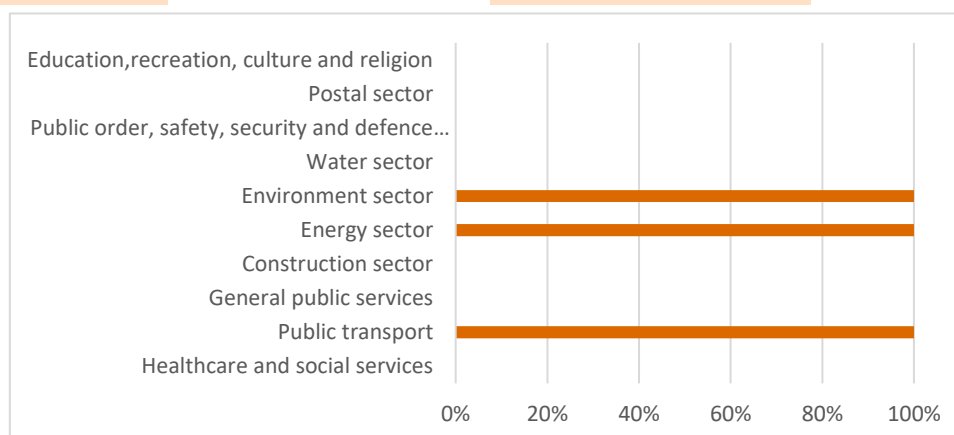
Indicator 3 – ICT policies

Total score	100%	European Average	47%
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In the field of ICT, the **Digital Strategy for sustainable digital transformation in Sweden**⁷⁵² refers to innovation procurement as one of the tools that public authorities should use to drive the sustainable digital transformation of the country. "Public procurement should be used to a greater extent as a proactive tool for promoting the development, use and implementation of digitally driven innovations. Innovation procurement and innovation partnerships are important tools as well as the conscious use of open source solutions, standards and test beds. Even project competitions can be an important tool for stimulating increased development of digitally driven innovations."

Indicator 4 – Sectorial policies

Total score	30%	European Average	14%
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Overall, sectorial policies in Sweden are not always build on strategies but rather on a continuous consensus of stakeholder groups that work and collaborate in ad-hoc forums such as the Governments Cooperation Program. For example, the group that deals with **transportation of the future** has recognized innovation procurement as one of the four key priorities.⁷⁵³ However, a number of sectorial policy frameworks explicitly recognize innovation procurement as a strategic priority, like the Transport, Environmental and Energy policies. Therefore, the score of the indicator is 30%.

The **Swedish Energy Agency** has worked for several decades to accelerate public and private demand for innovative energy and efficient products. One activity is to finance pre-procurement purchasing groups containing both public and private purchasers. At present, the Swedish Energy Agency operates six Swedish groups and one international network. The purpose of the groups is to create a platform where state, business and academia together can develop energy efficient methods⁷⁵⁴, create good examples⁷⁵⁵ and make demonstrations as well as correct market barriers.

In the area of public transport, the **Swedish Transport Administration** recognizes innovation procurement as a tool increase the efficiency and long-term sustainability of the Swedish transport system⁷⁵⁶.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Sweden does not have a stand-alone Action Plan for innovation procurement.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Sweden there is no specific spending target for innovation procurement.

According to national experts, this is due to the difficulty in enforcing a target among Swedish municipalities and county councils (where the bulk of the public procurement takes place), and to statistical problems with following up a target.

⁷⁵² https://www.regeringen.se/49adea/contentassets/5429e024be6847fc907b786ab954228f/digitaliseringsstrategin_slutlig_170518-2.pdf

⁷⁵³ <http://www.regeringen.se/regeringens-politik/regeringens-strategiska-samverkansprogram/nasta-generations-resor-och-transporter>

⁷⁵⁴ <https://ninesights.ninesigma.com/servlet/hype/IMT?userAction=Browse&documentId=65945f75bd7201dd6ce2875135726d04&templateName=&documentTableId=1008809492095621163>

⁷⁵⁵ <http://www.energimyndigheten.se/en/news/2010/sek-62-million-for-technology-purchases-of-electrical-vehicles/>

⁷⁵⁶ <https://www.trafikverket.se/contentassets/ef3ea233caed4aa7b3c3987f4e632a6c/camilla-ahston-international-strategist-3-dec.pdf>

Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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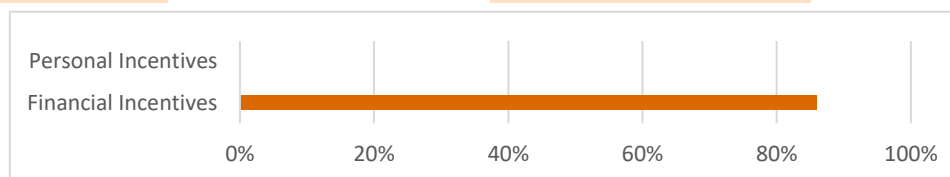
Sweden does not have a structured system to measure innovation procurement expenditure and to evaluate the impacts of completed innovation procurements.

The absence of a measurement system is partly due to the absence of a national procurement register.

However, the country is planning to prepare **case studies** that aim to measure results, outcomes and impacts of individual innovation procurement initiatives. The baseline measurement is drafted thanks to surveys and in-depth interviews with procurers and decision makers. A statistical report is annually edited in cooperation with the Swedish Competition Authority.⁷⁵⁷

Indicator 8 – Incentives

Total score	43%	European Average	22%
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Sweden has set up **financial incentives**, in the form of grants, to encourage public procurers to undertake more innovation procurements. These Incentives are for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), applicable to all public procurers in all sectors and levels of government. The financial incentives are available both for procurements that are not co-financed from EU funds and can top also funding for procurements that are eligible for EU co-financing. However, the country has not mobilised specific ESIF funds for innovation procurement. The total score of the sub-indicator “financial incentives” is therefore is 86%.

In particular, since 2011, Vinnova has financed innovation procurement under different programs and with a different coverage. Contracting authorities which are interested in more advanced forms of innovation procurement can apply for financial support from **Vinnova**. Today, there is specific programme called “**Innovation procurement**”⁷⁵⁸ that is designed to finance strategic investments and applications, by invitation only. The amount invested in innovation procurement has varied during the years, but it has accounted for approximately 1 million euro per year in average. Among the financed projects are PCPs, PPIs and financial support for coordination activities, pre-studies and procurements in pre-procurement purchasing groups.

In the R&D field, the Swedish Competition Authority (Konkurrensverket), together with the Council for Research works to stimulate research within public procurement and to contribute towards the qualitative and quantitative development of innovation procurement. To this aim the two authorities provide funding for research projects and seminars.⁷⁵⁹

The **Swedish Energy Agency**⁷⁶⁰ also finances and facilitates pre-procurement purchasing groups with common needs within specific areas in order to achieve energy efficiency. Similar actions have been adopted by other public entities as well, for instance by the Swedish Association of Local and Regional Authorities (SALAR) and by the Environmental Agency.

In the field of **personal incentives**, there is a **national innovation procurement prize** for procurers awarded at the national day of the public procurer in Sweden.⁷⁶¹ The total score of this sub-indicator is 0%.

Therefore, the total score for the indicator “incentives” is 43%.

Indicator 9 – Capacity building and assistance measures

Total score	81%	European Average	24%
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	Existence	Connection with relevant international / EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	✓		✓	✓	✓	✓	83%
Good practices	✓	✓	✓	✓	✓	✓	100%
Trainings/workshops	✓	✓	✓	✓	✓	✓	100%

⁷⁵⁷ <http://www.konkurrensverket.se/en/publications-and-decisions/annual-report-2016/>

⁷⁵⁸ <https://www.vinnova.se/e/fron-for-okad-innovation-i-offentligt-2015-00082/fron-fortsattning/> ; <https://rio.jrc.ec.europa.eu/en/file/11725/download?token=ilnOPq2O>

⁷⁵⁹ <http://www.konkurrensverket.se/en/research/apply-research-grant/>

⁷⁶⁰ <http://www.energimyndigheten.se/en/>

⁷⁶¹ <http://www.konkurrensverket.se/en/news/the-swedish-competition-authority-and-vinnova-collaborate-on-innovation-procurement>

Handbooks/guidelines	√	√	√	√	√	√	100%
Assistance to public procurers	√		√		√	√	67%
Template tender documents							0%
Coordination / pre-approval	√	√	√	√	√		83%
Networking of public procurers	√	√	√	√	√	√	100%
One-stop-shop/ competence centre	√	√	√	√	√	√	100%

Capacity building and assistance measures in innovation procurement are coordinated by the Swedish national competence centre for innovation procurement, the **National Agency for Public Procurement - Upphandlingsmyndigheten**).

It has a **central website**⁷⁶² that provides an overview of available capacity building measures for all types of innovation procurement. The Agency offers itself knowledge and experience sharing services (trainings for procurers, collecting and disseminating **guidelines** and **good practices case studies**⁷⁶³, providing networking opportunities for suppliers and procurers, offering information and awareness events for all stakeholders – e.g. procurers, suppliers, policy makers, and professional procurement agencies). The agency organises a wide range of regular in-depth **trainings and workshops** on different aspects related to innovation procurement⁷⁶⁴. There is a specific guide on Pre-commercial procurement published by Vinnova.⁷⁶⁵ The scores for sub-indicators central website is 83% as the links to some EU level activities are missing. The score for good practices, trainings and guidelines is 100%.

The Agency also offers methodological support to specific innovation procurement projects. The support focuses mostly on identifying and analysing needs and facilitating early dialogues with the market, but support can also be given in later stages as well although individual case specific **assistance** in drawing up procurement documents is not provided. The score for sub-indicator assistance is therefore 67%.

The Agency also enhances innovation procurement by giving support to “**pre-procurement purchasing groups**” to be formed by contracting authorities at national, regional and local level that have similar needs for innovative solutions (i.e. bundling of demand). The support given to pre-procurement purchasing groups facilitates open market consultations especially when there are several buyers with similar needs.

The Agency also cooperates with the national purchasing body Kammarkollegiet and other large procurers that can buy on behalf of others (e.g. associations of municipalities, the Swedish Energy Agency) to **network procurers** so to explore opportunities to achieve large scale multiplier effects with innovation procurements. In 2011 the Nordic Ministers of Industry launched together a “Nordic lighthouse initiative in the healthcare domain” to strengthen collaboration between Norway, Finland, Sweden, Denmark and Iceland on innovation procurement. Nordic innovation and the national competence centres on innovation procurement in those countries are regularly organising meetings with procurers from all their countries to discuss potential coordinated procurement possibilities. The score for the networking sub-indicator is thus 100%.

UHM has an agreement and an action plan with Vinnova. The two agencies cooperate in some of these aforementioned activities. Vinnova also offers funding for development projects related to procurement and supports the processes for needs identification in the public sector. In addition, the agency provides information on EU funding opportunities for the public sector on innovation procurement.

At regional level, the Swedish Association of local Authorities and Regions (SALAR) performs activities to encourage innovation procurement among its members. The focus is mostly in information activities, as well as organising and facilitating pre-procurement purchasing groups, sometimes part-financed by Vinnova.

The national energy agency **coordinates** cooperative procurements between groups of small local public procurers to create enough market pull for suppliers to bring innovative solutions to the market. The agency collects the needs of the local authorities, defines the tender specs, helps those procurers organise preliminary market consultations, tests and certifies resulting solutions against achieved energy efficiency levels/labels and issues framework contracts from which local authorities can buy. The coordination work done by the energy agency has already led to large scale procurement/market effects. However, this type of coordination is not done yet in all other sectors. The score for sub-indicator coordination is 83%.

UHM, the Swedish national competence centre for innovation procurement, is participating in the EU-funded project “*Procure2Innovate - European network of competence centres for innovation procurement*”, started in January 2018, aimed to set a collaboration and interchange between competence centres in different EU countries.

⁷⁶² <https://www.upphandlingsmyndigheten.se/omraden/dialog-och-innovation/innovation-i-upphandling/> (in Swedish) <https://www.upphandlingsmyndigheten.se/en/subject-areas/innovation-procurement/> (short summary in English)

⁷⁶³ <https://www.upphandlingsmyndigheten.se/omraden/dialog-och-innovation/innovation-i-upphandling/exempel-innovation/> (in Swedish) and <https://www.upphandlingsmyndigheten.se/omraden/dialog-och-innovation/funktion/exempel-funktion/> (in Swedish)

⁷⁶⁴ <https://www.upphandlingsmyndigheten.se/sokresultat/?query=utbildning&page=1> (in Swedish)

⁷⁶⁵ See page 5 of https://www.vinnova.se/contentassets/6dd6aab4aa7e4aa99bc677420a21cf74/vr_13_09.pdf

Based on the evidence above, Sweden provides eight out of nine capacity building measures, i.e. trainings and workshops, good practices reports, handbooks and guidelines, networking, coordination, one-stop-shop and assistance to procurers in preparing and implementing innovation procurements and obtaining approval for starting innovation procurement. Assistance to public procurers does not cover case specific assistance and the relevant EU and international (WTO) framework for innovation procurement. Template tender documents are also not provided. Therefore, the total score of the indicator is 81%.

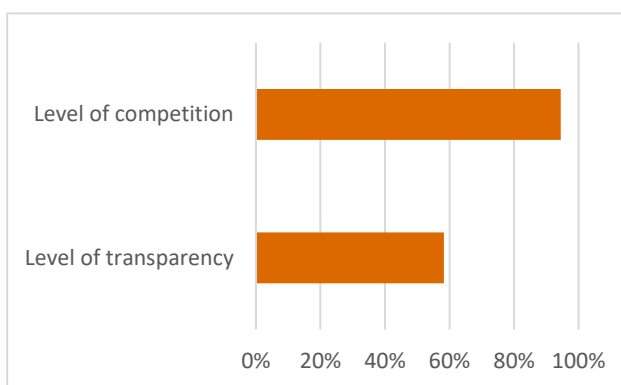
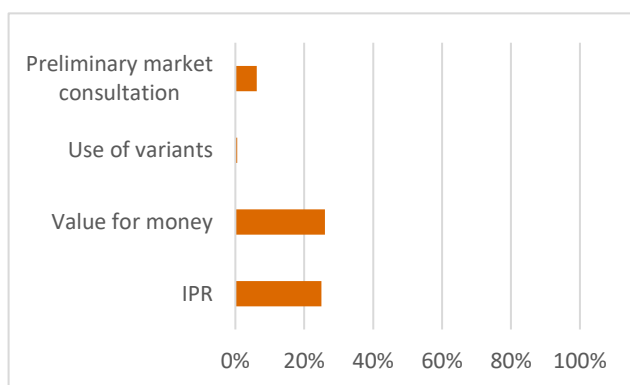
Indicator 10 – Innovation friendly public procurement market

Total score 45%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators measuring:

- I. The use of specific techniques to foster innovation in public procurement in Sweden
- II. The openness of the national public procurement market to innovations from across the EU single market

For what regards sub-indicator I, Sweden shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 25%, which is below the European average of 38%, because there is no default scenario for the distribution of IPR rights between procurers and suppliers in Sweden. The Swedish law on public procurement does require the public procurer to specify the distribution of IPR rights and obligations in the tender documents but the Swedish law, general terms and conditions for government contracts and guidelines for all public procurements do not define how IPR allocation is best dealt with in public procurement. It is left to the individual responsibility of each Swedish procurer to specify clearly the IPR allocation for the procurement in its tender documents so that it stimulates innovation and is compliant with applicable IPR/copyright law. Swedish copyright law determines that the innovator owns the copyright if not otherwise agreed between procurer and supplier. Copyright may be transferred entirely or partially (e.g. via a public procurement agreement) subject to some limitations (removing name of author is only allowed for uses which are limited in the character and scope; the creator's right to remuneration cannot be transferred). Anyone who has acquired the right to use a computer program is entitled to make such copies of the program and to make such adaptations of the program which are necessary in order for him to use the program for its intended purpose. Copyright includes any literary, scientific and artistic work including computer programs. The national guidance document on PCP clarify that in PCPs, IPR ownership remains with the contractor and the procurer obtains license free rights to use and license.
- b. **Use of value for money award criteria:** According to the EU single market scoreboard, only 26% of the procedures were awarded on criteria that are not based only on the lowest price. This is significantly below the European average of 42% and far below the 80% satisfactory level set out in the EU single market scoreboard. Sweden still needs to tackle the structural over-reliance on lowest price only award criteria.
- c. **Use of variants:** Sweden has allowed the use of variants in less than 1% of the procedures (0,6%). This percentage is well below the European average.
- d. **Preliminary Market Consultations:** Czech Republic has used Preliminary Market Consultations in the 6% of the procedures. This percentage is significantly below the European average of 9%.

Based on this evidence, the score for sub-indicator I is 15% which is below the European average of 23%. This is mainly due to the below average performance on the use of value for money award criteria and on adopting an IPR default regime that fosters innovation.

With regard to sub-indicator II, Sweden shows the following evidence (based on the Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 95% which is above the European average 84% and reaching the 93% satisfactory level set by the EU single market scoreboard. Both sub-indicators are above the European average: the percentage of procurement procedure awarded without a call for tender (0%) and the percentage of procurements with more than one bidder (89%).

- f. **Level of transparency:** The level of transparency of the public procurement market is 58% which is above the European average 45% but below the 66% satisfactory level set by the EU single market scoreboard. All sub-indicators are above the European average but below the satisfactory level: the TED publication rate (5%), the proportion of contracts awarded without missing information about the call for bids (93%) and without missing buyer registration numbers (77%).

Based on this evidence, the score for sub-indicator II is 76% which is above the European average of 65% but still below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to the transparency level.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 45%, which is slightly above the 44% European average. This score is mainly due to a good performance in the sub-indicator II which offset the below European average valued of in the sub-indicator I. It is explained firstly by the fact that, although the openness of the Swedish public procurement market to innovations from across the EU single market is above the European average, the use of specific techniques to foster innovation in the country is below European average. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation and value for money criteria are still underused in public procurements. In addition, although the national public procurement market shows above average level of competition and transparency, transparency is not at the satisfactory level yet defined by the EU single market scoreboard.

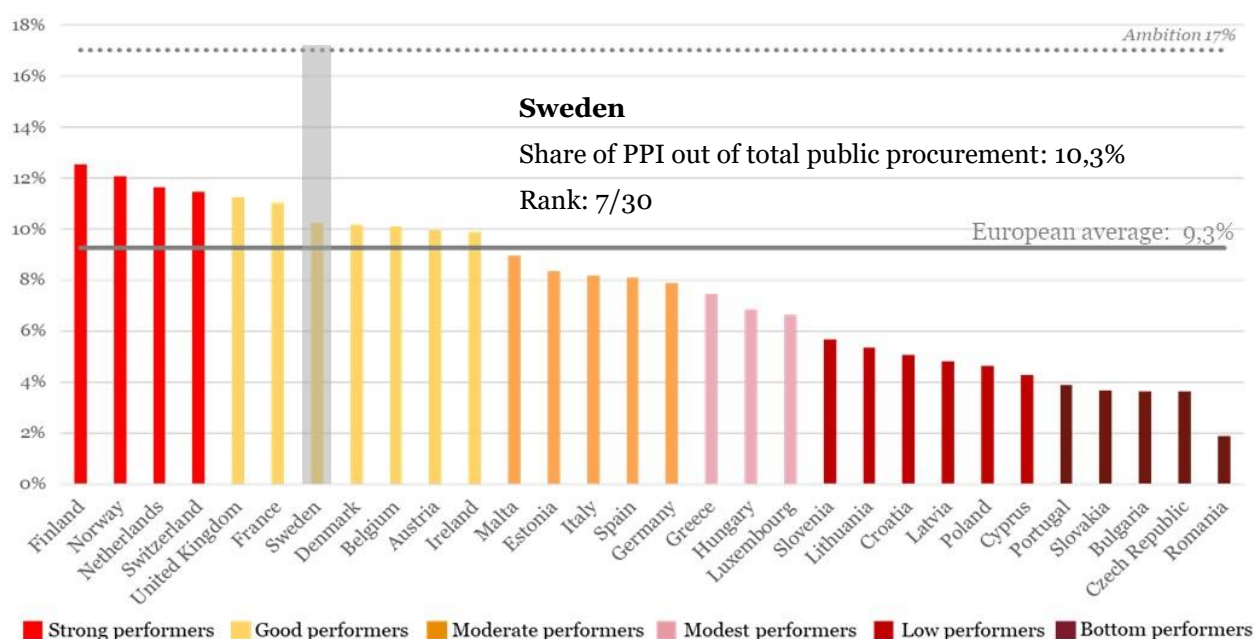
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Swedish investments on public procurements of innovative solutions (PPI) and the benchmarking of all Swedish investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 10,3% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 8,5 bn), **Sweden ranks 7th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁷⁶⁶ across Europe. Sweden falls within the group of **good performers**, slightly above the European average of 9,3%.⁷⁶⁷ **A significant increase of investments in PPI** is still needed to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Swedish public sector.⁷⁶⁸ When taking into account also PPI in the defence sector Sweden moves up to the 2nd position.



The **main factors**⁷⁶⁹ explaining Sweden's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of **incremental innovations** (73%) is **significantly above the European average** (16%). Especially the adoption of 'existing solutions that are used in a new way or in a new sector' is high (71%), whereas the share of 'innovative combinations of existing solutions' (2%) is much smaller. The share of PPI investments that is spent on the adoption of **transformative innovations** in Sweden (27%) is considerably below the European average (84%). The adoption of both 'significantly improved' solutions (23%) and innovative solutions that are 'new to the market' is low (4%). As investments in transformative innovations are considerably higher among the strong performers, working on improving this point could be a cornerstone element for Sweden to move up from good to strong performer.

⁷⁶⁶ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

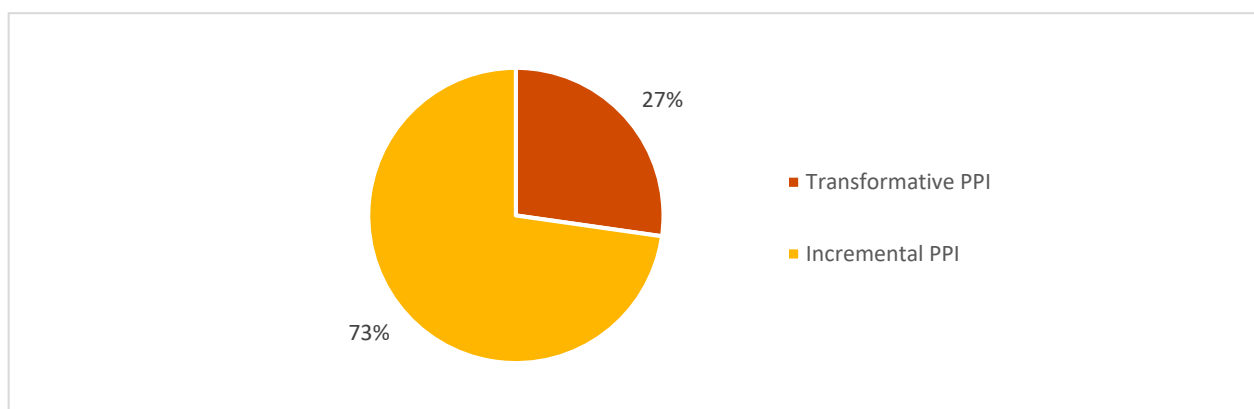
⁷⁶⁷ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁷⁶⁸ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁷⁶⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. Despite Sweden is among the strong performers in the adoption of innovative ICTs, **additional investments in the adoption of innovative ICTs would help** in achieving a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity⁷⁷⁰ in Sweden purchased innovative solutions, except the 'Postal services' domain where PPI investments were zero. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. At the same time, there are two domains with noticeable deviations from the EU average: The share of PPI investments by Swedish procurers in the 'Healthcare and social services' (1%) domain was significantly below the European average (21%) and the share of PPI investments by procurers in 'Public order, safety and security' (52%) was significantly above the European average (8%). The share of PPI investments in 'Water' was very small (0,1%).

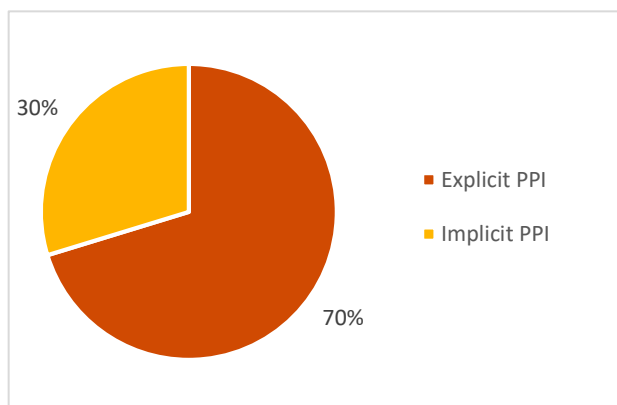
PPI investments by domains of public sector activity

Domain of public sector activity	Sweden	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	30%	35%	-5
Public transport	8%	10%	-2
Healthcare and social services	1%	21%	-20
Energy	2%	6%	-4
Environment	1%	3%	-2
Construction, housing and community amenities	1%	4%	-3
Education, recreation, culture and religion	3%	5%	-2
Water	0% (0,1%)	4%	-4
Public order, safety and security	52%	8%	+44
Postal services	0%	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁷⁷⁰ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

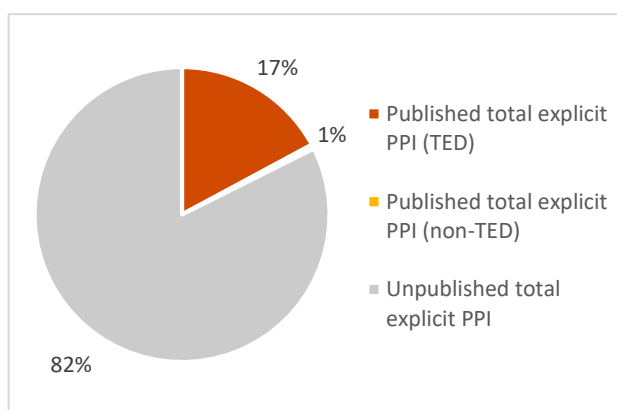


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly higher in Sweden (70%) compared to the European average (29%). This indicates that Swedish procurers may be less risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is lower in Sweden (30%) compared to the European average (71%). This indicates that Swedish procurers may tend to be less open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

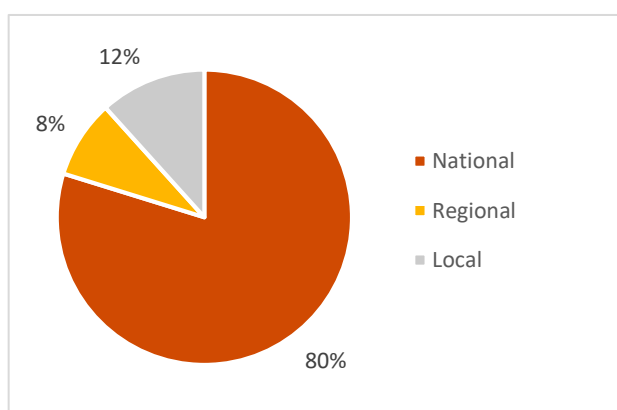


The share of Swedish PPI investments for which call for tenders are published is low (18%) and also below the European average (22%). Both the portion that is **published at European level** in the TED database (17%) and the portion that is **published at national level** (1%) are below European average (respectively 18% and 5%). The share of PPI investments for which no call for tenders is published in TED or at national level is very large (82%).

By not publishing PPI widely, **Sweden is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Swedish and other European innovative suppliers that are not informed about the Swedish PPI business opportunities.

Investment readiness across different levels of public sector activity

PPI investments by level of public sector activity

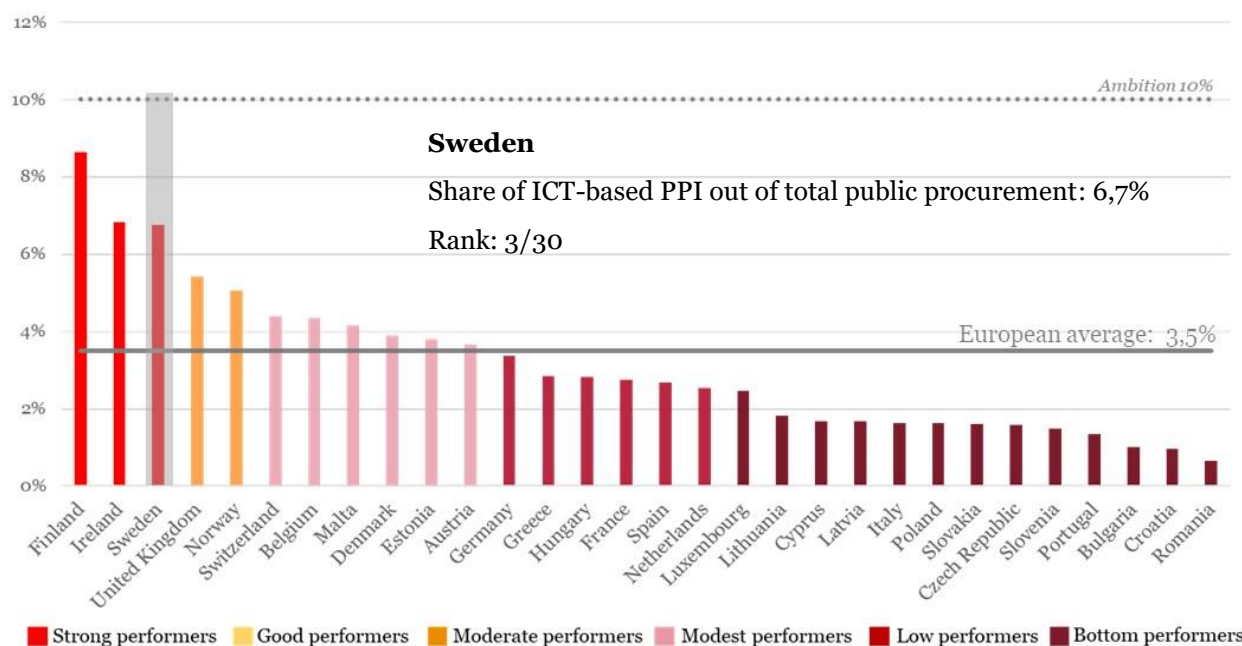


The lion's share of the total PPI investments in Sweden is carried out by **large-scale entities at national level** (80%), such as ministries and ICT integrators of governments departments. This is significantly above the European average (47%).

Procurers at regional level account for a considerably smaller amount of share of PPI investments (8%), and below the European average (24%). **Procurers at local level** account for a higher fraction of PPI investments (12%), yet still below the European average (29%). This may indicate that especially procurers at subnational level could still improve their performance on adopting innovations.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Swedish public sector shows a **strong level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,7 bn or 6,7% of total public procurement invested in innovative ICT-based solutions, **Sweden ranks 3rd** in the benchmarking of ICT-based PPI investments, well above the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (66%), Sweden not only performs better than the European average (38%), but it even outperforms already the ambition level (60%). Consequently, Sweden is not far away from reaching the ambition of investing 10% of public procurement in ICT-based innovations and only **needs a modest increase in ICT-based PPI investment** in order to enable Sweden to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁷⁷¹



The **main factors**⁷⁷² explaining Sweden's strong performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

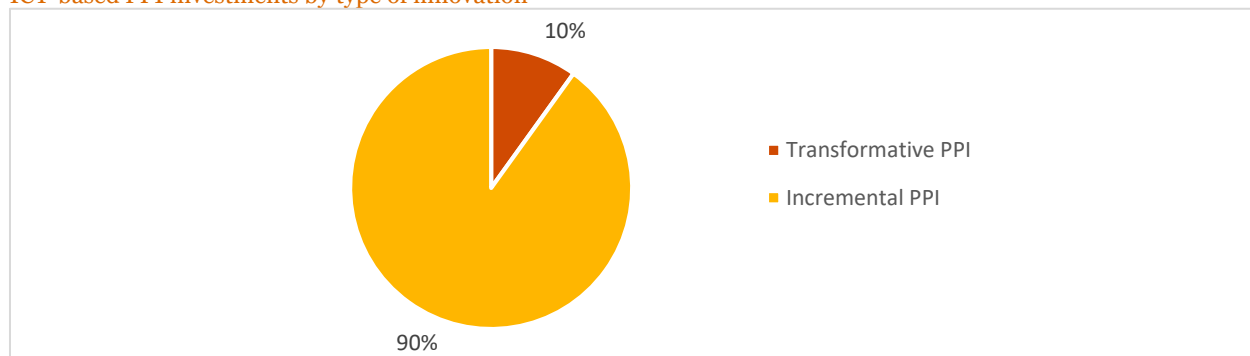
The share of ICT-based PPI investments that is spent on the adoption of **incremental ICT-based innovations**⁷⁷³ (90%) is significantly above the European average (21%). The share of ICT-based PPI investment that is spent on the adoption of **transformative ICT-based innovations** (10%) is considerably below the European average (79%). The adoption of both innovative solutions that are 'new to the market' and 'significantly improved' solutions is very low (respectively 4% and 6%). As investments of leading countries in transformative ICT-based innovations are considerably higher, working on this point could be a cornerstone element for Sweden to improve its performance.

⁷⁷¹ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁷⁷² The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

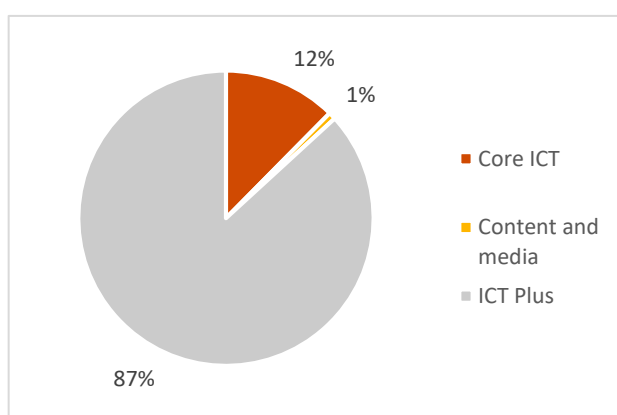
⁷⁷³ See definitions above.

ICT-based PPI investments by type of innovation



Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Sweden invested mainly in the adoption of innovations from the **'ICT Plus' sub-sector**⁷⁷⁴ (87%), well above the European average (44%)

Sweden invested to a lesser extent in the adoption of innovations from the so-called **'Core ICT' sub-sector** (12%), which is much lower than the European average (54%).

The share of investments spent on adopting innovations from the **'Content & Media' sub-sector** was small (1%), in line with the European average (1%).

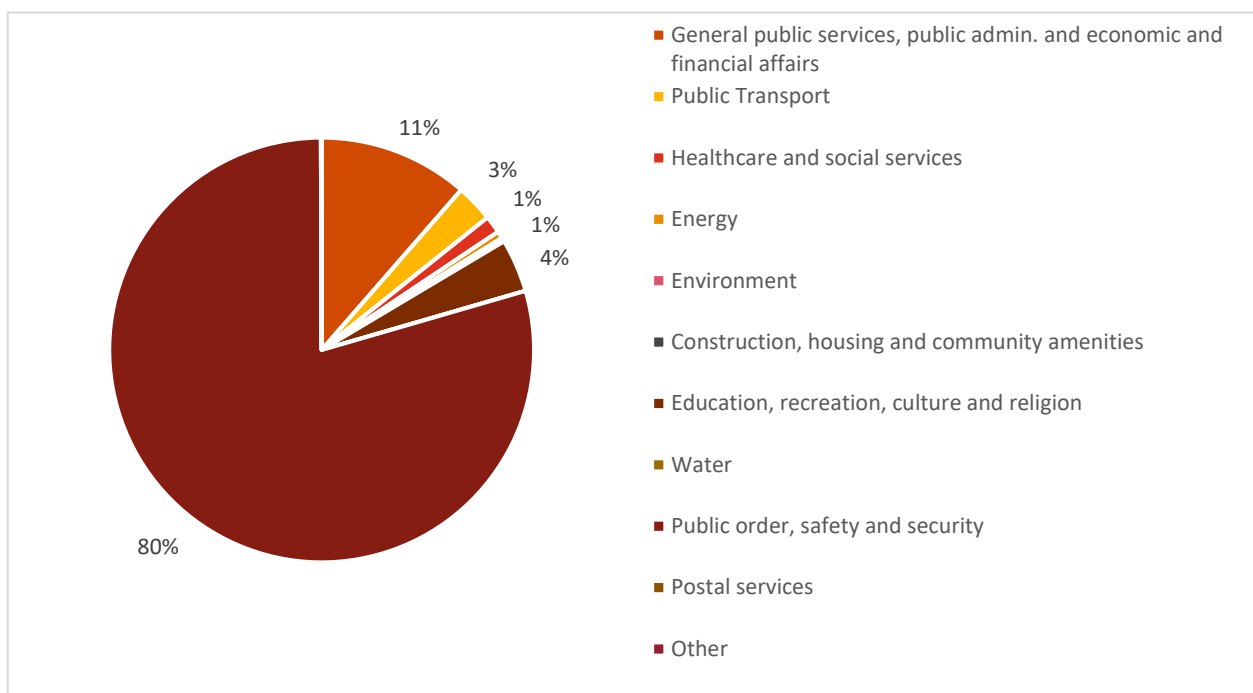
Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity in Sweden purchased innovative ICT-based solutions, except the **'Postal services'** domain where ICT-based PPI investments were zero. The highest share of ICT-based PPI investments was carried out by procurers that operate in the domain of **'Public order, safety and security'** (80% against a 19% European average). ICT-based PPI investments by procurers in the **'General public services, public administration and economic and financial affairs'** domain (11%) were significantly below the European average (16%). The shares of ICT-based PPI investments made by procurers in the categories **'Energy'**, **'Environment'**, **'Construction, housing and community amenities'** and **'Others'** were very small.

ICT-based PPI investments by domains of public sector activity

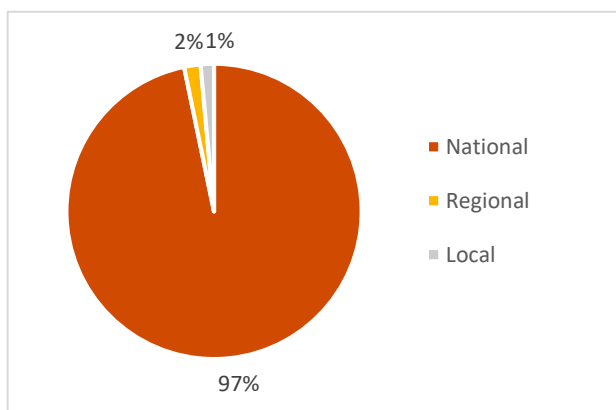
⁷⁷⁴ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.



Investment readiness across different levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 97% of ICT-based PPI investments, therefore representing almost the totality of PPI investments, well above the European average (69%).

The sub-national level accounts for a quite marginal share of the ICT-based PPI investments, with **procurers at the regional level** accounting for 2% of PPI investments and **procurers at the national level** for 1% of PPI investments, therefore considerably below the European average (21% and 10% respectively). This may indicate that especially procurers at subnational level could still improve their performance on adopting ICT-based innovations.

Switzerland



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

In Switzerland, public procurement is regulated by a complex regulatory framework, involving both federal, cantonal and local legislation. At federal level, public procurement is regulated by the Federal Act on Public Procurement of 16 December 1994 (SR 172.056.1) (FAPP) and the corresponding Ordinance on Public Procurement (SR 172.056.11) (OPP). The legislative framework is complemented by the legislation regulating internal market and cartels.

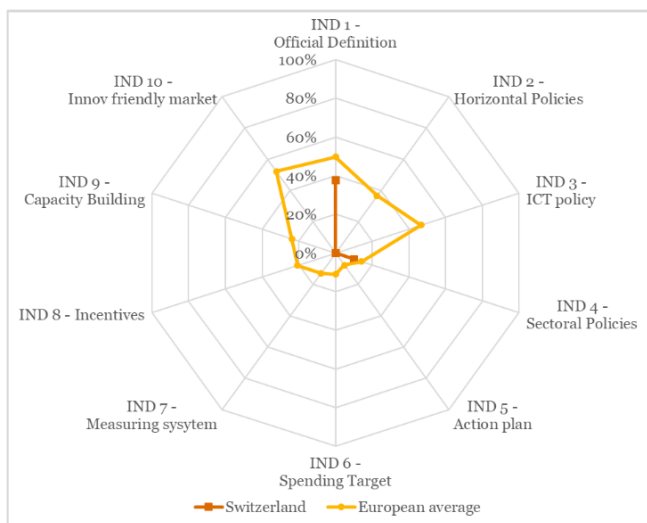
At national level, the key actor in the field of public procurement is the **Federal Competition Commission** which is responsible for the enforcement of the legislation. At cantonal level, public procurement legislation is enforced by the **Cantonal Administrative Courts**. Cantonal legislation is harmonised by the Inter-cantonal Agreement on Public Procurement (IAPP).

Since 2013, the **Ministry of Economy** has the main responsibility of innovation, research and higher-education policies. In particular, the research and higher education policies are responsibility of the *State Secretariat for Education, Research and Innovation* (SERI). The SERI is in charge of the overall planning and coordination of the Swiss R&I policy, provides funding to the main national funding agency, i.e. the Swiss National Science Foundation, and co-funding of cantonal universities. In addition, it provides co-funding for a number of national programmes and manages the Swiss participation in international funding agencies and research organizations, including the EU Framework Programs.

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **Switzerland is at the 30th position** of the overall ranking with a **total score of 5,3%**. From the 30 countries analysed, Switzerland is among the group of low performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. The country's performance is below European average on all 9 indicators taken into account. Having implemented only 5,3% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is still a very strong reinforcement of the policy framework needed in Switzerland to reach its full 100% potential.

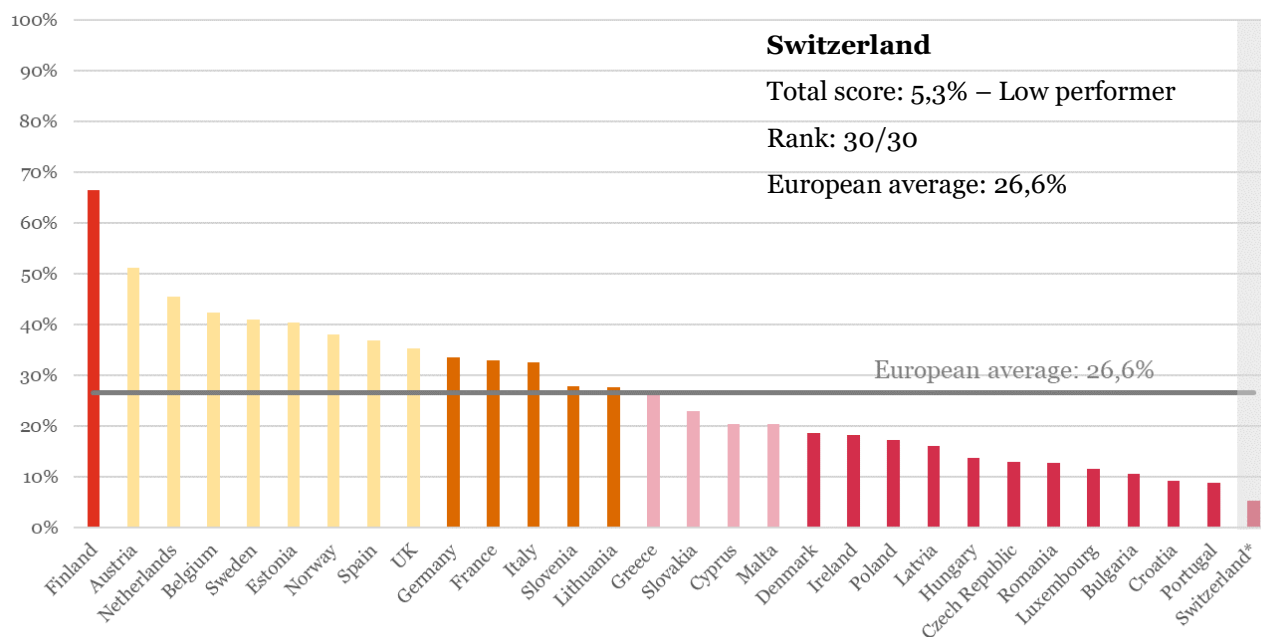
While Switzerland frequently takes the top spots of innovation rankings, in the present policy benchmarking it did not go above the bottom rung. It should be noted, however, that the Swiss final score is only limitedly comparable with other countries, due to the fact that not all sub-indicators were available and that contributions by national counterparts to the study were extremely limited, since it was preferred to participate in similar initiatives conducted at international level.



Strengths: A strong R&D&I system that supports innovation in the public sector even without a specific support to innovation procurement. A default IPR allocation regime for R&D procurements that fosters innovation which can serve as a model for all public procurements

Weaknesses: Absence of a policy framework for innovation procurement to mainstream it widely across all sectors and all levels of public procurement entities in the country (no action plan, target, financial incentives for procurers, monitoring system).

Overall ranking



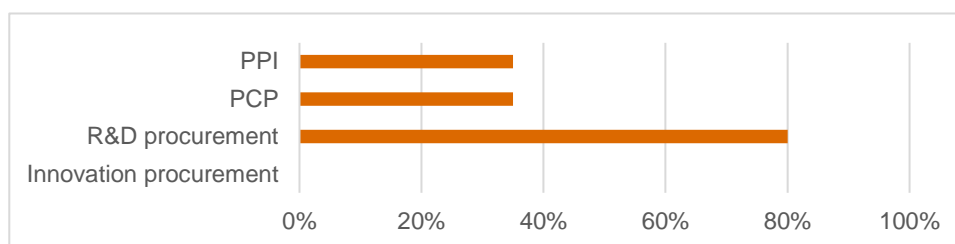
■ Strong performers ■ Good performers ■ Moderate performers ■ Modest performers ■ Low performers

Note: *The total score for Switzerland was calculated taking into account all the indicators except for Innovation friendly public procurement market. This is due to the lack of data from the EU Single Market Scoreboard.

Overview per indicator

Indicator 1 – Official Definition

Total score	38%	European Average	50%
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In Switzerland, the public procurement legal framework provides a definition of R&D which is applicable only to the federal government but is not in line with the EU official definition. The national legislation does not have official definitions for Innovation procurement, Pre-commercial procurement (PCP) but it only provides the legal basis for the implementation of Pre-commercial procurement (PCP) and Procurement of innovative solutions (PPI). Therefore, the overall result of this indicator is 38%.

The national public procurement legal framework or guidelines does not provide a definition of innovation or **innovation procurement**. Therefore, the score for sub-indicator innovation procurement is 0%.

The “*General Terms and Conditions of the Federal Government for Research Contracts (GTC for Research Contracts)*” defines **R&D** as “*Research performances*” means technical or scientific activities which as a rule are for the purpose of the targeted search for and achievement of, but also the intellectual-creative evaluation of, new findings in a specific specialized field, where applicable coordinated across several specialized fields or relating to a specific object (e.g. product, method). Research performances may include any type of research and development performances, so that research contracts may in particular also refer to areas of basic research and applied research”. This definition of R&D is applicable only to the federal government and not so clear about the boundary where development stops. Therefore, the total score of this sub-indicator is 80%.

In the field of Pre-commercial procurement, Art. 13 of the *Ordinance on Public Procurement (SR 172.056.11)* defines the exclusion for R&D services, which forms the legal basis for implementing in **PCP**. This provision is applicable to all public procurers in the country. However, as there is no official definition of PCP in Switzerland, the total score of the sub-indicator PCP is 35%.

Article 27 of the Ordinance on Public Procurement provides the legal basis for the implementation of **PPI**. According to this article, contracting authorities may also use “*sustainability, innovation content, functionality, service readiness, expertise, efficiency of the methodology, and costs to be expected throughout the lifetime*” in addition to the usual award criteria. As there is no official definition of PPI in Switzerland the total score for this sub-indicator PPI is 35%.

Indicator 2 – Horizontal policies

Total score	0%	European Average	36%
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Switzerland does not have horizontal policies aiming at promoting innovation procurement practices.

Indicator 3 – ICT policies

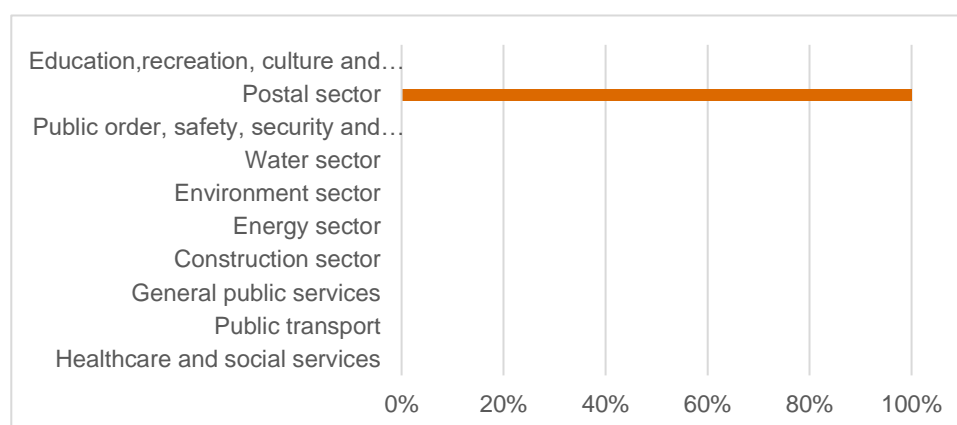
Total score	0%	European Average	47%
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Switzerland does not have ICT policies aiming at promoting innovation procurement practices. The **Digital Switzerland strategy**⁷⁷⁵ does not mention innovation procurement or public procurement as driver for innovation

Indicator 4 – Sectorial policies

Total score	10%	European Average	14%
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⁷⁷⁵<https://www.bakom.admin.ch/bakom/en/homepage/digital-switzerland-and-internet/strategie-digitale-schweiz/strategy.html>



In Switzerland, innovation procurement is not explicitly recognised as a strategic objective or tool in any sectorial policy framework or action plan with the exception of the **postal sector**. As a result, the overall score of this indicator is 10%.

The **procurement strategy 2017-2020 of the Swiss Post**⁷⁷⁶ aims at making the organization a “discoverer of innovations”. It encourages the evaluation of potential suppliers according to a wide range of criteria which include quality, price, product/performance, risks, potential for innovation and performance, ecological aspects and opportunities for electronic communication.⁷⁷⁷

Despite the absence of a strategic framework, innovation procurement is promoted through a number of initiatives that could support its use among public procurers. In particular, it is worth mentioning the framework related to green public procurement (GPP) and sustainable public procurement (SPP). The **Sustainable Development Strategy 2016-2019**⁷⁷⁸ specifies that in the public procurement of goods (products, services, construction) the Confederation should satisfy high economic, environmental and social requirements, by purchasing products and constructing buildings that are economical, environmentally compatible and healthy and are produced or built by means that are as socially responsible as possible. With regard to SPP, the Federal Department of Finance FDF of the Swiss Federal Procurement Commission FPC has published in 2015 the **Recommendations on sustainable procurement** practices for the Confederation’s purchasing units, *which provide guidance on how to address ecological and social aspects in a procurement process, without losing sight of the objective of economic efficiency*.⁷⁷⁹

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Switzerland does not have a dedicated action plan on innovation procurement.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In Switzerland there is no spending target for innovation procurement.

Indicator 7 – Monitoring system

Total score	0%	European Average	13%
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Switzerland does not have a structured system for measuring innovation procurement expenditure and evaluating the impacts of completed innovation procurements. However, there is a basis to establish a monitoring system for innovation procurement in the future because a monitoring system of public procurement is in place. In 2013 a national level scheme to monitor the sustainability of public procurement was launched.

Indicator 8 – Incentives

Total score	0%	European Average	22%
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Switzerland does not have a structured incentive system – financial or personal incentives - to encourage public procurers to undertake more innovation procurement.

⁷⁷⁶ Swiss Post, a public Company owned by the Swiss Confederation, is the national postal service of the country.

⁷⁷⁷ <https://www.post.ch/fr/entreprises/index-thematique/organisation-des-achats/politique-des-achats?query=achat+public>

⁷⁷⁸ <https://www.are.admin.ch/are/en/home/media-and-publications/publications/sustainable-development/strategie-nachhaltige-entwicklung-2016--2019.html>

⁷⁷⁹ https://www.bkb.admin.ch/dam/bkb/de/dokumente/Oeffentliches_Beschaffungswesen/Nachhaltige_Beschaffung/nachhaltige_beschaffung_e.pdf.download.pdf/Recommendations%20for%20sustainable%20Procurement.pdf

Indicator 9 – Capacity building and assistance measures

<i>Total score</i>	0%	<i>European Average</i>	24%
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Switzerland does not implement capacity building and assistance activities in the field of innovation procurement.

Switzerland is currently planning to set up a national platform for sustainable public procurement. The aim of this platform is to promote sustainable public procurement and ensure that information is shared between the Confederation, the cantons and the municipalities.

Indicator 10 – Innovation friendly public procurement market

<i>Total score</i>	n/a ⁷⁸⁰	<i>European Average</i>	44%
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Information to populate this indicator is partially missing, except for the following sub-indicators:

- IPR default regime:** The score for this sub-indicator is 75% because the Swiss public procurement law does not define a default allocation of IPR rights between procurers and suppliers but the 2010 Swiss general conditions of the federal government for research contracts⁷⁸¹ (also applicable to R&D procurement contracts) defines that IPR ownership rights remain with the inventor of the idea. Derogation from the default scenario is possible if explicitly specified in the procurement contract, but the general conditions warn procurers for the additional costs of acquiring exclusive ownership of IPR rights. The general conditions state that all aspects of IPR management (filing, control, sales, usage, method used to valorise the IPRs and payment of IPR related costs) have to be clearly specified in the public procurement contract. It also explains that the public procurer can object to the publication/commercialisation of results by the contractor if there are "overriding public interests" which occur when: the results contain military secrets, the confidentiality of results is essential to maintain order and public safety (to avoid panic movements, etc.), the results undermine national security or binding legal provisions prohibit the publication of results. It is also important that the procurer specifies all IPR provisions in his tender documents in compliance with applicable IPR/copyright law. The Swiss copyright act⁷⁸² determines that the moral rights belongs in an inalienable way to the creator, the economic rights can be assigned by the creator to another person. Therefore, in the case of a commissioned work, like in a public tender, the public procurer does not automatically obtain the right to use the copyright linked to the commissioned work unless the tender documents required economic rights to be allocated to the procurer. Copyright law protects also scientific work, software and database rights.
- Use of variants:** Switzerland has allowed the use of variants in approximately 29% of the procedures. This percentage is well above the European average.
- Preliminary Market Consultations:** Switzerland has used Preliminary Market Consultations in the 21% of the procedures. This percentage is significantly above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 49%, which is significantly above the European average of 23%.

2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS**Investment benchmarking (2018)**

The investment benchmarking contains two parts: the benchmarking of all Swiss investments on public procurements of innovative solutions (PPI) and the benchmarking of Swiss investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

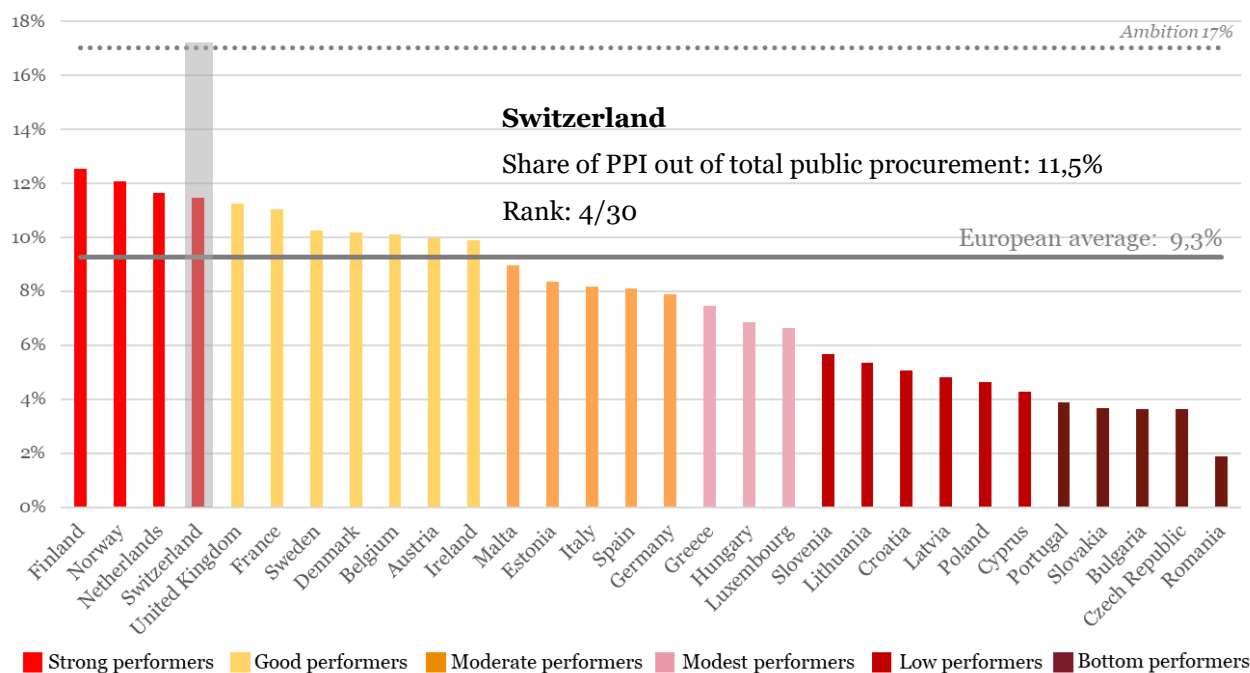
With 11,5% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 8 bn), **Switzerland ranks 4th** in the benchmarking of investments on public procurement of innovative solutions

⁷⁸⁰ Due to lack of data from the EU single market scoreboard for Switzerland, this indicator is currently not taken into account in the ranking for Switzerland. In 2019, the study will attempt to extract information about the different sub-indicators in Switzerland from the quantitative dimension of the study.

⁷⁸¹ A possible improvement for Switzerland could be to include the same IPR default scenario defined in these general conditions for R&D contracts also in the general conditions for other type of public contracts, because nowadays innovation and IPR creation can happen in any contract, not only in R&D contracts. See: https://www.bkb.admin.ch/dam/bkb/fr/dokumente/Hilfsmittel/AGB/AVB_Forschungsauftraege_f.pdf.download.pdf/CG%20de%20la%20Conf%C3%A9d%C3%A9ration%20relatives%20aux%20contrats%20de%20recherche.pdf or https://www.bkb.admin.ch/dam/bkb/fr/dokumente/Hilfsmittel/AGB/AVB_Forschungsauftraege_f.pdf.download.pdf/CG%20de%20la%20Conf%C3%A9d%C3%A9ration%20relatives%20aux%20contrats%20de%20recherche.pdf

⁷⁸² http://www.wipo.int/wipolex/en/text.jsp?file_id=435410

(PPI)⁷⁸³ across Europe. Switzerland falls within the group of **strong performers**, above the European average of 9,3%.⁷⁸⁴ **A moderate increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Swiss public sector.⁷⁸⁵ When taking into account also PPI in the defence sector Switzerland moves down to the 5th position.



The **main factors**⁷⁸⁶ explaining Switzerland’s strong performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments that is spent on the adoption of **transformative innovations** in Switzerland (87%) is slightly above the European average (84%). This may be due to the fact that the largest portion of PPI investments is devoted to the adoption of ‘significantly improved’ solutions (59%) followed by innovative solutions that are ‘new to the market’ (28%). The share of PPI procurement invested in transformative innovations is also considerably higher compared to the share invested in **incremental innovations** (13%), which consist of ‘existing solutions being used in a new way or in a new sector’ or ‘innovative combinations of existing solutions’.

Despite that, Switzerland is not yet at the level of PPI investments that would allow a full-speed modernisation of the public sector. This may be due to **underinvestment in the adoption of innovative ICTs**, which have a high impact on public sector modernisation and economic growth. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

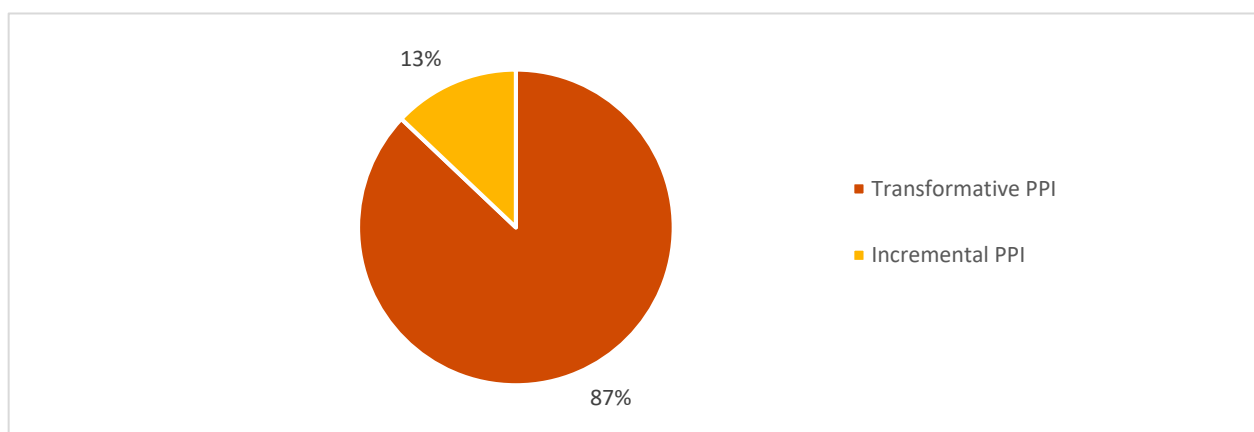
PPI investments by type of innovation

⁷⁸³ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC’s estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁷⁸⁴ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁷⁸⁵ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁷⁸⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated



Investment readiness across different domains of public sector activity

Every domain of public sector activity⁷⁸⁷ in Switzerland purchased innovative solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages**. The difference between the investments made by Swiss procurers shifts by more or less than 3 percentage points (pp) from the European average in 5 out of 11 sectors. The highest divergences from the European average emerge from PPI investments by Swiss procurers in the **‘Construction, housing and community amenities’** and **‘General public services, public administration and economic and financial affairs’** domains: the former in positive (+19 pp), the latter in negative (-18 pp). Also, PPI investments made in the **‘Education, recreation, culture and religion’** sector are considerably above the European average (+7 pp). The share of PPI investments that was contributed by procurers in the **‘Other’** domain was very small (0,2%).

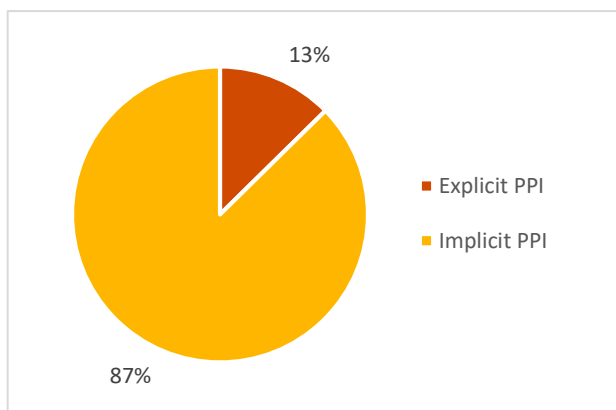
PPI investments by domains of public sector activity

Domain of public sector activity	Switzerland	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	17%	35%	-18
Public transport	20%	10%	+10
Healthcare and social services	9%	21%	-12
Energy	8%	6%	+2
Environment	2%	3%	-1
Construction, housing and community amenities	23%	4%	+19
Education, recreation, culture and religion	12%	5%	+7
Water	2%	4%	-2
Public order, safety and security	7%	8%	-1
Postal services	1%	1%	0
Other	0% (0,2%)	3%	-3
Total PPI investments	100%	100%	-

⁷⁸⁷ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity “Public transport” and not under “Healthcare and social services”.

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

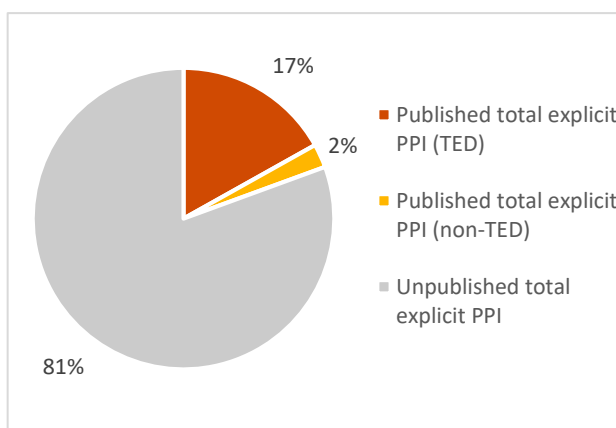


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is considerably lower in Switzerland (13%) compared to the European average (29%). This indicates that Swiss procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) in Switzerland (87%) is above the European average (71%). This indicates that Swiss procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

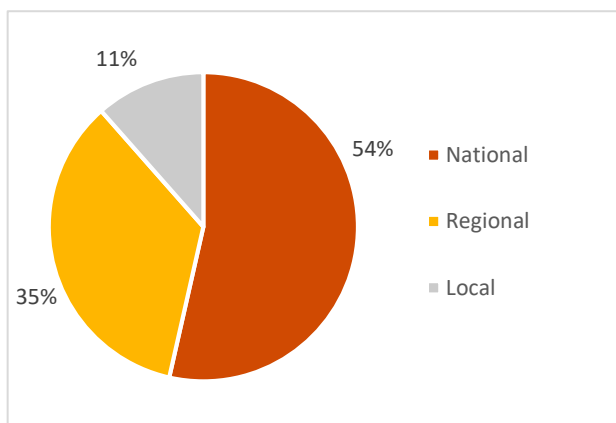


The share of Swiss PPI investments for which call for tenders are published is modest (19%), and below the European average (22%). Both the portion that is **published at European level** in the TED database (17%) and especially the portion that is **published at national level** (2%) are below European average (respectively 18% and 5%). The share of PPI investments for which no calls for tenders are published in TED or at national level is very large (81%).

By not publishing PPI call for tenders widely, **Switzerland is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Swiss and other European innovative suppliers that are not informed about the Swiss PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

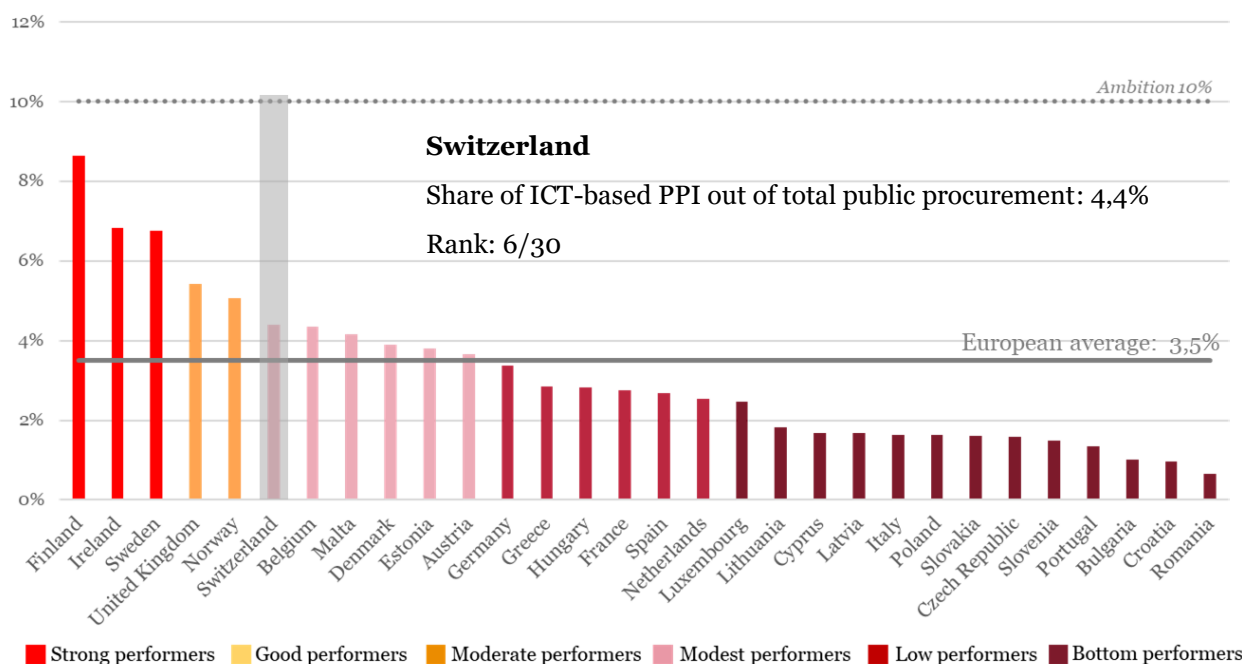


More than half of the total PPI investment in Switzerland is carried out by **large-scale entities at national level** (54%), such as ministries and ICT integrators of governments departments. This is above the European average (47%).

Procurers at regional level account for around one third of the PPI investments (35%), well above the European average (24%). **Procurers at local level** account for the lowest fraction of PPI investments (11%), below the European average (29%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The Swiss public sector shows a **modest level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 0,1 bn or 4,4% of total public procurement invested in innovative ICT-based solutions, **Switzerland ranks 6th** in the benchmarking of ICT-based PPI investments, above the European average (3,5%). In terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions, (just over 38%), Switzerland performs in line with the European average (38%). **A significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable Switzerland to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁷⁸⁸

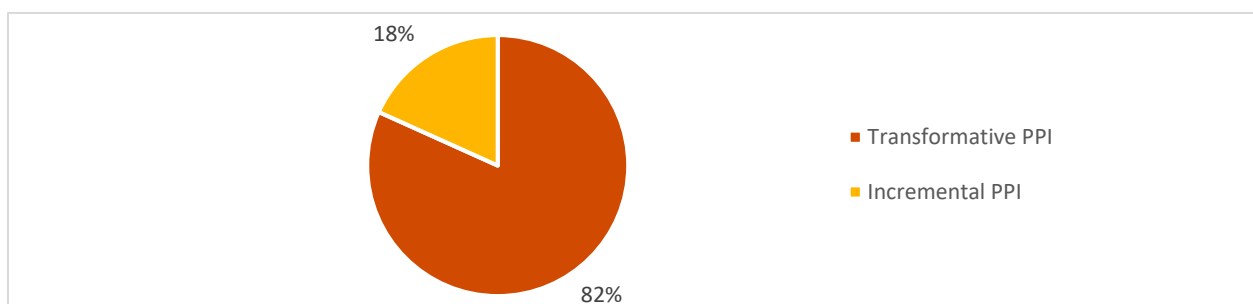


The **main factors**⁷⁸⁹ explaining Switzerland's modest performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in Switzerland (82%) is just above the European average (79%). This may derive from the fact that the largest portion of ICT-based PPI investments represents the adoption of 'significantly improved' solutions (49%), followed by innovative solutions that are 'new to the market' (33%). The share invested in transformative innovations is also considerably higher than the share invested in **incremental ICT-based innovation**⁷⁹⁰ (18%). However, as the total ICT-based-PPI investment level in the country is still modest, a significant increase in the adoption of transformative and incremental ICT-based innovations is still needed.

ICT-based PPI by type of innovation (as % of the amount of published explicit ICT-based PPI)



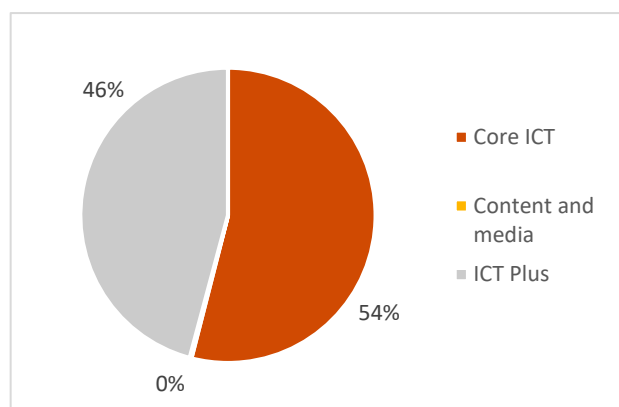
⁷⁸⁸ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁷⁸⁹ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁷⁹⁰ See definitions above

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



Switzerland invested mainly in the adoption of innovations from the so-called **'Core ICT' sub-sector**⁷⁹¹ (54%), in line with the European average (54%).

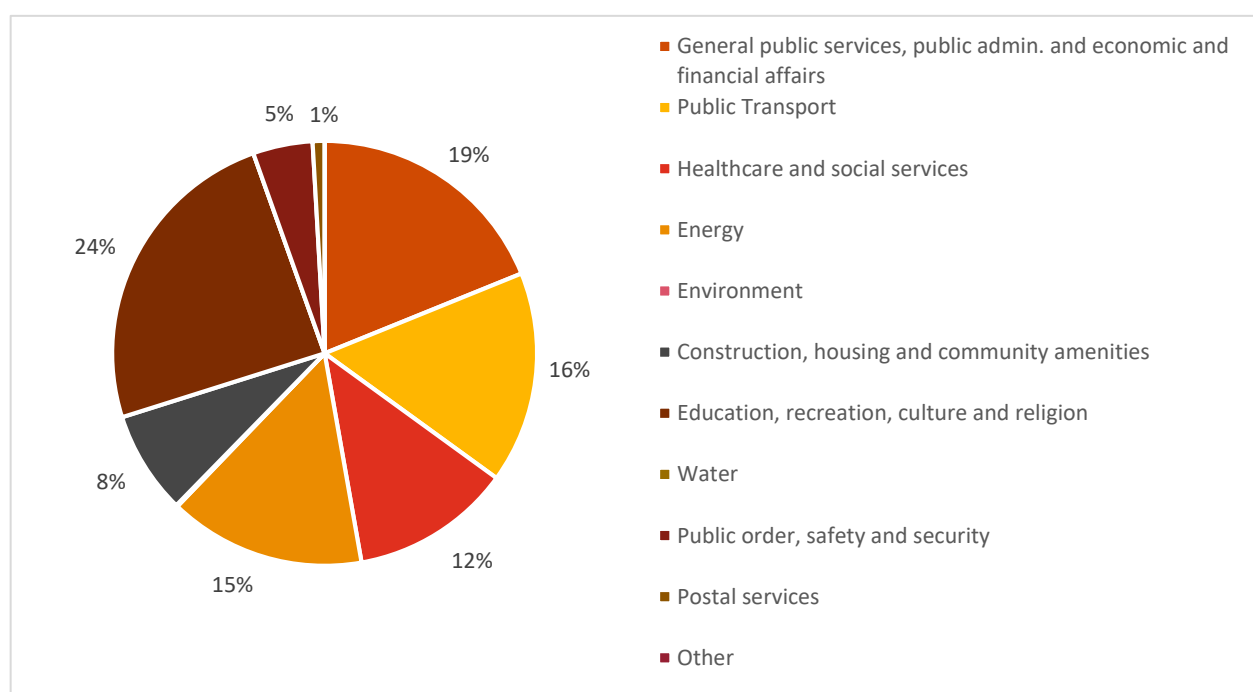
Switzerland invested to a lesser extent in the adoption of innovations from the **'ICT Plus' sub-sector** (46%), slightly above the European average (44%).

Investments in adopting innovations from the **'Content & Media' sub-sector** were marginal (<1%), but not far from the European average (1%).

Investment readiness across different domains of public sector activity

Most domains of public sector activity in Switzerland purchased innovative ICT-based solutions, except for the **'Water'** and **'Other'** sector with zero ICT-based PPI procurements. The highest share of investments comes from procurers that operate in the domain of **'Education, recreation, culture and religion'** (24% against a 9% European average) followed by procurers in the **'General public services, public administration and economic and financial affairs'** domain (19%, above the European average of 16%). Also the share of ICT-based PPI in the **'Public Transport'** (16%) and **'Energy'** (15%) sectors is above the European average (10% and 6% respectively).

ICT-based PPI investments by domains of public sector activity

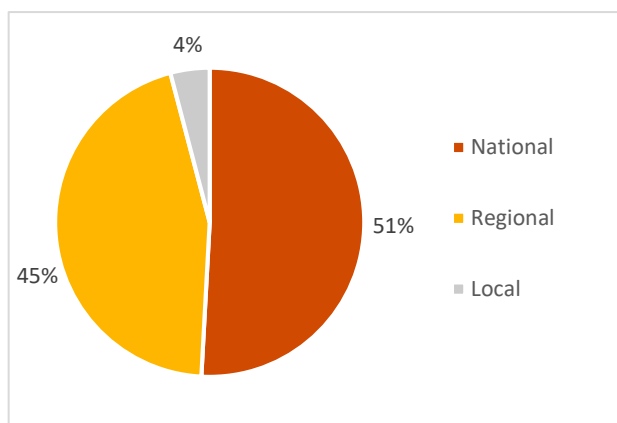


⁷⁹¹ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 51% of ICT-based PPI, which is below the European average (69%).

Procurers at regional level account for the highest share of the ICT-based PPI at sub-national level (45%), more than double the European average (21%).

To the contrary, **local procurers** account for only a modest fraction of ICT-based PPI (4%), which is below the European average (10%).

Netherlands



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

The Dutch public procurement law from July 2016⁷⁹² transposes the EU public procurement directives 2014/23/EU, 2014/24/EU and 2014/25/EU. The Defence and Security Procurement Act (28/01/2013) transposes the Defence directive 2009/81/EC.

Innovation procurement in the Netherlands is supported by an **Action Plan for innovation procurement** (Innovatiegericht Inkopen) since 2013⁷⁹³. Political commitment is ensured by the Dutch **Ministry of Economic Affairs and Climate Policy** and by the **Department for Innovation and Enterprise** within it.

A key actor is **PIANOO**⁷⁹⁴, the Dutch national competence centre for public procurement, which has also a focus on innovation procurement, providing a stimulus to government bodies to elicit innovation from their procurement procedures and acting as network forum and diffusion platform. Such networking and diffusion is very important in the Netherlands because most public procurements are at regional and local levels and independent action plans on innovation procurement also exist at those levels.

Other important key actors are the **Ministry of Interior and Kingdom relations**, responsible for digitalisation, which is developing an **action plan for innovation procurement in the field of ICT** and the Ministry of Infrastructure and the Environment which is promoting the **Dutch Sustainable Procurement Action Plan**⁷⁹⁵.

In the Netherlands regional and urban administrations spend approximately 57%, national authorities 30% and other agencies spend 13%. There are certain cities which are frontrunner in a specific domain in innovation procurement, as for example Eindhoven in lighting/high tech, Rotterdam in transport, Amsterdam in digitalization. Urban authorities are responsible for a wide range of procurement fields, whereas regional authorities for construction of roads, bridges (provinces) or water infrastructure (Union of Dutch waterboards). The main sectors on a national level are defence, security, construction of national roads, bridges, public buildings.⁷⁹⁶

Innovation Procurement Policy Framework Benchmarking (2018)

In the benchmarking of the national innovation procurement policy frameworks across Europe, **the Netherlands is at the 3rd position** in the overall ranking with a **total score of 45,5%**. From the 30 countries analysed, the Netherlands is among the group of good performing countries in implementing a mix of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 45,9%% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in the Netherlands to reach its full 100% potential.

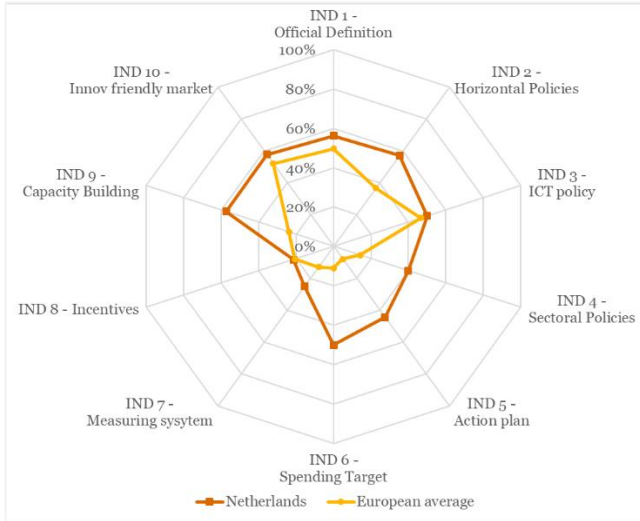
⁷⁹² Law of 22 June 2016 modifying Aanbestedingswet 2012 with respect to the implementation of public procurement directives 2014/23/EU, 2014/24/EU en 2014/25/EU, <https://zoek.officielebekendmakingen.nl/stb-2016-241.html>

⁷⁹³ <https://www.pianoo.nl/document/14291/plan-van-aanpak-programma-inkoop-innovatie-urgent>

⁷⁹⁴ <https://www.pianoo.nl/> - Professional and Innovative Tendering, Network for Government Contracting Authorities (PIANOO)

⁷⁹⁵ <https://www.pianoo.nl/document/11858/action-plan-for-responsible-and-sustainable-procurement-by-governments-2015-2020>

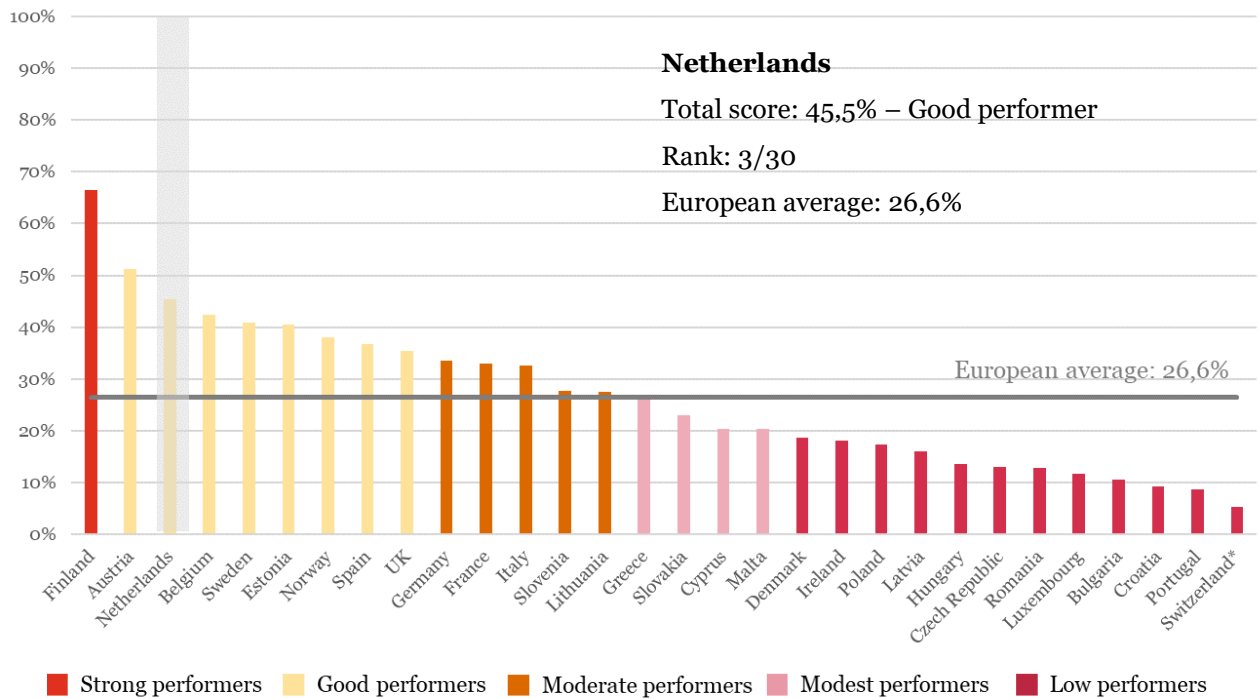
⁷⁹⁶ <https://www.pianoo.nl/document/13169/inkoopvolume-van-nederlandse-overheid>



Strengths: The Netherlands has structural capacity building and assistance measures, embedded within an action plan for innovation procurement.

Weaknesses: Timeline and resources allocated to the action plan are unclear, lack of endorsement of innovation procurement as strategic priority in a number of sectors. Monitoring system is not structurally applied to all procurements in the country yet, default IPR regime in general terms and conditions for government contracts hinders innovation.

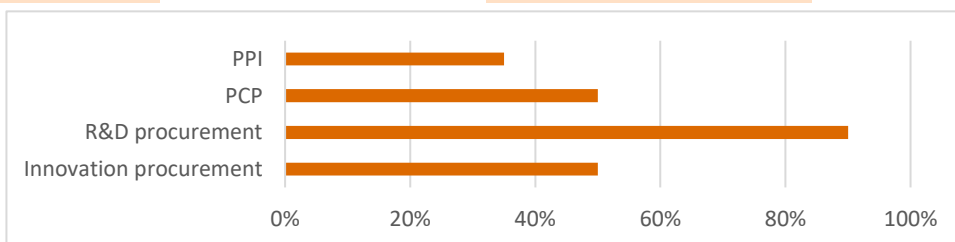
Overall ranking



Overview per indicator

Indicator 1 – Official definition

Total score: 56% European Average: 50%



In the Dutch procurement legal framework there is a legal definition of innovation in the context of public procurement, which is not completely in line with the EU definition, and a legal definition of R&D in the context of public procurement, which is in line with the EU definition but only available in the defence procurement Act, but there are no legal definitions for innovation procurement, R&D procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI). Innovation procurement and PCP procurement are defined in the National Action Plan for Innovation Procurement. For PPI there is no official definition in the legal framework or guidance docs, but the legal framework does provide the legal basis for all procurers in the country to implement PPI. Therefore the total score of this indicator is 56%.

The Dutch national legislation does not provide a definition of innovation procurement. However, since July 2016, article 1.1 of the Public Procurement Law⁷⁹² defines **innovation** as “*the application of a new or significantly improved product, a new or significantly improved service or a new or significantly improved process*”. This definition transposes only the first part of the definition of innovation in the EU public procurement directives but not the last part which extends the scope beyond products, services or processes also to new marketing or organisational methods, workplace organisation or external relations. It is applicable to all public procurers in the country but not fully in line with the provisions in the EU public procurement directives. Guidelines to the Dutch public procurement law⁷⁹⁷ repeat that innovation is the application of a new or significantly improved product, service or process and add that these types of (product, service or process) innovation can happen for example in marketing or organisational methods, enterprise management or workplace organisation. This still leaves a difference with the definition of innovation in the EU public procurement directives, because for example a marketing innovation that is not a product, service or process innovation is not considered an innovation.

At the same time a definition of **innovation procurement** is provided in the guidance document from the Dutch national competence centre for innovation procurement, i.e. PIANOo, and from the National Action Plan for Innovation Procurement. The definition is applicable to all public procurers in the country but is also based on the definition of innovation in Dutch public procurement law which is not fully in line with the EU directives. In particular, PIANOo guidance clarifies the key aim of innovation procurement (innovatiegericht inkopen) as “Public bodies procure and develop innovative solutions that enhance the quality and the efficiency of the public service. It distinguishes two types of innovation procurement: (1) the public sector/procurement actively calls for innovative solutions by challenging industry to deliver an innovative solution for its problem or (2) the public sector/procurement does not actively call for innovative solutions but offers room for industry to offer an innovative solution. It clarifies also the difference with innovative procurement (innovatief inkopen) as follows: Innovation procurement is driven by the “result”, because innovation is being procured (and this can also be done with simple standard public procurement procedures). Innovative procurement is driven by the “process”, because it is about implementing the procurement process in an improved way without necessarily procuring any innovation (e.g. moving from paper based to electronic procurement processes). This definition of innovation procurement is based on the formal letter and report the minister of economic affairs and climate policy presented to parliament in 2009 and 2013, and the policy documents of the ministry of economic affairs and climate policy, responsible for the legal framework on procurement and the policy on public procurement of innovation. None of these documents specify however what is meant by an innovative solution in their definition of innovation procurement. Although without a legal definition of innovation procurement, the Country has a definition embedded in a national guideline which is applicable to all public procurers in the country but is not fully in line with the EU official definition. Therefore, the total score for the sub-indicator innovation procurement is 50%.

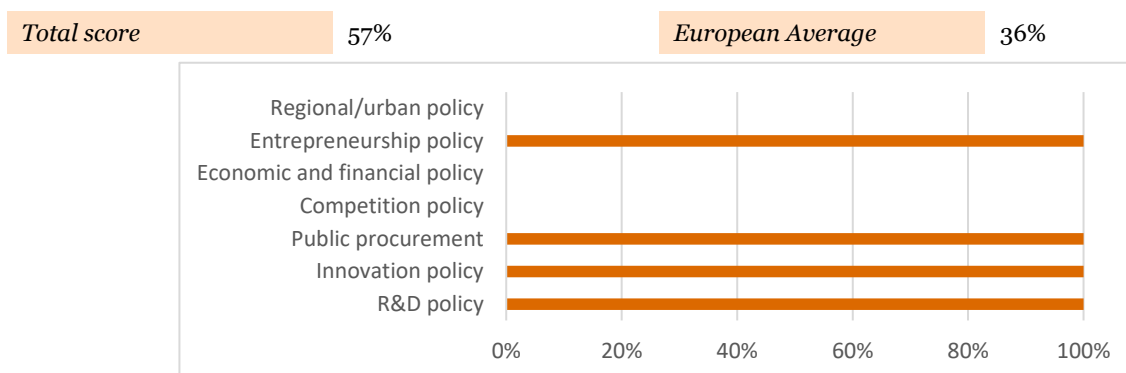
With regard to the definition of **R&D procurement**, article 1(1) of the Defence and Security Procurement Act provides a definition of R&D coherent with the EU legislation but only applicable in the defence sector. R&D is defined as “*all activities involving fundamental research, applied research and experimental development, where experimental development may include the establishment of technological demonstration models, including means of demonstrating the performance of a new concept or new technology in a relevant or representative environment*”. The definition is coherent with the EU definition but not applicable to all public procurers. For non-defence procurers, the national legislation identifies R&D only through the CPV codes for fundamental research, applied research and experimental development. Therefore, the total score for this sub-indicator is 90%.

In national legislation there is no **PCP definition**, but article 2.24(g) of the Public Procurement Act provides the legal basis to implement PCP. The national guidance provides a definition of PCP applicable to all public procurers in the country, but it is not fully in line with the EU definition (Dutch PCP definition does not recognise that PCP can include the purchase of non-commercial volumes of innovative solutions). Therefore the score of the sub-indicator PCP is 50%.

With respect to **PPI**, a definition is not available in the legal framework, and neither present in any policy document or guideline. However, the Dutch public procurement law (2016) enables procurers to implement PPI by allowing procurers to award contracts and monitor contract performance not only based on price but also based on innovation criteria. In particular, article 2.3.3.3 states that “*contracting authorities may impose special conditions on the performance of a public contract, provided that such conditions are related to the subject-matter of the contract and are stated in the contract notice or the tender documents. The conditions under which the public contract is executed may relate to economic, innovation-related, work-related, social or environmental considerations*”. Therefore, no definition of PPI exists, but there is a legal basis which is applicable to all public procurers in the country and in line with the provisions of the EU public procurement directives, resulting in a total score for the PPI sub-indicator of 35%.

Indicator 2 – Horizontal policies

⁷⁹⁷ <https://europadecentraal.nl/wp-content/uploads/2015/12/Memorie-van-toelichting-Aanbestedingswet.pdf>



In the Netherlands, innovation procurement is politically embedded and treated with strategic importance in four horizontal policies: entrepreneurship, public procurement, innovation and R&D policies. The total score for this indicator is 57%.

Historically, the push to include innovation procurement in national policy objectives started in 1997 with the national **policy for R&D, innovation and entrepreneurship** (public sector as lead customer for innovation). The most recent high-level political commitment for innovation procurement is found in the 2017-2021 Dutch government agreement⁷⁹⁸ which commits that *"the government will make better use of its purchasing power to buy more innovatively"*.

Under entrepreneurship policy, the **"SME Cooperation Agenda 2016-2017"** (*MKB Samenwerkingsagenda 2016-2017*)⁷⁹⁹ of the Ministry of Economic Affairs envisages local authorities support for SMEs and Start-ups for participating in innovation procurements (see also "Start-up Delta": agenda start-up participation in public procurement)⁸⁰⁰.

Furthermore, the Ministry of Infrastructure and Water Management *Rijkswaterstaat* introduced its own Strategy for Innovation-oriented purchasing (*Beleidskader innovatiegericht inkopen*), which aims at supporting its programmes and projects with the introduction of innovation in the procurement processes by better engaging with market actors, removing existing barriers, and thus contributing to the overall target for innovation procurement.

In the field of **public procurement** policy, innovation is a secondary objective in Dutch public procurement legislation (article 2.3.3.3 aanbestedingswet 2016) and innovation procurement is encouraged via the national action plan for innovation procurement.

Indicator 3 – ICT policies

Total score	50%	European Average	47%
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The **2016 Dutch digital agenda for the Netherlands** specifically recognises the key role of the public sector to drive forward digitisation through its role as buyer for innovative solutions. *"Given the broad impact of digitisation, the role of the government extends further than the simple reinforcement of preconditions and safeguarding public interests. The government is also an actor in this transition, for example, as a buyer of innovative ICT products and services and as a digital service provider for citizens and businesses."* A broad analysis across different sectors aims to implement innovative solutions through public procurement across all top sectors where the government is a key customer.

In addition, the ministry of interior and kingdom relations, responsible for digitalisation, is currently developing a specific **action plan for innovation & innovation procurement in the field of ICT**. This action plan (*innovatiepact*) is based on a report of a committee of the ministry of interior and kingdom relations and the ministry of economic affairs and climate policy on future digitalization⁸⁰¹. The national government will spend 200 million euros on realizing a digital infrastructure per year⁸⁰². According to the RIO Report 2015, a multiple sector action agenda has been set also in the field of nano-technology and bio-based economy.

Indicator 4 – Sectorial policies

Total score	40%	European Average	14%
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⁷⁹⁸ Regeerakkoord 2017-2021 "Vertrouwen in de toekomst"

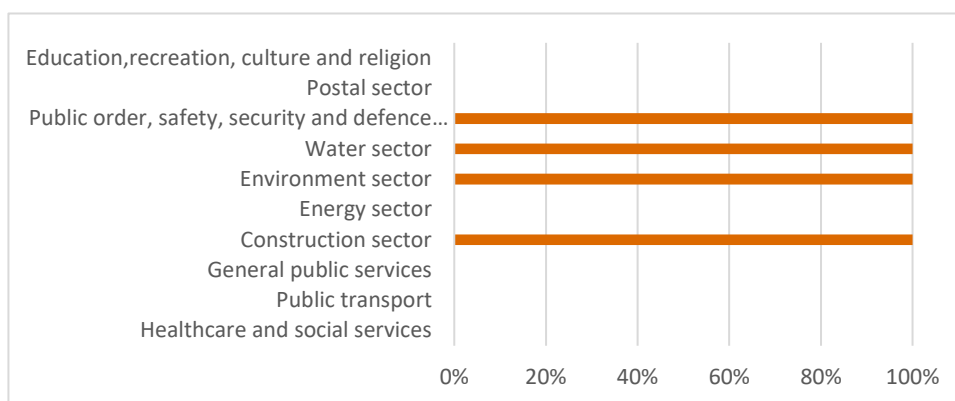
⁷⁹⁹ <https://www.rijksoverheid.nl/regering/documenten/publicaties/2017/10/10/regeerakkoord-2017-vertrouwen-in-de-toekomst>

⁸⁰⁰ <https://www.rijksoverheid.nl/documenten/rapporten/2016/06/08/mkb-samenwerkingsagenda-2016-2017>

⁸⁰¹ https://www.startupdelta.org/wp-content/uploads/2017/06/StartupDelta_Actionplan_01.pdf

⁸⁰² <https://www.rijksoverheid.nl/documenten/rapporten/2017/04/18/rapport-van-de-studiegroep-informatiesamenleving-en-overheid-maak-waar>

⁸⁰² https://www.digicommissaris.nl/image/2016/12/22/digiprogramma_2017-989810276.pdf



In the Netherlands, innovation procurement is recognised as a strategic priority in policy frameworks and action plans in four sectorial policies. The total score for this indicator is 40%.

In the field of public order, safety security and defence, the Ministry of **justice and security** has adopted in 2018 its step-by-step plan for innovation procurement⁸⁰³. The Ministry of **defence** has adopted a strategy both for pre-commercial procurement and public procurement of innovative solutions⁸⁰⁴.

As concerns the environment sector, the **Dutch Sustainable Procurement Action Plan**⁸⁰⁵, has been promoted by the Ministry of Economic Affairs and the Ministry of Infrastructure and Water Management since 2015 and has an explicit focus on encouraging more innovation procurement.

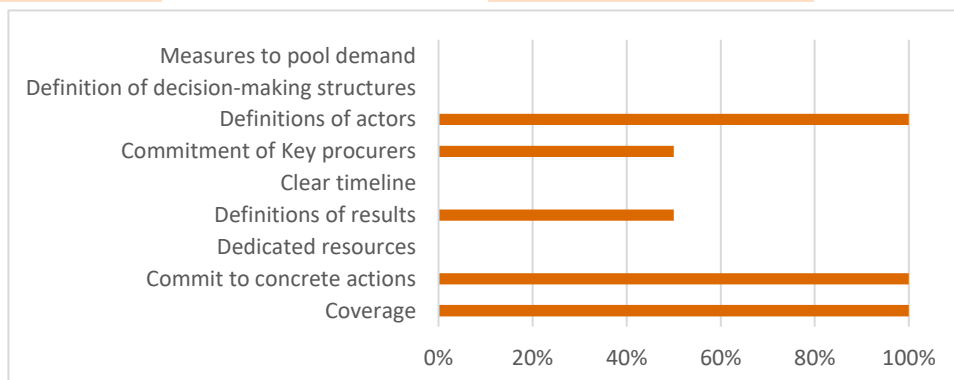
In the **water sector**, the Union of Dutch Waterboards has positioned innovation procurement clearly as an objective in their procurement strategy since 2014⁸⁰⁶. Innovation procurement by water sector procurers is also explicitly encouraged in the Ministry of Infrastructure and Water Management's High-Water Protection Programme⁸¹⁵.

The Ministries of Infrastructure and Water Management and the Ministry of Interior and Kingdom Relations have adopted in 2017 a **Construction Agenda** which encourages public procurers in the construction sector to actively use innovation procurement. This Construction Agenda was translated by public procurers in the construction sector into a market vision and innovation procurement strategy⁸⁰⁷.

Rijkswaterstaat, the part of the Ministry of Infrastructure and Water Management that is responsible for the practical execution of **public works and water management**, has developed a specific policy framework for innovation procurement and has added innovation procurement to the innovation agenda⁸⁰⁸ for the modernization of national roads, waterways, construction works.⁸⁰⁹ There are also some actions plans in certain regions, for example the Waterboard Limburg has adopted innovation procurement in its procurement action plan.⁸¹⁰

Indicator 5 – Action plan

Total score 44% European Average 8%



⁸⁰³ <https://www.pianoo.nl/document/15181/stappenplan-innovatiegericht-inkopen-ministerie-van-veiligheid-justitie>

⁸⁰⁴ <https://www.defensie.nl/onderwerpen/innovatie/front> and <https://www.defensie.nl/onderwerpen/innovatie>

⁸⁰⁵ <https://www.pianoo.nl/document/11858/action-plan-for-responsible-and-sustainable-procurement-by-governments-2015-2020>

⁸⁰⁶ <https://www.uvw.nl/wp-content/uploads/2014/05/De-waterschappen-als-publieke-opdrachtgever.pdf>

<https://www.uvw.nl/wp-content/uploads/2018/01/De-waterschapsmarkt-van-de-toekomst-visiedocument.pdf>

⁸⁰⁷ <http://www.debouwagenda.com/PageByID.aspx?sectionID=151687&contentPageID=913677> and <https://www.marktvisie.nu/wp-content/uploads/2016/12/De-Marktvisie-1.pdf>

⁸⁰⁸ https://staticresources.rijkswaterstaat.nl/binaries/Innovatieagenda_herijking_2016_tcm21-100461.pdf

⁸⁰⁹ https://staticresources.rijkswaterstaat.nl/binaries/Beleidskader%20innovatiegericht%20inkopen_tcm174-362191_tcm21-14351.pdf

⁸¹⁰ <https://www.wbl.nl/Documents/Inkoop%20en%20Aanbesteding/Inkoop-%20en%20aanbestedingsbeleid.pdf>

The Netherlands has a national **Action Plan for innovation procurement since 2013**⁸¹¹. The action plan commits to concrete actions and objectives. This includes setting up new innovation procurement projects, increasing the use of innovation procurement instruments, activating also local and regional authorities, water and health procurers to use more innovation procurement, developing financial incentives and a monitoring system to report back on innovation procurement implementation progress to the Dutch parliament. The development of the action plan is supported by the formal engagement of some key contracting authorities to the action plan (national government, regional and local authorities, water and health care procurers, other public procurers e.g. energy utilities are not involved) but only one procurer (Rijkswaterstaat) formally committed to achieve the 2,5% target. The key actor for the implementation of the Action Plan is **PIANOo**⁸¹², the **Competence Centre for Public Procurement**, including innovation procurement. In this context, PIANOo sets once a year an agenda which plans detailed objectives and initiatives.

The action plan does not have specific measures to pool demand, does not defined a specific decision-making structure does not have a clear timeline (milestones defined in the action plan do not go beyond 2015) nor dedicated resources. There is an overall definition of expected results, but this is not clearly broken down per actor and there is formal commitment from some key procurers but not from public procurers in all sectors, both of them therefore not fully enabling mainstreaming innovation procurement widely across the country. Sub-indicators "definition of results" and "commitment of key procurers" score therefore 50%. Therefore the total score of the indicator is 44%.

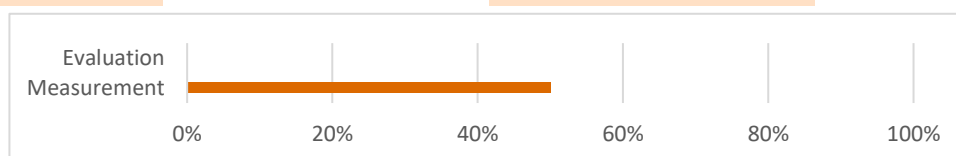
Indicator 6 – Spending target

Total score	50%	European Average	11%
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The Netherlands is one of the few European countries with a spending target for innovation procurement. The Dutch central Government sets a spending target for innovation procurement (defined according to the more restrictive Dutch definition) at **2,5% of total public procurement spending of the central government**⁸¹³. This target is applicable to all types of innovation procurement (R&D procurement, PCP, PPI) but only to central bodies and it has been set as a non-compulsory goal although some public procurers (e.g. Rijkswaterstaat) have taken the commitment for themselves to reach the 2,5% target. In addition to this, there are no separate targets for R&D procurements, PPI and PCP. Therefore, the total score of the indicator 50%.

Indicator 7 – Monitoring system

Total score	25%	European Average	13%
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Measuring: In 2008, a motion by the Dutch Parliament set a performance indicator on “the number of innovation procurement tenders organized by the central government”. Therefore the Netherlands conceived a method for measuring innovation procurement expenditure, which was applied between 2010-2013 to all types of innovation procurements (both R&D procurement, incl. PCP and PPI). Nonetheless, the method was not systematically and widely applied across the whole country (e.g. only for certain sectors or certain levels of government). The 2013 Dutch action plan on innovation procurement contains an action to develop a monitoring system to report back on the progress of reaching the 2,5% target to the Dutch parliament.

2010-2013 approach:

The measurement method for the performance indicator set by the Dutch parliament in 2008 focused on the process (are public procurers using techniques in their procurement procedure to facilitate more innovation) rather than the procurement outcome and it was used to evaluate a sample of Dutch tenders from the TED database (above the EU threshold). Tenders were evaluated by a written survey, follow-up interviews and desk research.

13 elements were used to evaluate the innovation procurements, and to each of them was attributed a weight:

1. Looking for an innovative solution
2. Market consultation before specification
3. Competitive dialogue
4. Design contest
5. Variants
6. Functional specification
7. Innovation included in award criteria
8. Intellectual property right to the contractor
9. Risk sharing in the contract
10. Incentives in (long term) contract for efficiency and effectiveness

⁸¹¹ <https://www.piano.nl/document/14291/plan-van-aanpak-programma-inkoop-innovatie-urgent>

⁸¹² <https://www.piano.nl/>

⁸¹³ Brief aan de Tweede Kamer, Naar de top; het bedrijfslevenbeleid in actie(s), 13/09/2011

11. Allowing for innovative solutions
12. Tender board
13. Using the potential of tender procedures to enhance innovation

The innovation procurement level was finally established and defined by categorising tenders in different categories according to their level of innovativeness: general procurement, with limited or few signals of innovation, and innovation procurements, with clear or strong signals of innovation.

In 2018 efforts have started to put a new voluntary measurement initiative in place, but it is still at its early stage. The new initiative is based on a tool in which public procurers can fill in on voluntary basis a number of questions to report to what extent completed public procurements were innovation procurements⁸¹⁴.

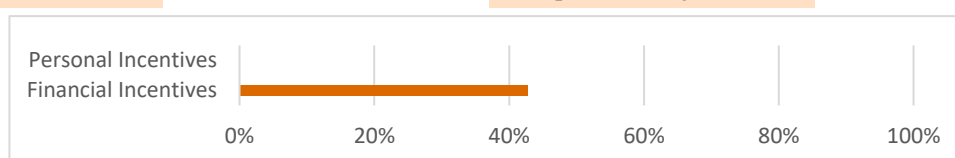
Also in this case the method applies to all types of innovation procurements (both R&D procurement, incl. PCP and PPI) but it is not systematically and widely applicable across the whole country (e.g. only for central authorities). Therefore the total score of this sub-indicator measurement system is 50%.

Evaluation: In 2018 there was still no system for evaluating the impacts of completed innovation procurements in the Netherlands. Efforts have started to develop for the future a system for evaluating the impacts of completed innovation procurements, however this is not operational yet. Therefore the score for this sub-indicator evaluation system is 0%.

The total score of the indicator is 25%. The performance is negatively affected by the absence of an evaluation system in place.

Indicator 8 – Incentives

Total score 21% **European Average** 22%



In the Netherlands there is no dedicated national or regional **financial incentives** programme to which all public procurers can apply to obtain co-financing to undertake more innovation procurements. There are some financial incentives for public procurers in the sectorial High Water Protection programme, but they are not conceived for combination with EU co-financing, are not available to all types of public procurers in the country (only to those in the high water field) and are not designed to incentivize large scale implementation of innovation procurement. Therefore, the total score of this sub-indicator financial incentives is 43%.

In the High-Water Protection programme⁸¹⁵ the ministry of infrastructure and water management explicitly foresees financial incentives to stimulate public procurers in the water sector to implement innovation procurement: the incentives offer 90% co-financing for regular procurements and 100% co-financing for procurements focusing on R&D.

Finally, the country does not have **personal incentives** to encourage procurers to undertake more innovation procurements. The score for sub-indicator personal incentives is therefore 0%.

The total score for the indicator incentives is 21%.

Indicator 9 – Capacity building and assistance measures

Total score 57% **European Average** 24%

	Existence	Connection with relevant international /EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website	✓		✓	✓	✓	✓	83%
Good practices	✓		✓		✓		50%
Trainings/workshops	✓	✓	✓		✓		67%
Handbooks/guidelines	✓		✓	✓	✓	✓	83%
Assistance to public procurers	✓	✓	✓		✓		67%
Template tender documents							0%

⁸¹⁵ The high water protection programme: <http://www.hoogwaterbeschermingsprogramma.nl/Documenten+openbaar/Documenten+-+Financieringsregeling/HandlerDownloadFiles.ashx?idnv=681253> and <http://www.toconnect.nl/en/a-few-examples/high-water-protection-programme> and <http://www.hoogwaterbeschermingsprogramma.nl/home/default.aspx>

Coordination / pre-approval							0%
Networking of procurers	✓	✓	✓	✓	✓		83%
One-stop-shop/competence centre	✓	✓	✓	✓	✓		83%

The national **Competence Centre for Public Procurement, PIANOo** carries out most of the measures generally adopted to build up public procurers' know-how on innovation procurement, with the exception of the provision of templates and of activities to coordinate purchasing for several public procurers.

PIANOo is funded by the Ministry of Economic Affairs and Climate Policy and provides awareness raising and capacity building activities to give a stimulus to public procurers to elicit innovation from their procurement procedures.

PIANOo brings together experts within the "Innovation Procurement" expert network, combines knowledge and experience, gives advice to procurers and suppliers free of charge, collects and disseminates **case examples** on a **central website**⁸¹⁶. Published cases lack examples of Dutch PCPs as well as recent EU funded innovation procurement projects and good practice examples. The score for sub-indicator good practices is 67%.

The website lacks also a central place that gives an overview of all the recent EU initiatives supporting innovation procurement (e.g. EU funding opportunities for innovation procurements (e.g. H2020, ESIF, EIB), eafip, procure2innovative network of competence centres, EU guidance on innovation procurement, European initiative on benchmarking national policy frameworks for innovation procurement across Europe). This explains the score for the sub-indicator central website of 83%.

Advice is however limited to general information to public procurers to prepare and implement specific innovation procurements. PIANOo offers generic helpdesk (Q&A) type support⁸¹⁷ but does not offer individual case-by-case **assistance** to procurers to prepare and/or implement concrete tender documents for a specific innovation procurement. As there is therefore no assistance to mainstream all types of innovation procurement across the whole country, the score for sub-indicator assistance is 67%.

PIANOo regularly organises workshops and events, however mostly with the purpose of informing Dutch procurers about new aspects concerning innovation procurement, not so much with the intention to network Dutch procurers in order to identify common needs and foster collaboration between different procurers on innovation procurement to create scale-up effects. Under the impulse of ZENIT, the region North Rhine-Westphalia signed a cooperation agreement with the Netherlands and the Flemish region (The Netherlands) to network public procurers of their different countries to stimulate cross-border innovation procurements. As these **networking activities** are not implemented to achieve large scale effects, the score on the sub-indicator networking is 83%.

PIANOo uses **manuals**, presentations and articles in professional journals to raise awareness of innovation procurement opportunities. During themed meetings and in a PIANOo online discussion forum, buyers can exchange knowledge and experiences. PIANOo annuals and other Dutch guidelines on the Dutch public procurement law⁸¹⁸ are not clearly and not correctly representing all the differences between different innovation procurement instruments, in particular relating to PCP, SBIR and innovation partnerships these manuals/memorandum are not up-to-date with European toolkit analysis and with EU R&D&I State aid rules⁸¹⁹. The score for sub-indicator handbooks/guidelines is 83%.

PIANOo participates in the EU-funded project "*Procure2Innovate - European network of competence centres for innovation procurement*" to reinforce its activities on innovation procurement support for procurers and to exchange experiences with competence centres in other EU countries.

There are no national **template tender documents** for innovation procurement. There is no national **pre-approval or coordination** for the implementation of innovation procurements. There is also some international **networking of procurers** to foster cross border cooperation on innovation procurements, but networking of procurers is not happening yet with an intensity to create innovation procurement cooperation with large scale impacts.

Therefore the total score for this indicator is 59%.

Indicator 10 – Innovation friendly public procurement market

Total score	53%	European Average	44%
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I - Specific techniques to foster innovation in public procurement

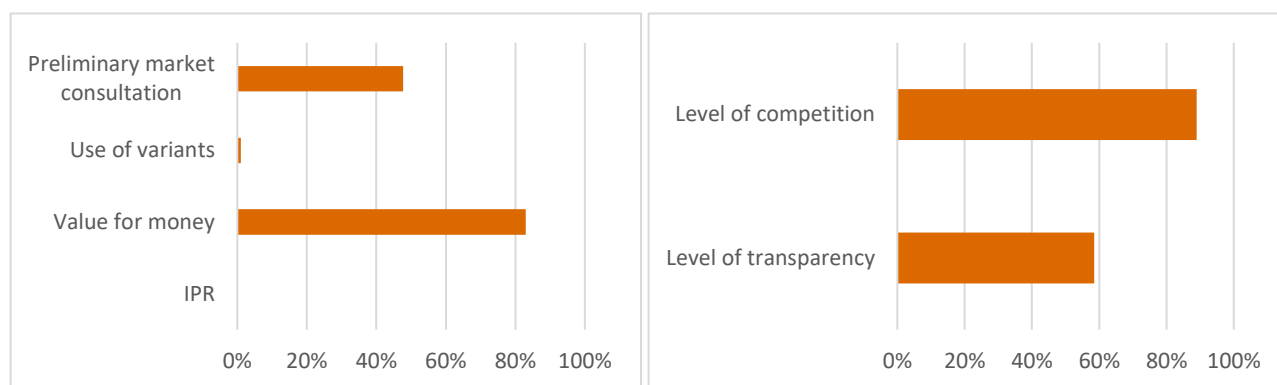
II - Openness of the national public procurement market to innovations from across the EU single market

⁸¹⁶ <http://www.innovatiekoffer.nl/> and <https://www.pianoo.nl/nl/themas/innovatiegericht-inkopen/praktijkvoorbeelden-innovatiegericht-inkopen>

⁸¹⁷ <https://www.pianoo.nl/nl/formulier/140/contactformulier-vragenloket-pianoo>

⁸¹⁸ <https://europadecentraal.nl/wp-content/uploads/2015/12/Memorie-van-toelichting-Aanbestedingswet.pdf>

⁸¹⁹ <http://eafip.eu/toolkit/>



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. It is composed by two sub-indicators measuring:

- I. The use of specific techniques to foster innovation in public procurement in the Netherlands
- II. The openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, the Netherlands shows the following evidence:

- a. **IPR default regime:** The score for this sub-indicator is 0%, which is far below the European average of 38%, because the Dutch law and guidelines on public procurement do not define a default scenario for the distribution of IPR rights between procurers and suppliers but the General Government Terms and Conditions for Public Service Contracts (ARVODI 2008, article 23) define as default scenario that all IPR rights belong to the contracting authority, unless otherwise specified in the procurement contract. The Dutch PIANOo guidelines on innovation procurement also stress the importance of assigning IPR ownership to participating companies for commercialising solutions but highlight also that Dutch procurer are keen on keeping IPR and finally does not recommend a clear strategy with a default approach. The Dutch SBIR contracts specify an IPR agreement that deviates from ARVODI article 23 in the contract, whereby IPR ownership rights are allocated to the participating companies and the contracting authority obtains license free usage rights as well as the right to require participating companies to provide licenses to third parties at fair and reasonable market conditions. As some large public procurers (e.g. Rijkswaterstaat, water sector procurers) have announced to revise their IPR strategy to the default scenario of leaving IPR ownership with contractors for their entire procurement strategy in general, a discussion has started in the Netherlands to revise possibly also the ARVODI default IPR scenario. But so far this has not happened yet so that score for this sub-indicator is still 0%. The Netherlands is the only country that is performing so low on this sub-indicator.
- b. **Use of value for money criteria:** According to the EU single market scoreboard, 83% of the procedures were not awarded on the basis of the lowest price only. This is well above the European average of 42% and reaching also the 80% satisfactory level set out in the EU single market scoreboard. Together with the UK, France and Ireland, the Netherlands is among the top performer countries on widespread usage of value for money award criteria.
- c. **Use of variants:** The country has allowed the use of variants in the 1% of the procedures. This percentage is well below the European average.
- d. **Preliminary Market Consultation:** The country has used Preliminary Market Consultations in the 48 % of the procedures. This percentage is largely above the European average of 9% and the highest among the 30 countries analysed.

Based on this evidence, the score for sub-indicator I is 323%, which is significantly above the European average of 23%. The low performance on adopting a default IPR allocation regime that fosters innovation annuls the positive effects of the widespread usage of value for money criteria but is more than compensated by the high percentage of Preliminary Market Consultations.

With regard to sub-indicator II, the Netherlands shows the following evidence (based on the Single Market Scoreboard):

- e. **Level of competition:** The level of competition of the national public procurement market is 89% which is slightly above the European average 84% but still below the 93% satisfactory level set by the EU single market scoreboard. This result is driven by the fact that both sub-indicators score above European average but below the satisfactory level set by the EU single market scoreboard: the percentage of procurement procedure for which a call for bids was conducted (94%) and the percentage of procurements with more than one bidder (84%).
- f. **Level of transparency:** The level of transparency of the public procurement market is 58% which is above the European average 45% but still below the 66% satisfactory level set by the EU single market scoreboard. The low TED publication rate (2,4) and the percentage of procurements without missing call for bids information (81%) are below European average. The percentage of procurements with published buyer registration numbers (92%) is above European average but still below the 97% satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 74% which is above the European average of 65% but still below the satisfactory level 79% set by the EU single market scoreboard. This is due to the fact that both the level of transparency and competition are above European average but still need further improvement to reach the satisfactory level.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 53% which is above the 44% European average This score is explained mainly by the high use of value for money

criteria and Preliminary Market Consultation in procurement procedures. Both the use of specific techniques to foster innovation in the country and the openness of the Dutch procurement market to innovations from across the EU single market are slightly above the European average but still below the satisfactory level. Indeed, the country has not yet adopted a default IPR regime in public procurement that fosters innovation which annuls the positive effects of widespread use of value for money criteria. In addition, although the national public procurement market shows an above average level of competition and transparency, both are still below the satisfactory level set by the EU single market scoreboard.

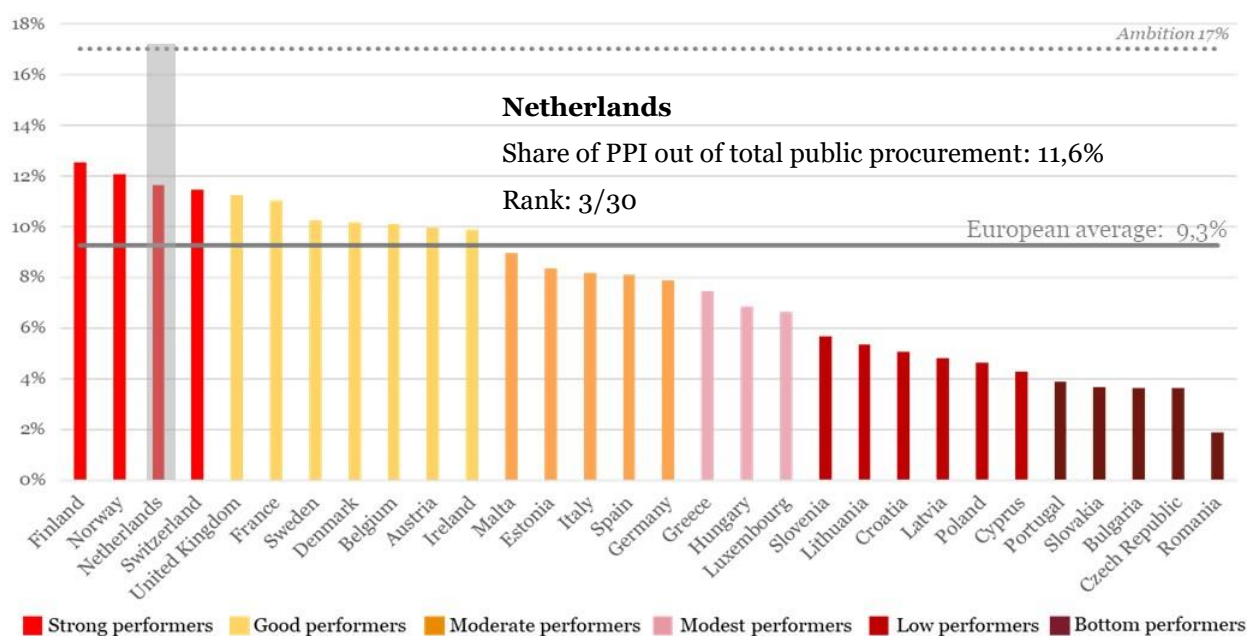
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all Dutch investments on public procurement of innovative solutions (PPI) and the benchmarking of Dutch investments on public procurement of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 11,6% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 18,6 bn), **Netherlands ranks 3rd** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁸²⁰ across Europe. As a result, the country falls within the group of **strong performers**, significantly above the European average of 9,3%.⁸²¹ Nonetheless, to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the Dutch public sector, **an increase of investments in PPI is still needed.**⁸²² When taking into account also PPI investments in the defence sector Netherlands drops to the 7th position.



The **main factors**⁸²³ explaining Netherlands's strong performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **transformative innovations** (91%) is above the European average (84%). This consists both of innovative solutions that are 'new to the market' or 'significantly improved' solutions. The share of PPI procurement invested in transformative innovations is also considerably higher compared to the share invested in **incremental innovations** (9%), which consist of 'existing solutions being used in a new way or in a new sector' or 'innovative combinations of existing solutions'.

⁸²⁰ Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

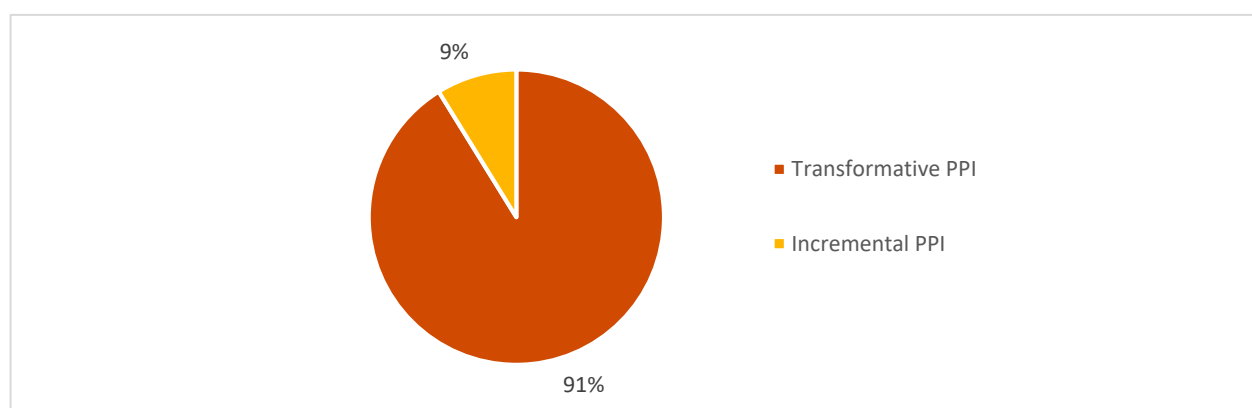
⁸²¹ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

⁸²² It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁸²³ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

Despite that, the Netherlands' total amount of PPI investments is not yet at the level that would allow a full-speed modernisation of the public sector. This may be due to **underinvestment in the adoption of innovative ICTs**, which have a high impact on public sector modernisation and economic growth. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

Nearly every domain of public sector activity⁸²⁴ in the Netherlands purchased innovative solutions, except the 'Postal services' domain which made no PPI investments. The shares of PPI investments made by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages** (in 6 out of 11 sectors). The share of PPI investments made by Dutch procurers in 'General public services, public administration and economic and financial affairs' domain is considerably above the European average (+31 pp). Conversely, the share of PPI investments made by Dutch procurers in 'Healthcare and social services' is significantly below the European average (-18 pp).

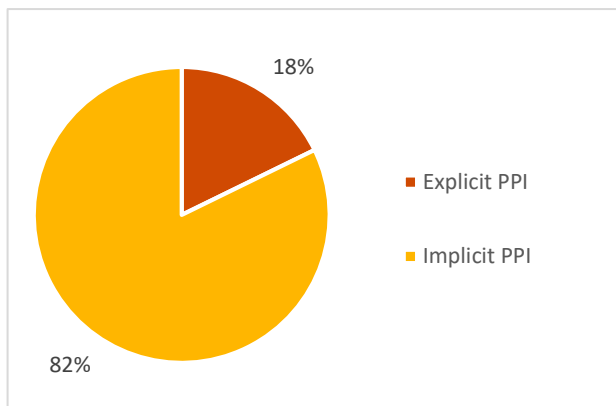
PPI investments by domains of public sector activity

Domain of public sector activity	Netherlands	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	66%	35%	+31
Public transport	4%	10%	-6
Healthcare and social services	3%	21%	-18
Energy	8%	6%	+2
Environment	1%	3%	-2
Construction, housing and community amenities	4%	4%	0
Education, recreation, culture and religion	5%	5%	0
Water	5%	4%	+1
Public order, safety and security	3%	8%	-5
Postal services	0%	1%	-1
Other	0% (0,5%)	3%	-3
Total PPI investments	100%	100%	-

⁸²⁴ The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

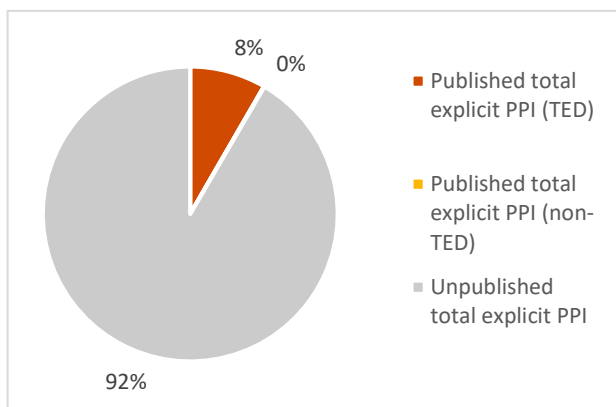


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is significantly lower in the Netherlands (18%) compared to the European average (29%). This indicates that Dutch procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is higher in the Netherlands (82%) compared to the European average (71%). This indicates that Dutch procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

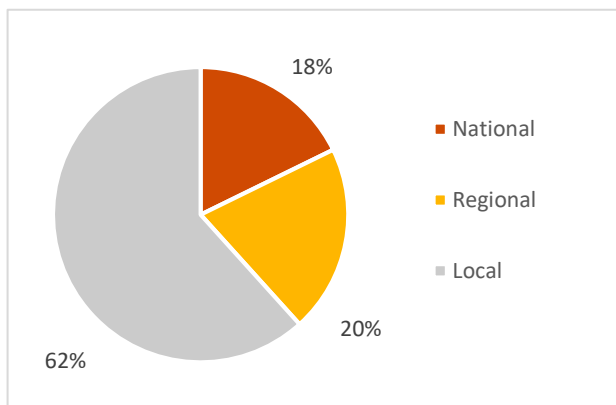


The share of PPI investments for which calls for tenders are published, is small (8%), also compared to the European average (22%). The portion **published at European level** in the TED database (8%) is considerably below the European average of 18%. The portion **published at national level** is zero, which is below the European average (5%). The amount of PPI investments for which no call for tenders is published in TED or at national level is very high.

By not publishing PPI widely, **the Netherlands is missing out on potential innovative solutions** that could speed up public sector modernisation, both from Dutch and other European innovative suppliers that are not informed about the Dutch PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

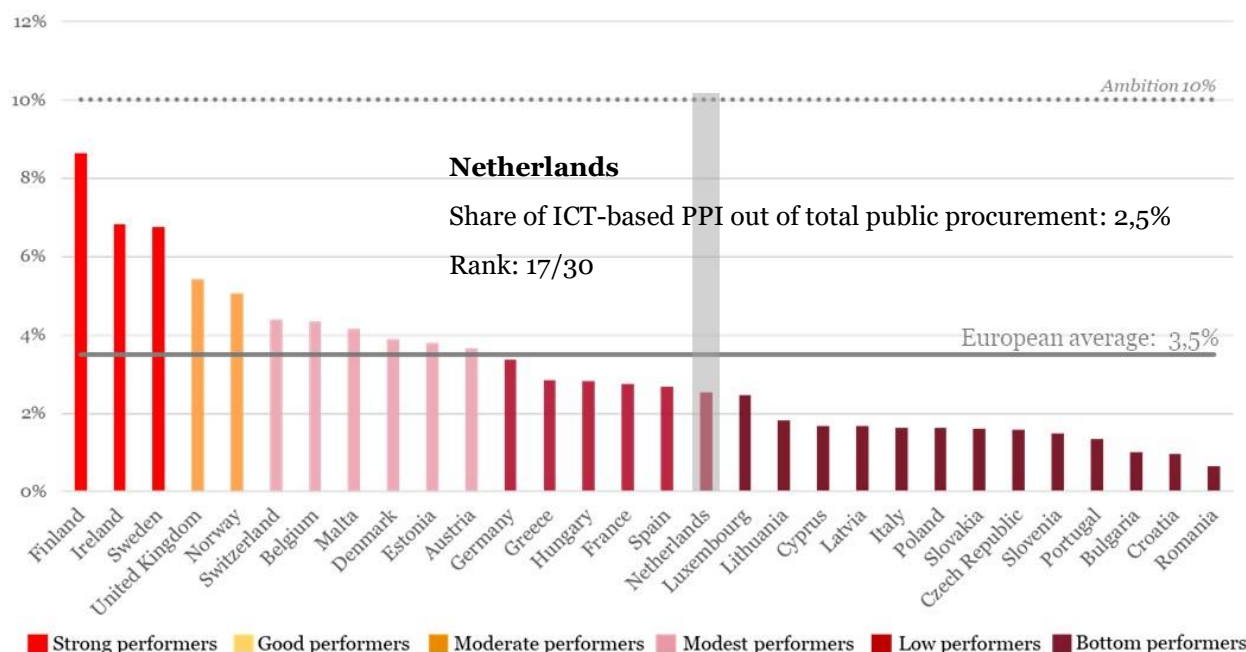


18% of the total PPI investments in the Netherlands are carried out by **large-scale entities at national level**, such as ministries and ICT integrators of governments departments. This is consistently below the European average (47%).

To the contrary, **procurers at local level** account for the highest fraction of PPI investments (62%), well above the European average (29%). **Procurers at regional level** account for 20% of PPI, slightly below the European average (24%).

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI, excl. defence)

In terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment), Netherlands fall within the group of **low performers**. With € 0,1 bn or 2,5% of total public procurement invested in innovative ICT-based solutions, **the Netherlands ranks 17th** in the benchmarking of ICT-based PPI investments, below the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT-based solutions (21,7%), the Netherlands performs below the European average (38%). Thus, **a considerable increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable the Netherlands to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁸²⁵

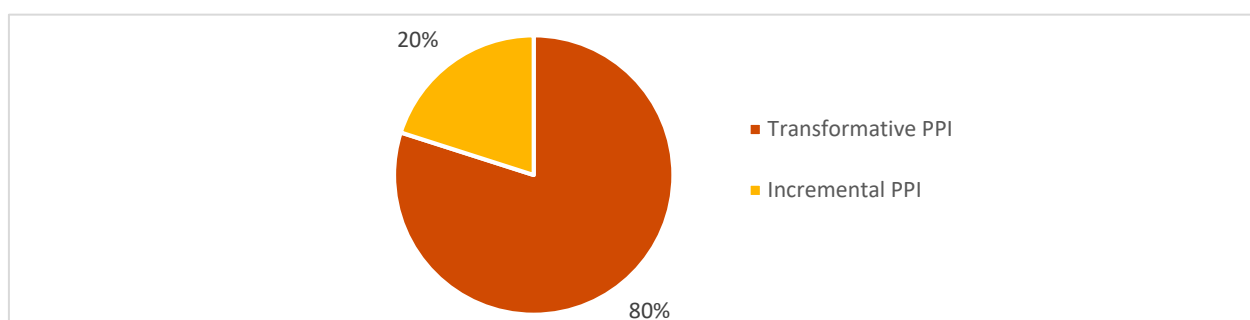


The **main factors**⁸²⁶ explaining the Netherlands’s low performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in the Netherlands (80%) is in line with the European average (79%). This consists of ‘significantly improved solutions’ (57%) and innovative solutions that are ‘new to the market’ (23%). As the share of ‘new to the market’ solutions is much higher in leading countries, further effort to improve this point may be important for improving the position of the Netherlands in the future. The share of ICT-based PPI investments that went to the adoption of **incremental ICT-based innovations**⁸²⁷ (20%) is in line with the European average (21%). However, as the total amount of investments in ICT-based innovative solutions in the Netherlands is low, the country still needs to step up considerably its efforts in the adoption of both transformative and incremental ICT-based innovations.

ICT-based PPI investments by type of innovation



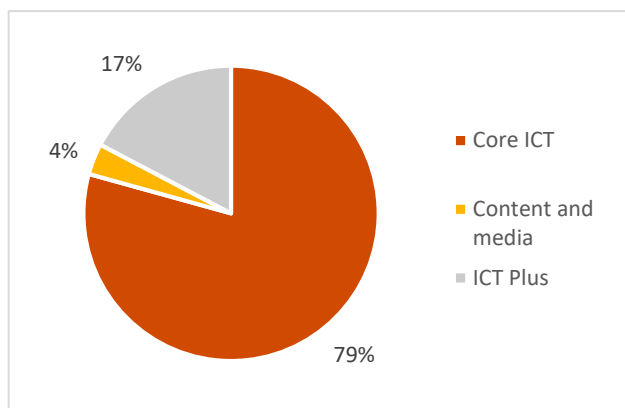
⁸²⁵ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI– or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁸²⁶ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁸²⁷ See definitions above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



The Netherlands invested mainly in the adoption of innovations from the so-called ‘**Core ICT**’ sub-sector⁸²⁸ (79%), considerably above the European average (54%).

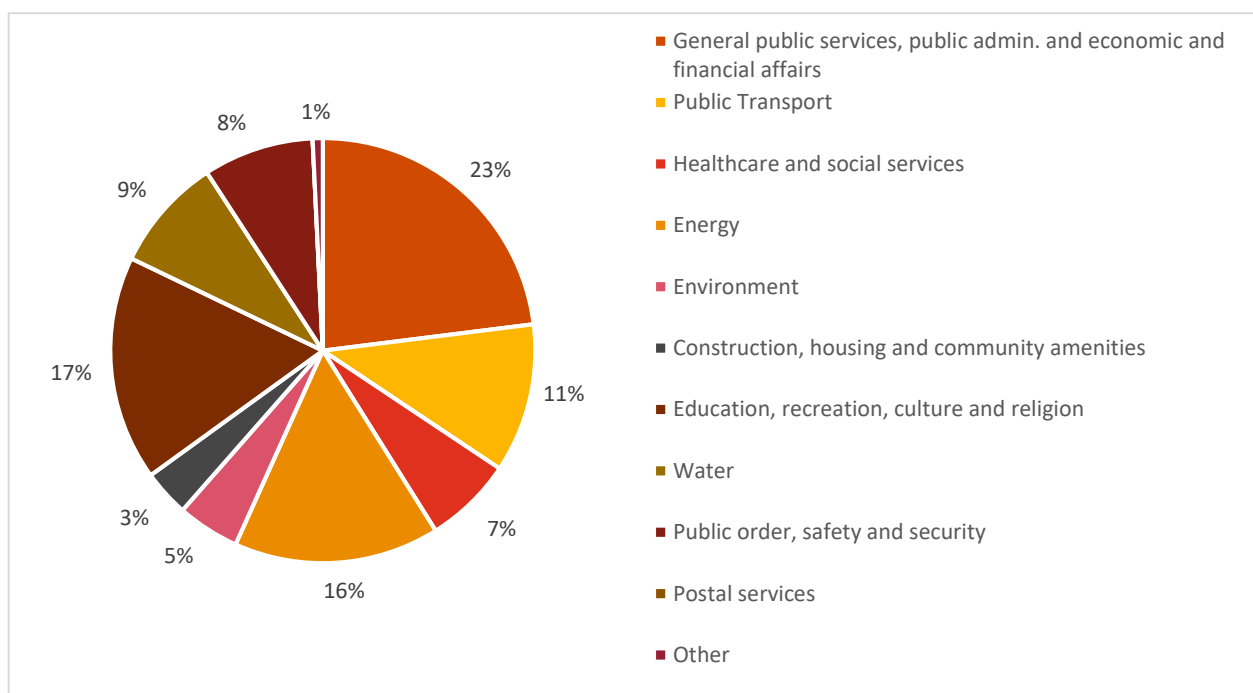
The Netherlands invested to a lesser extent in the adoption of innovations from the ‘**ICT Plus**’ sub-sector (19%), which is significantly below the European average (44%).

The share of investments spent on adopting innovations from the ‘**Content & Media**’ sub-sector was small (4%), but above the European average (1%).

Investment readiness across different domains of public sector activity

Nearly all domains of public sector activity in the Netherlands purchased innovative ICT-based solutions, except the ‘Postal services’ domain with zero investments. The high share of ICT-based PPI investments made by procurers operating in the ‘**Education, recreation, culture and religion**’ domain (17%) is considerably higher than the European average (9%), while investments made by procurers in the ‘**Healthcare and social services**’ domain (7) are considerably below the European average (30%).

ICT-based PPI investments by domains of public sector activity

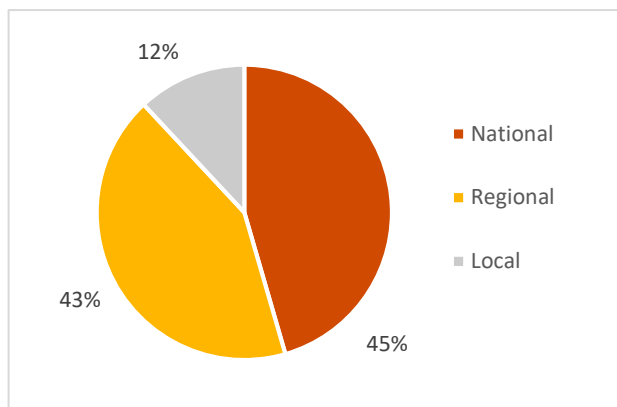


⁸²⁸ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



Procurers at local level account for the smallest portion of the total amount of ICT-based PPI investments (12%), but still above the European average (10%). **Procurers at regional level** represent the highest share of the ICT-based PPI investments at sub-national level (43%), more than double the European average (21%).

Conversely, **national level procurers** account for only 45% of ICT-based PPI, significantly below the European average (69%).

United Kingdom



1. NATIONAL POLICY FRAMEWORK FOR INNOVATION PROCUREMENT

Governance and legal framework

Public procurement in the UK is governed by the Public Contract Regulation 2016 (for England Wales and Northern Ireland) and the Public Contracts (Scotland) Regulation 2006. These regulation implements into UK law the EU Directive 2014/24/EU, 2014/23/EU and the Directive 2014/25/EU. The [Defence and Security Public Contracts Regulations \(DSPCR\) 2011](#), transposed the EU Directive 2009/81/EC.

The United Kingdom has a semi-centralised public procurement structure. Contracting authorities, i.e. government departments and agencies, local authorities, devolved administrations and non-departmental public bodies, are responsible for their own procurement.

The **Crown Commercial Service (CCS)** acts as the central purchasing body at national level, and is designed to increase public procurement value for money by aggregating purchasing power, providing advice and support to government departments, and having the lead on procurement policy on behalf of the UK government. In addition, **several administrations** act as central purchasing bodies at regional and local levels. While technically not part of the expenditure cycle, the independent **National Audit Office (NAO)** performs an important role in the procurement system. Specifically, it carries out oversight activity focused on verifying value for money. Although the NAO does not publish annual reports, their findings are reported to Parliament, which can in turn be used to hold government departments to account.

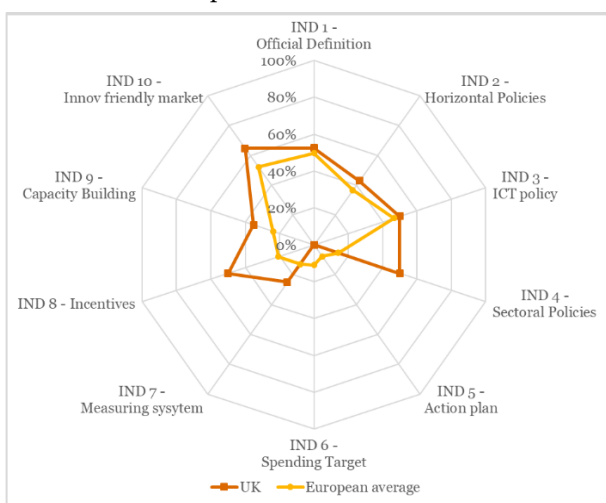
Local Authorities are responsible for their own procurement decisions, subject to public procurement law. In this context, the **Local Government Improvement and Development** supports improvement and innovation in local government, for instance through the Regional Improvement and Efficiency Partnerships programme (which has a procurement work stream).

In the field of science and innovation, the **UK Research and Innovation agency (UKRI)** is the newly established national funding body investing in science and research at national level. It operates with a budget of more than £6 billion, UKRI brings together the 7 Research Councils, Innovate UK and Research England. UKRI is an executive non-departmental public body, sponsored by the [Department for Business, Energy & Industrial Strategy](#), supported by [seven agencies and public bodies](#). **Innovate UK** is the agency that manages the **Small Business Research Initiative (SBRI)**⁸²⁹, a competition-based innovation programme which procures R&D from companies to develop innovative solutions for public sector challenges.

At local level, **The Local Government Association (LGA)** has promoted the role of strategic procurement in reshaping and transforming service delivery, as well as ensuring value for money and making a positive impact on local, regional and national businesses and jobs.

Innovation Procurement Policy Framework Benchmarking (2018)

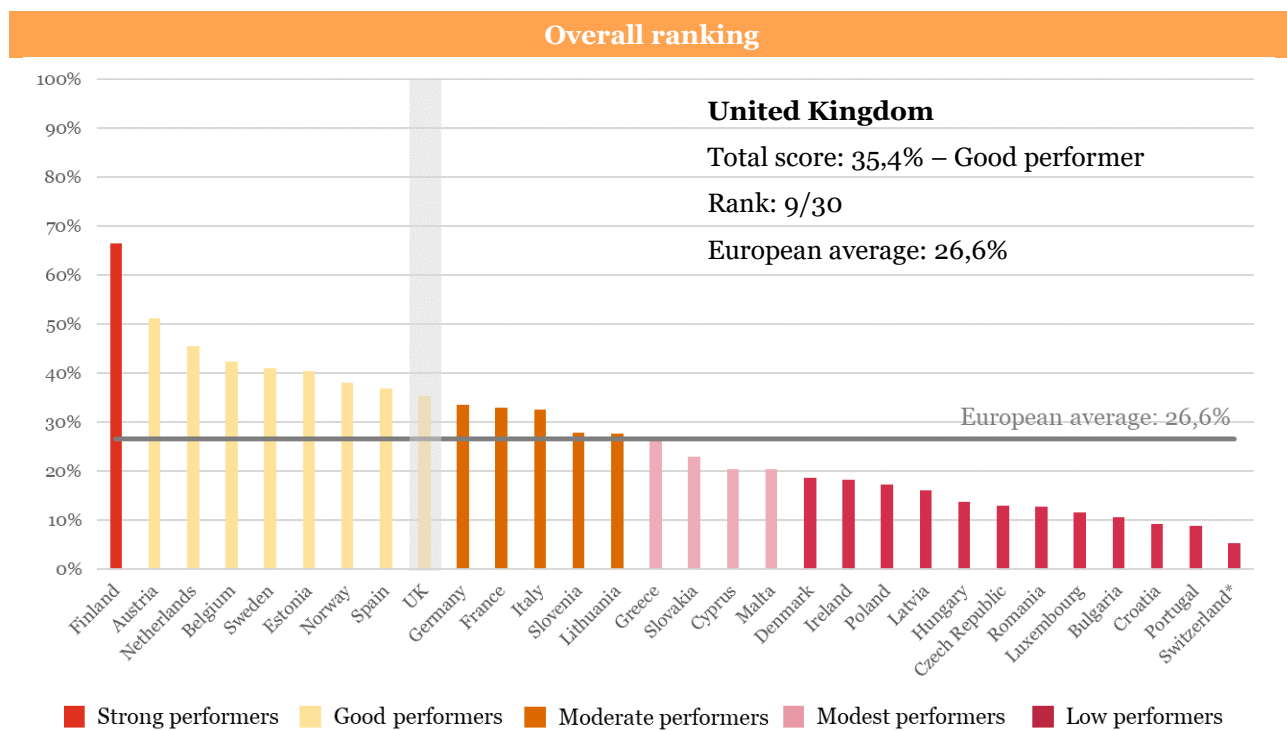
In the benchmarking of the national innovation procurement policy frameworks across Europe, **the UK is at the 9th position** of the overall ranking with a **total score of 35,4%**. Out of the 30 countries analysed, the UK is among the group of good performers in implementing a set of policy measures that are conducive for mainstreaming innovation procurement. Having implemented 35,4% of the policy measures to roll-out a comprehensive policy framework for innovation procurement, there is however still a significant reinforcement of the policy framework needed in the UK to reach its full 100% potential.



Strengths: Some horizontal and sectorial policies embed innovation procurement among their strategic objectives. There is quite some practical experience already in the UK with innovation procurement. Default IPR allocation regime that fosters innovation is anchored in the general terms and conditions for government contracts

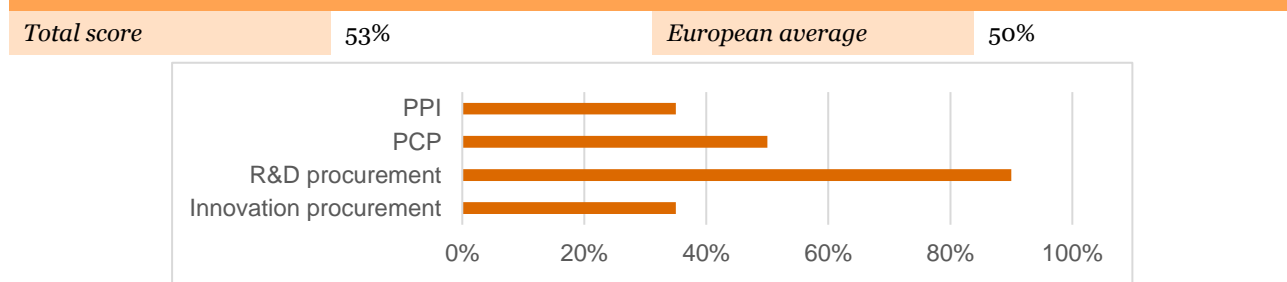
Weaknesses: There is no dedicated action plan for innovation procurement, nor spending target or monitoring system

⁸²⁹ <https://www.gov.uk/government/collections/sbri-the-small-business-research-initiative#an-overview-of-sbri>



Overview per indicator

Indicator 1 – Official definition



In the UK, official definitions for innovation procurement and PPI do not exist both in the legal framework and in guideline documents, while an official definition of R&D is available in the defence sector and a definition of PCP is provided by a national guidance. As a result, the total score of this indicator is 53%.

The Public Contract Regulation (2016) defines **innovation** in Part I Article 2(1) as “the implementation of a new or significantly enhanced product, service or process, including but not limited to processes of production, construction or construction, a new method of placing on the market or a new method of organization in business practice, organization of workplace or external relations among others to help address social challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth”. This definition is in line with the EU definition and is country-wide applicable. As there is no definition of innovation procurement though, the total score for this sub-indicator innovation procurement is 35%.

For non-defence procurements, article 14 under Part II of the public procurement regulation (2016) identifies **R&D** via the CPV codes for fundamental research, applied research and experimental development in line with the CPV codes for R&D in the EU public procurement directives. For defence procurers, Part I, article 3(b) of the [Defence and Security Public Contracts Regulations](#) defines R&D as “all activities comprising fundamental research, applied research and experimental development but does not include the making and qualification of pre-production prototypes, tools and industrial engineering, industrial design or manufacture”. This definition of R&D is coherent with the EU legislation but is only applicable in the defence sector. Thus, the total score of this sub-indicator R&D procurement accounts for 90%.

Article 14 in Part II of the Public Procurement Regulation (2016) transposes the exemption for R&D services and forms the legal basis for the development of **PCP** in the country. The regulation “applies to public service contracts in the area of R&D only if (a) the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, and (b) the service provided is wholly remunerated by the contracting authority.” UK national guidance provides a PCP definition which is applicable to all public procurers in the country but is not fully in line with the EU definition. As there is no official definition of PCP though, the total score of the sub-indicator PCP is 50%.

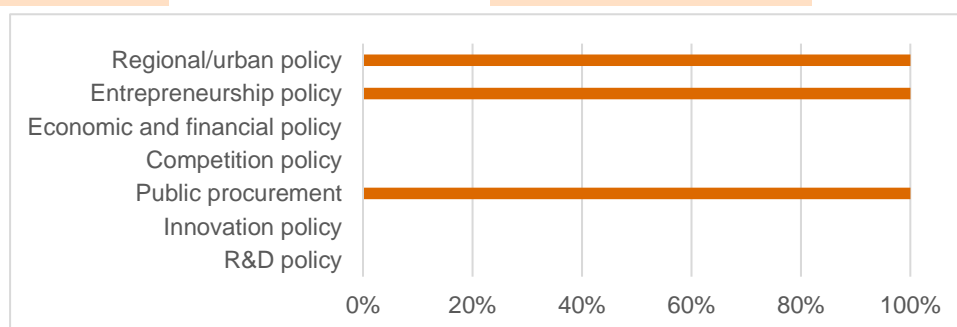
Article 76(8) of the public contracts regulation enables public procurers to implement **PPI** by allowing public procurers to the award contracts taking into account any relevant considerations, including innovation. As there is no official definition for PPI through, the total score for this sub-indicator PPI is 35%.

Although definitions are not embedded in the legal framework, the UK has extensively used innovation procurement instruments and procedures using definitions similar to the EU definitions. For example, in the SBRI (Small Business Research Initiative) framework, a PCP like R&D procurement is used.

In addition, in 2006 the Country introduced the Forward Commitment Procurement (FCP) procedure, which was an early market engagement tool that created the conditions needed to deliver innovative, cost effective products and services. The notion of FCP is in line with the notion of PPI. In brief, FCP provided the supply chain with information of specific unmet needs and, critically, with the incentive of a forward commitment to start a procurement to buy a product or service that currently may not exist, at a specified future date, providing it could be delivered to agreed performance levels and costs. FCP provided the incentive, confidence and momentum for suppliers to invest and deliver innovative solutions and is composed by three stage, identification of needs, market engagement and the procurement phase.⁸³⁰ The FCP is a policy from a past government which is no longer actively supported.

Indicator 2 – Horizontal policies

Total score	43%	European Average	36%
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In the UK three horizontal policies recognise the strategic importance of innovation procurement: Economic Policy, Public Procurement Policy and Regional Policy. Therefore, the total score of the indicator "horizontal policy" is 43%.

The **government's public sector procurement policy**⁸³¹ promotes innovative approaches to public procurement (e.g. outcome-based specifications) among public procurers and commissioners to promote more innovation procurement.

The **Industrial Strategy White Paper** (2018)⁸³² includes improving public procurement among its 10 pillars, highlighting its potential as an innovation driver for the development of UK supply chains.⁸³³ The strategy is connected with other horizontal and sectoral policies, such as R&D&I, and ICT.

The **national local government procurement strategy 2018**⁸³⁴ puts forward harnessing innovation including supplier innovation in public procurement as key objective. The Local Government Association (LGA) promotes the role of strategic procurement in reshaping and transforming service delivery, as well as ensuring value for money and making a positive impact on local, regional and national businesses and jobs. In 2014, it published its advice in a national procurement strategy, which is now being revised for a relaunch in 2018. For LGA members, reduced budgets, high user expectations and demand issues are well rehearsed and there is a growing recognition of the role of procurement in encouraging innovative responses to meet these challenges. Since 2000, there have been new policy instruments and innovation project funding from the EU and the UK. In this environment, the National advisory group (NAG) agreed, at the beginning of 2016, to establish a working group (Group) to make recommendations on the policies and practices that local government could follow to encourage innovative procurement. The review cover goods and services, and also examine the innovative aspects of integrating social value into procurement.

Indicator 3 – ICT policy

Total score	50%	European Average	47%
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In the field of ICT, the UK Government's **Digital strategy**⁸³⁵ states that the government "will use public procurement more effectively to encourage better pre-market engagement, shaping specifications to take advantage where appropriate of the market's latest offerings and innovations, will make available a forward looking pipeline of digital work, updated quarterly to enable businesses to invest in capability and resources appropriately; and will encourage suppliers who are new to government (in particular SMEs) to undertake bidder training to lower the effective barrier to entry to the procurement market." Because of this indirect reference to innovation procurement, the score for this indicator is 50%.

⁸³⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/32446/11-1054-forward-commitment-procurement-buying-innovative-solutions.pdf

⁸³¹ <https://www.gov.uk/guidance/public-sector-procurement-policy>

⁸³² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664572/industrial-strategy-white-paper-print-ready-version.pdf

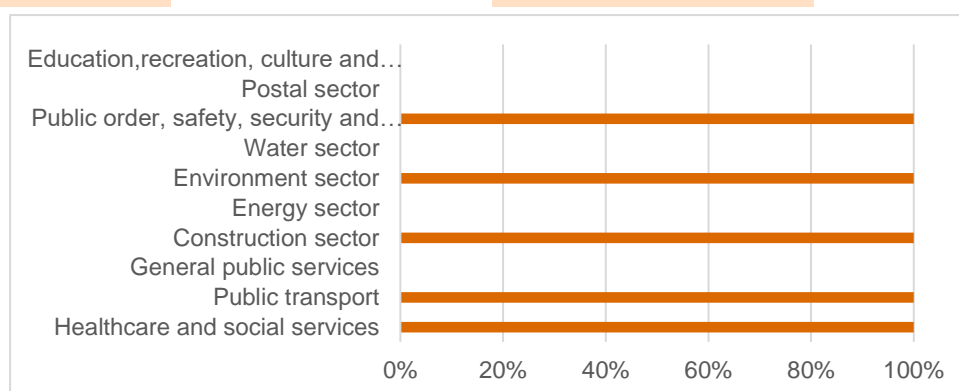
⁸³³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf

⁸³⁴ <https://www.local.gov.uk/sites/default/files/documents/20180320%20National%20Procurement%20Strategy%202018%20-%20Consultation%20Draft%20-%20Main%20Text%20-%20Final%20WEB.pdf>

⁸³⁵ <https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy>

Indicator 4 – Sectorial policies

Total score	50%	European Average	14%
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In the UK, innovation procurement is embedded in five sectorial policies. The total score for this indicator is 50%.

The **public health England strategic plan**⁸³⁶ outlines the commitment to continue smart procurement to create better value, enhanced use of technology and better supplier relationship management.

The **UK department for transport' "how we buy" strategy**⁸³⁷ commits to purchase as much as possible by defining outputs / deliverables to encourage innovation. **Transport Scotland's procurement strategy 2017-2020**⁸³⁸ also sets out stimulating innovation through public procurement as a key strategic objective.

The **National Security Strategy and Strategic Defence and Security Review 2015**⁸³⁹ committed to increase the budget to support the procurement of innovative solutions to the challenges facing the Armed Forces.

The **sustainable procurement national action plan**⁸⁴⁰ recognises the government's role in driving innovation forward in public procurement.

In the field of construction, the **Government Construction strategy**⁸⁴¹ specifies that a crucial objective of unlocking innovation and growth can be achieved by using the government purchasing power to drive changes in the industry, e.g. develop skills capacity and capability and government commitment to Building Information Modelling (BIM) Level 2.

Indicator 5 – Action plan

Total score	0%	European Average	8%
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Today the UK does not have a dedicated Action Plan for innovation procurement.

In 2008 the UK included in the White Paper entitled "Innovation Nation" the development of an innovation procurement action plan (IPP). The IPP had two main objectives, (i) to give ministries "*an opportunity to fundamentally think about their procurement practices and to consider how these might be improved or used to drive innovation*" and (ii) to "*[set] out how departments will embed innovation at the heart of procurement practices*". The IPPs provided an indication of the types of activities being carried out by departments to obtain innovative solutions and a plan to embed processes for the procurement of innovation in their procurement procedures. An IPP development document was produced in May 2010, building on the original IPP guidance, to update on recent developments and suggest areas for departments to focus on when revising their Plans. The initial IPPs were valuable to a certain degree in identifying the extent to which innovative procurement is already effectively embedded into current practices. However, overall, the plans did not demonstrate how departments would use procurement to really drive innovation through specific opportunities. The House of Lords Committee report (2011)⁸⁴² further highlighted a lack of measurable objectives, which made it difficult to assess whether the department had delivered its stated objectives. To this end, the government decided to discontinue the requirement for IPPs as part of the wider programme of reform of government procurement. As a result, today there is no current published public procurement innovation strategy from the new government administration.

Indicator 6 – Spending target

Total score	0%	European Average	11%
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In UK there is no national spending target for all types of innovation procurement.

⁸³⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/516985/PHE_Strategic_plan_2016.pdf

⁸³⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/414065/dft-how-we-buy.pdf

⁸³⁸ <https://www.transport.gov.scot/media/10315/transport-scotland-procurement-strategy-2017-2020.pdf>

⁸³⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/478936/52309_Cm_9161_NSS_SD_Review_PRINT_only.pdf

⁸⁴⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69417/pb11710-procuring-the-future-060607.pdf

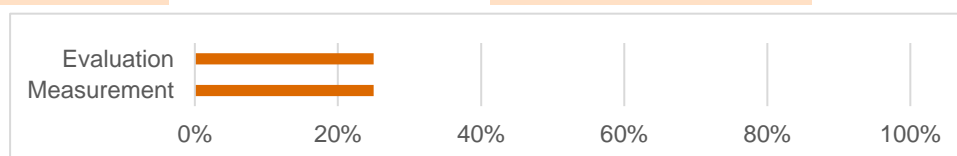
⁸⁴¹ <https://www.gov.uk/government/publications/government-construction-strategy-2016-2020>

⁸⁴² <https://publications.parliament.uk/pa/ld201012/ldselect/ldsctech/148/14802.htm>

Only in the framework of the Small Business Innovation Research Programme (SBRI), spending targets were set for six departments for 2013/2014 and 2014/2015.

Indicator 7 – Monitoring system

Total score 25% **European Average** 13%



The UK does not have a comprehensive and structured system for measuring innovation procurement expenditure or evaluating the impacts of completed innovation procurements. Monitoring and evaluation activities are so far implemented only on a case-by-case basis.

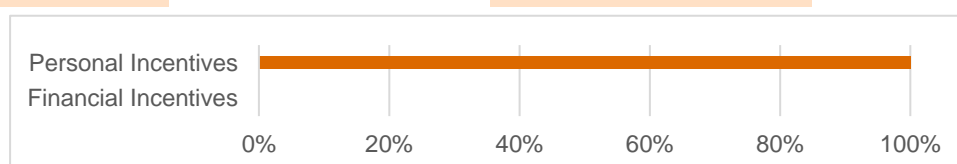
Regular measurement and evaluation assessments are carried out for the activities implemented within the SBRI Programme. In 2014, an analysis of SBRI was conducted by Manchester Institute of Innovation Research (MIOIR) with the European Research Council and OMB Research.⁸⁴³ Afterwards, an independent evaluation of the programme was commissioned, and the final report with recommendations on increasing the impact of the programme was published in November 2017.⁸⁴⁴

The total score of both sub-indicators is 25%, because evaluation and measurement activities are carried out in a non-structured way and only for a subset of innovation procurements (i.e. only for SBRI type R&D procurements) and not for all public procurers across the whole country (i.e. only those that participate in SBRI).

Therefore, the total score of the overall indicator monitoring system is 25%.

Indicator 8 – Incentives

Total score 50% **European Average** 22%



The UK provides only non-financial incentives to public procurers in the area of innovation procurement.

There are no **financial incentives** in the UK to encourage public procurers to undertake innovation procurements. The total score of the sub-indicator financial incentives is therefore 0%. With regard to **non-financial incentives**, each public procurer has KPIs to achieve, which set mainly cost reduction but also quality improvement targets for public authorities at all levels (e.g. CO₂ reduction), and these drive forward innovation procurement in the UK. The total score for the sub-indicator personal incentives is 100%. The total score of the indicator incentives is 50%.

Indicator 9 – Capacity building and assistance measures

Total score 35% **European Average** 24%

	Existence	Connection with relevant international/EU initiatives	Free of charge	Covering all types and aspects of innovation procurement	Available and applicable to all public procurers in the country	Mainstreaming Innovation procurement at a large scale	Sub-total score
Central website							0%
Good practices	✓		✓		✓		50%
Trainings/workshops	✓	✓	✓		✓	✓	83%
Handbooks/guidelines	✓	✓	✓		✓		67%
Assistance to public procurers	✓		✓				33%
Template tender documents	✓	✓	✓				50%
Coordination / pre-approval							0%

⁸⁴³ <https://www.gov.uk/government/publications/review-evaluation-of-the-small-business-research-initiative>

⁸⁴⁴ <https://www.gov.uk/government/publications/leveraging-public-procurement-to-grow-the-innovation-economy-an-independent-review-of-the-small-business-research-initiative-sbri>

Networking of procurers	✓		✓				33%
One-stop-shop / competence centre							0%

The **Crown Commercial Service** provides guidance⁸⁴⁵ to public procurers across the UK which includes guidance on encouraging innovation in public procurement. The **guidance and template contract documents**⁸⁴⁶ recommend making wider use of prior information notice to promote early market engagement, use output-based specifications and leave IPR ownership with suppliers to encourage innovative companies to participate in tenders. Over 200 **training sessions**⁸⁴⁷ were also provided since the introduction of the new public procurement directives. The guidance and training do not cover all types of innovation procurement (e.g. PCP is missing). Scores for sub-indicators guidance and training are 67% and 83% respectively.

Within the SBRI framework, Innovate UK also provides **templates of standard contracts** to contacting authorities, as well as **support in the dissemination** of the competition, e.g. support in the organisation of events and webinars when the competition is launched. Furthermore, if a department is interested to use the SBRI, Innovate UK provides free of charge **technical assistance** to undertake innovation procurements. Another capacity building measure carried out by Innovate UK is the SBRI Practitioner Community of Practice, which provides a **forum to share SBRI practices and network** across government departments. The technical assistance, the networking activities and the tender templates are only available to procurers involved in SBRI and do not cover all types of innovation procurement. The respective score of the sub-indicators are 33%, 33% and 50%.

The BIS Department published a guideline with **good practice examples on the use and implementation of Forward Commitment Procurement** “Delivering best value through innovation. Practical Pathways to Buying Innovative Solutions”⁸⁴⁸. Trainings on innovation procurement are still offered by different professional and trade bodies, e.g. the Chartered Institute of Purchasing and Supply, the Society of Procurement Officers (SOPO) and the Chartered Institute of Public Finance and Accountancy. As these good practice examples are limited to the UK, do not cover all types of innovation procurement and are not addressing how to scale up innovation procurements the score for sub-indicator good practices is 50%.

On the basis of the evidence collected above, the total score for this indicator is 37%. The score is affected by the fact that there is no dedicated national guidance on all aspects of innovation procurement, that available case examples do not cover all types of innovation procurement, there is no national coordination for the implementation of innovation procurements and capacity building initiatives on innovation procurement, including networking of procurers, are usually not conceived to mainstream innovation procurement at large scale in the country. A central dedicated website, competence centre and dedicated training sessions on innovation procurement are not offered. References to recent EU initiatives (e.g. Eafip, procure2innovative network of competence centres, European initiative to benchmark national policy frameworks for innovation procurement across Europe, EU guidance on innovation procurement, EU funding opportunities for innovation procurements (e.g. H2020, ESIF, EIB) and recent EU funded projects (e.g. Horizon 2020 funded projects) are missing also in most capacity building measures.

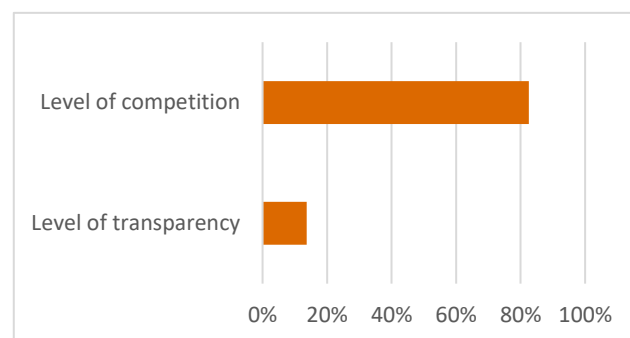
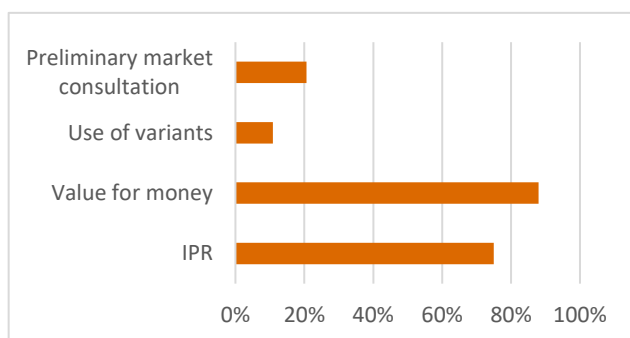
Indicator 10 – Innovation friendly public procurement market

Total score 48%

European Average 44%

I - Specific techniques to foster innovation in public procurement

II – Openness of national public procurement market to innovations from across the EU single market



This indicator synthesises to what extent the national public procurement market encourages the implementation of Innovation procurement. The indicator is composed of two sub-indicators that show evidence on

- I. the use of specific techniques to foster innovation in public procurement in UK and

⁸⁴⁵ <https://www.gov.uk/guidance/public-sector-procurement-policy>

⁸⁴⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/677891/MS_C_Guidance_V1.0.pdf

⁸⁴⁷ <https://www.gov.uk/guidance/transposing-eu-procurement-directives>

⁸⁴⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/32446/11-1054-forward-commitment-procurement-buying-innovative-solutions.pdf

II. the openness of the national public procurement market to innovations from across the EU single market

With regard to sub-indicator I, the UK shows the following evidence:

- a. **Default IPR regime:** The score for this sub-indicator is 75% because the UK law on public procurement does not define a default regime for IPR allocation between procurers and suppliers but the Crown Commercial Services' guidance and model public procurement contracts⁸⁴⁹ outline the UK government's policy on IPR allocation in public procurement: "*IPR should rest with the part that is best able to exploit it and reminds public procurers that demanding public ownership of all IPR may be seen as a disincentive for submitting offers in the first place. Unless otherwise provided for in the contract, the IPR will vest in and remain the property of its recognised owner and the public procurer will acquire a license to use. The aim of this overarching policy is to achieve the best value for money for the government. Ownership of IPR carries responsibility for its protection and the potential liabilities should there be a claim from a third party that the IPR infringes their own IPR. These responsibilities can have significant cost and risk implications. Exploitation of IPR, for example the charging and collection of associated 'royalty' payments, requires commercial skill and resource. Government departments often do not have this, nor is the commercial exploitation of IPR usually part of their core business*". In cases where the government wants to make software after the procurement available as open source, it can acquire all IPR developed during the procurement. The policy recommended to reflect carefully whether this is really needed because it would be too expensive to use as general approach for all contracts. Also in the field of defence, the UK Ministry of Defence's Intellectual Property policy⁸⁵⁰ states that in general intellectual property can be best exploited by the contractor that generates it, therefore the default rule is that the ownership of IPR will be left with the contractor unless the specific circumstances of the case require otherwise. All above provisions were made in compliance with UK copyright law⁸⁵¹ which determines that copyright (both moral and economic rights) can be assigned by the creator to other parties (e.g. via a public procurement contract). Copyright law protects also scientific work, software and database rights.
- b. **Use of value for money award criteria:** According to the Single Market Scoreboard, 88% of the public procurement procedures are awarded taking into account quality criteria in addition to the lowest price criteria. The UK is the top performer across the 30 countries analysed in using value for money award criteria
- c. **Use of variants:** The UK has allowed the use of variants in the 10% of the procedures. This percentage is well above the European average.
- d. **Preliminary Market Consultations:** The UK has used Preliminary Market Consultations in the 21% of the procedures. This percentage is above the European average of 9%.

Based on this evidence, the score for sub-indicator I is 49% which is well above the European average of 23%

With regard to sub-indicator II, the UK shows the following evidence (based on the EU single market scoreboard):

- e. **Level of competition:** The overall level of competition is 83% which is slightly below the European average 84% and below the 93% satisfactory level set by the EU single market scoreboard. This is mainly due to the below average proportion of procurements with more than one bidder (68%). The percentage of procurements for which a call for bids was used (97%) is above European average and above the satisfactory level set by the EU single market scoreboard.
- f. **Level of Transparency:** The level of transparency is 14% which is significantly below the European average 45% and below the 66% satisfactory level set by the EU single market scoreboard. This is mainly due to the lack of clear information provided to bidders: very low portion of procurement procedures without missing buyer registration numbers (2%) and low portion of procurements also without missing call for bids information (34%). The TED publication rate (4,9) is above European average but below the satisfactory level set by the EU single market scoreboard.

Based on this evidence, the score for sub-indicator II is 48% which is below the European average of 65% and below the satisfactory level 79% set by the EU single market scoreboard. This is mainly due to the scarce transparency of the national public procurement system.

Based on the scores for sub-indicators I and II, the total score for the indicator "innovation friendly public procurement market" is 48% which is above the 44% European average but still below the satisfactory level for the total of the EU single market indicators. This score is explained firstly by the fact that the use of specific techniques to foster innovation in the country is well above European average but the openness of the UK public procurement market to innovations from across the EU single market is below the European average. Indeed, the country is promoting a default IPR regime in public procurement that fosters innovation and value for money criteria are widely used in public procurements. Secondly, the use of variants and the use of Preliminary Market Consultation in procurement procedures is significantly above the European average. However, the national public procurement market shows a level of competition and transparency that are below the European average.

⁸⁴⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/677891/MSC_Guidance_V1.0.pdf

⁸⁵⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/490095/20150319-MOD_IPR_Policy_Statement.pdf

⁸⁵¹ http://www.wipo.int/wipolex/en/text.jsp?file_id=451097

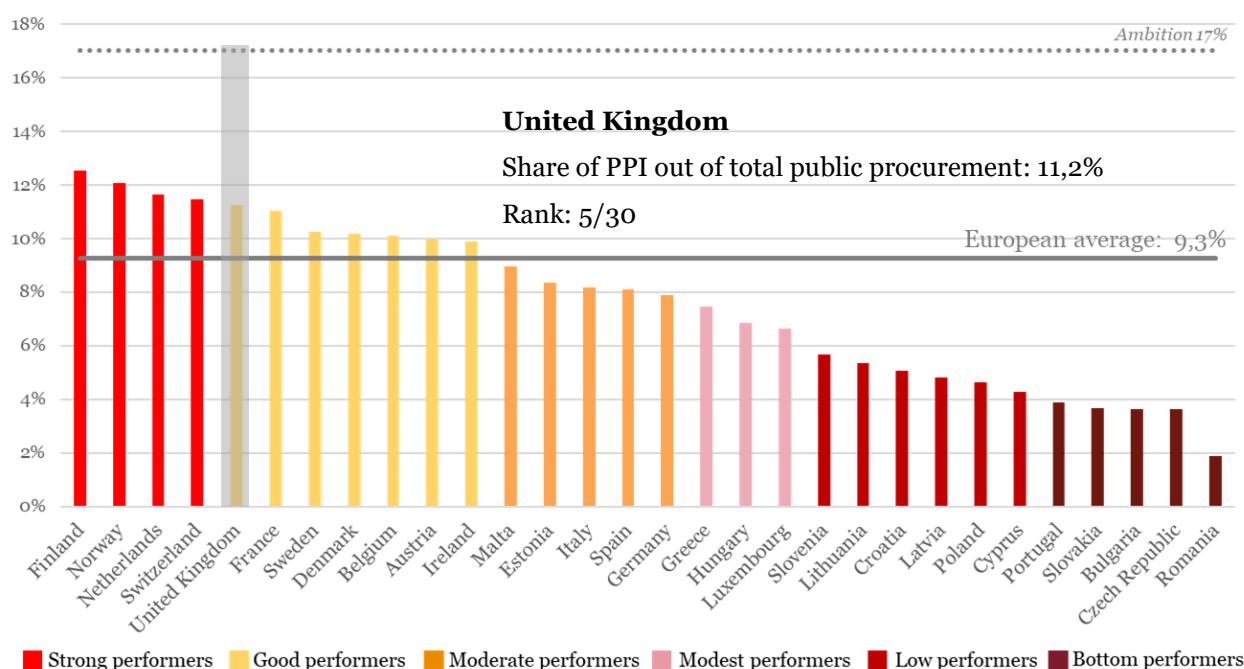
2. INVESTMENTS ON PUBLIC PROCUREMENT OF INNOVATIVE SOLUTIONS

Investment benchmarking (2018)

The investment benchmarking contains two parts: the benchmarking of all British investments on public procurements of innovative solutions (PPI) and the benchmarking of British investments on public procurements of innovative solutions that are based on Information and Communication Technologies (ICT-based PPI). Data about defence procurement is excluded from all figures and graphs, for confidentiality reasons.

Ranking of investments on public procurement of innovative solutions (PPI), excl. defence

With 11,2% of public procurement devoted to purchasing innovative solutions in the classical and utilities sectors (i.e. € 46,6 bn), **the United Kingdom ranks 5th** in the benchmarking of investments on public procurement of innovative solutions (PPI)⁸⁵² across Europe. The United Kingdom falls within the group of **good performers**, above the European average of 9,3%.⁸⁵³ However, **a significant increase of investments in PPI is still needed** to reach the level of 17% of public procurement devoted to purchasing innovative solutions that would enable a full-speed modernisation of the British public sector.⁸⁵⁴ When taking into account also PPI in the defence sector the UK moves up to the 4th position.



The **main factors**⁸⁵⁵ explaining the United Kingdom's good performance in the PPI benchmarking are:

Adoption of transformative versus incremental innovations

The share of PPI investments spent on the adoption of **incremental innovations** (4%) - which includes the purchase of 'existing solutions that are used in a new way or in a new sector' as well as 'innovative combinations of existing solutions', is significantly below the European average (16%). This is because the share of PPI investments spent on the adoption of **transformative innovations** in UK (96%) **is significantly above the European average** (84%). This is thanks to the adoption of a large share of 'significantly improved' solutions (81%). As the share of 'new the

⁸⁵² Public procurement of innovative solutions (PPI) includes procurements that purchase innovative solutions (without buying the prior development of such solutions) as well as procurements that purchase both R&D and the resulting innovative solution. To the contrary, it does not include public procurements that purchase only R&D. The total amount of innovation procurement in the country – namely the amount of R&D procurement plus the amount of PPI – is therefore higher than the amount of PPI presented in this benchmarking. The EC's estimation of the amount of R&D procurement across Europe and the total amount of innovation procurement (R&D + PPI) across Europe can be found [here on the EU webpages](#).

⁸⁵³ All European averages presented in the sections on investments on PPI and ICT-based PPI are weighted averages of the 30 countries falling within the scope of the study (27 Member States, Norway, Switzerland and the United Kingdom).

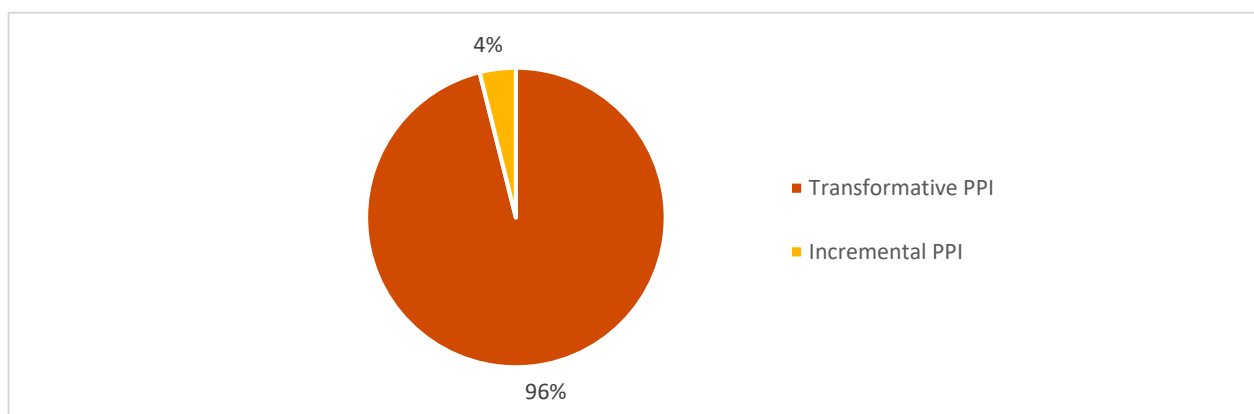
⁸⁵⁴ It is estimated that a healthy economy needs approximately 20% of its public procurement to be devoted to innovation – including 3% of R&D procurement and 17% of PPI – to reach a sufficient level of early adopters that are needed to encourage the rest of the market to widely adopt the innovations afterwards (Commission notice on innovation procurement C(2018)3051, based on Bell innovation curve).

⁸⁵⁵ The graphs in the section are showing results for each factor as % of the amount of published explicit PPI, except if otherwise indicated

market' solutions is much higher in leading countries, further effort to improve this point may be important for improving the position of the UK in the future.

Of all transformative technologies, ICTs have the largest impact on public sector modernisation and economic growth because they are key enabling technologies that boost quality and efficiency gains across all domains of public sector activity. Despite a good performance in the adoption of innovative ICTs, **further investments in the adoption of ICT-based innovations would help** the UK achieve a full-speed modernisation of the public sector. This aspect is addressed in more detail in the benchmarking of ICT-based PPI investments in the next section.

PPI investments by type of innovation



Investment readiness across different domains of public sector activity

All domains of public sector activity⁸⁵⁶ in the UK purchased innovative solutions. The shares of PPI investments by different public sector domains out of total PPI investments in the country are **mostly in line with the European averages** (no shifts of more than 3pp from the European average in 6 out of 11 domains). Exceptions are the shares of PPI investments made by British procurers in the **'Healthcare and social services'** and **'General public services, public administration and economic and financial affairs'** domains that considerably deviate from the European average: the former in positive direction (+25 pp), the latter in the negative direction (-10 pp). The shares of investments from other domains such as **'Public transport'** and **'Energy'** (both -5 pp) as well as **'Water'** (+2 pp) and **'Public order, safety and security'** (+4 pp) deviate to a smaller extent from the European averages. The share of investments in **'Postal services'** was very small (0,1%).

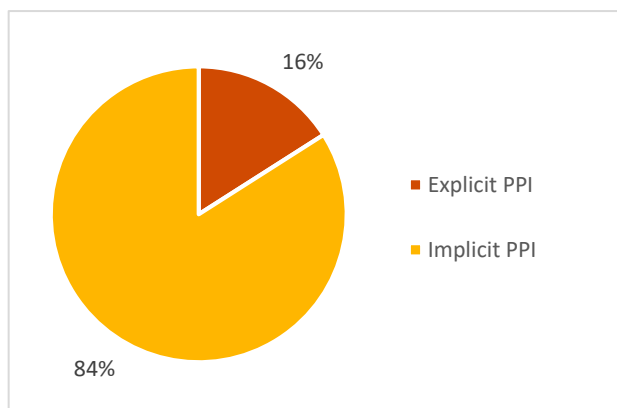
PPI investments by domains of public sector activity

Domain of public sector activity	United Kingdom	European average	Difference (in pp)
General public services, public administration, economic and financial affairs	25%	35%	-10
Public transport	5%	10%	-5
Healthcare and social services	46%	21%	+25
Energy	1%	6%	-5
Environment	0%	3%	-3
Construction, housing and community amenities	1%	4%	-3
Education, recreation, culture and religion	4%	5%	-1
Water	6%	4%	+2
Public order, safety and security	12%	8%	+4
Postal services	0% (0,1%)	1%	-1
Other	1%	3%	-2
Total PPI investments	100%	100%	-

⁸⁵⁶The table presenting the breakdown by domain of public sector activity does not reflect the type of solutions that are being procured but the type of public procurer that is buying them. For example, a PPI in which a public transport procurer buys an innovative health solution is classified under the domain of public sector activity "Public transport" and not under "Healthcare and social services".

Risk adverseness in requesting innovations & Openness to unsolicited innovative proposal

Explicit PPI vs. Implicit PPI investments (as % of the total amount of PPI)

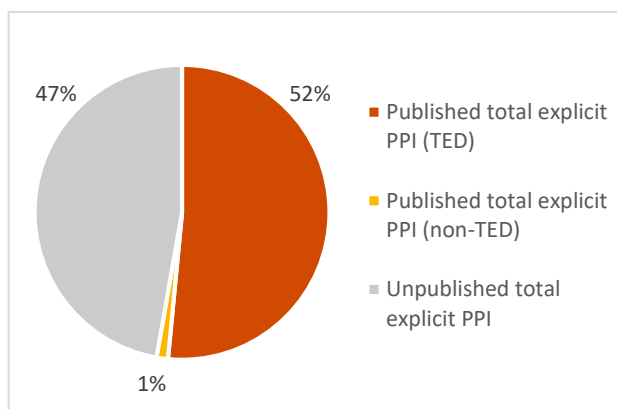


The share of **explicit PPI** investments (when a public procurer explicitly requests an innovative solution in the call for tenders) is lower in the United Kingdom (16%) compared to the European average (29%). This indicates that British procurers may be more risk-adverse in requesting innovative solutions compared to the European average.

The share of **implicit PPI** investments (when a procurer does not explicitly request an innovative solution, but the tenderer proposes it on its own initiative in its offer) is higher in the United Kingdom (84%) compared to the European average (71%). This indicates that British procurers may tend to be more open to accepting unsolicited innovative proposals from tenderers compared to the European average.

Level of publication of PPI towards potential suppliers

Published PPI vs. Unpublished PPI investments (as % of the amount of explicit PPI)

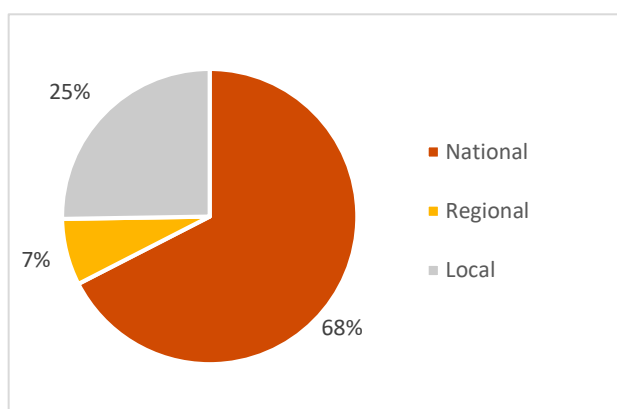


The share of British PPI investments for which calls for tenders are published (53%) is considerable, and significantly above the European average (22%). In particular, the portion that is **published at European level** in the TED database (52%) is significantly above the European average (18%) while the portion that is **published at national level** is marginal (1%) and below the European average (5%). The share of PPI investments for which no call for tenders are published in TED or at national level is still high (47%).

By not publishing calls for tenders almost half of its PPI investments, **the United Kingdom is missing out on potential innovative solutions** that could speed up public sector modernisation, both from British and other European innovative suppliers that are not informed about the British PPI business opportunities.

Investment readiness across levels of public sector activity

PPI investments by level of public sector activity

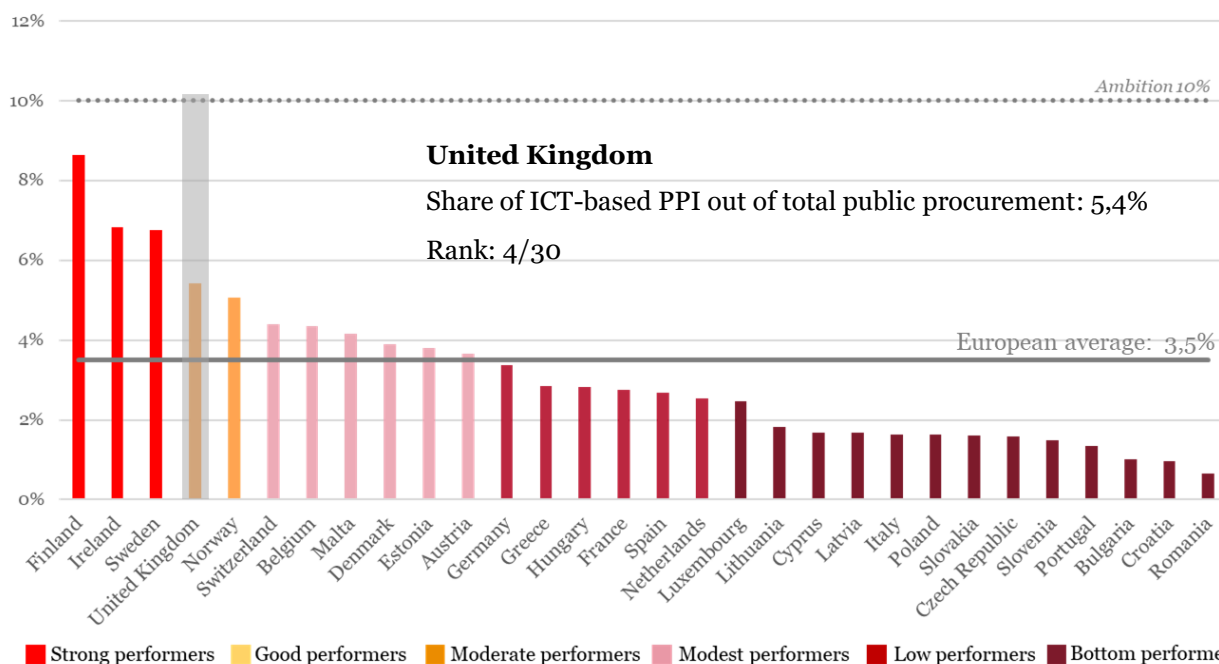


More than two thirds of the total PPI in the United Kingdom are carried out by **large-scale entities at national level** (68%), such as ministries and ICT integrators of governments departments. This is considerably above the European average (47%).

Procurers at regional level account for a small share of PPI investments (7%), well below the European average (24%). To the contrary, **procurers at local level** account for a higher fraction of PPI investments at sub-national level (25%), yet still below the European average (29%). This may indicate that especially procurers at subnational level could still improve their performance on adopting innovations.

Ranking of investments on public procurements that adopt innovative ICT-based solutions (ICT-based PPI), excl. defence

The British public sector shows a **moderate level of performance** in terms of the adoption of innovative solutions that are based on ICTs (ICT-based PPI investment). With € 1,9 bn or 5,4% of total public procurement invested in innovative ICT-based solutions, **the UK ranks 4th** in the benchmarking of ICT-based PPI investments, clearly above the European average (3,5%). Also in terms of the share of public procurement of innovative solutions (PPI) that is invested in ICT based solutions (48%), the United Kingdom performs above the European average (38%). However, **a significant increase of investments in buying innovative ICT-based solutions is still needed** to reach the level of devoting 10% of total public procurement and 60% of public procurement of innovative solutions in the country to the purchase of ICT-based innovations, which would enable the UK to fully capitalise on the transformative power of ICT to speed up public sector modernisation and to boost economic growth and competitiveness.⁸⁵⁷

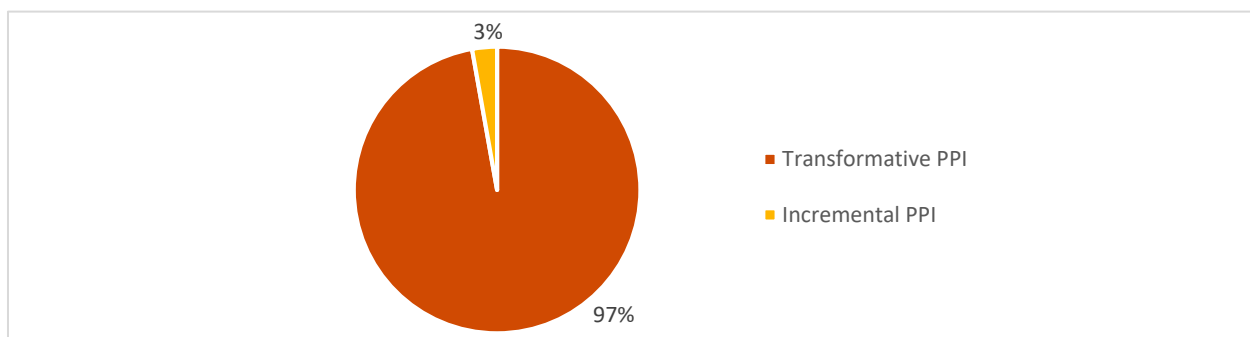


The **main factors**⁸⁵⁸ explaining the United Kingdom’s moderate performance in the ICT-based PPI benchmarking are:

Adoption of transformative versus incremental ICT-based innovations

The share of ICT-based PPI investments that is spent on the adoption of **incremental ICT-based innovations**⁸⁵⁹ in the UK is very small (3%). That is because the share of ICT-based PPI investments that is spent on the adoption of **transformative ICT-based innovations** in the UK (97%) is **considerably above the European average** (79%). However, it consists primarily of ‘significantly improved solutions’ (74%) and more limitedly of ‘new to the market’ solutions (22%). As the share of ‘new the market’ solutions is much higher in leading countries, further effort to improve this point may be important for improving the position of the UK in the future.

ICT-based PPI investments by type of innovation



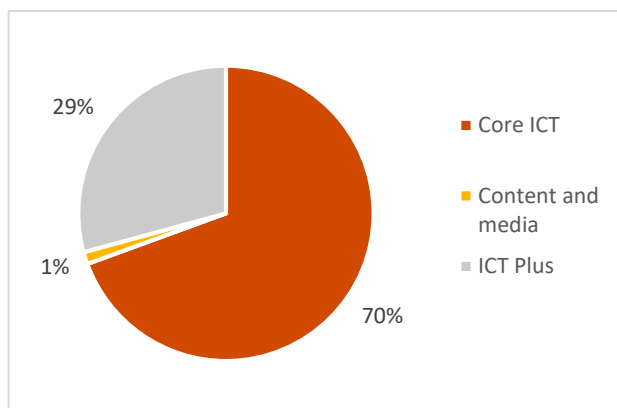
⁸⁵⁷ It is estimated that for a healthy economy to fully capitalise on the adoption of innovative ICT solutions to optimise public sector modernisation and its impact on economic growth and competitiveness, two thirds of PPI – or 10% of total public procurement – should be spent on innovative ICT-based solutions (in leading economies, ICT is responsible for two thirds of productivity / economic growth and two thirds of PPI are also allocated to the adoption of innovative ICT based solutions).

⁸⁵⁸ The graphs in the section are showing results for each factor as % of the amount of published explicit ICT-based PPI

⁸⁵⁹ See definition above.

Adoption of innovations from different ICT sub-sectors

ICT-based PPI investments by ICT sub-sector



The United Kingdom invested mainly in the adoption of innovations from the so-called '**Core ICT**' sub-sector⁸⁶⁰ (70%), considerably above the European average (54%).

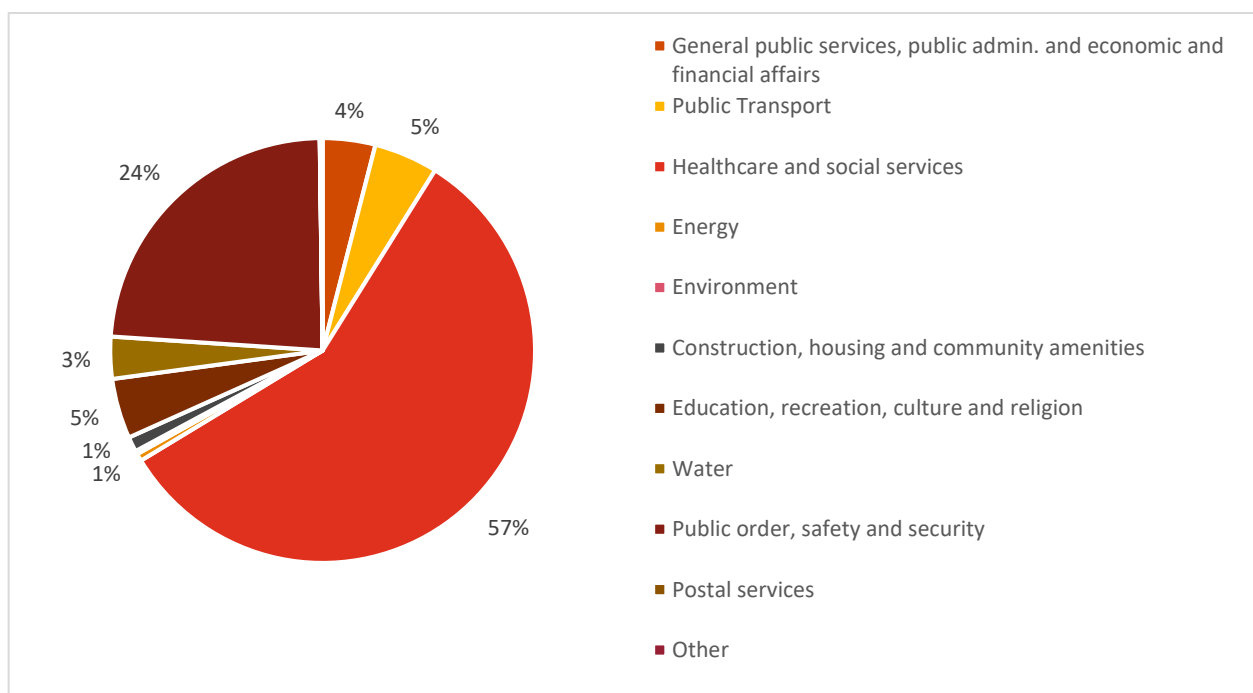
The UK invested to a lesser extent in the adoption of innovations from the '**ICT Plus**' sub-sector (29%), below the European average (45%).

The share of investments spent on adopting innovations from the '**Content & Media**' sub-sector was small (1%) in line with the European average (1%).

Investment readiness across different domains of public sector activity

Every domain of public sector activity in the UK purchased innovative ICT-based solutions. In particular, the highest share of ICT-based PPI investments was made by procurers that operate in the domain of '**Healthcare and social services**' (57% against a 30% European average) followed by procurers in the '**Public order, safety and security**' domain (24% against a European average of 19%).

ICT-based PPI investments by domains of public sector activity

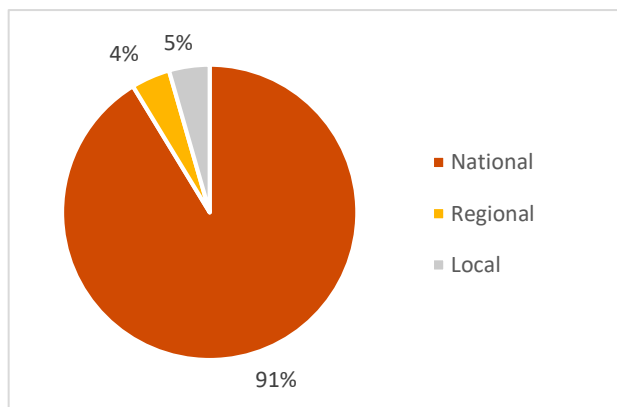


⁸⁶⁰ The three ICT sub-sectors are:

- Core ICT: includes IT and telecom hardware and software that are used for mainstream IT and telecommunication purposes
- Content and Media: includes printed and audiovisual hardware and software
- ICT Plus: includes ICT hardware and software for ancillary purposes such as measurement and detection applications in different vertical markets like health, transport, security markets etc.

Investment readiness across levels of public sector activity

ICT-based PPI investments by level of public sector activity



National level procurers account for 91% of ICT-based PPI investments, significantly above the European average (69%).

Procurers at regional level account for the lowest share of the ICT-based PPI at sub-national level (5%), considerably below the European average (21%). Similarly, **local procurers** account for only a modest fraction of ICT-based PPI (5%), still below the European average (10%). This may indicate that especially procurers at subnational level could still improve their performance on adopting ICT-based innovations.

9.2 Annex II – PPI case examples per country

This Annex presents a list of case examples with one public procurement of innovative solutions (PPI) for each country analysed in the Study. For each case example, the following sections have been developed:

- i) The **background** context: what has led the public procurer to start the PPI;
- ii) **The procurement need** that the procurer wanted to address with the PPI;
- iii) The **procurement procedure** followed by the procurer;
- iv) Main **results and impacts** for the procurer, and, where available, for the supplier.

Evidence was mainly collected through desk research activities. In some cases, it has been complemented with short interviews with national procurers. Please note that the case examples have been written between September and December 2019, reporting the information available in that period, with the exceptions of the cases coming from Norway, Poland and Slovakia which have been developed in the period September – November 2020.

In this section, the 30 case examples are described one by one, following the order provided in the table below.

Country	Name of the procurement
Austria	Wastewater recycling system for the Austrian Mint
Belgium	Application of Artificial Intelligence to job-matching system in the Flemish Public Employment Service
Bulgaria	Specialized vehicle, surveillance drone and personal protective equipment for forest fire fighting
Croatia	Lighting solution for the Municipality of Župa Dubrovnik
Cyprus	Creation of the Department of Lands and Surveys Web Portal
Czech Republic	Virtual autopsy table
Denmark	Intelligent Street Lighting
Estonia	X-Road project
Finland	Purchase of lightweight, full electric buses in Helsinki
France	HAPPI Project
Germany	Magnetic-card system
Greece	Smart Policing Systems
Hungary	Helicopter Crew Tactical Training Simulator
Ireland	Procurement of solar powered, compacting litter bins
Italy	Servizio Luce 4 (Lighting Services 4 th) - National framework contract for sustainable and innovative lighting
Latvia	Steam Explosion Pilot Plant of the Institute of Wood Chemistry
Lithuania	Construction of a combined heat and power plant
Luxembourg	SATMED – a worldwide e-health platform
Malta	Catering Services to Inpatients at Mater Dei Hospital

Netherlands	Procuring textiles made from recycled fibres
Norway	Chatbot with artificial intelligence
Poland	Delivery of ultrasound machines for the Provincial Specialist Healthcare Team in Wrocław
Portugal	Unmanned aerial systems and ancillary equipment
Romania	Implementation of a Big Data platform and information analysis capabilities
Slovakia	Deep renovation and modernization of an apartment building on Pavla Horova Street 17-19 in Bratislava (part of the <i>EU-GUGLE Project</i>)
Slovenia	Upgrade of the Ljubljana Regional Waste Management Centre
Spain	Treatment of patients with automated implantable cardioverter defibrillator (AICD)
Sweden	Disposable bio-based aprons for Skåne's healthcare sector
Switzerland	Recycled concrete and asphalt for building and road construction
United Kingdom	Innovative lighting procurement for London's Underground network

Austria

<i>Title</i>	Wastewater recycling system for the Austrian Mint
<i>Value</i>	€600.000
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The contract notice was published in 2014 (TED n. 2014/S 081-141039). The contract was awarded to <i>Schell GmbH, KO KG italschell Srl</i> and <i>Ginzler Stahl- & Anlagenbau GmbH</i> (AT)
<i>Name of public procurer</i>	Austrian Mint - Münze Österreich
<i>Type of public procurer</i>	National
<i>Type pf contract</i>	Services

Background: The Austrian Mint is a public limited company subsidiary of the Austrian Central Bank and responsible for minting Austrian coins. The company produces around 450 million coins every year. The Austrian Mint was confronted with a problem not unusual for the metalworking industry: the wastewater was polluted by the metal, which made it impossible to comply with criteria for discharging water. In addition, the ISO 14001 certification was planned, which meant that additional requirements had to be met. The production of coins required to treat contaminated water chemically before disposal. For this reason, the Austrian Mint was looking for a new solution able to treat the “residual water” left over from the production of coins.

Areas of need. The procurement need identified by the public procurer included:

- Reducing the environmental impact of the coin production, as treated water contained amounts of chemicals which exceeded legal limits.
- Increasing the number of effective wastewater infrastructures to fulfil increasingly stringent requirements of the Urban Wastewater Treatment Directive (UWWTD Directive)

Procurement description. The Mint requested assistance from Austria’s Federal Procurement Agency (BBG) for the preparation of the tender. Before the tender was launched, an analysis of the market was conducted to identify potential technologies available on the market. The market research identified three type of possible technologies to address the issue:

- chemical treatment of wastewater
- filtration
- vaporization

The Austrian Mint came to the conclusion that a vaporization system would be the most sustainable solution and would also allow to meet its ISO 14001 requirements.

The procurer used a negotiated procurement procedure with MEAT award criteria that was split into three main phases. During the first phase, potential suppliers were invited to present their qualifications as a company, i.e. suppliers provided information on prior references of similar innovative solutions. Five suppliers developed a proposal fulfilling the procurers’ requests. In the second phase the three most suitable suppliers were asked to submit an initial offer, which included a detailed concept and calculation of the envisaged life-cycle costs (LCC). The calculation included energy related and all maintenance costs, including cost of staff, cost for maintenance of resources, waste disposal costs and purchase costs. The companies were also provided with “residual water” to test their concept in practice. The practical test resulted in the development of a report providing detailed information on wastewater consumption and savings as well as the concentration of the waste filtered. The results of the testing process were then used to draw up contract performance clauses. As part of the procurer’s requirements, it was essential that the chosen supplier guaranteed these values for a period of five years (this request resulted in the withdrawal of the third potential supplier from the procurement process). Based on the results of the second stage of the process, the two finalists were each invited to submit their definitive offers.

The procurer encouraged suppliers to submit innovative solutions by using functional specifications that do not prescribe the solution to be delivered, but instead the outcomes (functionalities, performance levels) to be achieved. With regard to functional specifications, the most relevant was the indication of the water pollution and the corresponding amount of wastewater per year. With regard to the award criteria used, the main criteria used were the Life Cycle Costing criteria (LCC) based on the net present value for a calculation time of five years. Additional points were awarded for the warranty time and reaction time for maintenance.

The winning supplier proposed a solution with innovative vacuum technology, which makes it possible to evaporate water even at low temperatures (40 ° C). In combination with a multi-stage heat process, water can be separated from chemicals and impurities and used immediately as cooling water. With a planned compression ratio of 1:40, the fresh-water consumption can thus be reduced by up to 97%. At the same time, the residual waste is compressed, making the reuse easier.

Results: The procured solution allowed to achieve a number of positive outcomes:

- Saving about 4000 m³ of clean drinking water per year, reducing water consumption by 97%;
- Easing the recycle and reuse process by compression of residual waste;
- Lower noise and material emissions, important requirement for protected historic buildings;
- The lowest possible long-term total costs (including energy, supplies and working hours of the required operating personnel).

The procedure required extensive cooperation between the organisations involved (BBG and the Austrian Print and Mint Services GmbH) both during the pre-procurement and the procurement phases. This is considered a key success factor as it allowed to identify an efficient and effective solution. Other two relevant success factors are:

- the openness of all participants involved in undertaking a new approach to public procurement;
- the request to include the envisaged LCC calculations in the offer.

Thanks to these factors, the identified solution was not the cheapest in monetary terms but emerged for being the most economically convenient over the contract's lifetime.

Positive wider market outcomes are also reported. The implemented solution can filter a wide range of particles, such as food, metals, ink, and it can be used for waste recycling systems. Therefore, it has the significant advantage that can be used in a variety of industries and sectors. In addition, the intellectual property rights of the system purchased have remained with the supplier, thus any other organisation can access the solution on the market.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Belgium	
<i>Title</i>	Application of Artificial Intelligence to job-matching system in the Flemish Public Employment Service
<i>Value</i>	N/A
<i>Sector</i>	Other: job placement and vocational services
<i>Publication and award</i>	The contract was awarded in 2018 to <i>Radix.ai</i> (a Belgian start-up) that was a subcontractor of <i>Cronos</i> under a framework contract for IT profiles and projects (2013/10290) for which the contract notice was published in TED in 2013.
<i>Name of public procurer</i>	Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding (VDAB) - Extern Verzelfstandigd Agentschap (<i>Flemish Employment and Vocational Training Service - External Autonomous Agency</i>)
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Services
<p>Background. The Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding (VDAB) is the employment and vocational training public service of Flanders, currently available for 4 million customers. Its main mission is to promote, ensure and organize employment, guidance and training services establishing a regional network of employers, employees and job seekers.</p> <p>In recent years, the VDAB has been investing in the digitalization of its services to optimise its processes and achieve a more effective matching between the supply and demand side of the regional labour market. Since 2014, the VDAB has increasingly committed to the use of innovative solutions to deliver its services. For this reason, an Innovation Lab has been developed, seeking to harness human and digital competencies to become a driver of innovative solutions in the labour market field.</p> <p>Through this Lab, the VDAB has financed pilot projects focusing on the opportunity to apply new technologies, such as Big Data analysis, Cognitive Computing or Artificial Intelligence, to its services. In this regard, this procurement aimed at complementing the existing online tool in use for job-matching system - a software called ELISE - using Artificial Intelligence (AI).</p>	
<p>Areas of need. The procurer wanted to address the following challenges:</p> <ul style="list-style-type: none"> • Improving the matching process between job seeker's skills and experience and job vacancies; • Enhancing market-oriented, competence-based labour market services; • Giving a more tailored and intensive support to job seekers. 	
<p>Procurement description. Before the launch of the procurement, the procurer carried out a market consultation to engage with companies with expertise in the field of AI applications. Among them, the start-up <i>Radix.ai</i> stood out for providing not only useful insights on the possible solution, but also offering a reliable demonstration of its application to matching systems. The procurer wanted to test if it would be possible to apply matching systems successfully to the challenge of job-matching. Therefore, a proof of concept was conducted, revealing that applying AI to job-matching systems could effectively work.</p> <p>Shortly after, the VDAB launched a call off to the contractors in the framework contract to deliver an AI based self-learning solution for job-matching. In addition, an overall re-assessment of the existing online procedures for the registration of data, competences and skills of job-seekers in order to make them fine-tuned with the machine learning process was asked. The procurement used MEAT award criteria.</p> <p>The company which had already run the proof of concept, <i>Radix.ai</i> together with <i>Cronos</i>, were awarded with the contract and delivered the first version of the AI-based job-matching system in mid-October 2018, integrating it in the VDAB online portal.</p>	
<p>Results: The VDAB has integrated a solution of automated job-seeking based on AI. Job-seekers can now rely on a streamlined online registration process, where they can insert their skills and a large detail of preferences in autonomy. The AI-based solution developed through this procurement can analyse complex data and give outcomes which go beyond semantics or keywords. The self-learning AI solution uses deep-learning to make</p>	

recommendations to job candidates and employers not only based on people's CV/job description but also based on profile, preferences, the historical interest in similar jobs and the search behaviour on the website of other people with similar a profile. For example, instead of assuming that only people with an engineering degree would apply for an engineering job, the system learns over time that also people with other degrees have shown interest and successfully obtained a job as an engineer. This enables the system to inform employers about how many people including those that are not engineering could be good candidates for an engineering job. Other example, when a person mentions that he/she has been driving a truck before, the system will automatically recommend also jobs for truckers/transporters, even if the person did not specifically mention in his job application that he has a truck driver's license or is looking for a job as transporter. This enables the system to recommend a wider and more suitable portfolio of potentially interesting jobs to job candidates.

As the AI approach is performing the deep learning based on mathematical values – not language concepts - the job-matching system is now also language independent. As a result, it can link a Dutch CV to a vacancy written e.g. in French, English or German. This is especially helpful in a country with 3 official languages plus an active community of expatriates.

The process of matching job supply and demand is now automatic, unbiased and independent on official and certified qualifications. Human support given by the VDAB officers is still available but is left for other tasks, such as counselling sessions, data management and analysis, face-to-face advices. As the AI system can estimate which profiles have the highest chance to find a job within 6 months' time, this helps the human VDAB officers can focus their job counselling efforts in a more efficient way.

The development of an automated competence-based matching mechanism is expected to generate positive impact on the regional labour market. This mechanism helps both employers to adequately identify workers with requested skills as well as employees in putting their capabilities at work. It allows to bring supply and demand of labour closer, in less time.

The degree of autonomy left to job-seekers in describing their skills and preferences has also revealed as a driver of efficiency. It allowed to significantly reduce transaction costs associated to the job search, such as time-wasting procedures for registering at the office. Moreover, a self-description of competences and preferences can be more precise and significantly help the software to better target each job-seekers profile, allowing job-seekers to receive only the most interesting job proposals.

Overall, the digitalisation of processes concerning registration and competences description leads to considerable time savings for human activities, which are focused on tasks where VDAB employees can add value. For example, individual help in CV writing or in identifying competences or skills, counselling group sessions etc.

The solution has raised a lot of interests at national and international level. International institutions such as World Bank and OECD has declared that the VDAB commitment to the use of AI in this field could result in an international benchmark solution. Therefore, wider market impacts are expected both in Belgium and in other countries aiming at optimizing and orienting on competences their public job market services.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#), [Link 4](#), [Link 5](#)

Bulgaria	
<i>Title</i>	Specialized vehicle, surveillance drone and personal protective equipment for forest fire fighting
<i>Value</i>	€ 181.600 (excluding VAT)
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The contract notice 2017/S 111-222939 was published on TED on 13 June 2017. The contract was awarded on 31 October 2017 to <i>Bulauto AD</i> (BG)
<i>Name of public procurer</i>	Municipality of Kula
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Services
<p>Background: The Bulgarian municipality of Kula is located in a mountainous and wooded area, which is frequently subject to forest fires. The municipal volunteer emergency response unit was facing serious obstacles in the prevention and intervention phases. Due to exposure to smoke, flame, and high temperatures, visual observations are usually ambiguous and incomplete while instrumental measurements are expensive and dangerous. In addition to this, decision-makers often have to take responsibilities and operate under considerable pressure and lack of time. Since forest fires are a largely unpredictable process, classical decision support approaches bring limited assistance, so the efficiency of forest fire operations strongly depends on the availability of monitoring and measurement tools.⁸⁶¹</p>	
<p>Areas of need: The municipal volunteer emergency response unit in the Municipality of Kula identified the following main challenges to be addressed:</p> <ul style="list-style-type: none"> • Develop more efficient tools to monitor and measure forest fire operations; • Increase the effectiveness of forest fires prevention mechanism; • Minimise errors in preventing and extinguishing forest fires. 	
<p>Procurement description: In May 2017 – with the co-funding of the EU through the Interreg-IPA CBC Bulgaria–Serbia Programme 2014-2020 under project CBo07.1.31.348 “Forest Fire Fighters” – the municipality of Kula published a prior information notice to inform of its intention to procure firefighting equipment for its emergency response unit. The following month, the contract notice was also published. The procurement was conducted as an open procedure, divided into three lots, which increases the opportunities also for smaller companies to participate in the call for tender:</p> <ul style="list-style-type: none"> • Lot 1 -for the supply of a specialized vehicle for forest fire fighting • Lot 2 - for the supply of a surveillance drone • Lot 3- for the supply of personal protective equipment for firefighters, including 15 pieces of: fire extinguisher backpacks, fire beaters, personal radio stations, motor chainsaws, protective jackets, protective trousers, protective boots, gloves, fire extinguishers, air breathing equipment, personal lighting devices, and additional equipment for implementation of small local water network. <p>On the 31 October 2017, all three lots were awarded to the same provider, a local Bulgarian SME.</p>	
<p>Results: The use of unmanned aerial vehicles (UAV) such as drones has allowed to perform long-time, monotonous, and repeated missions to patrol and monitor the possible existence of fires in the municipality of Kula. Moreover, being equipped with a range of relatively inexpensive sensors, drones detect potential ignitions, trigger an event to initialise further monitoring and also determine a fire’s location and event, tracking its evolution. It is now possible to collect real-time information on fire spreading, potentially feeding into a model supporting decision-makers in tackling fires more quickly and accurately. Drones have also brought additional</p>	

⁸⁶¹ For a more detailed review of forest firefighting systems, see: V. Sherstjuk, M. Zharikova, I. Sokol, Forest Fire-Fighting Monitoring System Based on UAV team and Remote Sensing, Conference Paper, 2018 IEEE 38th International Conference on Electronics and Nanotechnology (ELNANO).

savings, preventing the financing of expensive missions – such as helicopter hovers and fly-bys – only to confirm and diagnose a fire.

Thus, the adoption of this solution has significantly improved the effectiveness and readiness of the volunteer emergency response unit in their aim to prevent and putting out forest fires in the Municipality of Kula. In the project the Municipality also coordinated the preparation of this procurement with the neighbouring region Boljevac (Serbia) to reduce discrepancies in the use of available technology and expertise across the neighbouring firefighting teams in order to remove barriers for cross-border cooperation in forest fire risk management and to increase the safety of the population and the national resources in the border area.

Furthermore, such solution can be adopted by other municipalities or regions facing the same issues, being accessible on the market. A wider market impact can reasonably be expected.

Sources and more information available at: [Link 1](#)

Croatia	
<i>Title</i>	Lighting solution for the Municipality of Župa Dubrovnik
<i>Value</i>	€ 180.000 (excluding VAT)
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The contract notice was published in 2014. The contract was awarded on the criteria of lowest price and compliance with stringent environmental technical requirements.
<i>Name of public procurer</i>	Municipality of Župa Dubrovnik
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Services
<p>Background: In 2014, the Municipality of Župa Dubrovnik – located in the county of Dubrovnik-Neretva in the south-east of Croatia – introduced a Sustainable Energy Action Plan (SEAP). The SEAP lays the groundwork for the Municipality’s implementation of green public procurement. In this context, the Municipality decided to renew the public street lighting system. The previous lighting system was based on street light fixtures and high-pressure mercury lamps, and it was decided to replace it with a more sustainable one, emitting less light pollution, producing less greenhouse gas emissions as well as providing better visibility during the hours of darkness.</p>	
<p>Areas of need. The Municipality identified three key areas of need:</p> <ul style="list-style-type: none"> • Increasing the quality of street lighting in the Municipality while reducing energy consumption. • Improving public and traffic safety as well as traffic flow at night. • Reducing CO2 consumption in the context of the Sustainable Energy Action Plan. 	
<p>Procurement description: The Municipality decided to publish an open tender that included the replacement of the existing street light fixtures and high-pressure mercury lamps, with a new and more sustainable solution. For Župa Dubrovnik, this was the first green public procurement procedure within the scope of the SEAP.</p> <p>The only award criteria included in this tender was the lowest price. However, the tender also presented multiple binding technical parameters, so that the proposed solutions <i>de facto</i> had to consist at least of the quality of modern LED lighting systems. Some of the parameters included were the Colour Rendering Index⁸⁶², the Colour temperature (Kelvin) and the General lighting-efficiency (lumen/watt). However, a LED lighting solution was not specifically requested, so that, should an even better solution be available on the market, it could have also been offered as long as it met the requirements outlined in the technical specifications. In addition, the contract also included parameters to ensure that the components used for repair and maintenance activities meet the highest standards available on the market.</p>	
<p>Results: The LED lighting solution awarded is an intelligent lighting solution that is programmed so that the lamps do not switch on until visibility reaches the minimum illumination level for street lightning required by law in Croatia. Furthermore, it reduces the power (wattage) and energy consumption in accordance with the intensity of natural lighting by an automatic controller regulation which is installed in the system.</p> <p>Overall, 686 LED lamps were installed, having a positive impact on air, land and water pollution which was caused by the use of hazardous mercury. In comparison to the previous system, the new system has reduced the CO2 emissions due to street lighting by 36% (330,000 kWh per year to 210,000 kWh), saving the equivalent of 900 tonnes of CO2 over a 25-year period. Positive outcomes are also reported in terms of public spending: the new solution is enabling the Municipality save approximately € 13,800 per year at today’s energy prices (currently 0.115 euro per kWh for street lighting). This estimate does not include the savings made from the reduced need to service light fixtures.</p>	
<p>Sources and more information available at: Link 1</p>	

⁸⁶² Measure used to estimate the ability of a light to accurately reveal the colours of various objects in comparison to an “ideal” or natural source

Cyprus	
<i>Title</i>	Creation of the Department of Lands and Surveys Web Portal
<i>Value</i>	€ 1.619.850 (excluding VAT). 85% of the project (not including costs for support, maintenance and certain procurement procedures) was co-financed by the EU European Regional Development Fund.
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The contract notice was published on 26 March 2014 in TED (2015/S 005-005787). The contract was awarded on 08 January 2015 to <i>NetU Consultants Ltd</i> (CY).
<i>Name of public procurer</i>	Tmima Ktimatologioy kai Chorometrias (Department of Lands and Surveys)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Services
<p>Background. The Department of Lands and Surveys (DLS) of the Cypriot Ministry of Interior is responsible for the provision of services in connection with all the rights relating to immovable property (cartography, tenure, land registration, etc.) and the management of all property belonging to the State. Therefore, it is the main source of data relating to property. The availability and accessibility of data is guaranteed both to the public sector and to businesses, stakeholders and citizens. Data collected cover the last century.</p> <p>After the transposition into national legislation of the INSPIRE Directive⁸⁶³ in 2010, and a critical review of the its implementation plan in 2015, Cyprus is in the process of further improving the overall conformity and compliance with it. According to the INSPIRE Directive, Member States shall ensure spatial data are stored, made available and maintained guaranteeing accessibility and security of data at the most appropriate level, creating an EU spatial data infrastructure.</p> <p>The DLS thus focused on the implementation of a new IT Strategy, which included the creation of a DLS Web Portal allowing to easily benefit from a range of e-services, simplifying the burdensome administrative procedures to access information. In particular, one of the priorities was to modernise the existing Land Information System (LIS), a graphical cadastre that records a considerable amount of data on development, utilities, land use, water resources, geology, and even statistical data for population, industry, agriculture and planning.</p>	
<p>Areas of need. The public procurer aimed at addressing the following needs:</p> <ul style="list-style-type: none"> • Increase the efficiency and reduce time-wasting procedures to access DLS services; • Automate DLS procedures, increasing productivity; • Redesign and simplify the LIS; • Develop an IT customer-centric culture in the access to data of public administration; • Ensure full compliance with the INSPIRE Directive. 	
<p>Procurement description. The initial budget envisaged for the procurement consisted of over € 1.8 million (excluding VAT), of which two thirds were devoted to the development of the necessary IT systems and the purchase of hardware and software. The remainder was envisaged for various other services, including optional maintenance, support and the development of additional applications.</p> <p>The procurement followed an open procedure, and a total of 6 companies submitted an offer, including 3 from Cyprus, 2 from Italy and one from Spain. While the only criterion for the award of the contract was based on price, the evaluation of proposals lasted over two months and allowed to verify the adherence of all technical and quality requirements of the tender specifications. Only one company met all the requirements and was awarded the contract.</p>	

⁸⁶³ Directive 2007/2/EC of the European Parliament and the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). The INSPIRE Directive sets the minimum conditions for interoperable sharing and exchange of spatial data across Europe as part of a larger European Interoperability Framework and the e-Government Action Plan that contributes to the Digital Single Market Agenda.

Results. The DLS Web Portal provides the following solutions, in adherence to the INSPIRE Directive, which were not available before its development:

- A dynamic front page with information on the Department and the services offered;
- The possibility to navigate to a property through a free online web application in real time;
- A tool to submit electronic applications, including for instance demarcation of boundaries, property searches and copies of title certificates, mortgage release by banks, etc.

The portal brings benefits to a wide variety of stakeholders:

- **Citizens**, who can now easily access a wide range of services, with the possibility of searching for specific pieces of information, saving results and resources for later use. This allows to significantly reduce bureaucratic procedures, fostering a better-informed participation of citizens in the governance of the territory.
- **Businesses**, which can base their investments on easily accessible and reliable data on the real estate market, ensuring a level playing field and encouraging competitiveness.
- **Public administrations**, which can now benefit from a well-structured and interoperable system to collect and disseminate the geographic, cadastral, legal and fiscal data that they produce and manage, allowing to save public resources and time.

The creation of the DLS Web Portal won the 2018 Cyprus Innovation Award in the category 'Wider Public Sector', a prestigious national prize that is handed every year by the country's President. The development of the Web Portal was indeed considered a successful step in the modernisation of Cypriot public administration, specifically in the way services and data connected to properties are offered to other administrations, businesses and citizens.

Sources and more information available at: [Link 1](#)

Czech Republic	
<i>Title</i>	Virtual autopsy table
<i>Value</i>	€ 73.733,22 (Lot No.3). The total value of the procurement, divided in four lots, is € 160,379.38 (excluding VAT)
<i>Sector</i>	Education, recreation, culture and religion
<i>Publication and award</i>	Tender was opened from 8/10/2018 to 24/10/2018. Contract award notice (TED No. 2018/S 224-5122) was dispatched on the 19/11/2018. For Lot No.3 the contract was awarded to the Czech SME supplier <i>CHEIRÓN a.s.</i>
<i>Name of public procurer</i>	Univerzita Karlova, Lékařská fakulta v Plzni (Charles University Faculty of Medicine in Pilsen)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Goods
<p>Background: The University Hospital Pilsen is one of the largest medical facilities in Czech Republic. Thanks to the long-term economic stability experienced in the last years, the hospital has decided to invest in its technological development.</p> <p>In particular, the field of autopsies was identified as an area where new technological solutions could help mitigating the risk of mis-diagnoses in post-mortem body detection. It often happens that families do not give their consent to perform autopsies in order to preserve the body of the relatives. This may hinder the collection of data and the analyses of samples and elements which may be useful for medical or investigative reasons.</p> <p>In this context, the University decided to purchase an innovative Virtual Autopsy Table (Lot No.3 of the tender). The virtualisation of autopsies is a recent innovative process, which could effectively address this challenge. This high technological table is mainly used in medical forensics, however it can also be applied to other branches, such as surgery or oncology.</p>	
<p>Areas of need: The procurer wanted to address the following needs:</p> <ul style="list-style-type: none"> • Minimise the risk of misdiagnoses thanks to the use of an automated autopsy process based on objective criteria; • Reduce the obstacles to the implementation of complete and reliable autopsies; • Achieve a technologically-driven education of hospital staff and medical students, based on quick data collection and diffusion, without reducing the quality of analyses. 	
<p>Procurement description: The procurement was divided in 4 lots requesting the supply of different equipment. In addition to the virtual autopsy table (Lot No.3), the University purchased an anatomical model (Lot. No.1), a disk array (Lot No. 2) and a multimodal portal (Lot No.4). The procurement was launched as an open simplified (below EU threshold) procedure. In the contract notice the procurer fixed general and specific technical requirements for each lot. One candidate for each lot presented an offer.</p> <p>The purchase of a virtual autopsy table (lot No. 3) is the highest lot in value, accounting for approx. 46% of the total procurement.⁸⁶⁴ It is a procurement where the procurer specifically requested to deliver an innovative solution applicable both to medical-education and medical-forensics field. The tender specifications requested suppliers to offer a product that could provide 3D anatomical sections and 3D models for teaching anatomy. There were no selection criteria requiring minimum economic and financial standing of the company. The company awarded for this contract was an SME, <i>CHEIRÓN a.s.</i>⁸⁶⁵</p>	
<p>Results The purchased Virtual Autopsy Table has guaranteed the procurer a highly innovative solution, consisting in an industrial six-axis robot, equipped with a multi-slice scanner for computed tomography (X-ray</p>	

⁸⁶⁴ The total amount of money awarded is €160,379.38 (excluding VAT), of which: Lot No.1: € 23,885.82; Lot No.2: € 7,006.38; Lot No.4: € 55,809.52

⁸⁶⁵ The companies awarded for the other three lots are: Lot No.1: HELAGO-CZ, s.r.o., Lot No.2: C SYSTEÁM CZ a.s., Lot No.4: Siemens Healthcare, s.r.o.

body scanner) with equipment for angiography (heart radiography), a digital photogrammetry (3D mapping using images), a 3D system to perform automated surface documentation, and an automated biopsy system for post-mortem needle placement useful to extract samples. These features significantly help the medical or forensic analysis combining robotics, 3D technology and high-speed data computing. Radiologists scan the body and, after examining the images, they can highlight any irregularities to the medical examiner. The data can be archived, reproduced, analyzed in another location, or distributed to other medical specialists for input.

The main positive outcome is that autopsies are more precise and effective. Virtual imaging allows the examination of body parts which are hard to reach and analyse in traditional autopsies (e.g. cardiovascular system or bone joints).

In addition, the reliability of autopsies may result significantly increased. In fact, collection and analysis of data are standardized, and more efficiently managed. Most importantly, thanks to virtualization, collecting observational data (namely, all the observations made by medical examiners) is now an objective process, since it is based on fixed automated criteria rather than on the own evaluation of coroners. This causes a positive impact, enhancing the robustness of the evidences collected and used for investigations and trials.

Another positive outcome is a more up-to-date education in the field of medicine, leading to an increase in skills and capabilities of doctors and students working and studying in the hospital. The Virtual Autopsy Table allows to better understand the body functions and processes to students which can gather around the table and simultaneously interact. It is thus a relevant tool to modernise the University offer and enhance the quality of medical tools provided to students.

Overall, this technology is also expected to have a wider impact in the health sector, as it can easily be applied to other branches, such as surgery or oncology – prevention and treatment of tumours. As in the case of Virtual Autopsy table, training of medicine students can be positively affected also in these other fields. For example, in the case of surgery, a virtual table can become an ideal platform for strategic surgical planning. Namely, interdisciplinary teams can discuss the complexity of a case and define the surgical strategy before placing a first cut. In oncology, virtualisation can help students access to data and learn practices with increased efficiency.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Denmark

<i>Title</i>	Intelligent Street Lighting
<i>Value</i>	€ 33.000.000 (DKK 250 million), including a 12 years of maintenance worth approximately € 1.600.000 per year.
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The contract notice was published in 2012 (TED notice 2012/S 180-296469), and the contract was awarded in mid-2013 to the French company <i>Citelum</i> .
<i>Name of public procurer</i>	City of Copenhagen
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Works

Background. The City of Copenhagen has an ambitious carbon reduction plan with the aim to become the first carbon neutral city by 2025. Part of this plan required to renew the street light system across the city optimising its energy consumption, with the aim to reduce it by 50%.

In order to achieve this target, the City decided already back in 2011 to create an energy efficient smart lighting system, based on a remote ICT-surveillance system. However, two main challenges emerged in the development and implementation of the system. First, there were no off-the-shelf products that fulfilled the requirements, in particular the ICT-surveillance system was still under development. In addition, the new system required the purchase of LED, which is a fast-developing technology and therefore needed considerations on how to ensure that the solutions procured would be up to date for a long-time span.

Areas of need. The procurer wanted to address the following needs:

- Reducing energy consumption and carbon footprint of the street lighting system;
- Developing a more efficient and easier to maintain public lighting system;
- Developing smart city solutions.

Procurement description. Given the complexity of the solution requested, the City of Copenhagen involved potential suppliers in a Competitive Dialogue that was published in 2012. Key elements discussed were: the most suitable technology, the contract length, the best cooperation model between public and private stakeholders and financing forms.

Once the procurer achieved sufficient confidence that a tender procedure could gather satisfying proposals, tenders were invited to submit bids. A long-term contract, starting in 2013, was awarded to the most economically advantageous tender.

Two were the most innovative aspects of this procurement. The first one involves the procurement process: a market dialogue with suppliers in order to allow them to design an off-the-shelf solution tailored on the specific needs of the procurer. The second one derives from the result of the dialogue and involves the solution purchased, which is better described in the following section.

Results. With this procurement the city gradually upgraded approximately 40.000 fixtures with a new innovative lighting system based on last-generation LED technology. With this early investment in 2012, Copenhagen became one of the first cities in Europe to deploy innovative LED based lighting. Thanks to a wireless system, the lighting fixtures are interconnected and monitored. The type of lanterns installed, called *Thor L*, were specifically designed to be compatible with a wireless and automatically interconnected system.

This solution led to remarkable savings in terms of maintenance costs. This is due to higher lifetime and efficiency of LED lights.

In addition, the development of an interconnected lighting system has significantly improved the energy efficiency. For example, it allows to integrate public lights with the traffic monitoring system already used in Copenhagen. Therefore, light intensity could automatically be dimmed or enhanced, depending on traffic density and weather conditions (e.g. lower intensity with wet road), resulting in remarkable reduction in energy consumption.

A positive impact has been assessed on the environmental side. The new system achieved a substantial reduction in CO₂ emissions due to public lighting and therefore contributes to the overarching goal of making Copenhagen a carbon neutral city.

This lighting system has also improved comfort and safety for roads users. Given the higher quality of light, mobility is now safer and less stressful for all users, from drivers to cyclists and pedestrians.

The innovative solution purchased through this procurement has proven to be an effective tool to develop the smart concept in the sector of public lighting in the City of Copenhagen. It can therefore be extended to other cities, aiming at the same development.

Sources and more information available at: [Link 1](#), [Link 2](#)

Estonia	
<i>Title</i>	X-Road project
<i>Value</i>	N/A
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	First contract notice published and awarded in 2001 to <i>AS Assert</i> (EE) and sub-contractors: <i>AS Cybernetica</i> (EE), <i>AS Andmevara</i> (EE), <i>Reaalsüsteemide AS</i> (EE) and <i>AS Datel</i> (EE). Latest core development procured on 29/03/2018 (TED n. 2018/S 059-130427) and awarded on 29/06/2018 (TED n. 2018/S 123-279990) to <i>Gofore Plc</i> (FI)
<i>Name of public procurer</i>	Information System Authority (RIA) under the Ministry of Economic Affairs
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Services
<p>Background: Estonia is considered one of the most advanced countries in the field of digital society. Since the late 90's, the country has invested in the digitalization of its public services, with the aim of facilitating the life and work of Estonian citizens and businesses.</p> <p>Despite that, the public administration was still characterized by isolated agencies and organisations experiencing barriers in sharing and exchanging data. Therefore, the Government decided to launch a procurement aimed at developing a comprehensive software able to connect all public databases and guarantee the highest security standards. The project was coordinated by the Ministry of Economic Affairs with the cooperation of different Ministries (Ministry of Transport and Communications, Ministry of the Interior and the Government Office).</p> <p>The X-Road project was launched in 2001 in order to acquire a suitable technology for such purposes.</p>	
<p>Areas of need: The procurer wanted to address the following challenges:</p> <ul style="list-style-type: none"> • Enhancing transparency in the exchange of information with citizens; • Connecting public institutions and easing access of public and private organisations to public databases; • Developing a safe system of inter-connectivity among public institutions. 	
<p>Procurement description. One year before the launch of the public procurement, a pilot project was carried out. The project linked three databases and aimed at assessing and identifying the software that best suited the needs of the procurer. A specific team of qualified professionals was formed to set clear technical requirements. These requirements had to ensure the development of an e-government software allowing secure exchanges of data and information among institutions and between citizens and government.</p> <p>The notice was published in May 2001. The contract was awarded to <i>AS Assert</i> (EE) which relied on different sub-contractors: <i>AS Cybernetica</i> (EE) – for architecture, protocols and security solutions - <i>AS Andmevara</i> (EE) – for testing queries to the population register and the Estonian registry of buildings - <i>Reaalsüsteemide AS</i> (EE) – for testing queries to commercial register - <i>AS Datel</i> (EE) – for testing queries to electronic land register - <i>Estonian commercial banks</i> – for the authentication of users.</p> <p>In the following years, five requests for expanding the X-Road were procured, all using most economically advantageous award criteria. The aim was to increase the scope of public e-services and update the software with the latest technology. In most cases, a negotiated procedure was held, with awarding criteria focused on high-level technological standards and value for money.</p> <p>The latest core development of X-Road has been financed by the Nordic Institute for Interoperability Solutions (NIIS) in 2018 through an open procedure won by <i>Gofore Plc</i> (FI) for a value of € 2.100.000</p>	
<p>Results: X-Road has become a backbone of the Estonian e-government system. It is the first system in the world guaranteeing interconnection of public information systems and has been made mandatory by the Estonian Government. Thanks to its implementation, the country has digitized almost all its governmental services.</p>	

The adoption of this solution resulted in three major impacts:

- Reduction of the administrative burden thanks to an automated filling functionality which allows time savings and prevents data-entry errors;
- Advance in modernization and digitization of public procurement, avoiding paper procedures and certificates;
- Improvement of anti-corruption measures, giving controlling authorities more effective instruments to cross-check information.

In addition, fast and reliable data exchanges made communications between state agencies faster, safer, and more efficient. At the same time, positive impacts have been achieved on the state-to-citizen and citizen-to-state levels, increasing also the transparency in the exchange of information.

Wider market impacts have also been experienced since the solution allowed to increase cooperation with other countries in the field. Since 2016, X-Road is managed by the NIIS, a joint organization formed by the Estonian and Finland Governments. Thanks to this cooperation, a full public agencies interoperability has been achieved among the two countries. In addition, the conceptual model behind X-Road has strongly influenced the European Interoperability Framework and its main technology has been adopted or served as a model in other countries, such as Argentina, Serbia and Azerbaijan.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Finland

<i>Title</i>	Purchase of light-weight, full electric buses in Helsinki
<i>Value</i>	Lowest offer € 5.000.000 Highest offer €6.000.000
<i>Sector</i>	Public Transport
<i>Publication and award</i>	A voluntary ex-ante transparency notice was published for a first pilot on 05/02/2015 (TED n. 2015/S 025-042320), awarding <i>Linkker Oy</i> (FI) with a contract. The open market consultation for the competitive provisioning of electric buses was published on 17/10/2019 (TED n. 2019/S 201-488585)
<i>Name of public procurer</i>	Helsinki Region Transport Authority (HSL)
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Goods

Background. The Helsinki Region Transport Authority (HSL) committed to have 30% of its bus fleet fully electric by 2025.

To achieve the city environmental goals and maintain its quality and efficiency standards in the public transport system, the HSL decided already in 2015 to invest in the development of a highly innovative solution for electric buses. In particular, the solution requested focused on guaranteeing totally green technology and the same performance standards of diesel buses.

Areas of need. The procurer wanted to address the following needs:

- Decreasing the level of carbon emissions of public transport;
- Investing in new and sustainable technologies without compromising the quality of public transport;
- Increasing the city commitment to sustainability of public services.

Procurement description. In 2015, the HSL together with the Finnish Technical Research Centre (VTT) launched a joint pilot-project for the development of 12 electric buses. As the contract targeted only research and development services to create and test full electric buses, a negotiated procedure without publication was used and awarded to *Linkker Oy*⁸⁶⁶.

Negotiation dealt with the main requirements the procurer asked for: a low weight of the vehicles, energy efficiency, quick and quiet charging operations, zero emissions registered and sensors for monitoring in real-time the condition of the batteries. Accordingly, the supplier was chosen for its high reliability on addressing such conditions in an innovative solution for buses.

The testing phase started in 2017 and the positive outcome led to the decision to start in 2019 an international procurement procedure for the purchase of full electric buses.

Results: The 12 pilot buses that developed and tested were made of aluminium, respecting the requirement of having a light-weight vehicle. The pilots were equipped with sensors to collect data, and a real-time monitoring and control system to manage battery charge levels.

The pilot demonstrated that the buses are more energy efficient compared to standard buses and therefore their introduction a positive environmental impact. Firstly, because the energy consumed is only a small fraction of that needed for diesel buses. Secondly, because buses are made of full electric battery and a full aluminium body, making the bus less heavy, and therefore less polluting, if compared to those made of steel.

In addition, the efficiency of the transport system resulted not to be compromised. In order to comply with the request of quick charge operations, the solution proposed includes a battery which requires only few minutes to be fully charged.

⁸⁶⁶ In accordance with art. 40(3) of Directive 2004/17/EC

Moreover, an overall optimization of the service has been achieved. The monitoring system installed includes a mechanism of remote control for the bus fleet, improving public transport organization management. It contributes to maintain high smart-city standards in the city.

In 2017, the two thirds of residents in Helsinki moved around the city walking or using public transports⁸⁶⁷, demonstrating that the city has successfully oriented citizen's habits towards sustainable transport models. Despite that, additional efforts are requested in the coming years in order to reach the ambitious target of reducing local carbon emissions by over 90% in 2025 compared to 2010 levels. In this context, based on the experience gained with this pilot, the city of Helsinki has opened in 2019 international procedures for the purchase of full electric buses and so proceeding towards the goal of a 30% electric fleet set for 2025.

Wider impacts on the market are also expected. This pilot allowed to develop technologies that set new standards in the market of electric vehicles used for public transport. As a result, this experience is expected to be considered a benchmarking model for other cities willing to move from standard to electric buses.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#), [Link 4](#), [Link 5](#)

⁸⁶⁷ Cf. David Thorpe (N/A), "[The City Where 77% of Journeys Are By Sustainable Means](#)", in www.smartcitiesdive.com. Consulted in October 2019.

France

<i>Title</i>	HAPPI Project
<i>Value</i>	€ 2.000.000 (EU Competitvity and Innovation Programme) € 2.500.000 (approximately the net value of tenders procured)
<i>Sector</i>	Healthcare and social services
<i>Publication and award</i>	The call for tender was opened to proposals from 30/09/2014 to 31/12/2014. Three contracts were awarded in April 2015 to VA2CS (FR), Forcelink (NL), Alter Eco Santé (FR)
<i>Name of public procurer</i>	GIP Réseau des acheteurs hospitaliers d'Ile de France (RESAH) as the coordinator of a network of European central purchasing bodies.
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Goods

Background. Healthy ageing is usually not perceived from health institutions as an area where innovation is needed. This may be due to the lack of promotion of innovative solutions, the lack of resources to be invested in new solutions or the perception of missing added value. Despite that, ageing of the population deeply affects the socio-economic structure for European Member States and is therefore perceived as a pivotal issue. An ageing population puts increasing pressure to national public welfare systems. In this regard, the use of innovative solutions can help European hospitals and nursing homes to increase the efficiency of their services, without reducing the effectiveness of their work.

As a result of common challenges faced across countries in this field, EU-wide solutions are likely to overcome barriers preventing public procurers from investing in innovative solutions. In this context, RESAH acted from 2012 to 2016 as the main coordinator of the HAPPI Project. The project aimed at establishing a European network for detecting and purchasing innovative and sustainable solutions to improve ageing conditions of the population. It brought together a consortium of 10 partners, including 5 central purchasing bodies (CPB) based in France (RESAH), the United Kingdom (NHS Commercial Solutions), Italy (SCR Piemonte), Belgium (Mercur'Hosp) and Luxembourg (Fédération des Hôpitaux Luxembourgeois).

In a preliminary phase (September 2013), the HAPPI network created a European platform for detection of innovative solutions. The aim of the platform was to support procurers in the market research process. About 150 potentially innovative ageing-related solutions were proposed by more than 200 suppliers from a dozen countries. They were analysed by groups of experts (institution directors, geriatricians, ergonomists, professional risk prevention managers, etc.) to assess common needs for the network and the readiness of the market in providing innovative solutions in specific fields of interest.

Areas of need. The procurer wanted to face the following needs:

- Addressing the ageing issue through the identification of EU-wide solutions;
- Achieving cost efficiency in the healthcare sector;
- Guaranteeing high standard of the national welfare systems for elderly people.

Procurement description. After the preliminary phase, the HAPPI network launched a joint cross-border call for tenders to purchase innovative solutions to promote healthy ageing. The call was divided in 5 Lots, each Lot focused on the identification of an innovative solution in a specific field:

- Lot 1: Fall detection and alert system;
- Lot 2: Treadmill for rehabilitation and analysis of walking disorders;
- Lot 3: Walking course for preventing falls and maintaining independence;
- Lot 4: Bed thermoregulation system;
- Lot 5: Chair enabling users to maintain independence and reducing effort for aides.

Innovativeness was a specific requirement for each lot. It referred to the fact that the solution should be at its first phase of application or marketing, or new for the beneficiary.

Two committees oversaw the procurement procedures. A technical committee gathered technical and legal advisors from each national Central Purchasing Body (CPB), preparing all the tender documents and evaluating

the bids. In parallel, an advisory committee, coordinated by RESAH, gave an opinion and validated the offers received.

Contracts were awarded for the furniture of the solutions asked in Lots 1, 2 and 3. Lot 1 was awarded to the French VA2CS, Lot 2 was awarded to the Dutch *Forcelink* and Lot 3 to the French *Alter Eco Santé*. Overall, the total amount of the contracts procured was approximately €2,5 million.

These solutions were publicly presented in four showrooms. They have been implemented in national health structures in different countries, including France. The HAPPI project officially ended in August 2016.

Results. The three solutions awarded and made available on the platform significantly contributed to offer improved or new solutions on the market.

- Lot 1 allowed to develop an innovative anti-fall system. The system is based on a software which warns doctors via telephone or email in case a patient falls or loses consciousness;
- Lot 2 developed a treadmill based on a disruptive technology that allows to collect and evaluate immediately a number of parameters linked to the patient motion. This innovative solution allows to provide tailored improvement sessions to patients;
- Lot 3 is an online innovative training to stimulate the motor functions of people that are over sixty years old.

The added value brought by the project includes the following elements:

- High cost-savings were possible by exploiting economies of scale. Thanks to an EU-wide tender and EU funds, the HAPPI project invested on innovation achieving higher cost efficiency than that each procurer alone could have relied on;
- Secondly, time devoted to research and selection of innovative solution was minimized. Every contracting authority working in the healthcare sector was able to enter the platform and purchase innovative ageing-related solutions without arranging any call for tender or market research.

In addition, the overall supply of innovative solutions in the healthcare sector was increased. The joint procurement allowed national structures to purchase new solutions available on the market to address these specific needs. Hence, this procurement brought a concrete and positive impact on national the healthcare systems.

This kind of procurement was designed to impact on a wider scale and a national one. Therefore, by awarding several contracts in different countries through one centralized procurement procedure can be already considered an achieved wide market impact. This procedure can be used as a useful best-practice for addressing European common problems through innovation-oriented partnership also in other sectors.

Sources and more information available at: [Link 1](#), [Link 2](#)

<h1>Germany</h1>	
<i>Title</i>	Magnetic-card system
<i>Value</i>	€ 2.679.637
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	Contract notice was published on 03/03/2018 (TED no. 2018/S 044-096364). Contract was awarded to <i>T-Systems</i> (DE) and signed in December 2018.
<i>Name of public procurer</i>	Stadt Monheim am Rhein - Zentrale Vergabestelle
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Services
<p>Background. The administrative landscape in the German public sector is dominated by isolated digital solutions. In this regard, the German Online Access Act (OZG) has been implemented to support harmonisation and better collaboration among public authorities by creating uniform standards across administrative levels. It binds the federal administration, the <i>Länder</i> and the municipalities to offer their administrative services digitally by the end of 2022.</p> <p>In this context, the city of Monheim launched the project <i>Monheim 4.0</i> with the aim to implement smart solutions for citizens, easing the way they access goods and services offered in the city. In light of the increasing number of digital services offered, the city was looking for a digital and physical card through which citizens can access local services, look for public information or purchase goods in partnered shops.</p>	
<p>Areas of need. The procurement was thought to address the following needs:</p> <ul style="list-style-type: none"> • Comply with the OZG, digitalising services delivery to the highest possible degree; • Guarantee time savings and effectiveness in the access to public services and information; • Streamline the way citizen can pay (cashless) for public services, goods in local shops or receive information about local events; • Adopt a physical and digital card based on an advanced blockchain based solution which protects personal data of users and safely manages electronic records and is connected to an online portal and a mobile phone client. 	
<p>Procurement description: In this procurement, the procurer required from the start in the call for tender the use of the very innovative blockchain technology and the development of a web-portal and a smartphone-app. Given the challenges expected in the implementation of the tender, it was decided to launch a competitive procedure with negotiation. The procurement used best value for money award criteria that included not only price (weighting 40%) but also other criteria (each weighting 20%), namely user-friendliness of the solution, optical representation and functionality. The procurement allowed companies to submit variant offers. In the first phase seven companies applied to participate. The procurer selected three of them, which were allowed to make an offer. Based on this, negotiation started with only one company, <i>T-System</i>. The negotiation aimed at addressing relevant technological and policy challenges, linked to the gradual integration of different services and to data protection management. Then, the company <i>T-Systems</i> was awarded with the contract.</p>	
<p>Results: The so called <i>Monheim-Pass</i> is expected to be fully operational by June 2020. The mobile app is also characterised by a very simple design and innovative solutions such as location-based offer of services and partnered shops. A limited number of services have been already made available. The city library, the digital bicycle rental system (including electric bikes) and the public swimming pool allow online payments, bookings and reservations through the card and the app. New services are gradually going to be included. In addition, a number of incentives are envisaged to facilitate the use of the card: a €15 voucher to be used in local shops is provided to citizens making use of the card. In addition, the administration has proposed to give to card-owners free access to public transport in the zone Langefeld/Monheim.</p>	

Thus, the proposed solution facilitates access to public services, removing the barriers and enhance diffusion of information. The starting services (city library, swimming pool and bike rental system) may reveal the first positive outcomes mainly in their sectors (culture, sport and e-mobility). Other fields positively affected include public transport, which may significantly benefit from the Pass (if the above-mentioned proposal on free public transport will be approved by the City Council). Thanks to the voucher incentives, the proposed solution is also expected to generate positive spillovers on the local economy.

Furthermore, in line with what the procurer was looking for, the blockchain technology ensures the protection of personal data, enhancing the trustworthiness and safety of such administrative digital development. Overall, this project modernises the way public administration deliver services with a citizen-centred approach.

In terms of wider impacts, the proposed solution contributes to the achievement of the objectives identified in the national digitalisation strategy. In particular, the solution contributes to the achievement of the digital transformation of all public administrations at every level of government and to give citizen's access to all administrative services via a secure single-user account.

Sources and more information available at: [Link 1](#)

<h1>Greece</h1>	
<i>Title</i>	Smart Policing Systems
<i>Value</i>	€ 3.400.000 (excluding VAT), with an option for the public procurer of 5 years of maintenance services for approximately €1.000.000 (excluding VAT)
<i>Sector</i>	Public order, safety, security and defence
<i>Publication and award</i>	The contract notice was published on 11 April 2018 (TED notice 2018/S 070-154725), while the contract was awarded on 2 July 2019 (TED notice 2019/S 125-305407) to <i>Intracom Telecom</i> , an international IT services provider headquartered in Greece.
<i>Name of public procurer</i>	Ministry of Citizen Protection, Hellenic Police Directorate
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Goods
<p>Background. According to the United Nations Office on Drugs and Crime, identity-related crimes are one of the key emerging crimes of concern.⁸⁶⁸ The functioning of economies and societies increasingly relies on information regarding individuals, which is more and more used in everyday life for banking, shopping, travelling and many more activities. Criminals can exploit identity-related information for a wide range of fraudulent activities, such as money laundering, corruption, human trafficking, migrant smuggling and even terrorism.⁸⁶⁹</p> <p>Due to its strategic position as access point to Europe, Greece is a transit and destination country for many international criminal activities, including the trafficking of human beings. To carry out such activities, criminals and terrorists often rely on the use of fake or fraudulently obtained genuine documents.⁸⁷⁰</p> <p>For this reason, one the key strategic priorities of the Hellenic Police is to tap into the potential offered by innovative technologies to strengthening its capacity to effectively identify individuals and vehicles.</p>	
<p>Areas of need. The overarching aim of the Hellenic Police is to fight organised crime, improving the citizens' sense of security and the policemen's workplace safety. More specifically, the procurement sought a smart system to allow for:</p> <ul style="list-style-type: none"> • the rapid collection of information, such as biometric data, photographs, documents, license plates, during day-to-day police checks and operations; • the efficient analysis of such information, fostering a data-driven approach to public order and security; • the immediate identification of individuals and vehicles, enabling quicker and more effective responses. 	
<p>Procurement description. The Hellenic Police adopted an open procedure, envisaging the award of the contract to the most economically advantageous tender. The formula to compute the winning bid consisted of the ratio between the technical score and the price.</p> <p>The tender specifications defined 15 different technical criteria, each with its own weight for the calculation of the final technical score. For each criterion, bidders were scored on a scale from 100 to 120 points, with 100 being assigned for meeting the minimum requirements (tenders below the minimum requirements would be automatically excluded) and additional points for exceeding the minimum requirements. The 15 criteria included, for instance, meeting the requirements for the provision of:</p> <ul style="list-style-type: none"> • portable devices to police officers, accounting for 8% of the technical score; • a central storage and back-up system (4% of the technical score); 	

⁸⁶⁸ See for instance the United Nations Office on Drugs and Crime website at: <https://www.unodc.org/unodc/en/organized-crime/intro/emerging-crimes.html>

⁸⁶⁹ See the 2007 UNODC Study on Fraud and the criminal misuse and falsification of identity, available at: <https://www.unodc.org/unodc/en/corruption/identity-related-crime.html> and the Interpol website for the key uses of forged documents in the key criminal trends, at: <https://www.europol.europa.eu/crime-areas-and-trends/crime-areas/forgery-of-administrative-documents-and-trafficking-therein>

⁸⁷⁰ For a more detailed overview of the situation of human beings trafficking in Greece, see: https://ec.europa.eu/anti-trafficking/member-states/greece_en

- a face and photo recognition system (10%);
- a certain amount of memory in the central server system (3%), and various other criteria.

The procurement was designed to discourage tenders aiming at competing solely through undercutting competitors on price. It required to meet a wide and well-defined range of technical requirements and encouraged to exceed them.

Results. The winning solution is a comprehensive and integrated smart system, consisting of:

- a new generation of smartphones for police officers, equipped with software for fingerprints scanning, face recognition, authentication of documents and search capabilities in multiple police databases (e.g. FBI, Europol, Schengen Information Interpol, Eurodac, Dublinet, Directorate of Passports, Tiresias⁸⁷¹, etc.);
- a central system of IT networks, servers and applications allowing a secure interface between the smartphones of deployed policemen and national and international databases, as well as the creation of reports, the analysis of data and its visualisation on digital maps.

Although the benefits of the smart policing system have not been quantified yet, a number of improvements can already be envisaged, namely:

- the new technological capabilities will allow police officers to conduct on-the-spot checks and almost instantaneously identify individuals and vehicles. Embedding the capability of fingerprints scanning and face recognition directly into the smartphones is considered as a major innovation in the field, as it allows to create a link between the police officers on the field and the millions of files stored in police databases.
- the duration of checks will be dramatically reduced. For instance, in the past the authentication of an identity document used to require a dedicated device to connect to the police central repository of documents, which could be in a police car or even in a police station. To the contrary, the new system makes it possible to check someone's identity in a few seconds, saving time for both policemen and citizens. Moreover, the possibility of creating reports and analyses automatically will also cut the time police officers must spend on performing administrative and bureaucratic duties.

With regard to the issue of privacy and the need to ensure confidentiality of sensitive personal data, the new system is designed not to store data on smartphones, but rather to transmit all data to the central system.

In addition to the immediate gains in the effectiveness and efficiency of policemen on the streets, a positive spillover effect is expected in all sectors that require a rapid mechanism for identity verification, such as airport security.

Sources and more information available at: [Link 1](#), [Link 2](#)

⁸⁷¹ Tiresias is a Greek database of financial information, such as bankruptcies, mortgages, settlements, orders of payment, etc. For more information, see at: <http://www.tiresias.gr/en/index.html>

<h1>Hungary</h1>	
<i>Title</i>	Helicopter Crew Tactical Training Simulator
<i>Value</i>	€ 1.649.000 (excluding VAT)
<i>Sector</i>	Public order, safety, security and defence
<i>Publication and award</i>	Contract notice was published on the 3/02/2017 (TED No. 2018/S 056-124945) and contract was awarded on the 21/03/2018 to <i>Thales AVS FRANCE SAS Training & Simulation activity</i> .
<i>Name of public procurer</i>	Honvédelmi Minisztérium Védelemgazdasági Hivatal (Ministry of Defence)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Goods
<p>Background: The Hungarian Ministry of Defence aims at optimising the resources spent on the training of the helicopter crews of the Armed Forces. In this respect, live training programs are often expensive and logistically difficult. Therefore, the Ministry has been looking for alternative solutions able to reduce costs and time while maintaining high quality training standards.</p> <p>To achieve this goal, armed forces are increasingly making use of simulator training systems. These systems allow to practice tactical knowledge in interactive scenarios reflecting real-life situations without engaging in expensive, complex and possibly dangerous live training activities. The use of this kind of simulations has proven to be increasingly effective to develop specific skills, such as tactical skills. As a result, the Hungarian ministry of Defence is moving towards a mix of live and simulated training systems. In this context, the Ministry decided to purchase a Tactical Training Simulator for its helicopter crew.</p>	
<p>Areas of need: The procurer aimed at addressing the following needs:</p> <ul style="list-style-type: none"> • Optimise resources spent on trainings in the aviation sector without decreasing quality; • Increase the safety of training operations; • Improve mission readiness of the helicopter crew in all the Armed Forces. 	
<p>Procurement description: The procurer explicitly asked for a Tactical Training Simulator kit, offering software and tools for virtualisation of the training environment as well as trainers on the ground. The Ministry was looking for a solution able to combine good levels of preparation of their workforce, effective training sessions, high quality standards and a reduction of the overall spending. For this reason, it decided to purchase this kind of innovative solution on the market following a negotiated procedure with publication. The negotiation focused on the adoption of an advanced solution at the best price on the market and on the guarantee of a quick process of implementation.</p> <p>Three criteria were used: offer price (weighted for the 60%), warranty period (weighted for the 20%), deadline for completion (weighting for the 20%).</p> <p>Three offers were presented, and the contract was awarded to <i>Thales AVS FRANCE SAS Training & Simulation activity</i>, a global-leading provider in the Training Simulation field. Their solution was chosen for its internationally-proven reliability, assuring timely implementation and fast learning.</p>	
<p>Results: The awarded company fulfilled the requests of the procurer by providing a flight simulator which offers a fully immersive virtual 3D flight simulation experience and 5 trainers on the ground. The specific training devices allowed to simulate a wide range of missions, such as low-attitude tactical flying, rescue operations and operations carried out in urban areas, with high level of details.</p> <p>Pilots and all the crew members can significantly improve their readiness for the missions they have to complete. New joiners can acquire a valuable experience before operating in real contexts. Their learning process can thus be faster, more effective and less risky than those performed only with live trainings. They can train alone (one helicopter) or in group (several helicopters working together). This enables the whole crew to rapidly increase</p>	

their operational collaboration and in-flight communication. Tactical strategies can also be tested in a safer environment. These improvements lead to an overall positive impact on the preparation and reliability of the armed forces using helicopter interventions in their operations. These improvements also generate positive outcomes both in terms of increasing the number of training sessions that can be offered at reasonable cost to pilots as well as in the possibility to train the same pilot in different scenarios and environments.

Another positive outcome is the reduction of the number of flights carried out by the Armed Forces for live trainings. This can help decreasing the overall costs and pollution due to helicopters. Their engines are in fact sources of emissions of greenhouse gases and noise nuisance, causing damages to the environment.

The innovation brought by virtual training in armed forces can have wider impacts both within and across sectors. Beyond helicopter crew, virtualising technology can be applied in all the fields of the defence sector. This first adoption can thus be extended to other branches of the Hungarian Armed Forces and other countries looking on the market for a cost-saving, quality-increasing solution for trainings. Moreover, virtualised trainings could give a substantial help in other sectors of the economy such as education (e.g. e-learning or Virtual Classroom) or construction⁸⁷². Benefits experienced in the helicopters sector – practising in realistic scenarios, risks minimisation, time and money savings - can also be expected in these other sectors.

Sources and more information available at: [Link 1](#), [Link 2](#)

⁸⁷² *Cfr.* Kassem et al. (2017), "Virtual environments for safety learning in construction and engineering: seeking evidence and identifying gaps for future research". *Vis, in Eng.* Doi: 10.1186/s40327-017-0054-1. Available at: <https://viejournal.springeropen.com/articles/10.1186/s40327-017-0054-1>

Ireland

<i>Title</i>	Procurement of solar powered, compacting litter bins
<i>Value</i>	€ 1.800.000 (excluding VAT)
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	Contract notice was published in April 2014 (TED n. 2014/S 075-129521) and a contract was awarded on 13/11/2014 (TED n. 2014/S 249-441481) to <i>Kyron Energy & Power (Ireland)</i> .
<i>Name of public procurer</i>	Dun Laoghaire Rathdown (DLR) County Council
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Goods

Background. In Ireland, the Dun Laoghaire Rathdown (DLR) County Council had to reshape and rationalise its public expenditure due to a serious economic downturn which hit the County between 2009 and 2014. In this context, the County faced the challenge of guaranteeing high standards of public services with reduced resources. Therefore, higher efficiency was needed, and waste management service was identified as an area of potential improvement. The Country realised that the process of emptying bins was badly managed, since the personnel in charge followed fixed routes regardless whether emptying was needed or not. Hence, it was decided to purchase an innovative solution on the market aimed at increasing efficiency in the way waste is collected in the area.

Areas of need: The procurer aimed at addressing the following challenges:

- Optimising resources in public waste services;
- Guaranteeing a pleasant physical environment to citizens;
- Orienting the local economic development towards sustainability.

Procurement description. Before launching the procurement, 20 solar powered bins were installed for a trial period in different areas identified as strategic. The outcomes of the trial were considered satisfactory. As a result, in April 2014 a procurement with an open procedure was launched.

Tenderers were required to prove they had an Environmental Management Certification or carefully explain how they planned to comply with the environmental standards set by the public procurer. Additional requirements included the provision of a remote monitoring system for each bin to allow for real-time data collection on the fullness level and for an autonomous system of energy supply from a renewable source.

The most economically advantageous tender was calculated in terms of: price (60%), delivery programme (10%), warranty and maintenance service regime provided (20%), information technology system integrated in the solution (10%).

Kyron Energy & Power was awarded with a contract having a value of € 1.8 million and including not only the purchase cost but also the maintenance and the software license for a five-year period.

Results. Overall, 401 bins were purchased from the supplier. The solution provided consists of solar powered litter bins equipped with a management console showing real time data information of each bin and an automatic waste compactor (powered through a solar panel). When a certain level of waste is reached, two sensors trigger the waste compactor which reduces the volume of waste in the bin.

The impact on the administrative side of waste management has been highly positive. Bins were enabled with a wireless technology reporting their real-time status to the waste management administration. This allowed to design efficient routes targeting only the needed interventions. As a result, an increase in the organizational efficiency of waste services was experienced.

The number of litter bins needing interventions during a working day has been reduced by over 85%. This has generated a 75% savings in annual costs for personnel and a significative reduction in costs for fuel used for their trips, amounting at ca. € 10.000 per year.

This new solution has also increased the attractiveness of the territory, since the risk of having litter bins with overflowing, malodorous waste has been minimized. This is due to the automated compacting system, which has given new bins a hugely enhanced capacity, from 45.000 litres of old bins to 250.000 of current ones.

On the environmental side, a remarkable impact has been registered. Greenhouse gases emissions are reduced thanks to less fuel consumption in journeys due to bins emptying process (estimated in approximately a reduced consumption of 8.125 litres of fuel per year). In addition, monitoring activities and compacting systems make use of solar energy, with no emissions caused.

Wider impacts can reasonably be expected from this procurement, since it has demonstrated the feasibility of fully green approach to automation of waste services. The combination of innovative technologies such as remote control through real-time sensors and automated compacted system has proven to be effective for the improvement in waste management organization and efficient for the optimization of financial and human resources.

Sources and more information available at: [Link 1](#), [Link 2](#)

Italy

<i>Title</i>	Servizio Luce 4 (<i>Lighting Services 4th</i>) - National framework contract for sustainable and innovative lighting
<i>Value</i>	€ 1.597.000.000 – total value of the contract € 170.000.000 (with a possible extension up to 40%) – value of Lot 5., the only lot awarded so far
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The contract notice was published on 16/12/2015 (TED n. 2015/S 246-447817) and the first Lot (n.5) was awarded on 20/12/2018 (TED n. 2019/S 054-125051) to <i>City Green Light S.r.l (Italy)</i>
<i>Name of public procurer</i>	Consip S.p.A (central purchasing body for the Italian Public Administration owned by the Ministry of Economy and Finance)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Services

Background. In 2014, the level of energy consumption in public lighting in Italy was approx. 30% above the European average. The use of old lighting systems caused overall inefficiency, whose costs were mainly paid by public administrations.

Consip, the most important central purchasing body in Italy, acts within the mandate of the Ministry of Economy and Finance and has public lighting among its main procurement fields. In this context, Consip has been launching framework contracts on maintenance and installations of public lighting and integrated energy savings since 2002. These services are purchased through framework contracts known as *Servizio Luce (Light services)* by local and national public administrations.

In 2015, for the 4th edition of the contract, Consip decided to change its procurement approach to increase the efficiency of public lighting purchase. In particular, the approach and requirements were deeply amended, so that energy efficiency targets could be achieved, and new innovative solutions adopted.

Areas of need. The procurer aimed at addressing the following needs:

- Supporting public administrations to enhance energy efficiency in public lighting;
- Incentivising the energy suppliers to achieve efficiency standards set by the procurer for energy consumption;
- Achieving a significative reduction in costs for the adoption of energy efficiency measures.

Procurement description. The 4th framework contract for public lighting services was launched in 2015 and was broken down in 12 lots. Each lot was assigned to one or more regions. Once a lot is awarded, public authorities from the corresponding region can purchase from the Consip platform the services provided and, accordingly, sign a contract with the supplier that lasts between 6 and 9 years.

This edition of the contract stands out for the following innovative elements:

- Consip was available to sign with suppliers only Energy Performance Contract (EPC). This a special kind of contract, according to which the targets of energy savings are fixed in the contract, strictly binding both the supplier and its services.
- Bidders were asked to present an energy management plan taking into account the regional context where the service is offered, including a map of public-lighting installation and a monitoring system of energy consumption.
- It was explicitly required to implement measures aimed at delivering innovative solutions (a preliminary list of innovative solutions was provided by the procurer), and smart lighting services (e.g. telecontrol, remote management mechanism etc.). To ensure the achievement of energy efficiency targets through smart solutions, the procurer set for the supplier a specific objective of technological improvement.

So far, one of the lots has been awarded (*Lot 5*). An open procedure was followed and *City Green Light S.r.l.* was chosen for having presented the most economically advantageous tender among 4 participants. Other Lots are planned to be awarded by mid-2020.

Results. The lot awarded involved two regions: Liguria and Emilia-Romagna. Some of their local public administrations had signed contracts with the supplier for smart and innovative public lighting systems. The activities implemented within this framework contract include:

- the replacement of obsolete lights and traffic lanterns with those with greater energy efficiency (e.g. LED);
- rewiring and redevelopment of existing plants;
- the adoption of centralized (hourly) flow regulators by presence detectors or by single light point;
- the provision of astronomical clocks able to evaluate time zone and percentage of "civil twilight" through the geographical position;
- the development of light centres based on a photovoltaic source.

As a first impact, the use of the EPC approach led to significant cost savings for both regional administrations. This approach allows to complete energy saving activities without up-front capital costs of the intervention. Thus, high costs related to the initial part of the investment can be more easily compensated, stimulating the public sector to adopt new and innovative technologies.

In addition, the energy efficiency targets embedded in the EPC are expected to have a positive impact on the environment. In particular, the EPC contract binds suppliers to offer energy savings up to 32.65% compared to the regional baseline consumption.

The framework contract also facilitated the implementation of new and expensive technologies in regional or local contexts. This has been possible thanks to two elements of this procurement: first, the procurer has bound suppliers to offer innovative solutions and second it has verified with a specific indicator the technological improvement brought by the supplier intervention.

On a wider perspective, positive impacts on the labour market are also expected. It is expected that size and duration of the contract allows the supplier to look for new employees for a medium to long-term.

This procurement can have a wider impact on the entire national energy sector, orienting it towards innovative, green solutions. This is due to the vast national scale of Consip purchases. Acting as the biggest Italian central purchasing body, the procurer can drive the market to generate innovation both in national and local contexts.

In 2019, this procurement received a Procura+ special mention for being a best example of procurement for sustainability.

Sources and more information available at: [Link 1](#), [Link 2](#)

Latvia

<i>Title</i>	Steam Explosion Pilot Plant of the Institute of Wood Chemistry
<i>Value</i>	€ 71.100
<i>Sector</i>	Environment
<i>Publication and award</i>	The tendering notice for this below EU threshold procurement was published on the home page of the State Procurement Monitoring Office. The contract was awarded to <i>FIL&Co Ltd (Latvian SME)</i> .
<i>Name of public procurer</i>	Institute of wood chemistry (IWC)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Works

Background: The institute of wood chemistry (IWC) is a leading institution in Latvia for environmental research. One of its main areas of expertise is the development of sustainable technologies which can be used in the treatment of wood biomass.

The institute required an updated solution for dealing more effectively with complex analysis and treatment of wood materials. It was therefore decided to launch a procurement to build a pilot plant based on an innovative technology: steam explosion. In this system, wood biomass can be treated with hot steam (180 to 240 °C) and under pressure, potentially bringing an overall improvement in the process.

Areas of need: The procurer faced the following needs:

- Building a plant for innovative treatment of biomass;
- Improving the IWC research and development ability.

Procurement description. In a preliminary phase, researchers of the IWC identified the list of technical specifications to be asked in the development of the pilot plant. Once identified, the IWC launched a procurement process following an open procedure.

The award criteria were based on price (70%), quality and technical services (30%). The only offer received was from *FIL&Co Ltd*. It was considered compliant with all the technical specifications and the company was therefore awarded with an annual contract.

Results: The plant based on steam explosion allowed significantly reduce the use of polluting chemical products for wood biomass treatment. In addition, it guarantees higher quality of biomass products because the process does not damage their natural properties.

Thanks to this treatment, biomass enhanced its performance during the combustion process. Moreover, this procurement showed that, since no similar plant existed before, the IWC was able to address its needs by bringing an innovative solution in the domestic market.

The supplier gained valuable experience in building the complicated pilot plant. After this contract, they also erected pilot plants for other research organisations.

Sources and more information available at: [Link 1](#), [Link 2](#)

Lithuania

<i>Title</i>	Construction of a combined heat and power plant
<i>Value</i>	€ 139.000.000 financed by the European Union € 190.000.000 loan from the European Investment Bank (EIB) € 20.000.000 is approximately the share of costs covered by <i>Lietuvos Energija</i>
<i>Sector</i>	Energy
<i>Publication and award</i>	The project started in 2018 and was completed in 2019. Contract award notice (TED n. 2018/S 180-408969) awarded to <i>UAB Fortum Heat Lietuva (LT)</i>
<i>Name of public procurer</i>	Lietuvos Energija (state-owned energy company in Lithuania)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Works

Background: In the city of Vilnius, gas demand for heat and energy production is very high. The availability of this resource in the country was not enough to fulfil citizens' needs. Hence, energy was imported. This resulted in high heat-related costs for citizens of Vilnius which paid for the heating system one of the highest prices in the country. In addition, the high dependence of the city on gas consumption negatively affected the environment with heavy CO₂ emissions.

Accordingly, the city decided to invest in an innovative, domestic facility for producing green energy and reducing its reliance on gas import. The largest part of the investment was possible through the help of the EU Structural Funds and a loan from the European Investment Bank (EIB).

Areas of need: The procurer aimed at addressing the following needs:

- Reducing its dependence on gas for heat production;
- Improving circular economy;
- Reducing the negative environmental impact related to the heating system.

Procurement description. The procurer asked in 2017 for an independent environmental impact assessment related to the technology and mechanism of a combined heat and power plant. Once assessed the potential benefits of such a cogeneration system, a financial support was asked to the European Commission for the construction of a combined heat and power (CHP) plant in Vilnius. In 2018, the Commission approved the project and decided to invest in the construction of the plant using Structural Funds. Moreover, a loan was given by the EIB for this investment.

The procurer added to the European financial support ca. € 20 million and the plant took one year to be completed. It will be in full capacity for power generation in 2020.

Results: The CHP plant is composed by a waste incineration facility and two biofuel systems. Although it is not yet in full capacity (expected only in 2020), it has succeeded in increasing the share of domestic production of gas. This plant achieved a positive impact on the environmental side, thanks to the following factors:

- The circular economy is improved thanks to a smooth process of conversion of waste into energy;
- CO₂ emissions can be significantly reduced by about 436.000 tons per year;
- The share of energy supply from renewable source is enhanced. Almost 40% of the citizens can now fulfil their energy demand with green energy supply.

In addition, the plant has also reduced heat-related costs for citizens. When it will operate in full capacity, price is estimated to be cut by 20% compared to 2013. On a wider perspective, this kind of cogeneration plant can constitute an effective way of reducing gas dependence of many European countries. The

commitment of the EU Commission towards this issue can be exploited by other national public procurers in the energy sectors to support investment in a green transition of the economy.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#), [Link 4](#)

Luxembourg

<i>Title</i>	SATMED – a worldwide e-health platform
<i>Value</i>	€ 4.500.000
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	The procurement was negotiated in 2013. The contract was awarded in May 2014 to <i>SES S.A (Luxembourg)</i> . It ended in 2016 but has been renewed until 2020.
<i>Name of public procurer</i>	Ministry of Foreign and European Affairs
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Services

Background. In many developing countries, the healthcare sector presents serious challenges. First, medical facilities and health professionals are usually insufficient. In addition, infrastructures are old and effective connections with more remote villages are in certain cases very difficult.

The government decided to dedicate part of its budget linked to international aid to address the issue of improving health conditions in less developed countries. Thus, the Ministry of Foreign and European Affairs invested in developing an innovative solution aimed at creating a network for all those stakeholders involved in healthcare assistance. The most effective solution identified was the development of an online platform (e-health) based on satellite broadband technology.

Areas of need. The procurer wanted to face the following needs:

- Helping developing countries in overcoming barriers to health assistance;
- Improving the living conditions of developing countries.

Procurement description. Firstly, the procurer consulted the main international non-governmental and governmental organisations involved in health aid, together with universities and IT companies, in order to identify the main challenges faced by developing countries of healthcare sector.

To better address the complex challenges emerged during the consultation process, the procurer asked the National Tender Commission⁸⁷³ the permission to follow a closed procedure, negotiating directly the solution with a preliminary identified company, in accordance with the 2009 national Law on Public Procurement⁸⁷⁴. The Tender Commission gave its consent and the procurer negotiated the solution with *SES S.A*, a well-known company in the delivery of satellite systems. This contractor was chosen for its fruitful, long-term relationship with the procurer, mainly established during a public-private project⁸⁷⁵ which had to face issues and purposes aligned to this procurement.

The contract between the procurer and the supplier lasted until 2016 and was extended until 2020.

Results: SATMED is an e-health open source e-health platform based on a cloud technology. The platform allows to collect and share health-related data with non-governmental or governmental organizations, medical facilities and professionals. This innovative system has eased communications among different stakeholders involved in humanitarian aid in developing countries. Thanks to cloud

⁸⁷³ See at: <https://marches.public.lu/fr/acteurs/commission.html>

⁸⁷⁴ See at: <http://legilux.public.lu/eli/etat/leg/loi/2009/06/25/n1/jo>

⁸⁷⁵ The *Emergency.lu* project

technology, all the NGOs, Medical Units or hospitals which are partners of SATMED are interconnected and have at disposal a wide amount of data useful for tailoring health assistance in the different territories, especially in rural areas.

Moreover, this system allows to increase the effectiveness and coverage of humanitarian operations or regional development programmes in developing countries. Cross-border sharing of information is also a relevant positive outcome of the system.

All the partners operating through SATMED have received benefit in terms of:

- Increased efficiency of their work in developing countries, mainly due to the fact that relying on a common platform led to a decrease of administrative procedures and paperwork time;
- Gains in effectiveness of aid interventions thanks to an increased number of patients seen daily;
- Higher quality of medical visits, since patient face-time can be longer through e-health devices.

The barriers to health access in some areas of developing countries are reduced, since infrastructural lacks are overcome through the satellite technology. In addition, by accessing SATMED, health management can be more efficient. Basic ICT infrastructure is given to hospitals and a digital network can be established among them to share information.

As a result of the positive results obtained by the e-health platform, the system has been extended to other developing countries (Bangladesh, Benin, Eritrea, Niger, Guinea and Philippines). It has therefore achieved a wider coverage if compared to its initial application (which occurred only in Sierra Leone).

The positive outcomes generated by this procurement are confirmed by the fact that the SATMED platform is one of the Recipients of the *2020 Better Satellite World Awards* and has been selected among the best 2020 projects by the *Paris Peace Forum*.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Malta

<i>Title</i>	Catering Services to Inpatients at Mater Dei Hospital
<i>Value</i>	€ 2.347.542 (annually, for 10 years)
<i>Sector</i>	Healthcare and social services
<i>Publication and award</i>	Contract notice was published in April 2005 and a 10-year contract was awarded in December 2006 to <i>J.S.B.Z. Catering International</i> . In 2017 contract was extended up to 2022. .
<i>Name of public procurer</i>	Foundation for Medical Services (FMS)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Services

Background. In Malta, public hospitals were used to have an in-house catering service. In 2005 the Government of Malta decided to outsource the catering services of its public hospital “Mater Dei”. As a result, the Foundation for Medical Services (FMS) launched a tender procedure for the supply of pre-plated meals. Given the number of patients in the hospital (approx. 900), around 1800 meals a day were expected to be requested.

The overall objective set by the FMS was to improve such services purchasing a long-term solution offered by an external caterer on the market. Main interests of the procurer involved the following issues: (i) meals should be delivered to the hospital wards, (ii) guarantee maintenance of the equipment, (iii) ensure highest professional standards of food hygiene and quality, (iv) provide uninterrupted service throughout the whole contracting period.

Areas of need: The FMS wanted to address the following needs:

- Improving the services offered in public hospitals;
- Optimising the meal delivery processes in public hospitals;
- Asking the market for a long term, effective, catering solution.

Procurement description. A competitive dialogue was launched between 2005 and 2006 in order to assess market’s ability to offer effective solutions and share with potential bidders needs and potential challenges of the requested service. The competitive dialogue allowed the procurer to determine precise requirements and award criteria, leading to the purchase of an innovative solution.

At the end of the consultation process, the procurement was launched. It was followed by a negotiation phase with eligible candidates, focusing on technical, professional and qualitative requirements of the solutions offered. Bids were presented by three companies, namely *Eurest Ltd*, *Corinthia Palace Hotel Co. Ltd*, *Island Hotels* and *J.S.B.Z. Catering International*.

J.S.B.Z. Catering International was awarded with a 10-year contract, extended in 2017 for 5 years. The company offered the most economically advantageous tender according to the criteria set by the procurer. These criteria included: professional, qualitative and logistics standards, price, risk management and contingency plans.

Most importantly, the company was awarded for providing an innovative solution. It proposed a B-POD catering system, based on unique technological components, ensuring the highest levels in terms of food quality and safety and achieving considerable efficiency in delivery processes.

When the contract started, Malta was only the fourth country in the world adopting this system in public hospitals. Thus, FMS has been able to set up a procurement which promoted the adoption of an innovative solution not yet affirmed in the healthcare sector.

Results. The FMS purchased a new solution that allows to keep the food at the best temperature for longer time compared to traditional catering systems. In addition, it has an integrated technology system which ensures a real-time monitoring of food and interactions between operators in the hospital ward. As

a result, the new system enhanced significantly the coordination of the meal delivery process, optimising working procedures of operators and making the service more effective.

The new solution had a positive impact both on the food safety and on the efficient use of spaces in the hospital. The former is due to the guarantees offered by the new solution on food conservation and treatment. This positive outcome was confirmed by higher levels of satisfaction among patients on the quality of food. The latter is linked to the structure of the portray holder, which allowed to efficiently place trays in the hospital's corridors guaranteeing a better use of space in the hospital.

The good results achieved led to the extension of the contract. This has opened to potential wider market impacts in other countries' health system since the B-POD system can be used in all hospital environments looking for reliable solutions on the side of meals delivery.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Netherlands

<i>Title</i>	Procuring textiles made from recycled fibres
<i>Value</i>	€ 430.000 for towels and wash cloths and € 1.380.000 for overalls (approximately)
<i>Sector</i>	Public order, safety, security and defence
<i>Publication and award</i>	Request for Information published in 2014. Two contracts were awarded in June 2016 out of three procedures launched, to <i>Biga Group</i> (Croatia) <i>Jules Clarysse N.V.</i> and <i>Seyntex N.V.</i> (Belgium).
<i>Name of public procurer</i>	Ministry of Defence of the Kingdom of the Netherlands (MODNL)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Goods

Background: Between 2013 and 2016, the Dutch Ministry of Defence (MODNL) has participated in the implementation of the Circular Procurement Green Deal⁸⁷⁶, which helped public and private actors accelerating their transition to a circular economy.

With around 58,800 employees, the MODNL is a major user of textiles, which is reported as being one of the sectors having the highest impacts on environment. The sector has a significant carbon footprint mainly generated by the energy used to transform raw materials. Other relevant challenges are linked to the toxicity deriving from its industrial processes and to the use of synthetic fibres. In addition, social concerns are also associated with the sector, mainly with regard to the working conditions of people involved in the textile supply-chain.

In order to deal with the trade-off between large purchases of textiles and the acquisition of sustainable products, MODNL decided to assess the feasibility of procuring only recycled textiles. The assessment was also focused on better assessing to what extent purchasing recycled textiles could fulfil its annual needs.

Areas of need: The MODNL wanted to address the following needs:

- Reducing environmental impacts associated with large textiles purchasing;
- Assessing the solidity and resistance of recycled textiles;
- Fulfil the high demand of textiles in a long-run sustainable way;
- Testing the readiness of the market to supply recycled textiles;
- Stimulating circular economy in the legislative framework set by the Dutch Circular Procurement Green Deal.

Procurement description. In January 2014, the procurer decided to explore the market for recycled textiles, launching a market consultation. A meeting with suppliers was held with the aim to assess the feasibility of using recycled fibres in the production of textile items. As a result of the market consultation, it was clear that manufacturers were able to meet MODNL's requirements.

After the consultation, the procurer decided to carry out two pilot projects. The first focused on the collection and sorting of discarded workwear. The second pilot project assessed the opportunity to use recycled fibres and was divided in three lots: towels and wash cloths, overalls, and scarves and handkerchiefs. The minimum requirement set in this pilot was to use at least 10% recycled Post-Consumer cellulose fibre and microscopic testing.

Following the first pilot, the Ministry signed an eight-year contract with the *Biga Group* (Croatia). Aim of the procurement was to sort discarded textiles, for re-use and re-sale, from approximately 750,000 items of military gear per year.

Contracts following the second pilot were awarded in June 2016 to the most economically advantageous tenders. Each bid was given a score based on price, percentage of certificated recycled content and quality of materials used. Two Belgian companies, *Jules Clarysse N.V.* and *Seyntex N.V.*, were selected for

⁸⁷⁶ See at: https://www.oneplanetnetwork.org/sites/default/files/eng_green_deal_circular_procurement_magazine.pdf

supplying the Ministry of Defence with towels and wash cloths and overalls for four years. Conversely, the lot concerning scarves and handkerchiefs did not receive any valid bid.

Results: In the first year, 50,000 white and green towels and wash cloths and approximately 53,000 green overalls were purchased. The cloths produced contained 36% of recycled fibres for towels whereas overalls have 14% of recycled fibres. In addition, MODNL and suppliers agreed to increase the percentage of recycled material during the execution of the contract.

Major positive impacts have been experienced on the environmental side. The purchase of recycled towels and overalls allowed to save approx. 233 million litres of water use, 68,880 kg of CO₂ emissions and 23,520 MJ of energy consumption. Thanks to circularity, a far higher sustainability has been achieved, strongly reducing the damaging risks deriving from textile production.

In addition, discarded clothing is no longer burnt but it is either re-used by the procurer or recycled into fibres. The latter are offered as high-grade raw material on the market by the Ministry of Finance.

Positive employment and social impacts have also been reported. In order to sort discarded cloths, people with disadvantages on the labour market have been employed.

Moreover, the procurement led to re-use or re-selling high quality clothing, achieving considerable money savings.

The effectiveness of the solution and the results achieved are expected to increase the market size of recycled textiles in the coming years. In this regard, the contract signed by MONDL already envisages to expand the provision of recycled textile across the entire Central government. This tender was awarded with the Procura+ Award in 2017.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Norway

<i>Title</i>	Chatbot with artificial intelligence
<i>Value</i>	€ 232.835,53 (VAT excluded)
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	A contract notice was published on 23 November 2018 (TED n. 2018/S 229-524980) and a contract was awarded on 30/04/2019 (TED n. 2019/S 085-204711) to <i>AVO Consulting Norway AS</i> (Norway).
<i>Name of public procurer</i>	Norwegian Tax Authority (<i>Skatteetaten</i>)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Works

Background. The Norwegian Tax Authority was facing serious issues in delivering customer assistance. The dedicated department was under-staffed and unable to manage the relevant number of daily requests coming from taxpayers both via phone calls and via the online chat-system available on the website of the authority. This caused complaints from citizens who incurred long waiting times before having the opportunity to speak or chat with the department.

Given the complexity of this challenge, the Authority established an internal working group dedicated to investigating potential solutions to streamline customer assistance procedures. The procurement here described came after two other separated procurements. Both procurements had a value below the national threshold. With regards to the first procurement, in 2017 three Proof of Concepts (PoC) were jointly developed and analysed by the procurer and three suppliers. These PoC tried to apply Artificial Intelligence (AI) to the online chat-system available on the website of the authority. As a result, the procurer concluded that both the authority and customers would have obtained many advantages by investing in a solution of this kind. The second procurement was launched at the beginning of 2018 and aimed at piloting the identified solution for almost one year. This solution, developed by *Convertintelligence* and offered by *Sopra Steria*, revealed to be very helpful in assessing what type of features an AI-based chatbot needs to understand and reply to the questions of customers in the context of tax-payment procedures.

Building on these two procurements, at the end of 2018, this procurement was launched explicitly requiring for an innovative AI-based chatbot system tailored on the Tax Authority needs.

Areas of need: The procurer had to address the following issues:

- Increasing the efficiency of procedures related to customer assistance;
- Leveraging on technology and digitalisation to satisfy the entire demand of customer services, without increasing the workload of the staff;
- Giving taxpayers accurate answers to help them complete procedures related to tax-payments, while avoiding time wasting or misinterpretations.

Procurement description. As described in the background section, this procedure was opened as a result of two earlier procurements exercises - purchasing in the first case the development of three Proof of Concepts and in the second case a one-year pilot - which gave the procurer all the necessary information on the solution and the criteria to be required in the procurement.

In particular, the Proof of Concepts clarified that the use of an AI chat-robot could potentially reduce the need for human effort on the chat channel, while the pilot gave shape to the necessary features which the chatbot should have in order to fulfil the specific needs of the Authority, succeeding in matching automated answers to questions raised by customers in the 60% of the cases.

The procurement was then launched using a competitive procedure with negotiation applying different award criteria. MEAT criteria was used to encourage suppliers to deliver innovative solutions of high quality, but a significant share of the award criteria was covered by the “language comprehension”

criterion, namely whether the solution could correctly interpret the questions and match them to the correct answers in the dataset.

. Different suppliers were admitted to the negotiation phase and the AI-components offered by bidders were tested with regards to language comprehension. The authority selected 30 questions and bidders were required to demonstrate that the proposed solutions were able to answer the questions. This process allowed the procurer to assess the effectiveness of the offered solutions. *AVO Consulting Norway AS*, offering a chat platform by *Boost.ai* was awarded with a contract for having offered the highest quality solution, especially in terms of language processing capability.

Results After an initial transition phase, the AI Chatbot became fully operative in October 2019. The solution should be considered highly innovative not only for the procedure followed, but also for the use of AI in customer assistance related to tax-payment.

The set-up of the solution resulted in the following process: answers to customer's questions are prepared by authorities' operators and then automatically matched with questions raised. If the chatbot does not understand a question, it is immediately transferred to an operator.

So far, the chatbot has been giving positive results in terms of work-efficiency, reducing the workload for the customer service department. According to customers' feedback the chatbot has been able to answer without any human intervention 40% of single questions raised by customers. In addition, the chatbot was able to conclude without human intervention two-thirds of the conversations started with customers.

Moreover, the overall work of the authority has also experienced several gains:

- The effectiveness of customer assistance has increased. The combinations of chat-robot and human chat operators are able to clear 100% of the chat requests, of which more than 90% with little or no waiting.
- The efficiency has increased, since operators do not have to deal with the most frequently repeated questions, requiring standardised responses which are addressed by the bot. Hence, operators can focus their effort on phone calls or more complex online requests which require human interaction;
- Cost-savings have been achieved, since the taxpayer's access to assistance has improved independently of hiring additional staff.

Several benefits are expected also in terms of consumer satisfaction, since taxpayers can avoid long waiting times before receiving responses and therefore reduce the possibility of making mistakes in fulfilling tax-payment procedures.

Sources and more information available at: [Link 1](#), [Link 2](#)

Poland

<i>Title</i>	Delivery of ultrasound machines for the Provincial Specialist Healthcare Team in Wrocław
<i>Value</i>	€ 143.846,85 (excluding VAT)
<i>Sector</i>	Healthcare and social services
<i>Publication and award</i>	Contract notice was published on 09/10/2018 (TED n. 2018/S 197-445063) and a contract was awarded on 17/12/2018 (TED n. 2018/S 244-558222) to <i>Profimedical Bestry, Wichary Sp. j.</i>
<i>Name of public procurer</i>	Dobrzyńska Medical Center (<i>Wojewódzki Zespół Specjalistycznej Opieki Zdrowotnej – WZSOZ</i>)
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Goods

Background: The Dobrzyńska Medical Center is a specialist healthcare centre in the Lower Silesian Region. The structure was included in the Regional Development Strategy 2013 – 2020⁸⁷⁷, which has among its objectives the substantial improvement of the healthcare system, including the development of regional centres of modern diagnostics.

Therefore, the Dobrzyńska Medical Center decided to invest in innovative diagnostic devices, in order to modernize the key medical practices of the centre: biopsy and elastography, gynaecology and echocardiography.

Areas of need: The procurer wanted to address the following challenges:

- Building a modern diagnostics system for the inhabitants of the region;
- Increase the quality of medical services;
- Increase the accuracy of diagnostic analyses;
- Improve the patient experience undergoing diagnostic examinations.

Procurement description: The Dobrzyńska Medical Center launched the procurement following an open procedure. The contract was co-financed by the European Union as part of the program *Straight way to health - implementation of modern standards of care coordinated for residents of Lower Silesia by the Dobrzyńska Medical Center and the Provincial Specialist Hospital. J. Gromkowski*⁸⁷⁸.

Tender specifications set specific technical and operational parameters to be fulfilled by tenderers, including the use of innovative applications and software (e.g. technology supporting 4D imaging for examinations etc.).

A contract was awarded at the end of 2018 to *Profimedical Bestry, Wichary Sp. j.*, a Polish company specialised in selling ultrasound devices for medical diagnostic. The company's bid successfully met the following award criteria: price (counting for the 60%), technical parameters of devices (30%) and guarantee period (10%).

Results: The Dobrzyńska Medical Center purchased three different innovative devices: (i) a specialized ultrasound device equipped to be used for biopsy and elastography; (ii) a gynaecological ultrasound device relying on 4D imaging; (iii) a cardiological ultrasound machine for echocardiography.

The use of an ultrasound technology allowed to perform real-time diagnosis and prescriptions, relying on high-quality imaging. Thus, both the medical centre and its patients have been able to save time and money compared to the past (e.g. because a treatment plan can be discussed with the patient without fixing

⁸⁷⁷ See at: <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/policy-document/regional-development-strategy-voivodeship-lower-silesia-2020>

⁸⁷⁸ Original name: *Prosta droga do zdrowia - wdrożenie nowoczesnych standardów opieki koordynowanej dla mieszkańców Dolnego Śląska przez Centrum Medyczne "Dobrzyńska" oraz Wojewódzki Szpital Specjalistyczny im.*

further appointments). In addition, compared to other diagnostic systems, ultrasound devices guarantee a higher safety for the patient, since the radiations produced are not harmful for the body.

Specific benefits are expected in all the medical areas addressed with this procurement:

- In biopsy, patient experience is considerably improved, since ultrasound-guided biopsies are less invasive and faster to perform than traditional, surgical ones, making recovery time much shorter;
- In gynaecological practices, the quality and effectiveness of medical examinations have increased, since 4D imaging software and real-time patient examination generates valuable information that often cannot be obtained through assessment of static images;
- In echocardiography, the solution purchased significantly increased the accuracy of the real-time analysis performed by cardiologists, since it relies on an innovative software, based on data-driven, automated system of detection of heart abnormalities and a 3D imaging technology which improves the visualization of hearth anatomy.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Portugal

<i>Title</i>	Unmanned aerial systems and ancillary equipment
<i>Value</i>	€ 5.186.130
<i>Sector</i>	Public order, safety, security and defence
<i>Publication and award</i>	The NATO Support and Procurement Agency (NSPA) collected bids until the 28/02/2018, when awarding the contract to the American company <i>Aerovironment Inc.</i> on the 20/08/2018.
<i>Name of public procurer</i>	Portuguese Army (with the support of the NSPA)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Goods

Background. The Portuguese Army is the largest branch of the Armed Forces of Portugal, composed of 35.000 military and 1.897 civilians. In 2018, it has been deploying forces in 7 international missions - in the scope of NATO, the United Nations and the European Union – and 6 technical-military cooperation – in several members of the Community of Portuguese Language Countries.

The international and national engagement of the Army requires the adoption of the advanced military solutions, capable of adapting to different environments and operating fields. In this regard, unmanned aerial vehicles (UAV) have become in the last decades an important tool to fulfil many tasks such as real-time monitoring of dangerous situations, safe exploration of unknown areas and remote interventions. Therefore, the Portuguese Army had identified the need to acquire a technically advanced Unmanned Aircraft System (UAS) and it addressed this need through a procurement procedure with the support of the NATO Support and Procurement Agency (NSPA).

Areas of need. The Portuguese Army wanted to address the following needs:

- Equipping the military with innovative and technically advanced instruments;
- Purchasing an innovative solution that can be used in different environments where the army operates;
- Providing soldiers an easy-to-use tool without compromising on quality and efficiency.

Procurement description. With the order N. 6841/2016 issued on 11 May 2016, the Portuguese Ministry of Defence authorised the purchase of 12 small UAV through an international public procurement procedure (Collective N. GRA17041). The Ministry asked the NSPA to manage the procurement, setting the maximum amount of the expense at €6.000.000. A Request for Proposals (RfP) was then published in December 2017 by the NSPA to look for bidders on the international market.

The value for money award criteria that were used to award the contract included a mix of technical requirements, a measure to define the risk profile of the bidder and price.

Offerings were presented by 5 companies from Israel, Portugal, France, Greece and USA. The American *Aerovironment Inc.* was chosen for being the most compliant with the above expressed criteria and for offering an innovative model of small UAV.

Results. The solution provided is a so-called Small Unmanned Aircraft System (SUAS), known as *RQ-11B Raven*. Already used by several other NATO members - including in Europe Belgium, Luxembourg, Italy, Estonia, Lithuania, Hungary, Denmark, Spain, Czech Republic, Bulgaria, Romania, the UK and the Netherlands - the system is composed of three drones and is designed to provide day or night aerial intelligence, surveillance and reconnaissance.

Some key features have been considered particularly relevant for the choice: the small size and lightweight of the drones make it hand-launchable; autonomous navigation can be programmed thanks to an advanced avionics and precise GPS navigation; it is easy portable and has a fast assembly-mechanism; the learning process required is very rapid and it is considered the most prolific SUAS above all in terms of

protection and awareness given to soldiers. The use of a smart system with multiple cooperating drones that are interconnected via an encrypted data link also provides for range extension.

A number of positive outcomes offered by the new solution can be identified. First, the use of drones allows to increase effectiveness in strategic and operational reconnaissance as well as battlefield surveillance, e.g. improved precision in identifying and reaching targets both for protection and attack reasons or enhanced remote control of unknown areas in a safe and efficient way.

In addition, SUAS do not need highly specialized trainings. They are easy to use and adapt to different contexts if compared with large size or medium size drones. Other economic advantages lay in the reduced expenses for patrolling activities. An increased use of this type of solution could reduce the amount of money saved without reducing the quality of the tasks accomplished.

The adoption of such solution can potentially be extended to other fields in the sector of Public Security. The same advanced technology could be helpful for police activities, as well as for activities in the field of relief and prevention of natural disasters.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Romania

<i>Title</i>	Implementation of a Big Data platform and information analysis capabilities
<i>Value</i>	€ 28.095.148,32
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	Contract notice (TED n. 2018/S 250-577557) was published on 27/12/2018.
<i>Name of public procurer</i>	Consiliul Concurenței (Competition Council)
<i>Type of public procurer</i>	National
<i>Type of contract</i>	Services

Background. The Competition Council (CC) is the national authority in charge of ensuring the compliance of market operators with National and European competition laws. In recent years, it has been facing two main challenges concerning its data management mechanism.

First, the CC experienced a significant increase in the volume of unstructured data, which could not be stored and managed efficiently with a traditional RDBMS (Relational Database Management System). Secondly, the available systems did not allow to match and compare information from different sources effectively. This resulted in a reduced ability of the CC to conduct analyses and investigations.

Therefore, the CC decided to improve the efficiency in the use of IT tools for data management and matching. In this context, a specific procurement was launched in order to enhance the data management mechanism using a Big Data platform and an *ad hoc* software.

Areas of need. The procurer wanted to address the following challenges:

- Efficiently managing unstructured and heterogeneous data flows;
- Acquiring specific technological tools to streamline and improve the monitoring and surveillance activities;
- Training the IT personnel to handle and work with Big Data.

Procurement description. The procurer opened an open procurement procedure from 27/12/2018 to 15/02/2019 carefully specifying the professional and technical requirements considered appropriate to bring the needed innovativeness in the required solution.

More specifically, the procurer asked for:

- specific guarantees in the field of cyber-security of data and processes;
- a unique data management solution, tailored on the scope and context of the CC;
- an *ad hoc* software able to simplify exchanges of data between the CC and other institutions and develop analytical models for investigation activities;
- a training session to coach the CC's employees involved.

The procurement also included other criteria linked to the quality of the solutions and the delivery. Price weighted for the 45%.

Results. The solution adopted provides a tailored, consolidated platform shared among different institutions and able to manage Big Data from different sources.

For the Competition Council (CC), it is now possible to integrate structured, semi-structured and unstructured contents into a sole virtual space, cross-checking information across different areas of investigation (monitoring of bids, cartel screening, structural and commercial links between companies, sectoral surveys and economic concentrations).

The *ad-hoc* platform has enhanced cooperation among different institutions in charge of monitoring the markets and safeguarding fair competition in the country. The new solution also guarantees to protect data sharing processes, so that the institution can exchange data in a protected online environment.

As a result, the CC is now able to offer a real-time monitoring activity, increasing its ability to identify distortion of competition in the country. In addition, the platform allows to match and compare data from different sources, without considering their format. This optimizes the internal processes supporting correct and timely decisions and consequently improves the reliability, completeness and effectiveness of the analyses performed by the authority.

Furthermore, an improvement in skills of the IT department employees was also achieved through a specialised training. It was focused mainly on making them acquire knowledge on Big Data and learn how to use the platform.

In a medium-long term perspective, the procurer estimates that this procurement, bringing innovative tools in the field of data analytics, will significantly improve its ability of adopting complex strategic decisions. Accordingly, the quality of reports published by the Council is expected to increase, and this impacts positively on enhancing the knowledge of stakeholders and policy makers on the state of competition in the national market.

Wider market impacts can derive from the adoption of such solution. Big Data management is in fact an issue for many public authorities, which may similarly require an *ad hoc* platform and highly-skilled employees. This kind of procurement may therefore represent a good practice for other competition authorities experiencing similar challenges.

Sources and more information available at: [Link 1](#)

Slovakia

<i>Title</i>	Deep renovation and modernization of an apartment building on Pavla Horova Street 17-19 in Bratislava (part of the <i>EU-GUGLE Project</i>)
<i>Value</i>	€ 846.396,66 (VAT included)
<i>Sector</i>	Construction, housing and community amenities
<i>Publication and award</i>	The contract notice was published on 3/11/2014 on the Croatian national procurement portal (see link 2 below) and a contract was awarded on 16/01/2015 to <i>E - RAN Slovakia spol. s r.o.</i>
<i>Name of public procurer</i>	Housing Construction Cooperative Bratislava (<i>Stavebné bytové družstvo BA IV</i>)
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Works

Background: The city of Bratislava has a large number of old prefabricated buildings. This kind of buildings combine a high demand of energy with a poor system of thermal protection, resulting in a remarkable energy waste.

To achieve the energy efficiency targets defined by the city, addressing the issue of old and inefficient buildings, is particularly important. The opportunity emerged with the participation to the *EU-GUGLE project*, an EU-funded project which aim was to assess the feasibility of nearly-zero energy building renovation models and scale them up to other cities or municipalities. Bratislava became one of the 8 pilot cities included in such project.

The city used the EU help to invest in green, innovative technologies for a wide range of structures. As per of the envisaged interventions, a public procurement was launched for the refurbishment of a residential building on Pavlova Horova Street 17 – 19, built in 1988 and home for 42 households.

Areas of need: The City of Bratislava faced the following needs:

- Increasing the share of renewable energy sources used in buildings;
- Achieving considerable primary energy savings in buildings;
- Enhancing the socio-economic development of the city;
- Improving the comfort of inhabitants.

Procurement description: At the beginning of the *EU-GUGLE project*, the City of Bratislava identified the buildings to be renovated with the help of local partners. Then, it elaborated a strategy of renovation to be disseminated through the *EU-GUGLE consortium*. In this strategy, many elements were defined, including the kind of innovative solutions to be procured, the objective of energy performance to be achieved and the financing scheme to be adopted.

In line with the core elements of the renovation strategy, a public procurement was launched by the Housing Construction Cooperative Bratislava for a deep refurbishment of a residential building located in the Pavlova Horova Street 17 – 19. The procurer explicitly asked for innovative solutions aiming at achieving higher energy efficiency in the building.

A contract was awarded to *E - RAN Slovakia spol. s r.o.*, a Slovak company specialised in energy-saving renovation of buildings, for having presented the most advantageous economic offer.

Results: Between July 2015 and March 2016, deep renovation works were performed, including improvements of the external insulation of the roof, walls and basements. Solar panels were placed on the roof of the building and an innovative heating system was set up. It was based on a ventilation system for heat recovery and heat pumps based on *air-to-water* technology.

These pumps allow to minimise energy consumption to heat the building: overall, only one third of the electricity is needed compared to the previous technology. Therefore, inhabitants can benefit from remarkable cost-savings in terms of energy consumption.

Thanks to this new system, almost the two-thirds of the energy consumed in the building derives from renewable energy sources. CO₂ emissions deriving from the building have been cut by 70% and the 80% less energy is used for heating. Therefore, a positive environmental impact has been achieved.

In addition, the life quality of inhabitants improved, due to a more modern living environment and reduced expenses related to energy consumption.

Finally, this positive refurbishment experience with the building in Pavlova Horova Street 17 – 19 brought wider effects in the housing market of the City of Bratislava, concerning the implementation of energy-efficient solutions as well as renewable energy generation for old buildings. In the realm of the EU-GUGLE project (lasted until 2018), many other structures were renovated with innovative techniques covering a total area of 40.000 m².

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#)

Slovenia

<i>Title</i>	Upgrade of the Ljubljana Regional Waste Management Centre
<i>Value</i>	€ 155.000.000 In the 2007–2013 programme period, the EU's Cohesion Fund contributed with € 77.500.000 through its Environment and Infrastructure Operational Programme.
<i>Sector</i>	Environment
<i>Publication and award</i>	Contract notice was published on 09/07/2009 (TED n. publication 2009 / S 129-188136) and the winning supplier was <i>Strabag AG and Strabag Umweltsanlangen GmbH</i> (Austria)
<i>Name of public procurer</i>	The entire project is run by the public enterprise Snaga Ljubljana, as authorised by the City of Ljubljana and over fifty municipalities of the wider Slovenian central region
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Services

Background: According to the Slovenian Environment Agency, in Slovenia over 7 million tonnes of waste are produced each year, including approximately 900,000 tonnes of municipal waste (450kg per inhabitant). Before the procurement, Slovenia was one of lagging Member States in reducing and recycling waste, as 80 percent of landfill waste was still landed in Slovenia, while the EU average was 40 percent.

In particular, the share of recycled waste in Slovenia was very low, only around 12 percent. This was not compliant with the EU Waste Framework Directive, which requires at least 50 percent of all waste to be collected separately for recycling by 2020. Against this background and with the support of the EU, Slovenia decided in 2009 to invest in a major upgrade of a waste treatment plant near its capital, Ljubljana. The project concerned the upgrade of the regional waste management facilities serving 44 municipalities in central Slovenia, serving 700.00 residents and it has been the biggest environmental project in Slovenia supported by the EU Cohesion Fund.

Areas of need: Facing increasing volumes of municipal waste produced every year – and given that Slovenia did not use to have any facilities for the conversion of waste into energy and that the majority of its waste used to be exported to other countries – the public procurer had to address the following challenges:

- Achieve a long-term solution for waste management;
- Develop a facility to create fuel, wood, compost and other materials, as well as to generate energy;
- Manage natural resources sustainably and to contribute towards the transition into a circular economy;
- Find a waste treatment solution that can process very large volumes of waste very efficiently.

Procurement description: The project, called RCERO Ljubljana Upgrade, is comprised of three subprojects, namely, the expansion of the landfill, leachate treatment plant and waste recovery facilities.

At the end of 2009, seventeen municipalities of the wider Ljubljana region signed the accession contract to co-finance the RCERO Ljubljana Upgrade. These are, in addition to the City of Ljubljana, peri-urban municipalities, which are co-owners of the Public Holding Ljubljana. The main project investor is the City of Ljubljana while other municipalities are co-investors.

The procurement was implemented as a competitive dialogue. In 2010 three offers were received. After three rounds of negotiation, finally in 2012 *STRABAG*'s solution was chosen because it delivered the lowest investment and operation costs as well as the most technologically advanced and ecologically most sustainable solution: a device that produces green electricity from renewable biogas and secondary fuel

from waste packaging. This enables to minimize the rest of the landfill waste and to generate electricity and heat for use directly on site.

Results: Ljubljana's Regional Waste Management Centre (RCERO Ljubljana) now comprises an expanded landfill, a leachate treatment plant, and waste recovery facilities. The new landfill has been used since 2009, the treatment plant has been in operation since 2011, while the construction of the mechanical-biological waste treatment facility, which was the most demanding part of the project, was completed at the end of 2015.

The plant uses state-of-the-art innovative and sustainable waste management technology. Mechanical-biological waste treatment takes place in a three parts process. The first involves the mechanical separation of mixed municipal waste and the preparation of solid fuel, in the second the anaerobic fermentation of biodegradable waste extracted from mixed municipal waste through the production of biogas and in the third the recovery of separately collected biological waste through the production of biogas. The polluted leachate is biologically and chemically purified so that it can be discharged into the sewer.

The treatment plant can purify up to 640 cubic meters of leachate daily from landfilled waste. The technological process involves biological purification with additional ultrafiltration, absorption on activated carbon and selective ion removal of boron. Bulk waste is also received and sorted.

The 44 municipalities from Central Slovenia that are part of the RCERO project produce one third of Slovenia's waste. In order to be able to deal with such very high volumes of waste, the system is almost completely automated with conveyor belts and automatic sorting machines that operate at high speed. All processes are also surveyed by cameras and computers that can be monitored by workers from home. For example, if a filter gets clogged or something gets broken, the system immediately sends an SMS to the mobile phone of a maintenance worker.

Thanks to innovative waste management technologies, the plant can process over 170,000 tonnes of waste annually – over 150,000 of mixed municipal waste and over 20,000 tonnes of separately collected biowaste – serving approximately one third of Slovenia's population.

RCERO after the upgrade is now capable of:

- Using the most advanced and sustainable technology for waste management on a European scale;
- producing green electrical energy from a renewable source, biogas;
- producing green electricity and heat energy that is reused directly in the facility;
- processing biological waste into convenient compost to be used for gardening and landfill maintenance;
- increasing the offer of green jobs;
- producing secondary fuel from the light fraction of the mixed municipal waste.

Ljubljana is now the EU capital with the highest percentage of separately collected waste, and in 2016 was awarded the European Green Capital title. The innovative RCERO plant makes it possible to recover almost all waste, with less than 5% (7,350 tonnes) ending up in a landfill (6 times reduction compared to beforehand). The huge majority of waste is transformed in new raw materials fuelling a circular economy, including every year:

- 30,000 tonnes of raw, recyclable materials
- up to 60,000 tonnes of fuel
- 7,000 tonnes of compost
- 35,000 tonnes of digestate
- 6,000 tonnes of wood
- 17,000 MWh of electricity
- 36,000 MWh of heat.

The facilities of the RCERO reduce waste and promote recycling and reuse. A part of the equipment in the administrative building is made of waste items and reused materials which have been turned into upcycled furniture. The project also reduced surface and groundwater contamination by water leaching from landfill, greenhouse gas emissions, particularly methane, and odors from the decomposition of biodegradable waste.

In terms of wider market impacts, RCERO Ljubljana aims at becoming a model for other European countries wishing to achieve a long-term solution to the waste management issue. Positive spill-over effects are expected, especially in territories currently relying on exporting waste to foreign waste treatment facilities.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#), [Link 4](#)

Spain

<i>Title</i>	Treatment of patients with automated implantable cardioverter defibrillator (AICD)
<i>Value</i>	€ 10.400.000 (excluding VAT)
<i>Sector</i>	Healthcare and Social Services
<i>Publication and award</i>	The contract notice was published on 23 February 2016 in TED (2016/S 037-060421). The contract was awarded on 18 November 2016 (2016/S 223-407585) to <i>UTE Medtronic Ibérica, SA – St. Jude Medical España, SA</i>
<i>Name of public procurer</i>	Hospital de la Santa Creu i Sant Pau (Barcelona)
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Services

Background: The hospital de la Santa Creu i Sant Pau provides healthcare services to approximately 400,000 patients in the Barcelona area. The Hospital implants approximately 150 implantable cardioverter defibrillators (AICDs) per year. An AICD is a device that is inserted in the human body to treat patients at risk of sudden cardiac arrest. Although these devices have been in use for decades, a number of recent developments – such as the introduction of subcutaneous implants – make them a particularly innovative solution. Compared to intravenous implants, subcutaneous implants (placed in the subcutis layer of the skin with few blood vessels) have the advantages of having less complications, but are also more suitable for specific patient populations including pediatric patients, those with difficult or absent venous access, and those at high risk for bacteremia such as dialysis patients. Each AICD includes various high-tech components, costs approximately €10,000 and requires periodical control and reprogramming. In recent years, the number of AICD implants per year has been increasing in Spain – from around 3,000 in 2007 to nearly 6,000 in 2016 – while the national healthcare budget has been shrinking due to the economic crisis.

Areas of need: The public procurer identified three main challenges to be addressed:

- The increase of the number of implants, combined with a reduction of budget;
- The low quality of AICDs and limited technical support after implant, generally caused by the price reductions offered by industry providers in traditional procurements based on the lowest price criterion;
- The need to improve the quality of services for patients, reducing the number of hospital visits while ensuring better remote care services.

Procurement description: The hospital made use of the European Specification Template, a public procurement template to promote cost-effective commissioning of health services, enabling the implementation of innovative care models for elderly people through the support of digital technologies. The template was one of the outputs of the STOPandGO (Sustainable Technologies for Older People – Get Organised) PPI project funded by the European Commission in which the hospital participated.

The procurement procedure envisaged a preliminary market consultation, which allowed the hospital to inform the industry on its needs and requirements, while also learning about quality and technical characteristics of the different solutions available on the market and collecting feedback for the preparation of the call for tenders.

The preliminary market consultation was then followed by the publication of the contract notice, which detailed all the services to be provided, ranging from the management of the stock of AICDs to the extractions of malfunctioning devices. The notice also introduced an innovative system of outcome-based payments, envisaging the payment of 3% of the contract value upon achievement of specific indicators, such as the reduction of hospital visits, the satisfaction of patients, or reduction in the rate of implants resulting in infections. Indicators are periodically monitored by the designated service provider, allowing

to follow and discuss the progress of the procurement during dedicated technical roundtables between hospital staff and the industry.

Results: Although still ongoing, the monitoring of intermediate results shows a number of positive outcomes. For instance, the procurement allowed:

- to reduce hospital visits of patients with AICDs by 18%, with an initially set target of 5%;
- to decrease the inappropriate patient discharges, resulting in avoidable shocks by 29%, exceeding the initial target of 10%;
- to bring the number of implants generating infections down to zero, with an initial target of <3%;
- to limit to 0.4% the discrepancy between the classification of heart conditions made by remote care devices and that performed in hospital, while the objective was <10%.

In addition to overachieving on its targets, the procurement is also producing a wider market impact, as various other hospitals in the Barcelona area are reportedly trying to apply the so-called “Sant Pau’s Model”, moving from the mere purchase of a device to the procurement of services and results. In particular, Vall d’Hebron University Hospital, Bellvitge University Hospital and Hospital Sant Joan de Déu – which cumulatively represent over 50% of the Catalan market for AICDs – are conducting open market consultations to implement a comprehensive treatment for patients with arrhythmias who need implantable cardiac devices. Moreover, building upon this success, the Sant Pau hospital is also currently leading a group of buyers in the framework of the Ritmcore project, an EU funded PPI that aims at developing innovative solutions for patients in need of an implantable pacemaker.

Sources and more information available at: [Link 1](#), [Link 2](#)

Sweden

<i>Title</i>	Disposable bio-based aprons for Skåne's healthcare sector
<i>Value</i>	N/A
<i>Sector</i>	General public services, public admin. and economic and financial affairs
<i>Publication and award</i>	Contract notice (TED n. 2015/S 123-224849) was published on 30/06/2015 and a contract was awarded (TED n. 2016/S 090-161320) on 11/05/2016 to <i>GAIA BioMaterials AB (a Swedish biotech startup)</i>
<i>Name of public procurer</i>	Skåne Regional Council
<i>Type of public procurer</i>	Regional
<i>Type of contract</i>	Goods

Background. In 2011, 40% of the CO₂ emissions in the Skåne Region occurred in the healthcare sector. This was mainly due to the high consumption of disposable products. Among these products, aprons were identified as those having the highest carbon footprint. In this regard, the Skåne's healthcare system requires about five million aprons every year, which correspond to approx. 300 tons of CO₂ emissions per year.

Alternative renewable plastics, such as biopolymers, were available on the market, but not ready to be used for protective aprons yet. In the previous years, three regional councils had already tried to jointly procure for bio-based plastic aprons but found the market unprepared to offer such a product. Given the challenging context, in 2014 Skåne Regional Council undertook an innovation procurement for the supply of 5.2 million bio-based disposable aprons. The procurement was launched with the support of the Swedish Energy Agency. The pilot project aimed at purchasing climate-neutral products and at testing a PPI approach in the region to assess the opportunity to use this type of procurement in the future.

Areas of need: The procurer faced the following needs:

- Reducing the CO₂ emissions produced in the healthcare sector;
- Substituting disposable products with environmentally sustainable products;
- Orienting the market towards the production of innovative, sustainable solutions for the healthcare sector;
- Acquiring capabilities in procuring for innovative solution.

Procurement description. The procurer followed a negotiated procedure with publication in order to better address the need to purchase a solution not yet available on the market. The procedure followed four phases:

In the first phase, a preliminary market consultation was held. Meetings were organized with experts and potential suppliers. The aim of these meetings was to gather information on the requirements to be asked in the procurement. Moreover, the procurer was able to anticipate potential obstacles preventing suppliers from submitting a tender.

In the second phase, a prior information notice was published. It defined minimum requirements of aprons to be purchased, such as being composed of at least 70% bio-material. Four companies participated and passed to the following phase.

The negotiation phase took place in November 2015 with each company. Discussions involved climate impact evaluation, design of the apron, the share of renewable material, delivery time, and price.

In the final phase the procurement was awarded taking into account the aspects discussed in the previous phase and considering the most economically advantageous tender. In May 2016, *GAIA Bio Materials AB* was awarded the contract.

Results. The procurement procedure was successful. It allowed to ensure a high percentage of renewable material for the production of the aprons as well as a price cut of 25%. The company awarded the contract

produced disposable aprons consisting of 91% renewable material. In addition, the design and quality of the new aprons has improved compared to the aprons formerly purchased.

A major impact on environmental sustainability has been confirmed through the Carbon Footprint Calculator, according to which the purchase and use of bio-based aprons resulted in savings of 250 tons of CO₂ emissions per year.

On the economic side, the procurer set up a procedure which led to remarkable savings in the negotiation phase. Moreover, the market consultation held before the procurement and the dialogue with potential bidders allowed to raise awareness among apron's producers on the feasibility and profitability of bio-disposable products.

The procurement confirmed the effectiveness of the use of strategic procurement procedures to stimulate innovation. It is therefore expected that the use of similar procedures can be replicated in other geographical and sectorial contexts.

Sources and more information available at: [LINK 1](#), [LINK 2](#), [LINK 3](#)

Switzerland

<i>Title</i>	Recycled concrete and asphalt for building and road construction
<i>Value</i>	€900.000 (nearly CHF 1 million) for the Kronenwiese building construction procurement. In addition, Zurich has performed several procurements for the construction of public buildings and roads with recycled concrete: the annual average cost for all these construction procurements of new public buildings in Zurich is € 370.000.000, with the amount due to structural works ranging between € 55.000.000 and € 90.000.000.
<i>Sector</i>	Construction, housing and community amenities
<i>Publication and award</i>	There were several procurements for the construction of various buildings erected mainly in the period 2002 – 2019 and roads constructed or repaired in the same period. One building presented as first best practice was finished already in 2002, while two others are planned to be done in the next four years. The most recent construction – the Kronenwiese building – was procured via TED contract notice 2015/S 144-267026. The contract was awarded to <i>Bachmann & Rimensberger</i> (CH).
<i>Name of public procurer</i>	City of Zurich (Building Surveyor's Office and Civil Engineering Office in cooperation with Environmental and Health Protection Service)
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Works

Background. Since 2008, Zurich has been developing an approach to support sustainable buildings and significantly reduce its energy consumption. The city strives to become a "2000-Watt Society", namely a community with an average primary energy consumption of 2000 Watt per person (pp), with only 500 watts/pp from fossil energy and 1 ton/pp of annual CO₂-emissions by 2150. Compared to 2005, this means 3 times less energy consumption and 9 times less greenhouse gases (GHG) emissions per year.

The first steps were implemented already in the 90s with the design and adoption of the *Swiss Minergie Eco Standard*⁸⁷⁹, aimed at setting high requirements regarding the use of renewable energies and the increase in resource efficiency in the construction and housing sectors.

This was needed because, as a result of so renovation and construction works in public buildings, of all the building materials in Zurich, 31.6% is concrete and 26.7% sand and gravel. In this context, improving resource efficiency in public construction works has been an important priority for the city in the last decade. Therefore, the city also decided to include stricter resource efficiency requirements in its procurements for the construction of public buildings and housing.

Areas of need. The City of Zurich identified the following challenges to be addressed:

- Building or refurbishing public or city-owned buildings and roads in Zurich with a sustainable environmental-friendly and energetically optimal approach;
- Reducing GHG emissions without reducing the quality of buildings and roads;
- Promoting closed-loop cycles in the use of materials for construction and maintenance of buildings and roads.

Procurement description: As the main driver for innovation, Zurich used the adoption of a local legislative strategy that steered the building sector to innovate and change their construction processes

⁸⁷⁹ See at: https://www.minergie.ch/media/20170906_flyer_minergie_allgemein_en_rgb.pdf

towards an environmentally sustainable and more cost-efficient path. The legislative framework developed by Zurich binds construction and maintenance of public buildings and roads to stringent environmental and energy standards. This framework does not only define standards for all the new publicly-owned buildings and roads, but also requires the compulsory use of specific materials: since 2005 recycled concrete should be used for public constructions, while since 2015 the only cement favoured wherever technically possible is the CEM III/B – also referred as CO₂-reduced cement - which is characterised for being the type that emits the least amount of CO₂. Exceptions are allowed only if properly justified.

Moreover, to ensure a sustainable procurement, all contracting partners are required to comply with Zurich's Code of Conduct. In addition, all contracting partners, third parties, sub-contractors and suppliers must guarantee compliance with the International Labour Organization (ILO) core labour standards at the place of performance.

In order to encourage the building sector to submit offers that deliver both quality (sustainability) and cost efficiency improvements, the procurements of different buildings (see below) were implemented using open procedures that used value for money criteria with clearly defined minimum resource and energy efficiency requirements.

Results. Examples of buildings that were constructed using this innovative strategy are:

- The school "*Im Birch*", built in 2002, used 80% of recycle concrete;
- *Housing complex "Werdwies"*, built in 2006, used 75% of recycled concrete;
- *School "Leutschenbach"*, built in 2009, used 95% of recycled concrete;
- *Housing complex "Kronenwiese"*, built in 2017, used 95% of recycled concrete and CEM III/B cement;
- *Zurich's city hospital "Triemli"*, built in 2015, used 95% of recycled concrete.

The legislative strategy proved to be successful. Today, approximately 90% of Zurich's average annual use of concrete comes from recycled materials, whose main source is demolition waste. The city has so far managed to reuse 97% of mineral demolition materials and to attain a closed-loop mineral material cycle in urban areas. As a result, every year Zurich uses about 17.000 cubic metres of recycled concrete instead of virgin concrete. This is having a positive impact on:

- **Land preservation:** the use of closed-loop material allows to avoid mining in gravel quarries and disposal construction waste in landfills;
- **Energy savings:** the use of recycled concrete leads to energy savings when it is available within a certain distance from the construction site (25km radius, which is the case of the greater Zurich area);
- **Less CO₂-emissions:** greenhouse gas emissions per cubic metre of concrete are reduced using CO₂-reduced cement by around 25%.

Advantages in terms of cost-savings are also reported. Thanks to the reuse of demolition waste the volumes of waste sent to landfills is significantly reduced, avoiding landfill costs. In addition, depending on actual market developments, recycled concrete is slightly cheaper than virgin concrete, as it allows to save on sand and gravel.

Finally, there are also positive outcomes in terms of quality of employment and social fairness. The first is due to Zurich's Code of Conduct, while the second is mainly due to the fact that producing concrete close to the construction area increases certainty and transparency along the supply chain.

Zurich's experience can be transferred to other areas, cities and countries since there are only few technical limitations in the use of recycled concrete and asphalt and the use of CEM III/B. In this respect, knowledge transfer activities within the *UrbanWin/Procura+* programme have already been implemented with delegations from other European cities (Helsinki and Rome). In 2019, as a result of the innovative use of recycled concrete and asphalt for building and road construction and maintenance, Zurich was awarded the *Procura+ Procurement of the Year* award.

Sources and more information available at: [Link 1](#)

United Kingdom

<i>Title</i>	Innovative lighting procurement for London's Underground network
<i>Value</i>	€ 10.000.000 € 500.000 (approximately the additional European Commission funding for PRO-LITE project used by the English procurer)
<i>Sector</i>	Public Transport
<i>Publication and award</i>	The first early market assessment took place in 2014, the contract notice was published in TED (n . 2015/S 172-313835), and contracts were awarded in June 2016 (TED 2016/S 200-362154) to a series of SMEs: <i>Ark Lighting (UK)</i> , <i>Design plan lighting (UK)</i> , <i>ZG Lighting (UK)</i> , <i>Urbis lighting (UK)</i> , <i>Thorlux lighting. Selux (UK)</i> , <i>QE global (UK)</i> , <i>MJ Quin Integrated services (UK)</i> , <i>Indo lighting (UK)</i> , <i>CU lighting (UK)</i> and <i>Armadillo (UK)</i> .
<i>Name of public procurer</i>	Transport for London (TfL)
<i>Type of public procurer</i>	Local
<i>Type of contract</i>	Works

Background. Transport for London (TfL) is one of the agencies of the Greater London Authority (GLA), responsible for delivering transport services to more than 1,107 million passengers every year. It has been revealing efforts in reducing transports' contribution to climate change as part of wider goal of reducing CO₂ in London emissions by 60% by 2025 (in comparison to 1990 levels). However, in this sector the introduction of new and innovative technologies used to be rather limited, since the focus is on the passenger safety rather than on climate change.

One of the main issues identified was the fluorescent lighting technology used to light underground stations, which required significant maintenance costs and revealed a low level of energy efficiency. For this reason, in 2015, TfL sought new lighting solutions to reduce the underground lighting life-cycle costs (WLC).

In this context, TfL became the lead partner of the EU-funded Procurement of Lighting Innovation and Technology in Europe (PRO-LITE) project, coordinating 7 partners across five European Member States. With the support of PRO-LITE, TfL launched a procurement for the introduction of an innovative lighting system, setting up a procedure to overcome risk-adversity of the sector linked to innovation.

Areas of need. The procurer aimed at addressing the following needs:

- Reducing energy consumption in lighting systems for public transport;
- Overcoming structural resistance of public transport sector to invest in innovation;
- Reducing costs for lighting maintenance in London Underground Network.

Procurement description. A pre-procurement phase was managed through the PRO-LITE network. This approach was based on a Market Sounding Prospectus which aimed at mapping both competences and innovative technologies available on the market. Over 70 manufacturers, suppliers and representatives of the European lighting industry participated in this phase and provided insights on 300 different innovative lighting technologies.

The expertise gathered through this early market engagement exercise was used to inform public procurers of the PRO-LITE network on how to design the procurement procedure. TfL was able to gain a better understanding of (i) innovative solutions applicable in London's underground and (ii) on how to compute costs using the life-cycle cost (WLC) analysis.

After this preliminary phase, a negotiated procurement procedure was launched following three stages:

- A pre-qualification stage aiming at identifying market suppliers compliant with the specific needs of TfL;

- A second phase where suppliers were shortlisted and invited to present an offer. Selected manufacturers provided technical information on their products to enable TfL to undertake a WLC-based environmental comparison of different solutions. Suppliers submitting the best offers were invited to the following stage;
- In the final stage, manufacturers were asked to submit samples for *in situ* testing. In this phase the ability to achieve a set of performance criteria was evaluated (robustness and durability, ease of access to components, ease to dismantle, ease to reassemble, integrity after reassembly, ease to replace parts/components, ease to clean, ease to install, ease to remove/uninstall, ability to accommodate wiring, ease to switch on and off).

In the last stage, several potential suppliers were rejected as the performance did not reach the performance criteria identified by the procurer. In June 2016, an eight year-long contract was awarded to 13 manufacturers.

The procedure used value for money (most economically advantageous) award criteria and applied life cycle costing to calculate the benefits and costs that the procurement would achieve over the lifetime of using the newly procured lighting solutions. The project is a good example of a procurer that made a very sound business case before procuring in order to design his procurement in the way that would deliver the best value for money (first equipping those parts of the metro with new LED lights where the cost reductions that could be achieved would be the highest and using these cost savings to equip other parts of the metro network where a longer pay-back period would be needed with new LED lights later on).

Results. TfL purchased 45 LED-based lighting systems to be installed in different parts of the London Underground Network. The contracts signed with manufacturers contain specific clauses which bind them to regularly update the lighting systems.

The new technology led to remarkable cost-savings. LED technologies generally last longer and are more energy efficient than previously used fluorescent technologies. In addition, the maintenance costs associated to LED technologies are lower. For example, the installation of the new systems in the ticket hall of the London Underground Charing Cross Station resulted in a 25% reduction in WLC, and 75% less maintenance costs. Therefore, the long-term savings are expected to outweigh higher upfront costs of LED solutions and generate total cost savings of up to 50%.

In addition, the solution resulted in positive environmental impacts. Energy consumption and greenhouse gas emissions of the new solutions are significantly lower, contributing to the overall CO2 emissions goal set for 2025.

The procurement procedure also generated important lessons learned to be used in other countries to overcome barriers on the implementation of innovative solutions in this sector. The pre-procurement stages allowed to safely identify innovative solutions, minimizing the risks and therefore increasing confidence of public transport actors in investing in innovative solutions.

Sources and more information available at: [Link 1](#), [Link 2](#), [Link 3](#), [Link 4](#), [Link 5](#)

9.3 Annex III – Survey used for the policy framework benchmarking

The survey for benchmarking innovation procurement policy and legal frameworks in Europe was available at <https://ec.europa.eu/eusurvey/runner/InnovationProcurementSurveySMART> from November 2017 to February 2018.

It was designed, in accordance with the DG CNECT, in order to cover at best all aspects that constitute the ecosystem of innovation procurement, from the legal framework to financing.

Addressees, identified in the first months of the project, were key national procurement experts, usually officials of Ministries of public offices at central level.

Below we provide the integral text of the survey, including the introduction where we explained the scope, the objectives and the functioning of the survey.

The Strategic Use of Innovation Procurement in the Digital Economy

Fields marked with * are mandatory.

Introduction to the survey

Background information:

This survey is taking place in the context of the study on "The strategic use of public procurement for innovation in the digital economy" conducted by PricewaterhouseCoopers plus two experts, Sara Bedin and David Osimo, for the European Commission, DG Connect. The aim of this survey is to gather qualitative evidence about the progress in different countries of implementing a mix of policy measures that are conducive for mainstreaming innovation procurement and to collect a set of good practice cases. The study covers all 27 European Member States plus UK, Norway and Switzerland.

Target:

The survey is addressed to national representatives and experts working on innovation procurement.

The survey will take around 30 minutes, unless you need additional time and collaboration with other people in your country to answer all the questions.

****You can take as long as you need. You can save your contribution as a draft on the server and continue later. Please note that your session will time out in 30 minutes. Save your work as a draft before your session times out.****

As the evidences are fundamental for our study, we request you to provide additional documents (or the weblink to those) to support your answers.

In the last section we ask you to provide examples of good practices in a free text question.

Please note that personal data and information that you share with us in this survey will not be disclosed to third parties, unless you agree differently.

Thank you in advance for the time you dedicated to our cause.

Click [here](#) for additional information

Information about the respondent

1. Definitions

A common understanding of what is meant by innovation procurement is an essential prerequisite to encourage the use of innovation procurement across a country. The objective of this indicator is therefore to check to which extent there is a clear official definition in the legal framework of the country for Innovation Procurement, R&D procurement, Pre-Commercial Procurement (PCP) and Public Procurement of Innovative solutions (PPI).

For additional information on definitions and legal framework:

http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=48150

1.1 Innovation procurement

Does it exist in your country (at national or regional level) an official definition of innovation procurement?

- Yes
- No

1.2 R&D procurement

Does it exist in your country an official (national or regional) definition of R&D procurement?

- Yes
- No

1.3 Pre-commercial procurement (PCP)

Does it exist in your country an official (national or regional) definition of pre-commercial procurement (PCP)?

- Yes
- No

1.4 PPI (i.e. the public sector acting as early adopter for innovative solutions)

Does it exist an official (national or regional) PPI definition:(i.e. the public sector acting as early adopter for innovative solutions)?

- Yes
- No

2. Other horizontal policies supporting innovation procurement

Innovation procurement does not happen in isolation, but at the intersection with other policies and thus it flourishes more when it is actively supported by those other policies. This indicator therefore reflects for each country to which extent innovation Procurement is politically embedded and treated with strategic importance in other policies that define the surrounding ecosystem for innovation procurement.

2.1 R&D policy

Is there a (national or regional) R&D policy that embeds with strategic importance - in addition to the classical supply side R&D policy - also a demand side R&D policy, which actively encourages public procurement of R&D, including PCP?

- Yes
- No

2.2 Innovation policy

Is public procurement of innovative solutions (i.e. the public sector acting as early adopter for innovative solutions) embedded as a goal of strategic importance in the innovation policy (at national or regional level)?

- Yes
- No

2.3 Public procurement policy

Does the public procurement policy (at regional or national level) explicitly recognize the strategic importance of innovation procurement to improve the quality and efficiency of public services, and actively encourage public procurers to implement R&D procurements (including PCP) and public procurement of innovative solutions?

- Yes
- No

2.4. Competition policy

Is there a specific strategy for innovation procurement(at national or regional level) defined in the competition policy to ensure a transparent, non-discriminatory level playing field for all economic operators on the market?

- Yes
- No

2.5 ICT / Digital Single Market policy

As ICT (at national or regional level) is a catalyser for public sector modernization across all areas of public interest in today's digital economy, is innovation procurement embedded as a strategic priority in the ICT policy?

- Yes
- No

2.6 Economic policy

Does the economic policy (at national or regional level) explicitly recognize the strategic importance of innovation procurement for economic growth (to reinforce industrial competitiveness, public sector efficiency, job creation), and actively encourage innovation procurement (e.g. in economic reforms, in export / trade strategy)?

Yes

No

2.7 Entrepreneurship policy

Does the entrepreneurship policy (at national or regional level) explicitly recognize the strategic importance of innovation procurement to create business opportunities for entrepreneurs and boost the scaling-up of small companies, and does it actively support entrepreneurs that target public sector customers (e.g. provide training to entrepreneurs/start-ups/SMEs on how to successfully apply for innovation procurements, encourage financial investors to invest in entrepreneurs/start-ups/SMEs involved in innovation procurements)?

Yes

No

2.8 Financial policy

Are there strategic measures in the financial policy (at national or regional level) to facilitate innovation procurement (e.g. tax/VAT incentives for public procurers and companies that are involved in R&D procurements and/or public procurements of innovative solutions)?

Yes

No

2.9 Regional/urban policy

Does the regional/urban policy recognize the strategic importance of innovation procurement for regional/urban development, and does it foresee strategic measures to increase the use of R&D procurement (including PCP) and public procurement of innovative solutions?

Yes

No

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200-character(s) maximum

3. Sectoral policies supporting innovation procurement

Public procurers in a specific sector (e.g. public transport) are more encouraged to undertake innovation procurement when innovation procurement is embedded as a strategic objective in the

national policy frameworks and action plans that set the priorities for their specific sector (e.g. national strategy/action plan on transport/mobility). Therefore this indicator reflects per country to which extent innovation Procurement is embedded as a strategic priority in policy frameworks and action plans at sectoral level.

3.1 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in Healthcare and social services sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.2 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in public transport sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.3 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in General public services, public administration, economic and financial affairs sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.4 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in Construction sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.5 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Energy sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.6 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Environment sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.7 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Water sector?

	Yes	No	I don't know
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.8 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Public order, safety, security and defence sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.9 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Postal sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.10 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Public order, safety, security and defence sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.10 To which extent is innovation Procurement recognized as a strategic priority in policy frameworks and action plans in the Education, recreation, culture and religion sector?

	Yes	No	I don't know
Recognized in the policy framework and/or in the action plan at national level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognized in the policy framework and/or in the action plan at regional level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200 character(s) maximum

4. Dedicated action plan for innovation procurement

A number of countries around Europe have implemented or have started implementing a dedicated action plan for innovation procurement that foresees specific measures to encourage innovation procurement that are not covered by other horizontal enabling policies (see indicator 2) or sectoral policies (see indicator 3). This indicator thus assesses to what extent policy ambitions for innovation procurement have been operationalized through a dedicated action plan for innovation procurement.

4.1 Is there a specific action plan for innovation procurement?

- Yes
- No

4.2 If yes, please choose one of the following options:

- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)

- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, levels of government, geographic parts of the country) but not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.3 Does the action plan commit to concrete actions to be implemented?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, levels of government, geographic parts of the country) but not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.4 Does the action plan define which specific resources (material and budgets) will be used to implement each action?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, levels of

government, geographic parts of the country) but not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).

- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.5 Does the action plan clearly define expected results (possibly broken down in final results and intermediate milestones) for each action?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
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- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.6 Does the action plan define a clear timeline for implementation of the different actions?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
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- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.7 Have the relevant key procurement organisations in the country committed and been mobilised to implement the action plan?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
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- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.8 Does the action plan define concrete actors to implement each action?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
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all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)

- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
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- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.10 Does the action plan define clear, lightweight decision-making structures for innovation procurements that require approval from procurers and/or policy makers from different levels of government (local, regional, national) and/or different sectors (e.g. health, energy, environment)?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, levels of government, geographic parts of the country) but not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

4.11 Does the action plan define concrete measures to pool demand among public (and possibly also private) procurers in the country (e.g. by creating fast/lightweight mechanisms for approving ad-hoc joint innovation procurements, by mandating specific entities such as associations of cities, central purchasing bodies to carry out regularly joint innovation procurements on behalf of a group)?

- No
- Yes, but only for a subset of innovation procurement (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only applicable to some public procurers in certain sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for 'pilot' actions)
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only applicable to some public procurers in certain

sectors or at certain levels of government, only for some/not all regions/cities) and not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).

- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, levels of government, geographic parts of the country) but not yet for mainstreaming innovation procurement at large scale (e.g. only for some 'pilot' actions).
- Yes, for all types of innovation procurement (both R&D procurement, incl. PCP, and PPI), and widely across the whole country (e.g. applicable to all public procurers in all sectors, government levels, geographic parts of the country) and for mainstreaming innovation procurement at large scale.

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200 character(s) maximum

5. Spending target for innovation procurement

In the field of R&D and innovation, setting spending targets is a widely used approach to encourage investments (e.g. the 3% Lisbon target for R&D expenditure in Europe). Over the past few years, several countries around Europe have set a specific spending target for innovation procurement as a percentage of the annual country public procurement expenditure that should go to innovation procurements. Therefore this indicator reflects the progress on target setting for innovation procurement across Europe.

5.1 Has a spending target for innovation procurement been set (as percentage of total public procurement spending)?

- Yes
- No

What is the target for innovation procurement?

Is this spending target applicable in the whole country?

- Yes
- No

Is this spending target applicable only at regional level?

- Yes
- No

5.2 Is the spending target applicable to all types of innovation procurement (both R&D incl. PCP, and PPI)?

Yes

No

5.4 Is there a separate target for R&D procurement and for public procurement of innovative solutions (PPI) respectively?

Yes

No

What is the target for R&D procurement?

Is this spending target applicable in the whole country?

Yes

No

Is this spending target only applicable at regional level?

Yes

No

What is the target for public procurement of innovative solutions (PPI)?

Is this spending target applicable in the whole country?

Yes

No

Is this spending target only applicable at regional level?

Yes

No

5.5. Is the spending target backed by operational commitments from key procurers to invest in innovation procurements?

- Yes
- No

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200 character(s) maximum

6. Monitoring system

The current lack of a systematic monitoring of progress on innovation procurement across Europe limits policy makers to set more ambitious targets for innovation procurement spending and to make informed decisions about how to best design new policy actions to catch up in areas that are lagging behind. Therefore, a number of countries around Europe are setting up a national monitoring system for innovation procurement. This indicator reflects to which extent the following two monitoring dimensions have progressed across Europe: measuring innovation procurement expenditure and evaluating the impacts of completed innovation procurements.

6.1 Is there a system for measuring innovation procurement expenditure?

- No
- Yes, but only for a subset of innovation procurements (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only for certain sectors or certain levels of government, only for some regions, only for specific PCP or PPI programmes etc.) and not in line with EU definitions.
- Yes, but only for a subset of innovation procurements (e.g. only for PPI or only for R&D procurement but not for both), widely all public procurements across the whole country, but not in line with EU definitions.
- Yes, for all types of innovation procurements (both R&D procurement, incl. PCP and PPI), but not widely across the whole country (e.g. only for certain sectors or certain levels of government, only for some regions, only for specific PCP or PPI programmes etc.) and not in line with EU definitions.
- Yes, for all types of innovation procurements (both R&D procurement, incl. PCP, and PPI) and widely across all public procurements across the whole country, but not in line with EU definitions.
- Yes, for all types of innovation procurements (both R&D procurement, incl. PCP, and PPI) and widely across all public procurements across the whole country and in line with EU definitions.

6.2 Is there a system for evaluating the impacts of innovation procurements?

- No

- Yes, but only for a subset of innovation procurements (e.g. only for PPI or only for R&D procurement but not for both), not widely across the whole country (e.g. only for certain sectors or certain levels of government, only for some regions, only for specific PCP or PPI programmes etc.) and not in line with EU definitions.
- Yes, but only for a subset of innovation procurements (e.g. only for PPI or only for R&D procurement but not for both), widely all public procurements across the whole country, but not in line with EU definitions.
- Yes, for all types of innovation procurements (both R&D procurement, incl. PCP, and PPI), but not widely across the whole country (e.g. only for certain sectors or certain levels of government, only for some regions, only for specific PCP or PPI programmes etc.) and not in line with EU definitions.
- Yes, for all types of innovation procurements (both R&D procurement, incl. PCP, and PPI) and widely across all public procurements across the whole country, but not in line with EU definitions.
- Yes, for all types of innovation procurements (both R&D procurement, incl. PCP, and PPI) and widely across all public procurements across the whole country and in line with EU definitions.

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200 character(s) maximum

7. Financial and other Incentives for innovation procurement

A major barrier in Europe for innovation procurement is the risk averseness of public procurers because of a lack of incentives for them to innovate. Several countries around Europe have therefore created financial or other types of incentives to encourage public procurers to undertake more innovation procurements. This indicator tracks progress on this incentive structure across different countries

7.1 Incentives to reduce the financial risk for public procurers to undertake innovation procurements

Are there incentives to reduce the financial risk for public procurers to undertake innovation procurements?

- Yes
- No

Which financial incentives are used?

- Grants for procurers that co-finance the cost of coordination activities to prepare and manage the procurement and/or the procurement cost
- Attractive loans for procurers to undertake innovation procurements
- Financial guarantees (e.g. state guarantees budget gap for the innovation procurement if procurer has cash flow difficulties, and procurer reimburses this amount to state later)
- Reinvestment of financial benefits achieved from previous innovation procurements into new innovation procurements (e.g. setting up of an innovation procurement reinvestment fund)

- Collecting investments from individual investors in innovation procurements (e.g. crowdfunding platform for innovation procurements)
- Other

Are there (national or regional) financial incentives that are not (co)financed by EU financial incentives for innovation procurement? Note: EU financial incentives for innovation procurement include for example Horizon 2020 or ESIF co-financing of procurements, EIB loans to procurers

- Yes
- No

Are there (national or regional) financial incentives that are (co)financed by EU financial incentives for innovation procurement? Note: EU financial incentives for innovation procurement include for example Horizon 2020 or ESIF co-financing of procurements, EIB loans to procurers

- Yes
- No

Are the incentives directed towards all types of innovation procurement (both R&D procurement, incl. PCP, and PPI)

- Yes
- No

Are they applicable country wide (i.e. applicable to all public procurers in the country)?

- Yes
- No

Are they designed to incentivize large scale implementation of innovation procurement, not just for pilots (pilot actions are actions with limited scope, duration and/or budget to trial out innovation procurement in a limited number of cases)?

- Yes
- No

[7.2 Personal incentives for public procurers](#)

Are there personal incentives for public procurers to undertake innovation procurements?

- Yes

No

Which personal incentives are used? (Please, if is the case select more answers)

- KPIs for key procurement managers to modernize public services (minimum levels of quality and efficiency improvements to be achieved over mid to long term)
- Personal annual job performance of each procurement officer contains an objective to contribute to identify ideas for new innovation procurements that can generate quality/efficiency improvements for the procurer and to help carry out such innovation procurements
- Career incentives for procurers that succeed in contributing to innovation procurements (e.g. faster promotion)
- Bonuses for procurers that succeed in contributing to innovation procurements
- National prize to reward the procurer that completed the best innovation procurement
- Other

Are there personal incentives for public procurers implemented country wide?

- Yes
- No

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200 character(s) maximum

8. Capacity building and assistance measures

Lack of know-how and experience on innovation procurement is also a significant barrier to innovation procurement. Several countries around Europe have therefore set up measures to build up the capacity / know-how of public procurers on innovation procurement and/or to provide tailored case-by-case assistance to public procurers to implement specific innovation procurement projects. To make these measures easily accessible to public procurers in a one-stop-shop, these activities are typically coordinated by a competence centre on innovation procurement. This indicator tracks progress on the capacity building and assistance measures for innovation procurement across different countries

8.1 Central website

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) have a central website that explains why the policy framework encourages public procurers to undertake innovation	<input type="radio"/>	<input type="radio"/>

procurement and that gives an overview of existing and upcoming policy initiatives to mainstream innovation procurement?		
In additional to providing national references, does it connect also the relevant EU references/initiatives that support innovation procurement?	<input type="radio"/>	<input type="radio"/>
Is all information on the central website offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Is the information on the central website covering all aspects of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is the information on the central website applicable to all public procurers in the country? (if it's a website from a regional or local, not national, government, click 'no')	<input type="radio"/>	<input type="radio"/>
Is the information on the central website addressing how to mainstream innovation procurement at large scale (with enough resources for mainstreaming innovation procurement widely)? If the information is only related to applying innovation procurement on limited scale (e.g. a pilot action on innovation procurement), click 'no'	<input type="radio"/>	<input type="radio"/>

8.2 Good practices

	Yes	No
Has the government (itself or through an officially appointed competence centre on innovation procurement) published good practices / case examples on innovation procurement?	<input type="radio"/>	<input type="radio"/>
In addition to providing relevant national good practices/case examples, does the list of good practices also contain relevant EU supported good practices/case examples?	<input type="radio"/>	<input type="radio"/>
Is the publication of good practices/case examples offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Are the good practices covering all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Are the good practices/case examples applicable to all public procurers in the country (answer "no", if for example only examples are given in one regional language)?	<input type="radio"/>	<input type="radio"/>
Are good practices/case examples included that demonstrate how to mainstream innovation procurement at large scale (with enough resources for mainstreaming innovation procurement widely)?	<input type="radio"/>	<input type="radio"/>

8.3 Trainings and workshops

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) offer trainings/workshops for public procurers on innovation procurement?	<input type="radio"/>	<input type="radio"/>
In addition to providing training/workshops about the national/regional framework for innovation procurement, does the training/workshops also provide training about the relevant EU and international (WTO) framework for innovation procurement?	<input type="radio"/>	<input type="radio"/>
Are there trainings/workshops offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Are the trainings/workshops covering all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Are the trainings/workshops available to all public procurers in the country (e.g. answer "no" in case there are only trainings in one regional language)?	<input type="radio"/>	<input type="radio"/>
Are the trainings/workshops addressing how to implement innovation procurement at large scale (i.e. not only how to implement some first pilot(s) but how to mainstream innovation procurement widely inside one organisation or in cooperation with other procurers, e.g. by implementing joint procurements together with other procurers)?	<input type="radio"/>	<input type="radio"/>

8.4 Handbook or guidelines

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) have an official implementation handbook or guidelines on innovation procurement?	<input type="radio"/>	<input type="radio"/>
In addition to addressing the national/regional framework for innovation procurement, does the handbook/guidelines also give guidance about the relevant EU and international (WTO) framework for innovation procurement?	<input type="radio"/>	<input type="radio"/>
Is the handbook/guidelines offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Are the handbook/guidelines covering all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is the handbook/guidelines applicable to all public procurers in the country (e.g. answer "no" in case the handbook/guidelines apply not to the national but only to one regional framework in the country and/or are available only in one regional language)?	<input type="radio"/>	<input type="radio"/>
Is the handbook/guidelines addressing how to implement innovation procurement at large scale (i.e. not only how to implement some first pilot(s) but how to mainstream innovation procurement widely inside one	<input type="radio"/>	<input type="radio"/>

organisation or in cooperation with other procurers, e.g. by implementing joint procurements together with other procurers)?		
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8.5 Assistance to public procurers to prepare and implement innovation procurements

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) offer case specific (practical and legal) implementation assistance to public procurers to prepare and implement innovation procurements?	<input type="radio"/>	<input type="radio"/>
In addition to providing assistance about the national/regional framework for innovation procurement, is there also assistance provided about the relevant EU and international (WTO) framework for innovation procurement?	<input type="radio"/>	<input type="radio"/>
Is the assistance offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Is the assistance available for all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is the assistance available to all public procurers in the country (e.g. answer "no" in case assistance is provided only to procurers in one region of the country)?	<input type="radio"/>	<input type="radio"/>
Is there assistance available to obtain approval/financing for innovation procurements at large scale (i.e. to mainstream innovation procurement widely in a structured way e.g. across a sector or how to implement joint procurements together with other public procurers) (then answer "yes"). In case there is only assistance available to obtain approval/financing for innovation procurements at small scale (some first pilot(s)) (then answer "no")	<input type="radio"/>	<input type="radio"/>

8.6 Template tender documents

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) offer template tender documents for public procurers to undertake innovation procurements?	<input type="radio"/>	<input type="radio"/>
In addition to referring to the national/regional framework for innovation procurement, do the template tender documents also refer to the relevant EU and international (WTO) framework for innovation procurement (e.g. for R&D procurements, do the templates explain the specific exemptions for R&D services in the EU public procurement directives and WTO Government Procurement Agreement)?	<input type="radio"/>	<input type="radio"/>
Are the templates offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>

Are templates available for all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Are the templates applicable to all public procurers in the country (e.g. answer "no" in case there are only templates for procurers in one region of the country)?	<input type="radio"/>	<input type="radio"/>
Are the templates addressing how to implement innovation procurement at large scale (i.e. how to implement joint innovation procurements together with other public procurers)?	<input type="radio"/>	<input type="radio"/>

8.7 Assistance to public procurers to obtain hierarchical and financial approval for starting an innovation procurement

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) offer case specific assistance to public procurers to obtain hierarchical approval and financial support for implementing innovation procurements?	<input type="radio"/>	<input type="radio"/>
In addition to providing assistance to obtain financing at national level, is there also assistance provided to obtain EU (co)financing for innovation procurements (e.g. ESIF, Horizon 2020, EIB financing)?	<input type="radio"/>	<input type="radio"/>
Is the assistance offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Is the assistance available for all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is the assistance available to all public procurers in the country (e.g. answer "no" in case assistance is provided only to procurers in one region of the country)?	<input type="radio"/>	<input type="radio"/>
Is there assistance available to obtain approval/financing for innovation procurements at large scale (i.e. to mainstream innovation procurement widely in a structured way e.g. across a sector or how to implement joint procurements together with other public procurers) (then answer "yes"). In case there is only assistance available to obtain approval/financing for innovation procurements at small scale (some first pilot(s)) (then answer "no")	<input type="radio"/>	<input type="radio"/>

8.8 Coordination

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) pre-approve or coordinate the implementation of innovation procurements nationally/ regionally?	<input type="radio"/>	<input type="radio"/>
Does the government (itself or through an officially appointed competence centre on innovation procurement) pre-approve or coordinate the	<input type="radio"/>	<input type="radio"/>

implementation of innovation procurements that are implemented with EU financing (e.g. ESIF, Horizon 2020, EIB financing)?		
Is the pre-approval/coordination offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Is the pre-approval/coordination applicable to all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is the pre-approval/coordination applicable to all public procurers in the country (e.g. answer "no" in case pre-approval/coordination applies only to procurers in one region of the country)?	<input type="radio"/>	<input type="radio"/>
Is there pre-approval/coordination for innovation procurements that are implemented at large scale (i.e. for implementing an innovation procurement programme or for implementing joint procurements together with other public procurers) (then answer "yes")? In case there is only pre-approval/coordination for innovation procurements that are implemented at small scale (some first pilot(s)), answer "no".	<input type="radio"/>	<input type="radio"/>

8.9 Networking between procurers

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) facilitate experience sharing and networking between procurers in other cities/regions, sectors, countries (e.g. online via a forum, or via physical meetings)?	<input type="radio"/>	<input type="radio"/>
Is the networking offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Is the networking covering all types of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is the networking available to all public procurers in the country (e.g. answer "no" in case pre-approval/coordination applies only to procurers in one region of the country)?	<input type="radio"/>	<input type="radio"/>
Is the networking addressing how to implement innovation procurements at large scale (i.e. for implementing an innovation procurement programme or for implementing joint procurements together with other public procurers) (then answer "yes")? In case there is only networking for implementing individual or first pilot innovation procurements, answer "no".	<input type="radio"/>	<input type="radio"/>

8.10 One-stop-shop for public procurers

	Yes	No
Does the government (itself or through an officially appointed competence centre on innovation procurement) offer a one-stop-shop for public procurers	<input type="radio"/>	<input type="radio"/>

to the above type capacity building and/or assistance measures through an officially appointed competence centre on innovation procurement?		
Does it connect in addition to the relevant national also the relevant EU references/initiatives?	<input type="radio"/>	<input type="radio"/>
Is it offered free of charge to procurers?	<input type="radio"/>	<input type="radio"/>
Is it covering all aspects of innovation procurement (R&D procurement, including PCP, and PPI)?	<input type="radio"/>	<input type="radio"/>
Is it available/applicable to all public procurers in the country?	<input type="radio"/>	<input type="radio"/>
Is it offered at large scale (with enough resources for mainstreaming innovation procurement widely)?	<input type="radio"/>	<input type="radio"/>

Please provide the link to relevant documents (and additional free text information, if relevant) to support your answers

200 character(s) maximum

9. Good practices

Could you please provide and describe at least one good practice case example, identifying also different impacts achieved, e.g. on modernizing public services, accelerating company growth, facilitating access to the market for new players such as SMEs, encouraging deployment of standardized solutions, bringing innovative solutions to the market etc?

Filling in a good practice example of an innovation procurement in your country can help us identify the next winner of the 2018 European innovation procurement award.

9.4 Annex IV – Tables for the machine-processable definition of PPI

Vertical concepts

Sector	Class	Keyword
Healthcare and social services	Medical products, appliances and equipment	Biosensor
		Implantable cardioverter defibrillators
		first-in-man
		organoid
		e-prescription / electronic prescription
		e-referral / electronic referral
		electronic skin / synthetic skin / polymer skin
		tooth sensors
		ingestible sensors
		Organs on a chip / in silico clinical trials
		Close loop insulin delivery
		Non-invasive diabetes monitoring
		3D training/ virtualised training (3D training tools for doctors)
		3D printed drugs / personalised drug dosing / unique dosage /
		LDL cholesterol lowering drugs
		Blue-violet LED light fixtures (kill infections)
		Spectral computed tomography
		Synthetic hormones
		Bioabsorbable stents
		Bioabsorbable hydrogel (protects from radiation)
		Breast Cancer Drug
		Cognitive computing
		Young blood antiaging / anti-aging
		Bioelectronics / bioelectronic medicine
		needle-free injections / high pressure stream injections
		medicinal contact lenses
		liquid biopsy
		far-UVC (far-ultraviolet C) treatment of viruses
		synthesised antibiotics / antibiotics resistance / superbugs / bug resistant medicines

Sector	Class	Keyword
		Personalised medication
		Male contraceptive / male birth control
		Anti-microbial resistance
		Nanotechnology-based systems (nanomedicines, nanosensors, etc.)
		Neural-sensing headset/ brain-computer interface/ neuroprosthetics/ exocortex / cerebral
		Brain implants / deep brain stimulation / prosthetic brain system
		PVC-free equipment / equipment without PVC
	Hospital services	Electronic health records /electronic registry / electronic history / electronic patient history
		Telecare / Telehealth / remote care / Homecare
		Teledetection
		Telemedicine
		Telemanagement / Remote management
		Telemonitoring / Remote patient monitoring / online health monitoring / telemetry / telemetering
		Telecontrol / remote control
		Virtual Nurse / Virtual Doctor / Digital Consultation
		Teleticketing
		IoMT / Internet of Medical Things
		payer-provider analysis and software
		Remote diagnostics / remote sensing
		Early diagnostics
		Patient empowerment / patient engagement
		Centralised patient monitoring
		Aetiology / etiology
		Re-transplantation / double face transplant / human head transplant
		Warm blood perfusion / warm donor organ perfusion
		Leadless pacemaker
		exposome
		stem cell * (treatment etc.)
		regenerative medicine
		T cell immunotherapy / advanced immunotherapy
		personalised medicine / intervention / prevention / treatment
		customised treatment plan

Sector	Class	Keyword
		Infection prevention
		Combinational therapies / holistic patient analysis / holistic disease analysis / holistic analysis
	Social services	Community transformation
		Digital divide / digital literacy / digital skills
		Independent living
		Active ageing
		demography / demographic change
		Service co-production
		Social innovation
		Social network
	First aid	Emergency vehicle warning system
		First aid kit
		LED smart clothing
		Mobile stroke units
		Smart ambulance
	Other innovative themes	Artificial cell
		Artificial organ
		Artificial tissue
		Biobank
		synthetic biology
		mHealth
		Bioinnovation
		bioinformatics
		Biotechnology
		Cancer * (biobank, immunotherapy, registry, treatment, virotherapy, etc.)
		Cell * (technology, therapy, treatment)
		Genomics and genetics / microbiome / omics technology(ies) / gene therapy (e.g. for eliminating inheritary diseases)
		Plantibody
		Robotic surgery
		Tissue engineering
Transport	Clean vehicles	Automated * (driving, mobility, transport, vehicles, vessels , distribution)
		Car/scooter/bike sharing / ride-hailing / shared mobility

Sector	Class	Keyword
		Electric vehicles (e-vehicles) / clean vehicles / electric car / electric truck
		charging infrastructure / charging station
		Green vehicles
		Hybrid vehicles
		Hydrogen vehicles
		Low emission locomotives
		congestion * (reduction, burden etc)
	Smart logistics	free-floating contractual transport services
		real-time logistics
		instant freight services / digital freight matching
		click-and-collect
		smart lockers
		robotic loading / robotic unloading / robotic piece picking / warehouse robotics / lights out operation
		swarm robots / robotic swarming
	Airports / Ports	Smart baggage / smart luggage
		Passenger empowerment / self-service solutions
		Smart port / Smart airport / Smart harbour
		Interactive maps / Intelligent Navigation
		Geo-locator
		Auto-docking / automated docking
	Other innovative themes	Accessible transport systems
		connected * (mobility, transport, lighting, cities etc.)
		cooperative ITS (intelligent transport systems)
		seamless mobility
		Airless tire
		e-maritime / surveillance
		Autonomous * (shipping, systems)
		Self-driving *
		Demand responsive transport/transit
		Fusion rocket
		Greenways, foreshoreways
		Helipad

Sector	Class	Keyword
		Heliport
		High-speed rail
		Hoverbike
		Hovertrain, Ground effect train, Maglev train, Vactrain
		Intermodal freight transport
		Intermodality / intermodal * (transfers, transport)
		Mass driver / mass transport
		Personal rapid transit
		Spaceplane
		Supersonic transport
		Sustainable mobility
		Transportation management system
		Vehicular communication system
		Walkability
General public services, public administration, and economic and financial affairs	Innovative public procurement	Legal duty of sustainable procurement
		Model environmental criteria for public procurement
	E-government	Citizen * (participation, engagement, science)
		Digital democracy
		Digital identity
		e-democracy
		Electronic voting (e-participation)
		e-procurement / e-commerce/ e-purchase
		e-services / e-administration
		Open government
		regulatory sandbox
	Banking and taxation	Neobank
		Open APIs
		Predictive banking
		Fintech
		Green bonds
		Wearable credit card (e.g. on a bracelet)
		Sustainable energy investments

Sector	Class	Keyword
		Crowdfunding / citizen financing
		innovative financing
		ICO
		on-tax financing / on-bill financing
		Climate insurance / flood insurance / drought insurance
		Natural Capital Accounting / valuing nature
	Management	Co-creation
		Co-design
		Co-development
		systemic design / systemic innovation / systemic urban planning
		supply chain management / supply chain optimisation
		just in time II / in-plant
		pull production / lean manufacturing
	Telecommunications	5G
		Network slicing
		Augmented reality
		Flexible display
		Nanoradio
		Optical fiber
		Radio frequency identification
		Screenless display (e.g. virtual retinal display)
		Virtual reality
		Immersive reality / immersion
		Volumetric display (holography)
	Digital transformation	3D Scanner Laser
		* computing (exascale, distributed, quantum, super)
		Artificial intelligence / Collective intelligence / Collective awareness platform
		Big data
		Bitcoin
		Blockchain
		digitalisation / digitization / digital-by-default
		traceability / e-traceable

Sector	Class	Keyword
		printed battery
		spherical imaging / 360 degree photo
		neuromorphic * (computing)
		virtualisation / virtualising / virtual (is not only for VR: e.g. virtual power plant, virtual logistics, virtual nurse)
		machine to machine / car to car
		human computer interaction
		wearable
		botnet of things
		microsensor
		microinformatics
		free-form optics
		Low power * (computing, energy)
		Public interactive screens
		Chatbot
		Cloud / fog computing
		Cryptocurrency
		Deep learning / reinforced learning
		Digital twin
		Femtosecond Optical Laser
		Gesture recognition
		Hackathon
		Internet of Things (IoT)
		Machine learning
		Machine translation (or automated translation)
		Machine vision
		Nanotechnology
		Natural language processing
		Robotic process automation
		Robotics
	Agriculture, forestry, fishing, hunting	Algorithmic agriculture
		By-catch reduction
		Catch traceability

Sector	Class	Keyword
		Digital fishery marketplace
		Forest-based biorefinery
		Deforestation / forest resilience
		Digital mining / digital mine
		sustainable mining
		in situ (e.g. in situ digital/mobile agricultural inspection)
		Recovery of minerals
		proximal sensing (e.g. proximal soil sensing)
		Digital agriculture
		Nutrition security / food safety / food authentication
		Nutrient recovery
		Supercharged photosynthesis
		Plant improvement / plant modification
		Aquaponics
		Biocontrol / integrated pest control
		Biodegradable
		Virtual argri field manager
		Heat resistant seeds
		Genetically modified *
		Alternative proteins
		minimal processing (e.g. minimal processed foods)
		Permaculture
		Precision agriculture
		Rooftop growing
		Smart catch
		Satellite farming
		Urban agriculture
		Vertical farm
Construction, housing and community amenities	Urban area	* city (digital, green, information, intelligent, sensing, smart, ubiquitous, virtual)
		Blue infrastructure
		Green infrastructure
		Smart building / smart home

Sector	Class	Keyword
		Sustainable Urban Development
		Cheap drilling
		Photovoltaic glaze / photovoltaic glass
		Solar road
		Solar skin / solar roof tile
		Wearable solar
		Solar tracking
		Solar batteries
		Smart highway / smart road
		smart demolition
		Zero energy building
	Social housing	Community-led housing
		Prefab housing
	Tunnelling	Bored tunnel
		Box jacking
		Cut and cover
		Immersed tube
		Sequential excavation
	New construction techniques and sustainability	Building information model
		Claytronics
		Modular construction
		Molecular assembler
		Equipment sharing
		Remote equipment monitoring / asset tracking
		Kinetic footfall / kinetic floor / kinetic road
		Seismic isolation
		Off-site fabrication
		Self-repairing * / self-healing * (concrete, materials, fabrics)
		Thermal bridging
		Sustainable construction
		Utility fog
	Manufacturing	3D printing

Sector	Class	Keyword
		3D modelling
		3D stacking
		3D painting (e.g. for packaging)
		Additive manufacturing
		4D modelling
		4D printing
		4D room
		Fablab
		Industry 4.0
		Innovation hub
		Micro factory
		Smart factory
Energy	Energy production from non-renewable sources	Advanced Coal Power with CSS
		Combined Cycle Gas Turbine
		Combined Heat and Power (cogeneration)
		Combined Heat, Cooling and Power (trigeneration)
		micro-energy
		distributed energy generation
		heat recuperation
		energy savings / energy performance / energy efficiency
		Nuclear power
		Smart oilfield
	Energy production from renewable sources	Artificial photosynthesis / artificial leaf
		Biogas
		Biomass
		Concentrated Solar Power / concentrated solar energy
		Hot solar cells
		perovskite
		tandem cells
		thin-film
		Geothermal

Sector	Class	Keyword
		Hydrogen
		Hydropower / hydroelectric / hydroelectricity
		Marine energy (tidal power, wave power, ocean thermal energy conversion)
		Photovoltaic
		Solar thermal
		Waste / litter
		Wind onshore / wind offshore / wind power / wind energy
		energy mix
	Energy transmission and distribution	Smart grid / intelligent network
		HV/MV transformers (substation)
		Medium and high voltage cables
		MV/LV transformers (substation)
		Smart meters / smart metering
		Dispatchable energy
		Contactless power
		Wireless energy transfer / wireless power transfer
	Energy storage	Embodied energy
		Chemical batteries
		Advanced Lead-Acid batteries
		Compressed Air (CAES)
		Compressed air storage
		Flow batteries
		Flywheels
		Fuel cells
		Carbonate fuel technology
		Lithium iron phosphate battery
		Lithium-air battery
		Lithium-sulfur battery
		Molten salt batteries
		Nanowire battery
		Power-to-Gas (P2G)
		Pumped Hydro Storage

Sector	Class	Keyword
		Solid-state battery
		Ultracapacitors
	Energy final use in buildings	Efficient public lighting
		Building Energy Management Systems
		Efficient ventilation / cooling / heating
	Energy final use in transport	Electric vehicles
		Biofuel
		Compressed natural gas (CNG)
		Liquefied petroleum gas (LPG)
Environment	Solid waste management technologies	Anaerobic digestion
		Biodrying
		Gasification
		GasPlasma
		In-vessel composting
		Landfarming
		Mechanical biological treatment
		Mechanical heat treatment
		Molten salt oxidation
		Sewage treatment
		Tunnel composting
		UASB (applied to solid wastes)
		Waste autoclave
	Hazardous waste management technologies	Bioremediation
		Decontamination / contamination / contaminated
		Encapsulation
		High-temperature incineration
		Ion exchange
		Leachate collection systems
		Neutralisation
		Oxidation and reduction
		Precipitation

Sector	Class	Keyword
		Underground injection
		Reduce / eliminate hazardous substances
		Clean production
		Reduce landfill
	Climate	climate change / climate impact / climate mitigation / climate change adaptation
		climatology / climate model* / climatic conditions
		rising temperature / temperature increase / global warming
		phenology
		sea-level rise
		extreme weather
		subsidence
		abiotic stress
		upgradable / upgradability
		reparable / reparability
		durable / durability
		white certificate / green certificate / energy performance certificate / smart readiness
		environmental resilience / environmental restoration
	Air pollution	Adsorption
		Amine scrubbing
		Baghouse filter
		* Carbon * (capture, sequestration, neutral, decarbonisation)
		Greenhouse gas * (reduction, capture)
		Footprint
		pollution reduction / pollutant (not only air but also other pollutants in general)
		Cyclone collector
		Electrostatic precipitator
		Emission * (control systems, reduction, targets) / low emission / zero emission
		Exhaust monitoring
		Flue gas desulfurisation
	Re-use	Biological reprocessing
		Energy recovery / resource recovery
		energy security

Sector	Class	Keyword
		* scarcity (water / energy / resource / material)
		reusable * (software, materials, etc)
		remanufacture / reuse
		moisture absorbing technologies (they draw water from the air)
		sustainable manufacturing / sustainable production
		resource efficiency
		sustainable *
		renewable * (e.g. software, energy etc)
		CO2 storage / CO2 reuse / CO2 utilization / CO2 neutral / CO2 conversion (e.g. CO2 to ethanol)
		Pyrolysis
		Resource recovery
	Recycling	Buy-back centers
		* recycling / recycle (chemical recycling, computer recycling, nutrient recycling etc.) / recycled (e.g. recycled rubber etc.)
		Composting
		Curbside collection
		E-waste recycling (electronic waste recycling)
		Optical sorting
		Physical recycling
		Pyrolysis of plastic
		Recyclebots
		Source-separation
	Other innovative themes	Biorefinery
		Blue growth
		Circular * (city, economy) / circularity
		Ecosystem * (e.g. ecosystem restoration, preservation, degradation, change etc)
		Nature based solutions
		Green growth
Water	Water management	Flood and drought risk management
		Membrane filtration and purification
		Vacuum evaporation mechanism
		Water governance / water retention / small-scale catchment / water use efficiency
		Water purity

Sector	Class	Keyword
		Water use reduction
		Responsible consumption (in fact not only for water, but energy and environmental resources in general)
		Water Real time monitoring
	Waste water management	Liquid waste management
		Urban water cycle service
		Wastewater treatment
		Water reuse and recycling
Postal services	Technologies	Digital mailbox
		Drone delivery
		Tracking and tracing technologies
	Processes	Automation * (in parcel sorting and warehouse operations, in logistics in hospitals, in driving etc.)
		Crowdsourcing/ crowdsourced * (delivery, ideas, financing)
		Pick-up and drop-off solutions
		Real-time delivery management
		predictive logistics networks / predictive shipping / predictive transportation
		Route optimisation algorithms
		Same-day delivery
Public order, safety, security, and defence	Access restriction	Biometrics / face-detecting systems / facial analytics / facial recognition
		Iris and retinal recognition
		security restricted area
	Fire-protection	Drones (e.g. for forest firefighting) / aerial survey
		Thermal imaging
	Cybersecurity	Cryptography
		Cyber* (attack, resilience, security, threat)
		Hardware authentication
		Remote browser
		Deception technology
		Microsegmentation
		Security broker
		Security as a service
		GDPR
		Data loss prevention

Sector	Class	Keyword
		Software defined security perimeter
		Detection and reponse
		Symmetric Key Encryption
	Aerospace	Anti-gravity
		Artificial gravity
		Asteroid mining
		Drones and unmanned vehicles
		Space data
		Flying car
		Personal air commute / Flying commuter
		Massive jet
		zero-fuel aircraft
		Sleek fighter
		Noise reduction
		Automated jet
		Aircraft health monitoring systems
		Reusable rocket
		Drone swarm
		Craft-to-craft / Aircraft-to-aircraft communication
		Hypertelescope
		Inflatable space habitat
		Micro air vehicle
		Miniaturised satellite / smallsats / miniature sats
		Small electric airplanes
		Solar gravitational lens
		Stasis Chamber
	Police and justice	Conducted electrical weapon
		Taser
		Body camera
		High tech crime / cyber crime
		Security risk management
		Crowd control

Sector	Class	Keyword
		Digital forensics
		community based policing
		Virtual evidence
		Threat and violence management
		Next generation 112 (social media, video etc enabled)
		Drug room
		Predictive policing / crime prediction / evidence based policing
	Safety	Biohazard
		Biological containment
		Biosafety
		early detection / early warning
		accident prevention / protection / management
		emergency prevention / protection / management
		Critical risk / crisis (assessment, prevention, reduction, management)
		Terrorism and radicalisation prevention / detection
		Disaster risk (assessment, prevention, reduction, resilience)
		Nuclear research and control
		* Preparedness (e.g. could also be infection outbreak preparedness)
		Privacy preservation
	Humanitarian aid	Frugal innovation / frugal engineering
		Population displacement / migration / refugee
Education, recreation, culture and religion	Innovative pedagogies	Gaming-like learning (gamification of education) / serious games / educational games
		Spaced learning
	Innovative learning environments	Digital learning / e-learning / inclusive learning / online learning
		Personalised learning / technology-assisted differentiated instruction / AI assisted learning
		Microlearning
		High-velocity learning
		Virtual classroom
		Tele-education
	Innovative learning tools	Interactive boards
		Open access
		Open data

Sector	Class	Keyword
		Open science
		Open source
		Openly licensed textbooks
	Recreation and culture	Behaviour change community program
		Crowdsourcing
		Heritage retrofitting / heritage reuse / innovative use of cultural heritage
		Flash mob
		Sport facility immersive design
		Youth-led radio
Other innovative sectors	Materials	Aerogel
		Amorphous metal
		Bio-based * (materials, products)
		Carbon nanotubes
		Advanced coatings
		Conductive polymers
		Cryogenics
		Fullerene
		Graphene
		High-temperature superconductivity
		High-temperature superfluidity
		Hypereutectic alloy
		Inorganic Electrolyte
		Lab-on-a-chip
		Magnetorheological fluid
		Metal foam
		Metamaterials
		Microfluidics
		Multi-function structures
		Nano * (materials, particles)
		Organic-inorganic hybrids
		Oxides
		Quantum * (dots, sensing, metrology, cryptography)

Sector	Class	Keyword
		Silicene
		Solid polymers
		Superalloy
		Super-plastic alloy
		Synthetic diamond
		Translucent concrete
	Electronics	E-textiles
		Flexible electronics
		Integrated circuit
		Memory technologies
		Molecular electronics
		Nanoelectromechanical systems
		Spintronics
		KET / Key Emerging Technology

Horizontal concepts

Activity cluster	Activities in a tender that may be linked to a PPI
Activities upstream / preparatory of deployment	Modelling / model
	Simulating / simulation / simulator (e.g. dynamic simulators for assessing security threats)
	Experiment / experimentation
	Explore / Exploration
	Research / Investigate / Study
	Develop / Development
	Solve problem / problem solving / resolve / solution
	Invent / Conceive / Define / Discover / Invention / Conception/ Definition / Discover
	Fabricate / Create / Manufacture / Produce / Design / Fabrication / Creation
	Prototyping / prototype
	Testing / test / review / evaluation /evaluate
	Sampling / Sample / Measure / Measurement
	Iterate / Iteration / Iterative
	Piloting /pilot
	Trialling / trial / try-out / try out
Demonstration / demonstrator / demonstrate / show case	

	mock-up / model / remodel
	verification / verify
	validating / validation / validate(d)
	debugging / debug / beta
	certification / certifying / conformance
	Proof of concept
	laboratory / lab / test track
	needs assessment / horizon scanning / prior art analysis / market consultation / market dialogue
	TRL / technology readiness level
Innovativeness	innovative / new / renewed / novel / innovation / breakthrough / altered/ improved / enhanced / intelligent / smart / recent / emerging
	first product / first service / first solution / first application
	state-of-the-art / cutting-edge / leading edge / forefront / spearhead / avant garde / excellent
	future proof / next generation / new generation / new wave
	pioneer / first-of-a-kind / leading class / first in class / carrier grade / top grade / best of class/ best of breed / better than available
	work place organisation / organisational method
	de-risk / business plan / readiness
Increased quality / efficiency / effectiveness	* efficient / * efficiency / productivity (e.g. more efficient solution, higher energy efficiency, increased productivity)
	* cost effective (e.g. more cost effective solution)
	high yield
	high speed
	lightweight
	increasing / increase(d) (e.g. increased lifespan)
	maximise / minimise
	easier * (e.g. easier to repair)
	reducing / reduce(d) / reduction (e.g. reducing cost)
	faster *
	better *
	cheaper * / lower cost / lower opex / lower capex / lower maintenance / cost reduction
	more *
	higher * (reliability etc)
	alternative (e.g. alternative protein based foods, alternative fuels etc.)
	reconfigurable / reconfigurability / reconfigure
	durable / durability

	endurance
	outperform
	powerful
	more user friendly / customer experience / user experience / user driven
	zero-defect
	multi-functional
Forward looking activities	predicting / prediction / predict / predictive
	forecasting / forecast
	anticipating / anticipatory
	preventing / prevention / prevent / preventive
	forward-looking
	improving / improve(d) / improvement
	optimising / optimise(d) / optimisation
	enhancing / enhance(d) / enhancement
	advancing / advance(d)
	Adapt / adaptation / Modify / Modification / Update / Upgrade / Integrate / Integration
	evolve / evolution / progress
	perfectioning
	intensify / intensification
	refining / refine(d) / refinement
	eliminating / eliminate
	actualisation
	valorisation / valorise
	commercialise / commercialisation / bring to the market / productization / putting into service
Public sector assistance	Feasibility study
	Assessment
	Report
	Strategy / strategic
	Consultancy services
	Advisory services
Modernisation services	Renovation
	Renewal
	Finetune / finetuning

	Reform / revise
	modernise / modernisation
Activity cluster	Activities in a tender that are unlikely to be linked to a PPI when not included together with other activities that do confirm a PPI
Event organisation	Event
	Conference
	Congress
	Advertising campaign
	Awareness campaign
	Public service campaign
	Marketing campaign/communication activities
	Awareness/institutional campaign
Maintenance services	Repair
	Restoration
	Substitution
	Consolidation
	Servicing
	Refurbishment
	Cleaning
Public sector assistance	Technical Assistance
	Training
	Monitoring

9.5 Annex V – List of ICT sub-sectors CPV codes

ICT sub-sector	CPV code	CPV name
ICT goods and services	30000000-9	Office and computing machinery, equipment and supplies except furniture and software packages
	30100000-0	Office machinery, equipment and supplies except computers, printers and furniture
	30110000-3	Word-processing machines
	30111000-0	Word processors
	30121000-3	Photocopying and thermocopying equipment
	30121100-4	Photocopiers
	30121200-5	Photocopying equipment
	30121300-6	Reproduction equipment
	30121400-7	Duplicating machines
	30121410-0	Faxswitch machines
	30121420-3	Digital senders
	30121430-6	Digital duplicators
	30122000-0	Office-type offset printing machinery
	30122100-1	Digital offset systems
	30122200-2	Digital offset equipment
	30123100-8	Ticket-validation machines
	30123200-9	Automatic cash dispensers
	30123600-3	Coin-handling machines
	30123610-6	Coin-sorting machines
	30123620-9	Coin-counting machines
	30123630-2	Coin-wrapping machines
	30124500-9	Scanner accessories
	30124510-2	Endorsers
	30124520-5	Scanner document feeders
	30124530-8	Scanner transparency adapters
	30125000-1	Parts and accessories of photocopying apparatus
	30125100-2	Toner cartridges
	30125110-5	Toner for laser printers/fax machines
	30125120-8	Toner for photocopiers
	30125130-1	Toner for data-processing and research and documentation centres
	30130000-9	Post-office equipment
	30131000-6	Mailroom equipment
	30131100-7	Paper or envelope folding machines
	30131200-8	Envelope-stuffing machines
	30131300-9	Addressing machines
	30131400-0	Postage machines
	30131500-1	Mail opening machines
	30131600-2	Mail sealing machines
	30131700-3	Stamp cancelling machines
	30132000-3	Sorting equipment
	30132100-4	Mail-sorting equipment
	30132200-5	Banknote counting machines
	30132300-6	Sorters

ICT sub-sector	CPV code	CPV name
	30133000	Mailing equipment
	30133100-1	Bulk-mailing equipment
	30140000-2	Calculating and accounting machines
	30141000-9	Calculating machines
	30141100-0	Pocket calculators
	30141200-1	Desktop calculators
	30141300-2	Printing calculators
	30141400-3	Adding machines
	30142000-6	Accounting machines and cash registers
	30142000-7	Accounting machines
	30142200-8	Cash registers
	30144000	Calculation-type machines
	30144100-1	Postage-franking machines
	30144200-2	Ticket-issuing machines
	30144300-3	Vehicle-counting machines
	30144400-4	Automatic fare collection
	30150000-5 -	Typewriters
	30151000-2	Electronic typewriters
	30160000-8	Magnetic cards
	30161000-5	Credit cards
	30162000-2	Smart cards
	30163000-9	Charge cards
	30163100-0	Agency fuel cards
	30170000-1	Labelling machines
	30171000-8	Dating or numbering machines
	30172000-5	Identification ID press machines
	30173000-2	Label applying machines
	30174000-9	Label making machines
	30175000-6	Lettering equipment
	30177000-0	Automatic labelling systems
	30178000-7	Semi automatic labelling systems
	30180000-4	Check endorsing and writing machines
	30181000-1	Check endorsing machines
	30182000-8	Check writing machines
	30191200-6	Overhead projectors
	30192400-5	Reprographic supplies
	30195200-4	Electronic copyboards or accessories
	30199761-2	Bar-coded labels
	30199763-6	Theft protection labels
	30200000-1	Computer equipment and supplies
	30210000-4	Data-processing machines (hardware)
	30211000-1	Mainframe computer
	30211100-2	Super computer
	30211200-3	Mainframe hardware
	30211300-4	Computer platforms

ICT sub-sector	CPV code	CPV name
	30211400-5	Computer configurations
	30211500-6	Central processing unit (CPU) or processors
	30212000-8	Minicomputer hardware
	30212100-9	Central processing units for minicomputers
	30213000-5	Personal computers
	30213100-6	Portable computers
	30213200-7	Tablet computer
	30213300-8	Desktop computer
	30213400-9	Central processing units for personal computers
	30213500-0	Pocket computers
	30214000-2	Workstations
	30215000-9	Microcomputer hardware
	30215100-0	Central processing units for microcomputers
	30216000-6	Magnetic or optical readers
	30216100-7	Optical readers
	30216110-0	Scanners for computer use
	30216120-3	Optical-character-recognition equipment
	30216130-6	Barcode readers
	30216200-8	Magnetic card readers
	30216300-9	Punchcard readers
	30220000-7	Digital cartography equipment
	30221000-4	Digital cadastral maps
	30230000-0	Computer-related equipment
	30231000-7	Computer screens and consoles
	30231100-8	Computer terminals
	30231200-9	Consoles
	30231300-0	Display screens
	30231310-3	Flat panel displays
	30231320-6	Touch screen monitors
	30232000-4	Peripheral equipment
	30232100-5	Printers and plotters
	30232110-8	Laser printers
	30232120-1	Dot-matrix printers
	30232130-4	Colour graphics printers
	30232140-7	Plotters
	30232150-0	Inkjet printers
	30232600-0	Encoders
	30232700-1	Central controlling unit
	30233000-1	Media storage and reader devices
	30233100-2	Computer storage units
	30233110-5	Magnetic card storage units
	30233120-8	Magnetic tape storage units
	30233130-1	Magnetic disk storage units
	30233131-8	Floppy-disk drives
	30233132-5	Hard-disk drives

ICT sub-sector	CPV code	CPV name
	30233140-4	Direct-access storage devices (DASD)
	30233141-1	Redundant Array of Independent Disk (RAID)
	30233150-7	Optical-disk drives
	30233151-4	Compact disk (CD) reader and/or burner
	30233152-1	Digital versatile disc (DVD) reader and/or burner
	30233153-8	Compact disk (CD) and digital versatile disc (DVD) reader and/or burner
	30233160-0	Tape streamers
	30233161-7	Cassette-handling equipment
	30233170-3	Carousel units
	30233180-6	Flash memory storage devices
	30233190-9	Disk controller
	30233300-4	Smart card readers
	30233310-7	Fingerprint readers
	30233320-0	Combined smart card and fingerprint readers
	30234000-8	Storage media
	30234100-9	Magnetic disk
	30234200-0	Optical disks
	30234300-1	Compact disks (CDs)
	30234400-2	Digital versatile disks (DVDs)
	30234500-3	Memory storage media
	30234600-4	Flash memory
	30234700-5	Magnetic tapes
	30236000-2	Miscellaneous computer equipment
	30236100-3	Memory-expansion equipment
	30236110-6	Random access memory (RAM)
	30236111-3	Dynamic random access memory (DRAM)
	30236112-0	Static random access memory (SRAM)
	30236113-7	Synchronous dynamic random access memory (SDRAM)
	30236114-4	Rambus dynamic random access memory (RDRAM)
	30236115-1	Synchronous graphic random access memory (SGRAM)
	30236120-9	Read only memory (ROM)
	30236121-6	Programmable read only memory (PROM)
	30236122-3	Erasable programmable read only memory (EPROM)
	30236123-0	Electrically erasable programmable read only memory (EEPROM)
	30236200-4	Data-processing equipment
	30237000-9	Parts, accessories and supplies for computers
	30237100-0	Parts of computers
	30237110-3	Network interfaces
	30237120-6	Computer ports
	30237121-3	Serial infrared ports
	30237130-9	Computer cards
	30237131-6	Electronic cards
	30237132-3	Universal Serial Bus (USB) Interfaces
	30237133-0	Personal Computer Memory Card International Association (PCMCIA) adaptors and interfaces
	30237134-7	Graphic accelerator cards

ICT sub-sector	CPV code	CPV name
	30237135-4	Network interfaces cards
	30237136-1	Audio cards
	30237140-2	Motherboards
	30237200-1	Computer accessories
	30237210-4	Anti-glare screens
	30237220-7	Mousepads
	30237230-0	Caches
	30237240-3	Web camera
	30237250-6	Computer cleaning accessories
	30237251-3	Computer cleaning kits
	30237252-0	Pressurised air dusters
	30237253-7	Dust covers for computer equipment
	30237260-9	Monitor wall mount arms
	30237270-2	Portable computer carrying cases
	30237280-5	Power supply accessories
	30237290-8	Keyboard wrist rests
	30237295-3	Keyguards
	30237300-2	Computer supplies
	30237310-5	Font cartridges for printers
	30237320-8	Diskettes
	30237330-1	Digital Audio Tape (DAT) cartridges
	30237340-4	Digital Linear Tape (DLT) cartridges
	30237350-7	Data cartridges
	30237360-0	Linear Tape-Open (LTO) cartridges
	30237370-3	Recording cartridges
	30237380-6	CD-ROM
	30237400-3	Data entry accessories
	30237410-6	Computer mouse
	30237420-9	Joysticks
	30237430-2	Light pens
	30237440-5	Trackballs
	30237450-8	Graphics tablets
	30237460-1	Computer keyboards
	30237461-8	Programmable keyboards
	30237470-4	Braille pads
	30237475-9	Electric sensors
	30237480-7	Input units
	30238000-6	Library automation equipment
	31620000-8	Sound or visual signalling apparatus
	31625000-3	Burglar and fire alarms
	31625100-4	Fire-detection systems
	31625200-5	Fire-alarm systems
	31625300-6	Burglar-alarm systems
	31644000-2	Miscellaneous data recorders
	31671200-2	Cathode-ray tubes

ICT sub-sector	CPV code	CPV name
	31700000-3	Electronic, electromechanical and electrotechnical supplies
	31710000-6	Electronic equipment
	31711000-3	Electronic supplies
	31711100-4	Electronic components
	31711110-7	Transceivers
	31711120-0	Transducers
	31711130-3	Resistors
	31711131-0	Electrical resistors
	31711140-6	Electrodes
	31711150-9	Electrical capacitors
	31711151-6	Fixed capacitors
	31711152-3	Variable or adjustable capacitors
	31711154-0	Capacitor banks
	31711155-7	Capacitor networks
	31711200-5	Electronic scoreboards
	31711300-6	Electronic timekeeping systems
	31711310-9	System for recording attendance
	31711400-7	Valves and tubes
	31711410-0	Cathode-ray television picture tubes
	31711411-7	Television camera tubes
	31711420-3	Microwave tubes and equipment
	31711421-0	Magnetrons
	31711422-7	Microwave equipment
	31711423-4	Microwave radio equipment
	31711424-1	Klystrons
	31711430-6	Valve tubes
	31711440-9	Receiver or amplifier valves and tubes
	31711500-8	Parts of electronic assemblies
	31711510-1	Parts of electrical capacitors
	31711520-4	Parts of electrical resistors, rheostats and potentiometers
	31711530-7	Parts of electronic valves and tubes
	31712000-0	Microelectronic machinery and apparatus and microsystems
	31712100-1	Microelectronic machinery and apparatus
	31712110-4	Electronic integrated circuits and microassemblies
	31712111-1	Phone cards
	31712112-8	SIM cards
	31712113-5	Cards containing integrated circuits
	31712114-2	Integrated electronic circuits
	31712115-9	Microassemblies
	31712116-6	Microprocessors
	31712117-3	Integrated circuit packages
	31712118-0	Integrated circuit sockets or mounts
	31712119-7	Integrated circuit lids
	31712200-2	Microsystems
	31712300-3	Printed circuits

ICT sub-sector	CPV code	CPV name
	31712310-6	Populated printed circuit boards
	31712320-9	Unpopulated printed circuit boards
	31712330-2	Semiconductors
	31712331-9	Photovoltaic cells
	31712332-6	Thyristors
	31712333-3	Diacs
	31712334-0	Triacs
	31712335-7	Optical coupled isolators
	31712336-4	Crystal oscillators
	31712340-5	Diodes
	31712341-2	Light-emitting diodes
	31712342-9	Microwave or small signal diodes
	31712343-6	Zener diodes
	31712344-3	Schottky diodes
	31712345-0	Tunnel diodes
	31712346-7	Photosensitive diodes
	31712347-4	Power or solar diodes
	31712348-1	Laser diodes
	31712349-8	Radio frequency (RF) diodes
	31712350-8	Transistors
	31712351-5	Photo sensitive transistors
	31712352-2	Field effect transistors (FET)
	31712353-9	Metal oxide field effect transistors (MOSFET)
	31712354-6	Transistor chips
	31712355-3	Bipolar darlington or radio frequency (RF) transistors
	31712356-0	Unijunction transistors
	31712357-7	Insulated gate bipolar transistors (IGBT)
	31712358-4	Junction field effect transistors (JFET)
	31712359-1	Bipolar junction transistors (BJT)
	31712360-1	Mounted piezo-electric crystals
	32000000-3	Radio, television, communication, telecommunication and related equipment
	32200000-5	Transmission apparatus for radiotelephony, radiotelegraphy, radio broadcasting and television
	32210000-8	Broadcasting equipment
	32211000-5	Broadcast production equipment
	32220000-1	Television transmission apparatus without reception apparatus
	32221000-8	Radio beacons
	32222000-5	Video-signal coding machines
	32223000-2	Video transmission apparatus
	32224000-9	Television transmission apparatus
	32230000-4	Radio transmission apparatus with reception apparatus
	32231000-1	Closed-circuit television apparatus
	32232000-8	Video-conferencing equipment
	32233000-5	Radio-frequency booster stations
	32234000-2	Closed-circuit television cameras
	32235000-9	Closed-circuit surveillance system

ICT sub-sector	CPV code	CPV name
	32236000-6	Radio telephones
	32237000-3	Walkie-talkies
	32240000-7	Television cameras
	32250000-0	Mobile telephones
	32251000-7	Car telephones
	32251100-8	Hands-free set
	32252000-4	GSM telephones
	32252100-5	Hands-free mobile telephones
	32252110-8	Hands-free mobile telephones (wireless)
	32260000-3	Data-transmission equipment
	32270000-6	Digital transmission apparatus
	32300000-6	Television and radio receivers, and sound or video recording or reproducing apparatus
	32310000-9	Radio broadcast receivers
	32320000-2	Television and audio-visual equipment
	32321000-9	Television projection equipment
	32321100-0	Film equipment
	32321200-1	Audio-visual equipment
	32321300-2	Audio-visual materials
	32322000-6	Multimedia equipment
	32323000-3	Video monitors
	32323100-4	Colour video monitors
	32323200-5	Monochrome video monitors
	32323300-6	Video equipment
	32323400-7	Video-playback equipment
	32323500-8	Video-surveillance system
	32324000-0	Televisions
	32324100-1	Colour televisions
	32324200-2	Monochrome televisions
	32324300-3	Television equipment
	32324310-6	Satellite antennas
	32324400-4	Television aerials
	32324500-5	Video tuners
	32324600-6	Digital-TV boxes
	32330000-5	Apparatus for sound, video-recording and reproduction
	32331000-2	Turntables
	32331100-3	Record players
	32331200-4	Cassette players
	32331300-5	Sound-reproduction apparatus
	32331500-7	Recorders
	32331600-8	MP3 player
	32332000-9	Magnetic tape recorders
	32332100-0	Dictating machines
	32332200-1	Telephone-answering machines
	32332300-2	Sound recorders
	32333000-6	Video recording or reproducing apparatus

ICT sub-sector	CPV code	CPV name
	32333100-7	Video recorders
	32333200-8	Video camcorders
	32333300-9	Video-reproducing apparatus
	32333400-0	Video players
	32340000-8	Microphones and loudspeakers
	32341000-5	Microphones
	32342000-2	Loudspeakers
	32342100-3	Headphones
	32342200-4	Earphones
	32342300-5	Microphones and speaker sets
	32342400-6	Acoustic devices
	32342410-9	Sound equipment
	32342411-6	Mini speakers
	32342412-3	Speakers
	32342420-2	Studio mixing console
	32342430-5	Speech-compression system
	32342440-8	Voice-mail system
	32342450-1	Voice recorders
	32343000-9	Amplifiers
	32343100-0	Audio-frequency amplifiers
	32343200-1	Megaphones
	32344000-6	Reception apparatus for radiotelephony or radiotelegraphy
	32344100-7	Portable receivers for calling and paging
	32344110-0	Voice-logging system
	32344200-8	Radio receivers
	32344210-1	Radio equipment
	32344220-4	Radio pagers
	32344230-7	Radio stations
	32344240-0	Radio tower
	32344250-3	Radio installations
	32344260-6	Radio and multiplex equipment
	32344270-9	Radio and telephone control system
	32344280-2	Portable radios
	32350000-1	Parts of sound and video equipment
	32351000-8	Accessories for sound and video equipment
	32351100-9	Video-editing equipment
	32351200-0	Screens
	32351300-1	Audio equipment accessories
	32352000-5	Aerials and reflectors
	32352100-6	Parts of radio and radar equipment
	32352200-7	Radar spare parts and accessories
	32360000-4	Intercom equipment
	32400000-7	Networks
	32410000-0	Local area network
	32411000-7	Token-ring network

ICT sub-sector	CPV code	CPV name
	32412000-4	Communications network
	32412100-5	Telecommunications network
	32412110-8	Internet network
	32412120-1	Intranet network
	32413000-1	Integrated network
	32413100-2	Network routers
	32415000-5	Ethernet network
	32416000-2	ISDN network
	32416100-3	ISDX network
	32417000-9	Multimedia networks
	32418000-6	Radio network
	32420000-3	Network equipment
	32421000-0	Network cabling
	32422000-7	Network components
	32423000-4	Network hubs
	32424000-1	Network infrastructure
	32425000-8	Network operating system
	32426000-5	Network publishing system
	32427000-2	Network system
	32428000-9	Network upgrade
	32429000-6	Telephone network equipment
	32430000-6	Wide area network
	32440000-9	Telemetry and terminal equipment
	32441000-6	Telemetry equipment
	32441100-7	Telemetry surveillance system
	32441200-8	Telemetry and control equipment
	32441300-9	Telematics system
	32442000-3	Terminal equipment
	32442100-4	Terminal boards
	32442200-5	Terminal boxes
	32442300-6	Terminal emulators
	32442400-7	Termination blocks
	32510000-1	Wireless telecommunications system
	32522000-8	Telecommunications equipment
	32523000-5	Telecommunications facilities
	32524000-2	Telecommunications system
	32530000-7	Satellite-related communications equipment
	32531000-4	Satellite communications equipment
	32532000-1	Satellite dishes
	32533000-8	Satellite earth stations
	32534000-5	Satellite platforms
	32540000-0	Switchboards
	32541000-7	Switchboard equipment
	32542000-4	Switchboard panels
	32543000-1	Telephone switchboards

ICT sub-sector	CPV code	CPV name
	32544000-8	PABX equipment
	32545000-5	PABX systems
	32546000-2	Digital switching equipment
	32546100-3	Digital switchboards
	32547000-9	Vacuum switchboards
	32551200-2	Telephone exchanges
	32551300-3	Telephone headsets
	32551400-4	Telephone network
	32552000-7	Electrical apparatus for line telephony or line telegraphy
	32552100-8	Telephone sets
	32552110-1	Cordless telephones
	32552120-4	Emergency telephones
	32552130-7	Public telephones
	32552140-0	Payphone equipment
	32552150-3	Telephones for visually-impaired
	32552160-6	Telephones for hearing-impaired
	32552200-9	Teleprinters
	32552300-0	Telephonic or telegraphic switching apparatus
	32552310-3	Digital telephone exchanges
	32552320-6	Multiplexers
	32552330-9	Telephone switching apparatus
	32552400-1	Audio-frequency signal conversion apparatus
	32552410-4	Modems
	32552420-7	Frequency converter
	32552430-0	Coding equipment
	32552500-2	Teletext apparatus
	32552510-5	Videotext terminals
	32552520-8	Telex equipment
	32552600-3	Entrance telephones
	32553000-4	Parts of electrical telephonic or telegraphic apparatus
	32573000-0	Communications control system
	32581200-1	Fax equipment
	32581210-4	Accessories and components for fax equipment
	32582000-6	Data carriers
	32583000-3	Data and voice media
	32584000-0	Data-bearing media
	35121600-4	Tags
	35121700-5	Alarm systems
	35123000-2	Site-identification equipment
	35123100-3	Magnetic-card system
	35123200-4	Flexible-working-hours equipment
	35123300-5	Timekeeping system
	35123400-6	Identification badges
	35123500-7	Video identification systems
	35125000-6	Surveillance system

ICT sub-sector	CPV code	CPV name
	35125100-7	Sensors
	35125110-0	Biometric sensors
	35125200-8	Time control system or working time recorder
	35125300-2	Security cameras
	35126000-3	Bar code scanning equipment
	35261100-2	Changing message indicator panels
	35422000-8	Electronic and electrical spare parts for military vehicles
	35630000-9	Military spacecrafts
	35631000-6	Military satellites
	35631100-7	Communication satellites
	35631200-8	Observation satellites
	35631300-9	Navigation satellites
	35710000-4	Command, control, communication and computer systems
	35711000-1	Command, control, communication systems
	35712000-8	Tactical command, control and communication systems
	35720000-7	Intelligence, surveillance, target acquisition and reconnaissance
	35721000-4	Electronic intelligence system
	35722000-1	Radar
	35723000-8	Air defence radar
	35730000-0	Electronic warfare systems and counter measures
	38112100-4	Global navigation and positioning systems (GPS or equivalent)
	38113000-0	Sonars
	38114000-7	Echo sounders
	38115000-4	Radar apparatus
	38115100-5	Radar surveillance equipment
	38221000-0	Geographic information systems (GIS or equivalent)
	38636000-2	Specialist optical instruments
	38636100-3	Lasers
	38636110-6	Industrial lasers
	38640000-3	Liquid crystal devices
	38651400-7	Instant print cameras
	38651500-8	Cinematographic cameras
	38651600-9	Digital cameras
	38652000-0	Cinematographic projectors
	38652100-1	Projectors
	38652110-4	Slide projectors
	38652120-7	Video projectors
	38652200-2	Enlargers
	38652300-3	Reducers
	38653110-1	Photographic flashbulbs
	38653111-8	Photographic flashcubes
	38653200-9	Photographic enlargers
	38653300-0	Apparatus and equipment for developing film
	38653400-1	Projection screens
	38654000-4	Microfilm and microfiche equipment

ICT sub-sector	CPV code	CPV name
	38654100-5	Microfilm equipment
	38654110-8	Microfilm readers
	38654200-6	Microfiche equipment
	38654210-9	Microfiche readers
	38654300-7	Microform equipment
	38654310-0	Microform readers
	38700000-2	Time registers and the like; parking meters
	38710000-5	Time registers
	38720000-8	Time recorders
	38730000-1	Parking meters
	38731000-8	Token meters
	38740000-4	Process timers
	38750000-7	Time switches
	42964000-1	Office automation equipment
	42965000-8	Information-processing equipment
	45232330-4	Erection of aerials
	45232340-7	Mobile-telephone base-stations construction work
	45312100-8	Fire-alarm system installation work
	45312200-9	Burglar-alarm system installation work
	45312300-0	Antenna installation work
	45312320-6	Television aerial installation work
	45312330-9	Radio aerial installation work
	45314100-2	Installation of telephone exchanges
	45314120-8	Installation of switchboards
	48000000-8	Software package and information systems
	48100000-9	Industry specific software package
	48110000-2	Point of sale (POS) software package
	48120000-5	Flight control software package
	48121000-2	Air traffic control software package
	48130000-8	Aviation ground support and test software package
	48131000-5	Aviation ground support software package
	48132000-2	Aviation test software package
	48140000-1	Railway traffic control software package
	48150000-4	Industrial control software package
	48151000-1	Computer control system
	48160000-7	Library software package
	48161000-4	Library management system
	48170000-0	Compliance software package
	48180000-3	Medical software package
	48190000-6	Educational software package
	48200000-0	Networking, Internet and intranet software package
	48210000-3	Networking software package
	48211000-0	Platform interconnectivity software package
	48212000-7	Optical jukebox server software package
	48213000-4	Operating system enhancement software package

ICT sub-sector	CPV code	CPV name
	48214000-1	Network operating system software package
	48215000-8	Networking developers' software package
	48216000-5	Network connectivity terminal emulation software package
	48217000-2	Transaction-processing software package
	48217100-3	Mainframe transaction processing software package
	48217200-4	Minicomputer transaction processing software package
	48217300-5	Microcomputer transaction processing software package
	48218000-9	License management software package
	48219000-6	Miscellaneous networking software package
	48219100-7	Gateway software package
	48219200-8	Compact disk (CD) server software package
	48219300-9	Administration software package
	48219400-0	Transaction server software package
	48219500-1	Switch or router software package
	48219600-2	Multiplexer software package
	48219700-3	Communications server software package
	48219800-4	Bridge software package
	48220000-6	Internet and intranet software package
	48221000-3	Internet browsing software package
	48222000-0	Web server software package
	48223000-7	Electronic mail software package
	48224000-4	Web page editing software package
	48300000-1	Document creation, drawing, imaging, scheduling and productivity software package
	48310000-4	Document creation software package
	48311000-1	Document management software package
	48311100-2	Document management system
	48312000-8	Electronic publishing software package
	48313000-5	Optical-character-recognition (OCR) software package
	48313100-6	Optical reading system
	48314000-2	Voice recognition software package
	48315000-9	Desktop-publishing software package
	48316000-6	Presentation software package
	48317000-3	Word-processing software package
	48318000-0	Scanner software package
	48319000-7	Spell checkers
	48320000-7	Drawing and imaging software package
	48321000-4	Computer-aided design (CAD) software package
	48321100-5	Computer-aided design (CAD) system
	48322000-1	Graphics software package
	48323000-8	Computer-aided manufacturing (CAM) software package
	48324000-5	Charting software package
	48325000-2	Form-making software package
	48326000-9	Mapping software package
	48326100-0	Digital mapping system
	48327000-6	Drawing and painting software package

ICT sub-sector	CPV code	CPV name
	48328000-3	Image-processing software package
	48329000-0	Imaging and archiving system
	48330000-0	Scheduling and productivity software package
	48331000-7	Project management software package
	48332000-4	Scheduling software package
	48333000-1	Contact management software package
	48400000-2	Business transaction and personal business software package
	48410000-5	Investment management and tax preparation software package
	48411000-2	Investment management software package
	48412000-9	Tax preparation software package
	48420000-8	Facilities management software package and software package suite
	48421000-5	Facilities management software package
	48422000-2	Software package suites
	48430000-1	Inventory management software package
	48440000-4	Financial analysis and accounting software package
	48441000-1	Financial analysis software package
	48442000-8	Financial systems software package
	48443000-5	Accounting software package
	48444000-2	Accounting system
	48444100-3	Billing system
	48445000-9	Customer Relation Management software package
	48450000-7	Time accounting or human resources software package
	48451000-4	Enterprise resource planning software package
	48460000-0	Analytical, scientific, mathematical or forecasting software package
	48461000-7	Analytical or scientific software package
	48462000-4	Mathematical or forecasting software package
	48463000-1	Statistical software package
	48470000-3	Auction software package
	48480000-6	Sales, marketing and business intelligence software package
	48481000-3	Sales or marketing software package
	48482000-0	Business intelligence software package
	48490000-9	Procurement software package
	48500000-3	Communication and multimedia software package
	48510000-6	Communication software package
	48511000-3	Desktop communications software package
	48512000-0	Interactive voice response software package
	48513000-7	Modem software package
	48514000-4	Remote access software package
	48515000-1	Video conferencing software package
	48516000-8	Exchange software package
	48517000-5	IT software package
	48518000-2	Emulation software package
	48519000-9	Memory-management software package
	48520000-9	Multimedia software package
	48521000-6	Music or sound editing software package

ICT sub-sector	CPV code	CPV name
	48522000-3	Virtual keyboard software package
	48600000-4	Database and operating software package
	48610000-7	Database systems
	48611000-4	Database software package
	48612000-1	Database-management system
	48613000-8	Electronic data management (EDM)
	48614000-5	Data-acquisition system
	48620000-0	Operating systems
	48621000-7	Mainframe operating system software package
	48622000-4	Minicomputer operating system software package
	48623000-1	Microcomputer operating system software package
	48624000-8	Personal computer (PC) operating system software package
	48625000-5	Open systems operating systems
	48626000-2	Clustering software package
	48627000-9	Real-time operating system software package
	48628000-9	Micro-channel architecture
	48700000-5	Software package utilities
	48710000-8	Backup or recovery software package
	48720000-1	Bar coding software package
	48730000-4	Security software package
	48731000-1	File security software package
	48732000-8	Data security software package
	48740000-7	Foreign language translation software package
	48750000-0	Storage media loading software package
	48760000-3	Virus protection software package
	48761000-0	Anti-virus software package
	48770000-6	General, compression and print utility software package
	48771000-3	General utility software package
	48772000-0	Compression utilities
	48773000-7	Print utility software package
	48773100-8	Print-spooling software package
	48780000-9	System, storage and content management software package
	48781000-6	System management software package
	48782000-3	Storage management software package
	48783000-0	Content management software package
	48790000-2	Version checker software package
	48800000-6	Information systems and servers
	48810000-9	Information systems
	48811000-6	E-mail system
	48812000-3	Financial information systems
	48813000-0	Passenger information system
	48813100-1	Electronic bulletin boards
	48813200-2	Real-time passenger information system
	48814000-7	Medical information systems
	48814100-8	Nursing information system

ICT sub-sector	CPV code	CPV name
	48814200-9	Patient-administration system
	48814300-0	Theatre management system
	48814400-1	Clinical information system
	48814500-2	Casemix system
	48820000-2	Servers
	48821000-9	Network servers
	48822000-6	Computer servers
	48823000-3	File servers
	48824000-0	Printer servers
	48825000-7	Web servers
	48900000-7	Miscellaneous software package and computer systems
	48910000-0	Computer game software package, family titles and screen savers
	48912000-4	Family titles
	48913000-1	Screen savers
	48920000-3	Office automation software package
	48921000-0	Automation system
	48940000-9	Pattern design and calendar software package
	48941000-6	Pattern design software package
	48942000-3	Calendar software package
	48950000-2	Boat-location and public address system
	48951000-9	Boat-location system
	48952000-6	Public address systems
	48960000-5	Drivers and system software package
	48961000-2	Ethernet drivers
	48962000-9	Graphics card drivers
	48970000-8	Print shop software package
	48971000-5	Address book making software package
	48972000-2	Label making software package
	48980000-1	Programming languages and tools
	48981000-8	Compiling software packages
	48982000-5	Configuration management software package
	48983000-2	Development software package
	48984000-9	Graphical user interface (GUI) tools
	48985000-6	Programming languages
	48986000-3	Program testing software package
	48987000-0	Debugging software package
	48990000-4	Spreadsheets and enhancement software package
	48991000-1	Spreadsheet software package
	50300000-8	Repair, maintenance and associated services related to personal computers, office equipment, telecommunications and audio-visual equipment
	50310000-1	Maintenance and repair of office machinery
	50311000-8	Maintenance and repair of office accounting machinery
	50311400-2	Maintenance and repair of calculators and accounting machinery
	50312000-5	Maintenance and repair of computer equipment
	50312100-6	Maintenance and repair of mainframe computers
	50312110-9	Maintenance of mainframe computers

ICT sub-sector	CPV code	CPV name
	50312120-2	Repair of mainframe computers
	50312200-7	Maintenance and repair of minicomputers
	50312210-0	Maintenance of minicomputers
	50312220-3	Repair of minicomputers
	50312300-8	Maintenance and repair of data network equipment
	50312310-1	Maintenance of data network equipment
	50312320-4	Repair of data network equipment
	50312400-9	Maintenance and repair of microcomputers
	50312410-2	Maintenance of microcomputers
	50312420-5	Repair of microcomputers
	50312600-1	Maintenance and repair of information technology equipment
	50312610-4	Maintenance of information technology equipment
	50312620-7	Repair of information technology equipment
	50313000-2	Maintenance and repair of reprographic machinery
	50313100-3	Photocopier repair services
	50313200-4	Photocopier maintenance services
	50314000-9	Repair and maintenance services of facsimile machines
	50315000-6	Repair and maintenance services of telephone-answering machines
	50316000-3	Maintenance and repair of ticket- issuing machinery
	50317000-0	Maintenance and repair of ticket-validation machinery
	50320000-4	Repair and maintenance services of personal computers
	50321000-1	Repair services of personal computers
	50322000-8	Maintenance services of personal computers
	50323000-5	Maintenance and repair of computer peripherals
	50323100-6	Maintenance of computer peripherals
	50323200-7	Repair of computer peripherals
	50324000-2	Support services of personal computers
	50324100-3	System maintenance services
	50324200-4	Preventive maintenance services
	50330000-7	Maintenance services of telecommunications equipment
	50331000-4	Repair and maintenance services of telecommunications lines
	50332000-1	Telecommunications-infrastructure maintenance services
	50333000-8	Maintenance services of radio-communications equipment
	50333100-9	Repair and maintenance services of radio transmitters
	50333200-0	Repair and maintenance services of radiotelephony apparatus
	50334000-5	Repair and maintenance services of line telephony and line telegraphy equipment
	50334100-6	Repair and maintenance services of line telephony equipment
	50334110-9	Telephone network maintenance services
	50334120-2	Upgrade services of telephone switching equipment
	50334130-5	Repair and maintenance services of telephone switching apparatus
	50334140-8	Repair and maintenance services of telephone sets
	50334200-7	Repair and maintenance services of line telegraphy equipment
	50334300-8	Repair and maintenance services of line telex equipment
	50334400-9	Communications system maintenance services
	50340000-0	Repair and maintenance services of audio-visual and optical equipment

ICT sub-sector	CPV code	CPV name
	50341000-7	Repair and maintenance services of television equipment
	50341100-8	Repair and maintenance services of videotext equipment
	50341200-9	Repair and maintenance services of television transmitters
	50342000-4	Repair and maintenance services of audio equipment
	50343000-1	Repair and maintenance services of video equipment
	50344000-8	Repair and maintenance services of optical equipment
	50344100-9	Repair and maintenance services of photographic equipment
	50344200-0	Repair and maintenance services of cinematographic equipment
	50660000-9	Repair and maintenance services of military electronic systems
	51240000-6	Installation services of navigating equipment
	51300000-5	Installation services of communications equipment
	51310000-8	Installation services of radio, television, sound and video equipment
	51311000-5	Installation services of radio equipment
	51312000-2	Installation services of television equipment
	51313000-9	Installation services of sound equipment
	51314000-6	Installation services of video equipment
	51320000-1	Installation services of radio and television transmitters
	51321000-8	Installation services of radio transmitters
	51322000-5	Installation services of television transmitters
	51330000-4	Installation services of radiotelephony apparatus
	51340000-7	Installation services of line telephony equipment
	51350000-0	Installation services of line telegraphy equipment
	51600000-8	Installation services of computers and office equipment
	51610000-1	Installation services of computers and information-processing equipment
	51611000-8	Installation services of computers
	51611100-9	Hardware installation services
	51612000-5	Installation services of information-processing equipment
	51620000-4	Installation services of office equipment
	64200000-8	Telecommunications services
	64210000-1	Telephone and data transmission services
	64211000-8	Public-telephone services
	64211100-9	Local telephone services
	64211200-0	Long distance telephone services
	64212000-5	Mobile-telephone services
	64212100-6	Short Message Service (SMS) services
	64212200-7	Enhanced Messaging Service (EMS) services
	64212300-8	Multimedia Message Service (MMS) services
	64212400-9	Wireless Application Protocol (WAP) services
	64212500-0	General Packet Radio Services (GPRS) services
	64212600-1	Enhanced Data for GSM Evolution (EDGE) services
	64212700-2	Universal Mobile Telephone System (UMTS) services
	64212800-3	Pay phone provider services
	64212900-4	Pre-paid phone card provider services
	64213000-2	Shared-business telephone network services
	64214000-9	Dedicated-business telephone network services

ICT sub-sector	CPV code	CPV name
	64214100-0	Satellite circuit rental services
	64214200-1	Telephone switchboard services
	64214400-3	Communication land-line rental
	64215000-6	IP telephone services
	64216000-3	Electronic message and information services
	64216100-4	Electronic message services
	64216110-7	Electronic data exchange services
	64216120-0	Electronic mail services
	64216130-3	Telex services
	64216140-6	Telegraph services
	64216200-5	Electronic information services
	64216210-8	Value-added information services
	64216300-6	Teletext services
	64220000-4	Telecommunication services except telephone and data transmission services
	64221000-1	Interconnection services
	64222000-8	Teleworking services
	64223000-5	Paging services
	64224000-2	Teleconferencing services
	64225000-9	Air-to-ground telecommunications services
	64226000-6	Telematics services
	64227000-3	Integrated telecommunications services
	64228000-0	Television and radio broadcast transmission services
	64228100-1	Television broadcast transmission services
	64228200-2	Radio broadcast transmission services
	71316000-6	Telecommunication consultancy services
	72000000-5	IT services: consulting, software development, Internet and support
	72100000-6	Hardware consultancy services
	72110000-9	Hardware selection consultancy services
	72120000-2	Hardware disaster-recovery consultancy services
	72130000-5	Computer-site planning consultancy services
	72140000-8	Computer hardware acceptance testing consultancy services
	72150000-1	Computer audit consultancy and hardware consultancy services
	72200000-7	Software programming and consultancy services
	72210000-0	Programming services of packaged software products
	72211000-7	Programming services of systems and user software
	72212000-4	Programming services of application software
	72212100-0	Industry specific software development services
	72212110-3	Point of sale (POS) software development services
	72212120-6	Flight control software development services
	72212121-3	Air traffic control software development services
	72212130-9	Aviation ground support and test software development services
	72212131-6	Aviation ground support software development services
	72212132-3	Aviation test software development services
	72212140-2	Railway traffic control software development services
	72212150-5	Industrial control software development services

ICT sub-sector	CPV code	CPV name
	72212160-8	Library software development services
	72212170-1	Compliance software development services
	72212180-4	Medical software development services
	72212190-7	Educational software development services
	72212200-1	Networking, Internet and intranet software development services
	72212210-4	Networking software development services
	72212211-1	Platform interconnectivity software development services
	72212212-8	Optical jukebox server software development services
	72212213-5	Operating system enhancement software development services
	72212214-2	Network operating system software development services
	72212215-9	Networking developers software development services
	72212216-6	Network connectivity terminal emulation software development services
	72212217-3	Transaction-processing software development services
	72212218-0	License management software development services
	72212219-7	Miscellaneous networking software development services
	72212220-7	Internet and intranet software development services
	72212221-4	Internet browsing software development services
	72212222-1	Web server software development services
	72212223-8	Electronic mail software development services
	72212224-5	Web page editing software development services
	72212300-2	Document creation, drawing, imaging, scheduling and productivity software development services
	72212310-5	Document creation software development services
	72212311-2	Document management software development services
	72212312-9	Electronic publishing software development services
	72212313-6	Optical-character-recognition (OCR) software development services
	72212314-3	Voice recognition software development services
	72212315-0	Desktop-publishing software development services
	72212316-7	Presentation software development services
	72212317-4	Word-processing software development services
	72212318-1	Scanner software development services
	72212320-8	Drawing and imaging software development services
	72212321-5	Computer-aided design (CAD) software development services
	72212322-2	Graphics software development services
	72212323-9	Computer-aided manufacturing (CAM) software development services
	72212324-6	Charting software development services
	72212325-3	Form making software development services
	72212326-0	Mapping software development services
	72212327-7	Drawing and painting software development services
	72212328-4	Image-processing software development services
	72212330-1	Scheduling and productivity software development services
	72212331-8	Project management software development services
	72212332-5	Scheduling software development services
	72212333-2	Contact management software development services
	72212400-3	Business transaction and personal business software development services
	72212410-6	Investment management and tax preparation software development services

ICT sub-sector	CPV code	CPV name
	72212411-3	Investment management software development services
	72212412-0	Tax preparation software development services
	72212420-9	Facilities management software development services and software development services suite
	72212421-6	Facilities management software development services
	72212422-3	Software development services suites
	72212430-2	Inventory management software development services
	72212440-5	Financial analysis and accounting software development services
	72212441-2	Financial analysis software development services
	72212442-9	Financial systems software development services
	72212443-6	Accounting software development services
	72212445-0	Customer Relation Management software development services
	72212450-8	Time accounting or human resources software development services
	72212451-5	Enterprise resource planning software development services
	72212460-1	Analytical, scientific, mathematical or forecasting software development services
	72212461-8	Analytical or scientific software development services
	72212462-5	Mathematical or forecasting software development services
	72212463-2	Statistical software development services
	72212470-4	Auction software development services
	72212480-7	Sales, marketing and business intelligence software development services
	72212481-4	Sales or marketing software development services
	72212482-1	Business intelligence software development services
	72212490-0	Procurement software development services
	72212500-4	Communication and multimedia software development services
	72212510-7	Communication software development services
	72212511-4	Desktop communications software development services
	72212512-1	Interactive voice response software development services
	72212513-8	Modem software development services
	72212514-5	Remote access software development services
	72212515-2	Video conferencing software development services
	72212516-9	Exchange software development services
	72212517-6	IT software development services
	72212518-3	Emulation software development services
	72212519-0	Memory-management software development services
	72212520-0	Multimedia software development services
	72212521-7	Music or sound editing software development services
	72212522-4	Virtual keyboard software development services
	72212600-5	Database and operating software development services
	72212610-8	Database software development services
	72212620-1	Mainframe operating system software development services
	72212630-4	Minicomputer operating system software development services
	72212640-7	Microcomputer operating system software development services
	72212650-0	Personal computer (PC) operating system software development services
	72212660-3	Clustering software development services
	72212670-6	Real time operating system software development services
	72212700-6	Software development services utilities

ICT sub-sector	CPV code	CPV name
	72212710-9	Backup or recovery software development services
	72212720-2	Bar coding software development services
	72212730-5	Security software development services
	72212731-2	File security software development services
	72212732-9	Data security software development services
	72212740-8	Foreign language translation software development services
	72212750-1	Storage media loading software development services
	72212760-4	Virus protection software development services
	72212761-1	Anti-virus software development services
	72212770-7	General, compression and print utility software development services
	72212771-4	General utility software development services
	72212772-1	Print utility software development services
	72212780-0	System, storage and content management software development services
	72212781-7	System management software development services
	72212782-4	Storage management software development services
	72212783-1	Content management software development services
	72212790-3	Version checker software development services
	72212900-8	Miscellaneous software development services and computer systems
	72212920-4	Office automation software development services
	72212940-0	Pattern design and calendar software development services
	72212941-7	Pattern design software development services
	72212942-4	Calendar software development services
	72212960-6	Drivers and system software development services
	72212970-9	Print shop software development services
	72212971-6	Address book making software development services
	72212972-3	Label making software development services
	72212980-2	Programming languages and tools development services
	72212981-9	Compiling software development services
	72212982-6	Configuration management software development services
	72212983-3	Development software development services
	72212984-0	Program testing software development services
	72212985-7	Debugging software development services
	72212990-5	Spreadsheets and enhancement software development services
	72212991-2	Spreadsheet software development services
	72220000-3	Systems and technical consultancy services
	72221000-0	Business analysis consultancy services
	72222000-7	Information systems or technology strategic review and planning services
	72222100-8	Information systems or technology strategic review services
	72222200-9	Information systems or technology planning services
	72222300-0	Information technology services
	72223000-4	Information technology requirements review services
	72224000-1	Project management consultancy services
	72224100-2	System implementation planning services
	72224200-3	System quality assurance planning services
	72225000-8	System quality assurance assessment and review services

ICT sub-sector	CPV code	CPV name
	72226000-5	System software acceptance testing consultancy services
	72227000-2	Software integration consultancy services
	72228000-9	Hardware integration consultancy services
	72230000-6	Custom software development services
	72231000-3	Development of software for military applications
	72232000-0	Development of transaction processing and custom software
	72240000-9	Systems analysis and programming services
	72241000-6	Critical design target specification services
	72242000-3	Design-modelling services
	72243000-0	Programming services
	72244000-7	Prototyping services
	72245000-4	Contract systems analysis and programming services
	72246000-1	Systems consultancy services
	72250000-2	System and support services
	72251000-9	Disaster recovery services
	72252000-6	Computer archiving services
	72253000-3	Helpdesk and support services
	72253100-4	Helpdesk services
	72253200-5	Systems support services
	72254000-0	Software testing
	72254100-1	Systems testing services
	72260000-5	Software-related services
	72261000-2	Software support services
	72262000-9	Software development services
	72263000-6	Software implementation services
	72264000-3	Software reproduction services
	72265000-0	Software configuration services
	72266000-7	Software consultancy services
	72267000-4	Software maintenance and repair services
	72267100-0	Maintenance of information technology software
	72267200-1	Repair of information technology software
	72268000-1	Software supply services
	72300000-8	Data services
	72310000-1	Data-processing services
	72311000-8	Computer tabulation services
	72311100-9	Data conversion services
	72311200-0	Batch processing services
	72311300-1	Computer time-sharing services
	72312000-5	Data entry services
	72312100-6	Data preparation services
	72312200-7	Optical character recognition services
	72313000-2	Data capture services
	72314000-9	Data collection and collation services
	72315000-6	Data network management and support services
	72315100-7	Data network support services

ICT sub-sector	CPV code	CPV name
	72315200-8	Data network management services
	72316000-3	Data analysis services
	72317000-0	Data storage services
	72318000-7	Data transmission services
	72319000-4	Data supply services
	72320000-4	Database services
	72321000-1	Added-value database services
	72322000-8	Data management services
	72330000-2	Content or data standardization and classification services
	72400000-4	Internet services
	72410000-7	Provider services
	72411000-4	Internet service providers ISP
	72412000-1	Electronic mail service provider
	72413000-8	World wide web (www) site design services
	72414000-5	Web search engine providers
	72415000-2	World wide web (www) site operation host services
	72416000-9	Application service providers
	72417000-6	Internet domain names
	72420000-0	Internet development services
	72421000-7	Internet or intranet client application development services
	72422000-4	Internet or intranet server application development services
	72500000-0	Computer-related services
	72510000-3	Computer-related management services
	72511000-0	Network management software services
	72512000-7	Document management services
	72513000-4	Office automation services
	72514000-1	Computer facilities management services
	72514100-2	Facilities management services involving computer operation
	72514200-3	Facilities management services for computer systems development
	72514300-4	Facilities management services for computer systems maintenance
	72540000-2	Computer upgrade services
	72541000-9	Computer expansion services
	72541100-0	Memory expansion services
	72590000-7	Computer-related professional services
	72591000-4	Development of service level agreements
	72600000-6	Computer support and consultancy services
	72610000-9	Computer support services
	72611000-6	Technical computer support services
	72700000-7	Computer network services
	72710000-0	Local area network services
	72720000-3	Wide area network services
	72800000-8	Computer audit and testing services
	72810000-1	Computer audit services
	72820000-4	Computer testing services
	72900000-9	Computer back-up and catalogue conversion services

ICT sub-sector	CPV code	CPV name
	72910000-2	Computer back-up services
	72920000-5	Computer catalogue conversion services
	79121000-8	Copyright consultancy services
	79121100-9	Software copyright consultancy services
	79132100-9	Electronic signature certification services
	79311210-2	Telephone survey services
	79510000-2	Telephone-answering services
	79511000-9	Telephone operator services
	79512000-6	Call centre
	79520000-5	Reprographic services
	79521000-2	Photocopying services
	79550000-4	Typing, word-processing and desktop publishing services
	79551000-1	Typing services
	79552000-8	Word-processing services
	79553000-5	Desktop publishing services
	80533000-9	Computer-user familiarisation and training services
	80533100-0	Computer training services
	80533200-1	Computer courses
	90916000-1	Cleaning services of telephone equipment
	90919100-3	Cleaning services of office equipment
Content & Media	22100000-1	Printed books, brochures and leaflets
	22110000-4	Printed books
	22111000-1	School books
	22112000-8	Textbooks
	22113000-5	Library books
	22114000-2	Dictionaries, maps, music books and other books
	22114100-3	Dictionaries
	22114200-4	Atlases
	22114300-5	Maps
	22114310-8	Cadastral maps
	22114311-5	Blueprints
	22114400-6	Printed music
	22114500-7	Encyclopaedias
	22120000-7	Publications
	22121000-4	Technical publications
	22130000-0	Directories
	22140000-3	Leaflets
	22150000-6	Brochures
	22160000-9	Booklets
	22200000-2	Newspapers, journals, periodicals and magazines
	22210000-5	Newspapers
	22211000-2	Journals
	22211100-3	Official journals
	22212000-9	Periodicals
	22212100-0	Serials

ICT sub-sector	CPV code	CPV name
	22213000-6	Magazines
	22300000-3	Postcards, greeting cards and other printed matter
	22310000-6	Postcards
	22312000-0	Pictures
	22313000-7	Transfers
	22314000-4	Designs
	22315000-1	Photographs
	22320000-9	Greeting cards
	22321000-6	Christmas cards
	22460000-2	Trade-advertising material, commercial catalogues and manuals
	22461000-9	Catalogues
	22461100-0	List holders
	22462000-6	Advertising material
	22470000-5	Manuals
	22471000-2	Computer manuals
	22472000-9	Instruction manuals
	22473000-6	Technical manuals
	30199220-8	Plain postcards
	30199730-6	Business cards
	30199791-1	Wall planners
	30199792-8	Calendars
	32351310-4	Audio cassettes
	32353000-2	Sound recordings
	32353100-3	Records
	32353200-4	Music cassettes
	32354000	Film products
	32354100-0	Radiology film
	32354110-3	X-ray film
	32354120-6	Blue diazo film
	32354200-1	Cinematographic film
	32354300-2	Photographic film
	32354400-3	Instant-print film
	32354500-4	Video films
	32354600-5	Video cassettes
	32354700-6	Video tapes
	37532000-6	Video games
	48911000-7	Computer game software package
	48930000-6	Training and entertainment software package
	48931000-3	Training software package
	48932000-0	Entertainment software package
	72212910-1	Computer game software development services, family titles and screen savers
	72212911-8	Computer game software development services
	72212930-7	Training and entertainment software development services
	72212931-4	Training software development services
	72212932-1	Entertainment software development services

ICT sub-sector	CPV code	CPV name
	79341000-6	Advertising services
	79341100-7	Advertising consultancy services
	79341200-8	Advertising management services
	79341400-0	Advertising campaign services
	79341500-1	Aerial advertising services
	79342410-4	Electronic auction services
	79570000-0	Mailing-list compilation and mailing services
	79571000-7	Mailing services
	79800000-2	Printing and related services
	79810000-5	Printing services
	79811000-2	Digital printing services
	79812000-9	Banknote printing services
	79820000-8	Services related to printing
	79821000-5	Print finishing services
	79821100-6	Proofreading services
	79822000-2	Composition services
	79822100-3	Print-plate making services
	79822200-4	Photogravure services
	79822300-5	Typesetting services
	79822400-6	Lithographic services
	79822500-7	Graphic design services
	79823000-9	Printing and delivery services
	79824000-6	Printing and distribution services
	79960000-1	Photographic and ancillary services
	79961000-8	Photographic services
	79961100-9	Advertising photography services
	79961200-0	Aerial photography services
	79961300-1	Specialised photography services
	79961310-4	Downhole photography services
	79961320-7	Underwater photography services
	79961330-0	Microfilming services
	79961340-3	X-ray photography services
	79961350-6	Studio photography services
	79962000-5	Photograph processing services
	79963000-2	Photograph restoration, copying and retouching services
	79970000-4	Publishing services
	79971000-1	Bookbinding and finishing services
	79971100-2	Book finishing services
	79971200-3	Bookbinding services
	79972000-8	Language dictionary publishing services
	79972100-9	Regional language dictionary publishing services
	79980000-7	Subscription services
	79995000-5	Library management services
	79995100-6	Archiving services
	79995200-7	Cataloguing services

ICT sub-sector	CPV code	CPV name
	79999100-4	Scanning services
	80420000-4	E-learning services
	92100000-2	Motion picture and video services
	92110000-5	Motion picture and video tape production and related services
	92111000-2	Motion picture and video production services
	92111100-3	Training-film and video-tape production
	92111200-4	Advertising, propaganda and information film and video-tape production
	92111210-7	Advertising film production
	92111220-0	Advertising video-tape production
	92111230-3	Propaganda film production
	92111240-6	Propaganda video-tape production
	92111250-9	Information film production
	92111260-2	Information video-tape production
	92111300-5	Entertainment film and video-tape production
	92111310-8	Entertainment film production
	92111320-1	Entertainment video-tape production
	92112000-9	Services in connection with motion-picture and video-tape production
	92120000-8	Motion-picture or video-tape distribution services
	92121000-5	Video-tape distribution services
	92122000-2	Motion picture distribution services
	92130000-1	Motion picture projection services
	92140000-4	Video-tape projection services
	92200000-3	Radio and television services
	92210000-6	Radio services
	92211000-3	Radio production services
	92213000-7	Small scale radio systems services
	92214000-4	Radio studio or equipment services
	92215000-1	General Mobile Radio Services (GMRS)
	92216000-8	Family Radio Services (FRS)
	92217000-5	General Mobile Radio Services/Family Radio Services (GMRS/FRS)
	92220000-9	Television services
	92221000-6	Television production services
	92222000-3	Closed circuit television services
	92224000-7	Digital television
	92225000-4	Interactive television
	92225100-7	Film-on-demand television
	92226000-1	Teleprogramming
	92230000-2	Radio and television cable services
	92231000-9	International bilateral services and international private leased lines
	92232000-6	Cable TV
	92400000-5	News-agency services
ICT Plus definition	31111000-7	Adapters
	31158100-9	Battery chargers
	31224400-6	Connection cables
	31321700-9	Signalling cable

ICT sub-sector	CPV code	CPV name
	31330000-8	Coaxial cable
	31642000-8	Electronic detection apparatus
	31642100-9	Detection apparatus for metal pipes
	31642200-0	Detection apparatus for mines
	31642300-1	Detection apparatus for plastics
	31642400-2	Detection apparatus for non-metallic objects
	31642500-3	Detection apparatus for timber
	31682200-2	Instrument panels
	31682210-5	Instrumentation and control equipment
	31682220-8	Mixing panels
	31682230-1	Graphic display panels
	32500000-8	Telecommunications equipment and supplies
	32520000-4	Telecommunications cable and equipment
	32521000-1	Telecommunications cable
	32550000-3	Telephone equipment
	32551000-0	Telephone cables and associated equipment
	32551100-1	Telephone connections
	32551500-5	Telephone cables
	32560000-6	Fibre-optic materials
	32561000-3	Fibre-optic connections
	32562000-0	Optical-fibre cables
	32562100-1	Optical-fibre cables for information transmission
	32562200-2	Optical telecommunication cables
	32562300-3	Optical-fibre cables for data transmission
	32570000-9	Communications equipment
	32571000-6	Communications infrastructure
	32572000-3	Communications cable
	32572100-4	Communications cable with multiple electrical conductors
	32572200-5	Communications cable with coaxial conductors
	32572300-6	Communications cable for special applications
	32580000-2	Data equipment
	32581000-9	Data-communications equipment
	32581100-0	Data-transmission cable
	32581110-3	Data-transmission cable with multiple electrical conductors
	32581120-6	Data-transmission cable with coaxial conductors
	32581130-9	Data-transmission cable for special applications
	33110000-4	Imaging equipment for medical, dental and veterinary use
	33111000-1	X-ray devices
	33111100-2	X-ray table
	33111200-3	X-ray workstations
	33111300-4	X-ray processing devices
	33111400-5	X-ray fluoroscopy devices
	33111500-6	Dental X-ray
	33111600-7	Radiography devices
	33111610-0	Magnetic resonance unit

ICT sub-sector	CPV code	CPV name
	3311620-3	Gamma cameras
	3311640-9	Thermographs
	3311650-2	Mammography devices
	3311660-5	Bone densitometers
	3311700-8	Angiography room
	3311710-1	Angiography supplies
	3311720-4	Angiography devices
	3311721-1	Digital angiography devices
	3311730-7	Angioplasty supplies
	3311740-0	Angioplasty devices
	3311800-9	Diagnostic X-ray system
	3312000-8	Echo, ultrasound and doppler imaging equipment
	3312100-9	Ultrasonic heart detector
	3312200-0	Ultrasonic unit
	3312300-1	Ultrasound scanners
	3312310-4	Colour-flow doppler
	3312320-7	Doppler equipment
	3312330-0	Echoencephalographs
	3312340-3	Echocardiographs
	3313000-5	Magnetic resonance imaging equipment
	3313100-6	Magnetic resonance scanners
	3313110-9	Nuclear magnetic resonance scanners
	3314000-2	Spectroscopy devices
	3315000-9	Tomography devices
	3315100-0	CT scanners
	3315200-1	CAT scanners
	33120000-7	Recording systems and exploration devices
	33121000-4	Long term ambulatory recording system
	33121100-5	Electro-encephalographs
	33121200-6	Scintigraphy devices
	33121300-7	Electromyographs
	33121400-8	Audiometers
	33121500-9	Electrocardiogram
	33123200-0	Electrocardiography devices
	33128000-3	Medical laser other than for surgery
	33151300-6	Spectrographs
	33158500-7	Infrared medical devices
	33169100-3	Surgical laser
	33169500-7	Surgical tracking and tracing systems
	33182210-4	Pacemaker
	33182240-3	Parts and accessories for pacemakers
	33182400-3	Cardiac X-ray system
	33185000-0	Hearing aids
	33185100-1	Parts and accessories for hearing aids
	33185200-2	Cochlear implant

ICT sub-sector	CPV code	CPV name
	33185300-3	Otolaryngology implant
	33185400-4	Larynx artificial
	33193213-5	Control devices for invalid carriages
	33195000-3	Patient-monitoring system
	33195100-4	Monitors
	33195110-7	Respiratory monitors
	33195200-5	Central monitoring station
	33197000-7	Medical computer equipment
	34150000-3	Simulators
	34151000-0	Driving simulators
	34152000-7	Training simulators
	34632000-6	Railways traffic-control equipment
	34632200-8	Electrical signalling equipment for railways
	34711200-6	Non-piloted aircraft
	34712200-3	Satellites
	34741400-7	Flight simulators
	34923000-3	Road traffic-control equipment
	34924000-0	Variable message signs
	34926000-4	Car park control equipment
	34927000-1	Toll equipment
	34931400-6	Ship bridge simulators
	34931500-7	Vessel traffic control equipment
	34932000-9	Radar sets
	34933000-6	Navigation equipment
	34943000-9	Train-monitoring system
	34944000-6	Points heating system
	34961000-1	Baggage-handling system
	34961100-2	Baggage-handling equipment
	34962000-8	Air-traffic control equipment
	34962100-9	Control tower equipment
	34962200-0	Air-traffic control
	34962210-3	Air-traffic control simulation
	34962220-6	Air-traffic control systems
	34962230-9	Air-traffic control training
	34963000-5	Instrument Landing System (ILS)
	34964000-2	Doppler VHF Omni direction Range (DVOR)
	34965000-9	Distance Measuring Equipment (DME)
	34966000-6	Radio Direction Finder and Non-Directional Beacon
	34966100-7	Radio Direction Finder (RDF)
	34966200-8	Non-Directional Beacon (NDB)
	34967000-3	Airport Communication System (COM)
	34968100-1	Airport Surveillance System (SUR)
	34970000-7	Traffic-monitoring equipment
	34971000-4	Speed camera equipment
	34972000-1	Traffic-flow measuring system

ICT sub-sector	CPV code	CPV name
	34996000-5	Control, safety or signalling equipment for roads
	34996200-7	Control, safety or signalling equipment for inland waterways
	34996300-8	Control, safety or signalling equipment for parking facilities
	34997000-2	Control, safety or signalling equipment for airports
	34997100-3	Flight recorders
	34997200-4	Airport lighting
	34997210-7	Runway lights
	34998000-9	Control, safety or signalling equipment for port installations
	34999100-7	Signal generators
	34999200-8	Aerial signal splitters
	35120000-1	Surveillance and security systems and devices
	35260000-4	Police signs
	35261000-1	Information panels
	35261100-2	Changing message indicator panels
	35262000-8	Crossing control signalling equipment
	35322200-9	Self-propelled artillery
	35512400-0	Unmanned underwater vehicles
	35613000-4	Unmanned aerial vehicles
	35613100-5	Unmanned combat aerial vehicles
	35622600-6	Anti-tank guided missiles
	35623000-7	Cruise missiles
	35623100-8	Air/ground/sea launched cruise missiles
	35700000-1	Military electronic systems
	35710000-4	Command, control, communication and computer systems
	35711000-1	Command, control, communication systems
	35712000-8	Tactical command, control and communication systems
	35720000-7	Intelligence, surveillance, target acquisition and reconnaissance
	35721000-4	Electronic intelligence system
	35722000-1	Radar
	35723000-8	Air defence radar
	35730000-0	Electronic warfare systems and counter measures
	35740000-3	Battle simulators
	37482000-0	Sports information billboards
	38000000-5	Laboratory, optical and precision equipments (excl. glasses)
	38100000-6	Navigational and meteorological instruments
	38110000-9	Navigational instruments
	38113000-0	Sonars
	38114000-7	Echo sounders
	38115000-4	Radar apparatus
	38120000-2	Meteorological instruments
	38121000-9	Anemometers
	38122000-6	Barometers
	38123000-3	Precipitation or evaporation recorders
	38124000-0	Radiosonde apparatus
	38125000-7	Rainfall recorders

ICT sub-sector	CPV code	CPV name
	38126000-4	Surface observing apparatus
	38126100-5	Precipitation or evaporation surface observing apparatus
	38126200-6	Solar radiation surface observing apparatus
	38126300-7	Temperature or humidity surface observing apparatus
	38126400-8	Wind surface observing apparatus
	38127000-1	Weather stations
	38128000-8	Meteorology instrument accessories
	38220000-3	Geological prospecting apparatus
	38221000-0	Geographic information systems (GIS or equivalent)
	38290000-4	Surveying, hydrographic, oceanographic and hydrological instruments and appliances
	38291000-1	Telemetry apparatus
	38292000-8	Hydrographic instruments
	38293000-5	Seismic equipment
	38294000-2	Theodolites
	38295000-9	Topography equipment
	38296000-6	Surveying instruments
	38300000-8	Measuring instruments
	38310000-1	Precision balances
	38311000-8	Electronic scales and accessories
	38311100-9	Electronic analytical balances
	38311200-0	Electronic technical balances
	38320000-4	Drafting tables
	38321000-1	Drafting machines
	38322000-8	Pantographs
	38323000-5	Slide rules
	38340000-0	Instruments for measuring quantities
	38341000-7	Apparatus for measuring radiation
	38341100-8	Electron-beam recorders
	38341200-9	Radiation dosimeters
	38341300-0	Instruments for measuring electrical quantities
	38341310-3	Ammeters
	38341320-6	Voltmeters
	38341400-1	Geiger counters
	38341500-2	Contamination-monitoring devices
	38341600-3	Radiation monitors
	38342000-4	Oscilloscopes
	38342100-5	Oscillographs
	38343000-1	Error-monitoring equipment
	38344000-8	Pollution-monitoring devices
	38430000-8	Detection and analysis apparatus
	38431000-5	Detection apparatus
	38431100-6	Gas-detection apparatus
	38431200-7	Smoke-detection apparatus
	38431300-8	Fault detectors
	38432000-2	Analysis apparatus

ICT sub-sector	CPV code	CPV name
	38432100-3	Gas-analysis apparatus
	38432200-4	Chromatographs
	38432210-7	Gas chromatographs
	38432300-5	Smoke-analysis apparatus
	38433000-9	Spectrometers
	38433100-0	Mass spectrometer
	38433200-1	Emission measurement equipment
	38433300-2	Spectrum analyser
	38434000-6	Analysers
	38434100-7	Expansion analysers
	38434200-8	Sound-measuring equipment
	38434210-1	Sonometers
	38434220-4	Sound velocity analyzers
	38434300-9	Noise-measuring equipment
	38434310-2	Decibel meter
	38434400-0	Vibration analysers
	38435000-3	Apparatus for detecting fluids
	38500000-0	Checking and testing apparatus
	38510000-3	Microscopes
	38511000-0	Electron microscopes
	38511100-1	Scanning electron microscopes
	38511200-2	Transmission electron microscope
	38512000-7	Ion and molecular microscopes
	38512100-8	Ion microscopes
	38512200-9	Molecular microscopes
	38514000-1	Darkfield and scanning probe microscopes
	38514100-2	Darkfield microscopes
	38514200-3	Scanning probe microscopes
	38515100-9	Polarising microscopes
	38516000-5	Monocular and/or binocular light compound microscopes
	38517100-3	Acoustic microscopes
	38519300-9	Photo or video attachments for microscopes
	38519310-2	Photo attachments for microscopes
	38519320-5	Video attachments for microscopes
	38519400-0	Automated microscope stages
	38520000-6	Scanners
	38521000-3	Pressure scanners
	38522000-0	Chromatographic scanners
	38527100-6	Ionization chamber dosimeters
	38527200-7	Dosimeters
	38527300-8	Secondary standard dosimetry systems
	38527400-9	Phantom dosimeters
	38540000-2	Machines and apparatus for testing and measuring
	38541000-9	Solderability testers
	38542000-6	Servo-hydraulic test apparatus

ICT sub-sector	CPV code	CPV name
	38543000-3	Gas-detection equipment
	38544000-0	Drug detection apparatus
	38545000-7	Gas-testing kits
	38546000-4	Explosives detection system
	38546100-5	Bomb detectors
	38547000-1	Dosimetry system
	38548000-8	Instruments for vehicles
	38550000-5	Meters
	38551000-2	Energy meters
	38552000-9	Electronic meters
	38553000-6	Magnetic meters
	38554000-3	Electricity meters
	38560000-8	Production counters
	38561000-5	Revolution counters
	38561100-6	Speed indicators for vehicles
	38561110-9	Tachometers
	38561120-2	Taxi meters
	38562000-2	Stroboscopes
	38570000-1	Regulating and controlling instruments and apparatus
	38571000-8	Speed limiters
	38580000-4	Non-medical equipment based on the use of radiations
	38581000-1	Baggage-scanning equipment
	38582000-8	X-ray inspection equipment
	38620000-7	Polarising material
	38621000-4	Fibre-optic apparatus
	38622000-1	Mirrors
	38623000-8	Optical filters
	38624000-5	Optical aids
	38800000-3	Industrial process control equipment and remote-control equipment
	38810000-6	Industrial process control equipment
	38820000-9	Remote-control equipment
	38821000-6	Radio remote-control apparatus
	38822000-3	Remote-control siren devices
	38900000-4	Miscellaneous evaluation or testing instruments
	38920000-0	Seed and feed equipment
	38921000-7	Grain analysers
	38922000-4	Seed counters
	38923000-1	Feed analysers
	38930000-3	Humidity and moisture measuring instruments
	38931000-0	Temperature humidity testers
	38932000-7	Moisture meters
	38940000-6	Nuclear evaluation instruments
	38941000-7	Alpha counters
	38942000-7	Alpha beta counters
	38943000-7	Beta counters

ICT sub-sector	CPV code	CPV name
	38944000-7	Beta gamma counters
	38945000-7	Gamma counters
	38946000-7	KVP meters
	38947000-7	X-ray microanalysers
	38950000-9	Polymerase Chain Reaction (PCR) equipment
	38951000-6	Real-time Polymerase Chain Reaction (PCR) equipment
	38960000-2	Alcohol ignition lock
	38970000-5	Research, testing and scientific technical simulator
	39134000-0	Computer furniture
	39134100-1	Computer tables
	39235000-8	Tokens
	39294000-9	Apparatus and equipment designed for demonstrational purposes
	39294100-0	Information and promotion products
	42960000-3	Command and control system, printing, graphics, office automation and information-processing equipment
	42961000-0	Command and control system
	42961100-1	Access control system
	42961200-2	Scada or equivalent system
	42961300-3	Vehicle location system
	42961400-4	Dispatch system
	42962000-7	Printing and graphics equipment
	42962100-8	Film printing system
	42962200-9	Printing press
	42962300-0	Graphics workstations
	42962400-1	Hectographs
	42962500-2	Engraving machines
	42964000-1	Office automation equipment
	42965000-8	Information-processing equipment
	42965100-9	Warehouse management system
	42965110-2	Depot system
	42967000-2	Controller unit
	42967100-3	Digital remote-control unit
	42991000-9	Paper, printing and bookbinding machinery and parts
	42991100-0	Bookbinding machinery
	42991110-3	Book-sewing machinery
	42991200-1	Printing machinery
	42991210-4	Offset printing machinery
	42991220-7	Typesetting machinery
	42991230-0	Ticket printers
	42991300-2	Photocomposing system
	42991500-4	Parts of printing or bookbinding machinery
	42997300-4	Industrial robots
	42998000-8	Pallet-picking system
	42998100-9	Pallet-retrieving system
	43135000-8	Subsea equipment
	43135100-9	Subsea control systems

ICT sub-sector	CPV code	CPV name
	43411000-7	Sorting and screening machines
	44212250-6	Masts
	44212260-9	Radio or television masts
	44212261-6	Radio masts
	44212262-3	Television masts
	44212263-0	Lattice masts
	44212322-2	Telephone booths
	44521120-5	Electronic security lock
	45222300-2	Engineering work for security installations
	45223400-0	Radar station construction work
	45231600-1	Construction work for communication lines
	45232300-5	Construction and ancillary works for telephone and communication lines
	45232310-8	Construction work for telephone lines
	45232311-5	Roadside emergency telephone lines
	45232320-1	Cable broadcasting lines
	45232330-4	Erection of aerials
	45232331-1	Ancillary works for broadcasting
	45232332-8	Ancillary works for telecommunications
	45232340-7	Mobile-telephone base-stations construction work
	45234115-5	Railway signalling works
	45312000-7	Alarm system and antenna installation work
	45312100-8	Fire-alarm system installation work
	45312200-9	Burglar-alarm system installation work
	45312300-0	Antenna installation work
	45312320-6	Television aerial installation work
	45312330-9	Radio aerial installation work
	45314000-1	Installation of telecommunications equipment
	45314100-2	Installation of telephone exchanges
	45314120-8	Installation of switchboards
	45314200-3	Installation of telephone lines
	45314300-4	Installation of cable infrastructure
	45314310-7	Installation of cable laying
	45314320-0	Installation of computer cabling
	45316200-7	Installation of signalling equipment
	45316210-0	Installation of traffic monitoring equipment
	45316213-1	Installation of traffic guidance equipment
	45316220-3	Installation of airport signalling equipment
	45316230-6	Installation of port signalling equipment
	50111000-6	Fleet management, repair and maintenance services
	50111100-7	Vehicle-fleet management services
	50111110-0	Vehicle-fleet-support services
	51112200-2	Installation services of electricity control equipment
	51200000-4	Installation services of equipment for measuring, checking, testing and navigating
	51210000-7	Installation services of measuring equipment
	51211000-4	Installation services of time-measuring equipment

ICT sub-sector	CPV code	CPV name
	51212000-1	Installation services of time register equipment
	51213000-8	Installation services of time recorder equipment
	51214000-5	Installation services of parking meter equipment
	51215000-2	Installation services of meteorological equipment
	51216000-9	Installation services of geological equipment
	51220000-0	Installation services of checking equipment
	51221000-7	Installation services of automatic airport check-in devices
	51230000-3	Installation services of testing equipment
	51611110-2	Installation services of airport real-time departures and arrival display screens or boards
	51611120-5	Installation services of railway real-time departures and arrival display screens or boards
	60510000-6	Satellite launch services
	60520000-9	Experimental payload services
	60630000-3	Cable-laying ship services
	63112000-7	Baggage handling services
	03112100-8	Passenger baggage handling services
	63112110-1	Baggage collection services
	63711100-7	Train monitoring services
	63712210-8	Highway toll services
	63712300-6	Bridge and tunnel operation services
	63712310-9	Bridge operating services
	63712311-6	Bridge toll services
	63712320-2	Tunnel operation services
	63712321-9	Tunnel toll services
	63712700-0	Traffic control services
	63712710-3	Traffic monitoring services
	63731100-3	Airport slot coordination services
	63732000-9	Air-traffic control services
	65500000-8	Meter reading service
	66115000-9	International payment transfer services
	66172000-6	Financial transaction processing and clearing-house services
	66151100-4	Electronic marketplace retailing services
	71351600-9	Weather-forecasting services
	71351610-2	Meteorology services
	71351611-9	Climatology services
	71351612-6	Hydrometeorology services
	71351920-2	Oceanography and hydrology services
	71351921-2	Estuarine oceanography services
	71351922-2	Physical oceanography services
	71351923-2	Bathymetric surveys services
	71351924-2	Underwater exploration services
	71352000-0	Subsurface surveying services
	71352100-1	Seismic services
	71352110-4	Seismographic surveying services
	71352120-7	Seismic data acquisition services
	71352130-0	Seismic data collection services

ICT sub-sector	CPV code	CPV name
	71352140-3	Seismic processing services
	71352300-3	Magnetometric surveying services
	71353000-7	Surface surveying services
	71353100-8	Hydrographic surveying services
	71353200-9	Dimensional surveying services
	71354000-4	Map-making services
	71354100-5	Digital mapping services
	71354200-6	Aerial mapping services
	71354300-7	Cadastral surveying services
	71354400-8	Hydrographic services
	71354500-9	Marine survey services
	71355000-1	Surveying services
	71355100-2	Photogrammetry services
	71355200-3	Ordnance surveying
	79711000-1	Alarm-monitoring services
	79714000-2	Surveillance services
	79714100-3	Tracing system services
	79714110-6	Absconder-tracing services
	79716000-6	Identification badge release services
	79940000-5	Collection agency services
	79941000-2	Toll-collection services
	79991000-7	Stock-control services
	85150000-5	Medical imaging services
	90714100-6	Environmental information systems
	90731400-4	Air pollution monitoring or measurement services
	90731500-5	Toxic gas detection services
	90731600-6	Methane monitoring
	90731700-7	Carbon dioxide monitoring services
	90731800-8	Airborne particle monitoring
	90731900-9	Ozone depletion monitoring services
	90732500-2	Soil pollution mapping
	90732600-3	Soil pollution measurement or monitoring
	90733100-5	Surface water pollution monitoring or control services
	90733600-0	Transboundary water pollution management or control services
	90733700-1	Groundwater pollution monitoring or control services
	90741100-4	Oil spillage monitoring services
	90742300-3	Noise pollution monitoring services
	90743100-8	Toxic substances monitoring services

9.6 Annex VI – Methodology for the calculation of total public procurement

This document presents how the total expenditure on works, goods and services of the general government sector was estimated in the 30 countries falling within the scope of the study.

In accordance with the official methodology used by DG GROW,⁸⁸⁰ the total expenditure of the general government sector is considered as a proxy of total public procurement, based on the assumption that all public expenditures were previously procured.

All calculations are based on the data reported by Member States to Eurostat in accordance with the European System of National and Regional Accounts (ESA 2010) accounting standards.

In particular, all figures were retrieved from two Eurostat tables:

- Total expenditure on works, goods and services of the general government excluding utilities, but including defence⁸⁸¹ (gov_10a_main)
- Total expenditure of the general government on utilities only⁸⁸² (naio_10_cp16)

Total expenditure on works, goods and services of the general government excluding utilities

As shown in the following table, the total expenditure of the general government (excluding utilities) was calculated as the sum of three aggregates of the “gov-10a-main” table:

- P2 – Intermediate consumption
- P51G – Gross fixed capital formation
- D632PAY - social transfers in kind, purchased market production, payable

	Government revenue, expenditure and main aggregates [gov_10a_main]						
UNIT	Million euro						
SECTOR	General government						
NA_ITEM	Sum of (i) Intermediate consumption, (ii) Gross fixed capital formation, (iii) Social transfers in kind purchased market production, payable						
	2012	2013	2014	2015	2016	2017	2018
Austria	41.136	42.587	43.402	44.928	46.541	48.271	49.793
Belgium	55.737	55.618	58.367	58.864	60.423	62.238	65.757
Bulgaria	4.360	4.815	5.353	6.042	4.508	4.753	5.397
Croatia	5.816	6.012	6.133	6.054	6.294	6.220	6.895
Cyprus	1.274	1.093	953	1.036	1.079	1.137	1.921
Czech Republic	21.576	20.807	21.079	23.429	21.516	23.023	26.949
Denmark	35.576	35.413	36.864	36.857	38.042	37.794	38.686
Estonia	2.397	2.395	2.443	2.580	2.532	3.037	3.167
Finland	33.090	34.626	35.214	35.160	37.016	38.060	40.080
France	299.478	304.890	304.539	300.997	302.797	311.252	317.534
Germany	393.598	413.409	432.239	449.749	476.763	494.359	512.587
Greece	18.666	18.267	17.565	18.213	18.378	19.629	17.027
Hungary	12.942	13.966	15.636	17.809	14.024	17.075	19.290
Ireland	17.002	16.660	18.105	19.107	20.271	21.209	23.722
Italy	171.438	171.062	169.105	171.374	172.356	174.867	178.272

⁸⁸⁰ See e.g. DG GROW (2016), Public Procurement Indicators 2015.

⁸⁸¹ As reported in the European System of National and Regional Accounts (ESA 2010, page 443): “Military weapon systems, comprising vehicles and other equipment such as warships, submarines, military aircrafts, tanks, missile carriers and launchers etc. are used continuously in the production of defence services. They are fixed assets, like those used continuously for more than one year in civilian production. Their acquisition is recorded as gross fixed capital formation”. This is further confirmed by Eurostat Data Explorer of table gov-10a-exp (General government expenditure by function COFOG), which shows that the total general government expenditure includes among others expenditures in the defence sector (divided in military defence, civil defence, foreign military aid, R&D defence and ‘defence not elsewhere classified’).

⁸⁸² The rationale behind the separation of utilities data will be discussed in detail in the following sections.

Latvia	2.585	2.605	2.654	2.824	2.465	2.820	3.259
Lithuania	3.478	3.406	3.487	3.695	3.441	3.664	3.833
Luxembourg	5.541	5.635	5.950	6.271	6.389	6.866	7.078
Malta	740	721	843	1.013	935	1.041	1.263
Netherlands	134.357	133.805	135.316	135.627	136.694	139.728	145.122
Norway	44.930	46.855	47.079	46.312	47.382	49.276	50.713
Poland	46.190	44.032	48.089	49.216	42.983	48.684	56.888
Portugal	16.668	16.099	16.100	16.925	16.347	17.180	17.986
Romania	15.479	15.896	16.651	18.732	16.433	15.273	16.968
Slovakia	9.860	10.135	11.048	13.591	11.255	11.565	12.383
Slovenia	4.702	4.821	5.140	5.222	4.683	4.840	5.337
Spain	111.333	103.467	103.354	110.121	104.963	108.636	114.382
Sweden	65.999	68.272	67.805	69.126	72.919	74.278	73.838
Switzerland	42.617	42.955	45.012	52.393	52.207	52.244	51.734
United Kingdom	259.917	257.132	286.117	322.218	291.009	275.950	281.908
Total	1.878.480	1.897.455	1.961.640	2.045.484	2.032.644	2.074.967	2.149.769

Source: Eurostat table Government revenue, expenditure and main aggregates [gov_10a_main] and Eurostat table General government expenditure by function (COFOG) [gov_10a_exp] for the removal of expenditure in the defence sector.

Total public procurement expenditure by utilities only

The total public procurement expenditure by utilities is calculated separately. The rationale behind a separate calculation of the utilities expenditures is that data on utilities is considered to be highly unreliable. Indeed, DG GROW **stopped estimating the expenditures by utilities** in 2012: as reported in the Public Procurement Indicators of 2012 “the total expenditure by utilities is no longer included due to the questionable reliability of the available figures”.⁸⁸³

For this reason, including such a figure to estimate of total public procurement by utilities is **to be considered with caution**.

As shown in the following table, the public procurement total expenditure by utilities only was calculated as the sum of three aggregates of the “naio_10_cp16” table:

- B – Mining and quarrying
- E36 – Water collection, treatment and supply
- D – Electricity, gas, steam and air conditioning supply

	Use table at purchasers' prices [naio_10_cp16]							
UNIT	Million euro							
INDUSE	Mining and quarrying, Electricity, gas, steam and air conditioning supply, Water collection, treatment and supply							
PROD_NA	Total intermediate consumption /final use							
	2012	2013	2014	2015	2016	2017	2018	Used for the study
Austria	18.548	18.149	24.762	24.427	21.860	:	:	21.860
Belgium	9.232	9.692	8.607	8.194	8.751	:	:	8.751
Bulgaria	3.850	3.780	2.993	:	:	:	:	2.993
Croatia	:	:	:	3.867	:	:	:	3.867
Cyprus	:	:	:	:	:	:	:	641*
Czech Republic	13.960	13.251	10.584	10.787	10.534	11.614	12.096	12.096
Denmark	5.864	6.100	4.852	4.224	4.444	:	:	4.444
Estonia	1.143	1.169	1.131	993	954	:	:	954

⁸⁸³ See e.g. DG GROW (2013), Public Procurement Indicators 2012, page 3.

Finland	6.370	6.256	6.306	6.234	:	:	:	6.234
France	88.860	87.829	79.585	77.458	77.989	:	:	77.989
Germany	94.301	92.907	89.286	92.059	95.661	:	:	95.661
Greece	4.419	4.374	4.105	3.882	3.650	:	:	3.650
Hungary	4.073	3.750	3.252	3.221	3.081	:	:	3.081
Ireland	3.168	3.800	3.023	3.993	4.579	:	:	4.579
Italy	73.551	75.846	72.994	72.330	68.955	:	:	68.955
Latvia	2.234	2.125	1.862	1.527	1.352	:	:	1.352
Lithuania	1.286	1.415	1.378	1.318	1.225	:	:	1.225
Luxembourg	1.067	1.108	989	958	795	795	1.077	1.077
Malta	:	:	:	:	:	:	:	641
Netherlands	15.613	15.373	15.420	16.873	14.738	:	:	14.738
Norway	21.935	22.983	22.779	19.527	17.262	:	:	17.262
Poland	22.610	21.449	20.154	21.991	18.268	:	:	18.268
Portugal	12.306	12.160	11.402	11.405	11.661	12.949	:	12.949
Romania	13.690	12.685	11.769	11.568	10.227	:	:	10.227
Slovakia	10.129	9.934	7.983	8.568	8.185	:	:	8.185
Slovenia	1.560	1.571	1.488	1.414	1.336	1.434	:	1.434
Spain	64.924	69.932	72.150	63.875	41.297	:	:	41.297
Sweden	9.652	9.842	8.641	9.033	:	:	:	9.033
Switzerland	:	:	:	:	:	:	:	18.268*
United Kingdom	136.032	136.501	142.719	152.912	133.669	132.919	:	132.919
Total	640.376	643.981	630.212	632.638	560.472	159.712	13.173	604.631

(*) For Malta and Switzerland, data have been extrapolated from Cyprus and Poland respectively.

Source: Eurostat table Use table at purchasers' prices [naio_10_cp16]

In addition to low reliability, data on utilities is also affected from low availability. Indeed, as can be seen from the table, figures for recent years are often not available. For certain countries, the entire data series is unavailable.

Comparison of results with DG GROW estimates and GDP

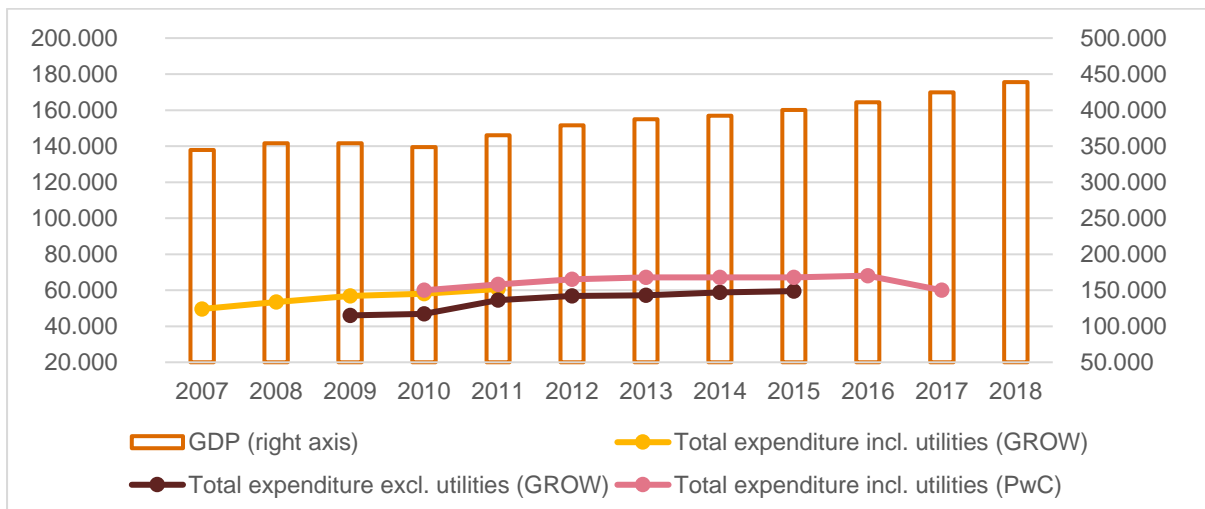
The total expenditure on works, goods and services of the general government sector plus utilities was calculated for all available years and compared with GD GROW's estimates published over time. As already mentioned, DG GROW stopped calculating expenditures by utilities in 2012. In addition to this, estimates were also compared with GDP, to verify their reliability. The following table presents the estimates on works, goods and services by the general government sector and utilities.

Total expenditure on works, goods and services by the general government sector and utilities								
UNIT	Million euro							
Calculation method	Sum of (i) Intermediate consumption, (ii) Gross fixed capital formation, (iii) Social transfers in kind purchased market production, payable, (iv) Mining and quarrying, (v) Electricity, gas, steam and air conditioning supply, (vi) Water collection, treatment and supply (with extrapolation of values)							
	2012	2013	2014	2015	2016	2017	2018	Used for the study
Austria	60.304	61.432	68.827	69.965	69.128	:	:	72.391
Belgium	65.741	66.129	67.798	67.876	69.864	:	:	75.249
Bulgaria	8.322	8.725	8.569	:	:	:	:	8.598
Croatia	:	:	:	:	:	:	:	10.971
Cyprus	:	:	:	:	:	:	:	2.669

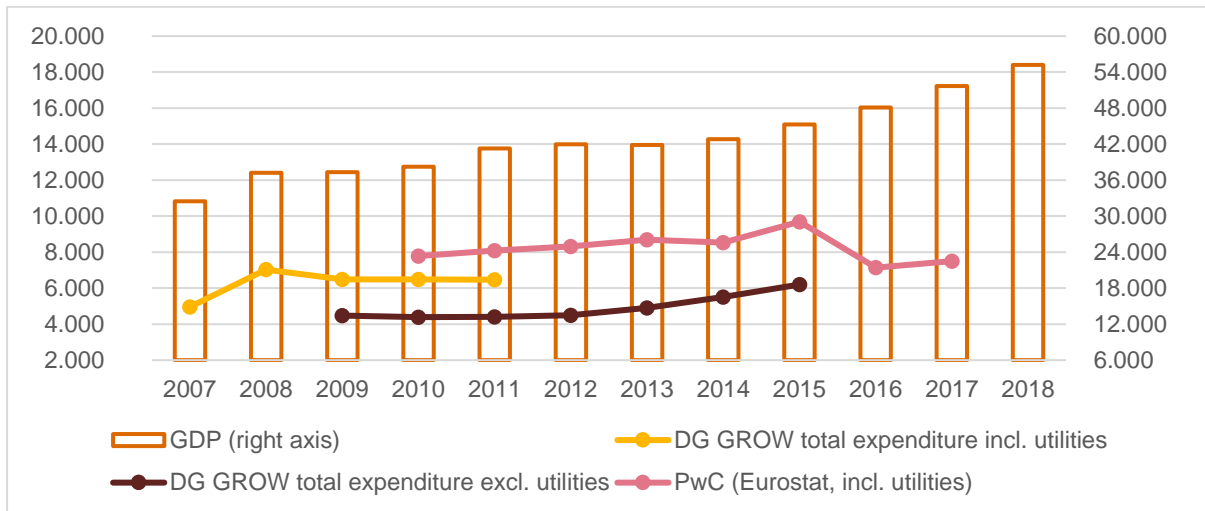
Czech Republic	36.161	34.629	32.070	35.032	32.520	35.151	39.750	39.750
Denmark	43.453	43.402	43.384	42.721	44.269	:	:	45.223
Estonia	3.759	3.789	3.799	3.822	3.849	:	:	4.487
Finland	41.175	42.691	43.238	43.293	:	:	:	47.906
France	405.016	409.300	399.896	396.942	401.629	:	:	416.374
Germany	505.997	523.668	537.541	558.886	590.744	:	:	630.514
Greece	24.336	23.570	23.323	23.565	22.785	:	:	21.493
Hungary	17.372	18.055	19.179	21.425	17.550	:	:	23.131
Ireland	20.297	20.594	21.342	23.328	25.093	:	:	28.595
Italy	250.612	251.739	246.914	248.836	248.077	:	:	253.238
Latvia	4.896	4.814	4.618	4.469	4.028	:	:	4.965
Lithuania	4.864	4.918	4.978	5.203	4.916	:	:	5.444
Luxembourg	6.673	6.793	6.983	7.264	7.269	7.729	8.305	8.305
Malta	:	:	:	:	:	:	:	1.918
Netherlands	152.916	152.324	153.823	155.835	155.084	:	:	164.319
Norway	69.946	72.960	72.974	69.012	67.816	:	:	72.043
Poland	71.141	68.422	70.623	74.225	64.075	:	:	78.802
Portugal	29.513	28.738	27.992	28.851	28.308	30.562	:	31.438
Romania	29.380	28.762	28.780	30.823	27.419	:	:	27.772
Slovakia	20.216	20.294	19.338	22.392	19.711	:	:	20.990
Slovenia	6.374	6.474	6.701	6.706	6.117	6.385	:	6.915
Spain	179.527	176.892	178.263	177.971	150.700	:	:	159.621
Sweden	79.494	82.173	79.886	81.214	:	:	:	86.386
Switzerland	:	:	:	:	:	:	:	73.088
United Kingdom	429.715	425.539	463.226	512.057	456.300	438.881	:	445.285
Total	2.567.200	2.586.825	2.634.064	2.711.714	2.517.253	518.708	48.055	2.867.879

The estimated total public procurement has been compared against DG GROW's estimates and the GDP:

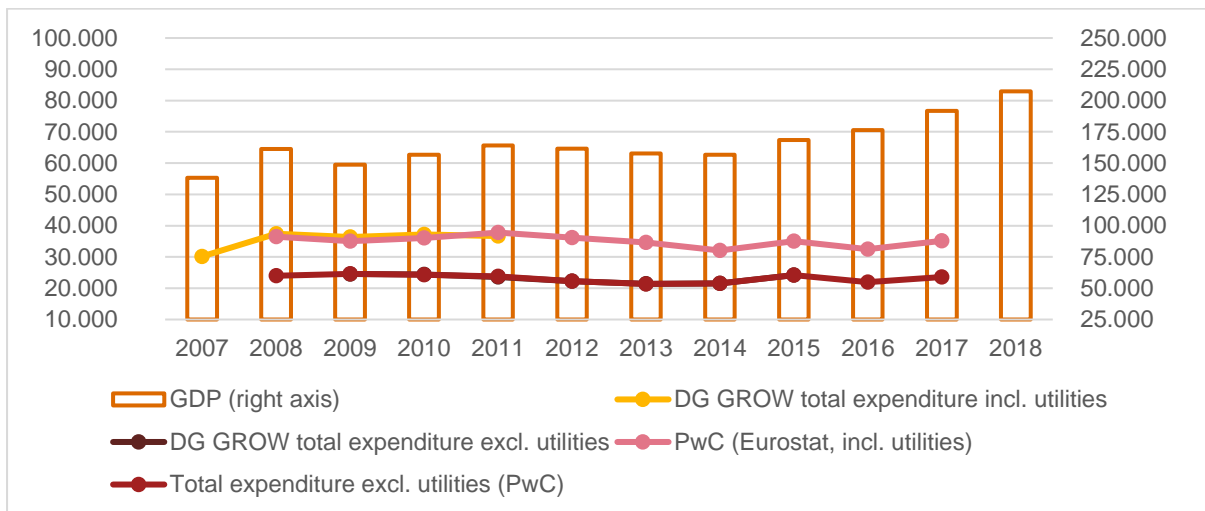
Belgium



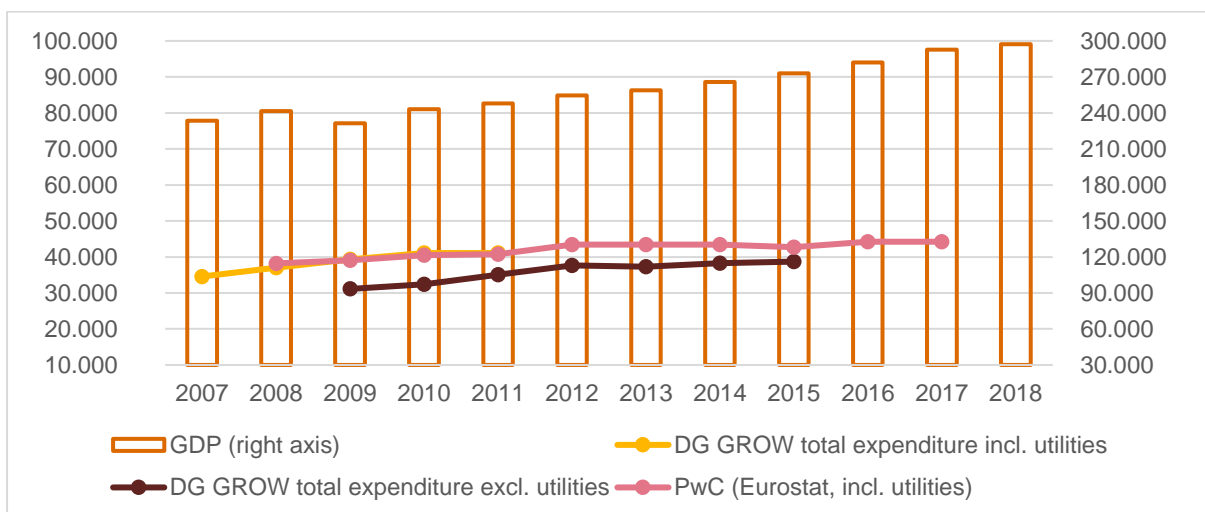
Bulgaria



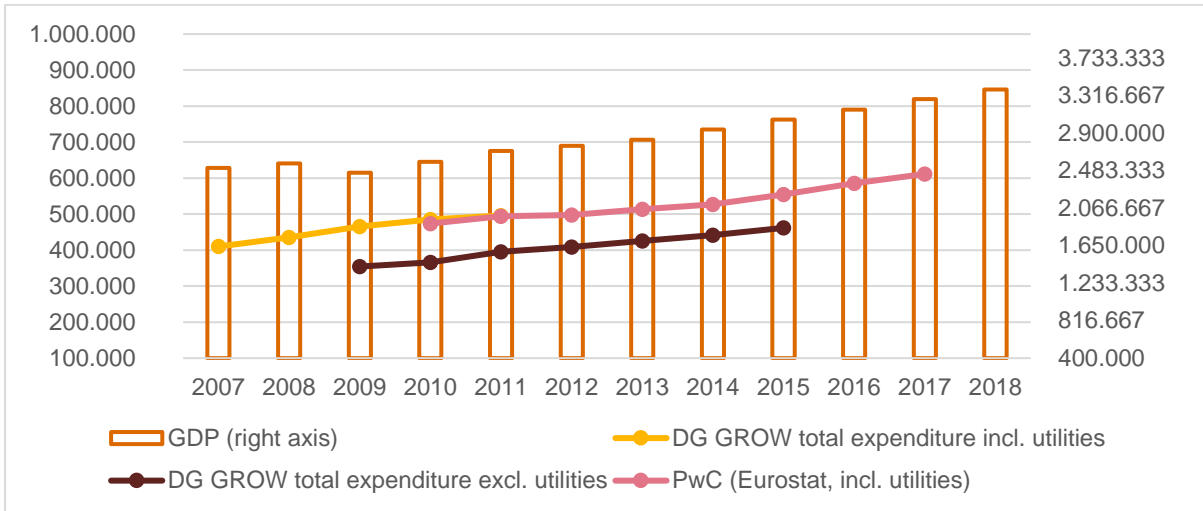
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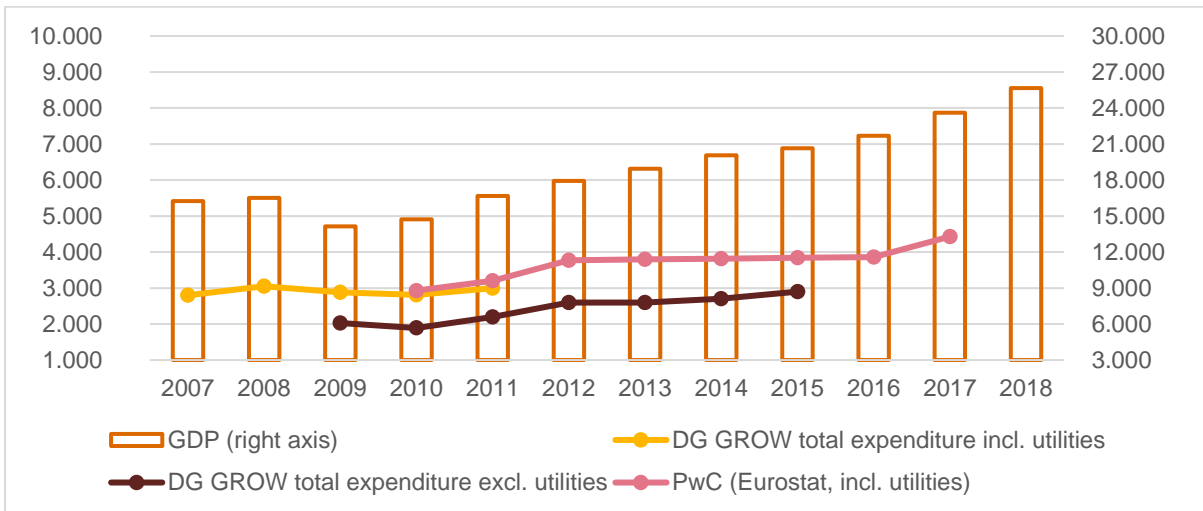
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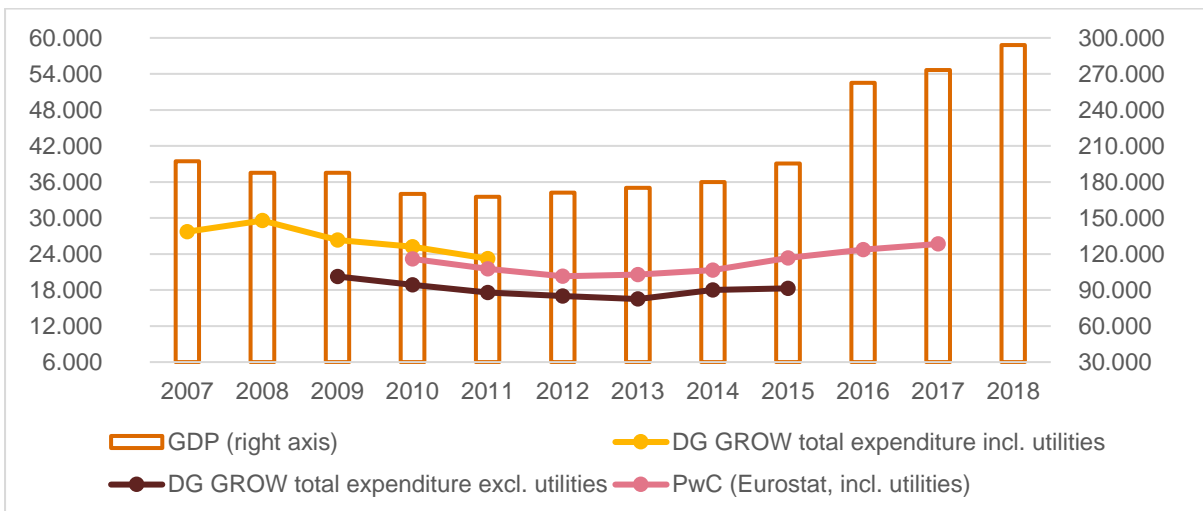
Germany



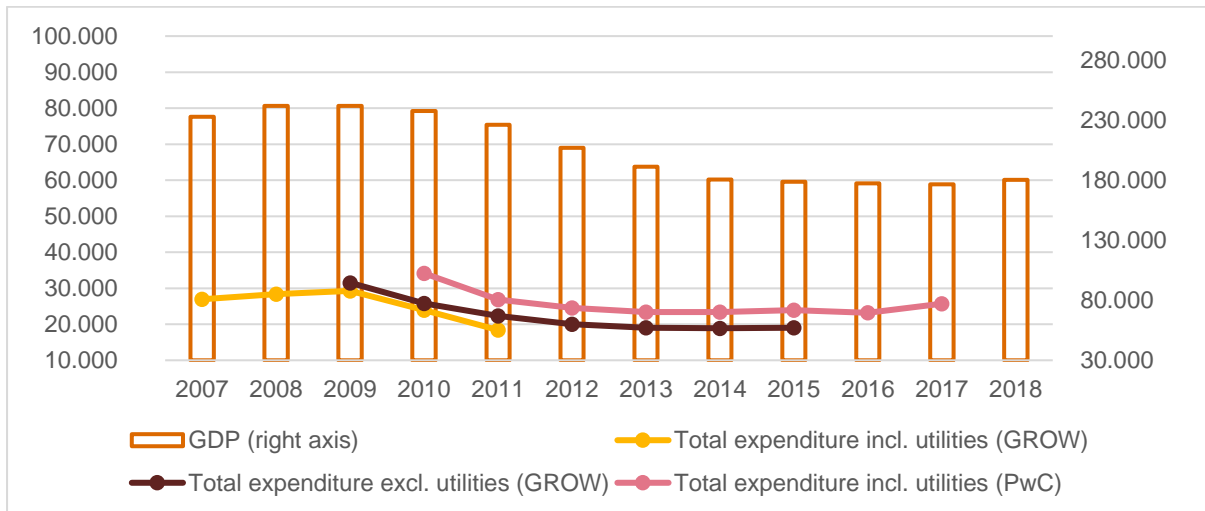
Estonia



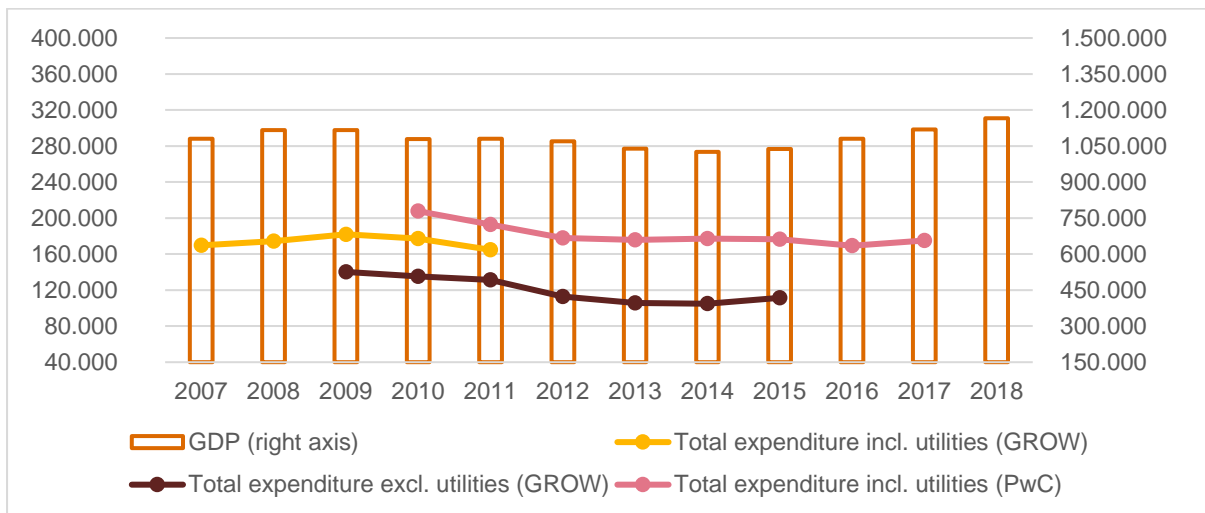
Estonia



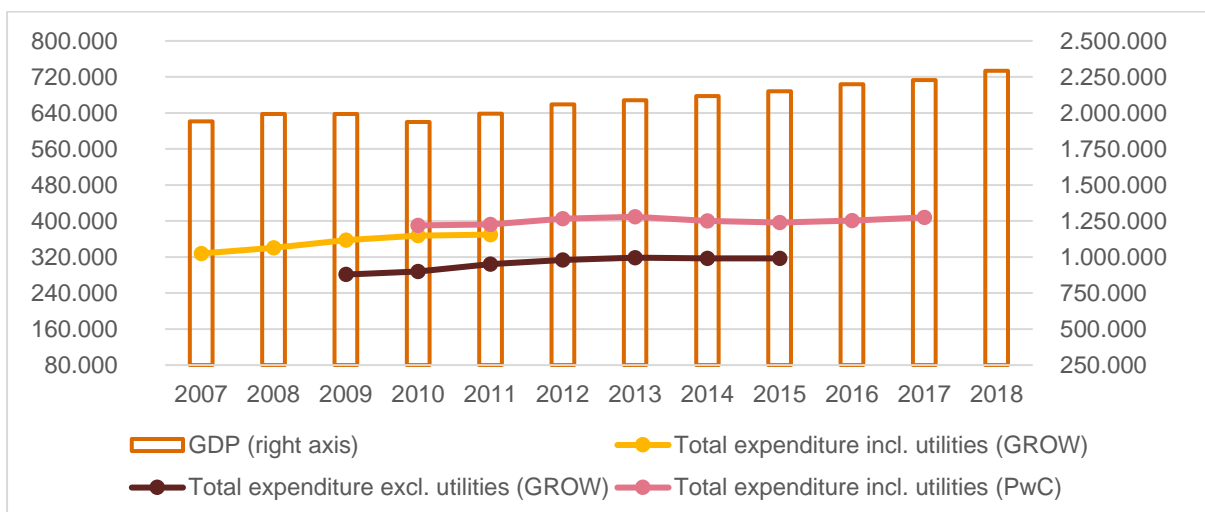
Greece



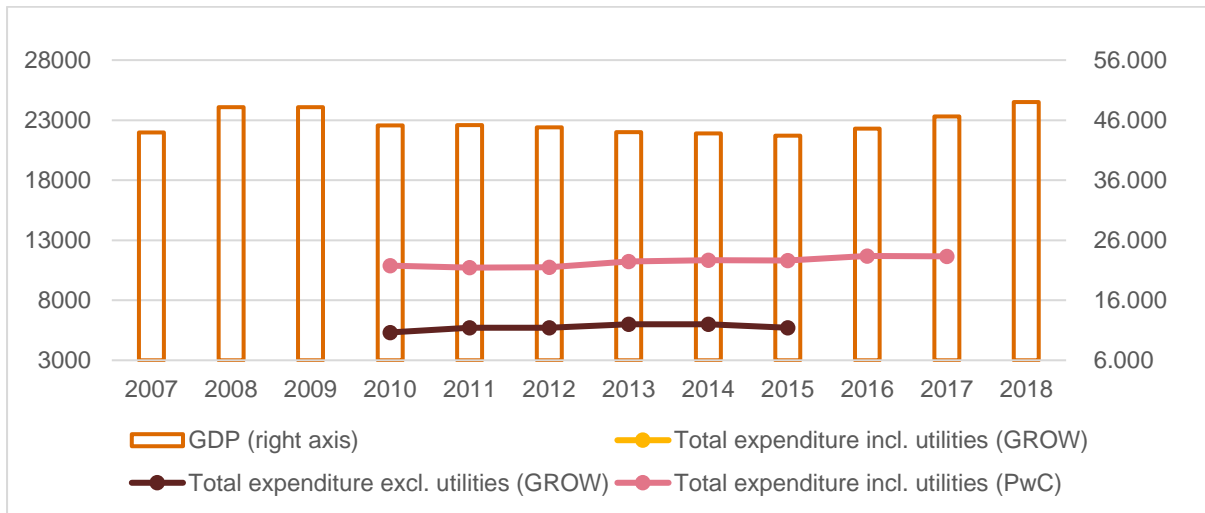
Spain



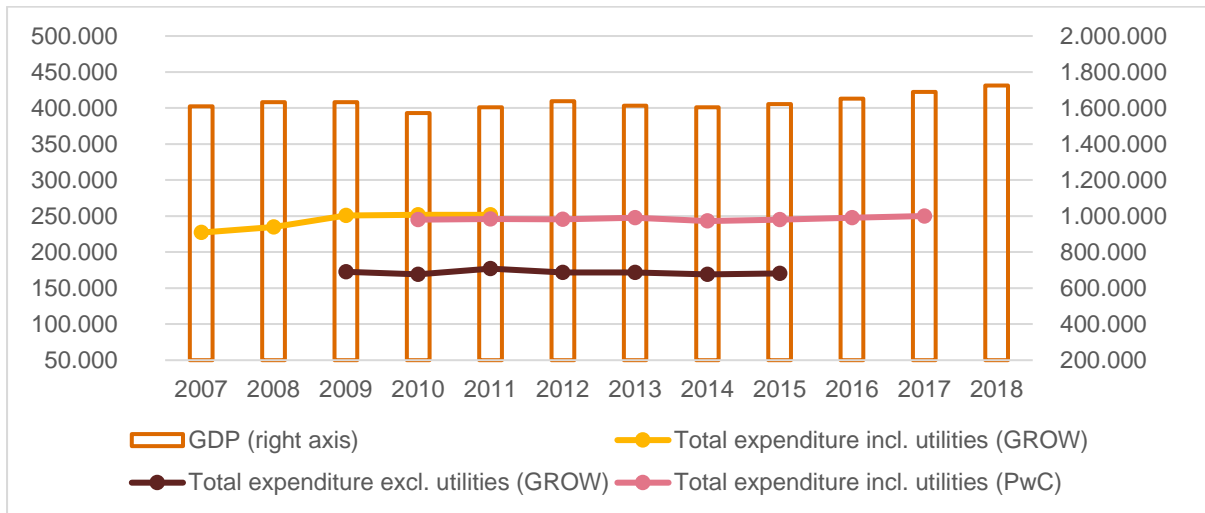
France



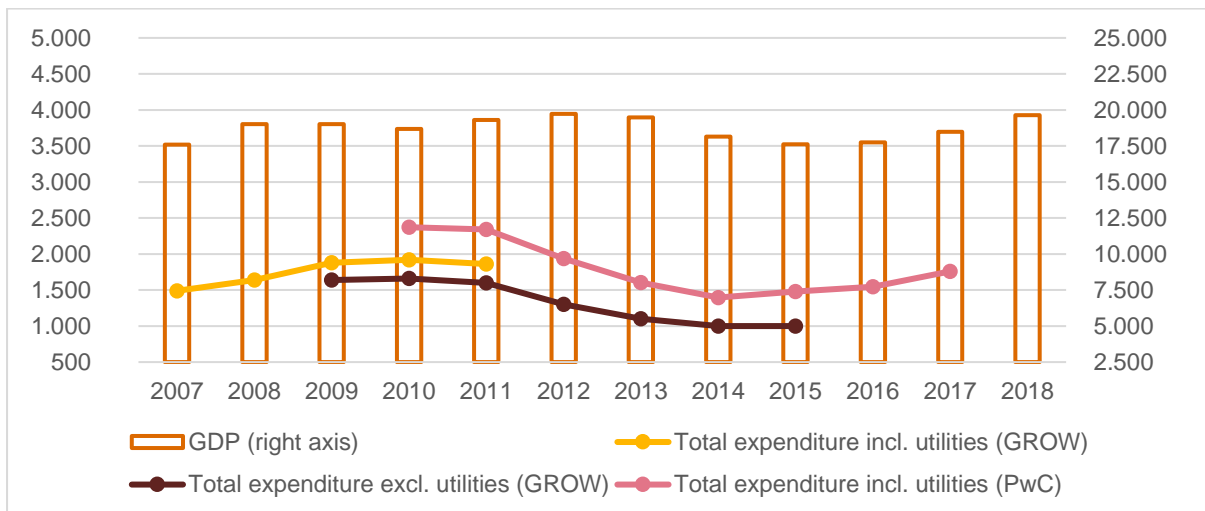
Croatia



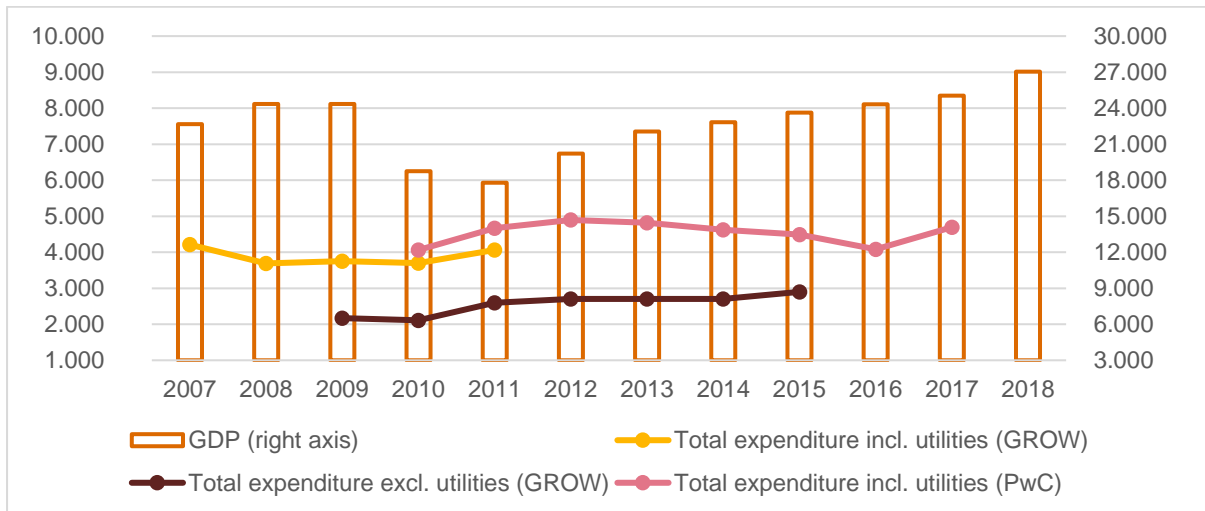
Italy



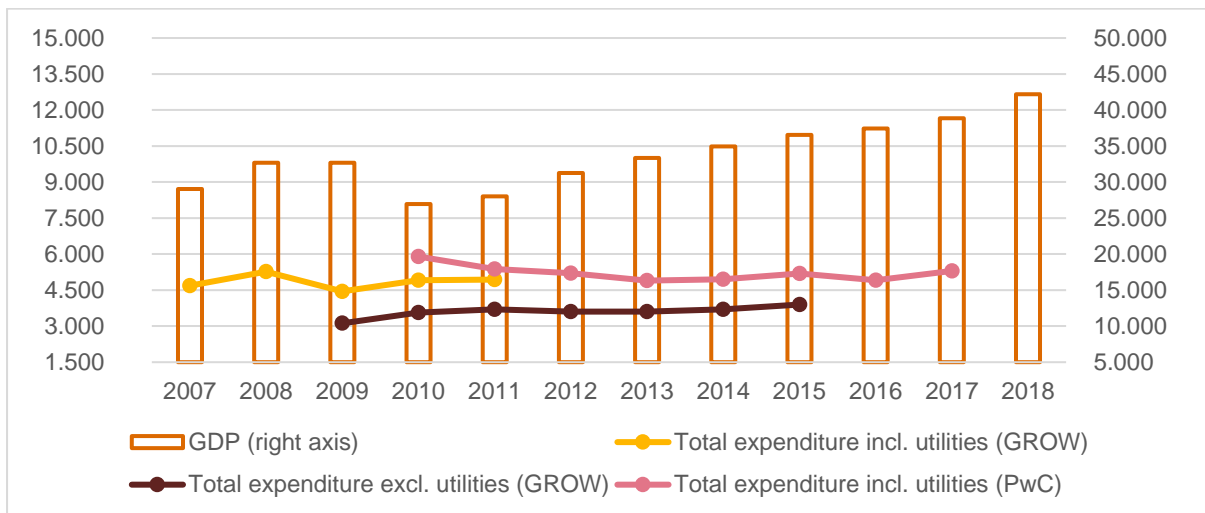
Cyprus



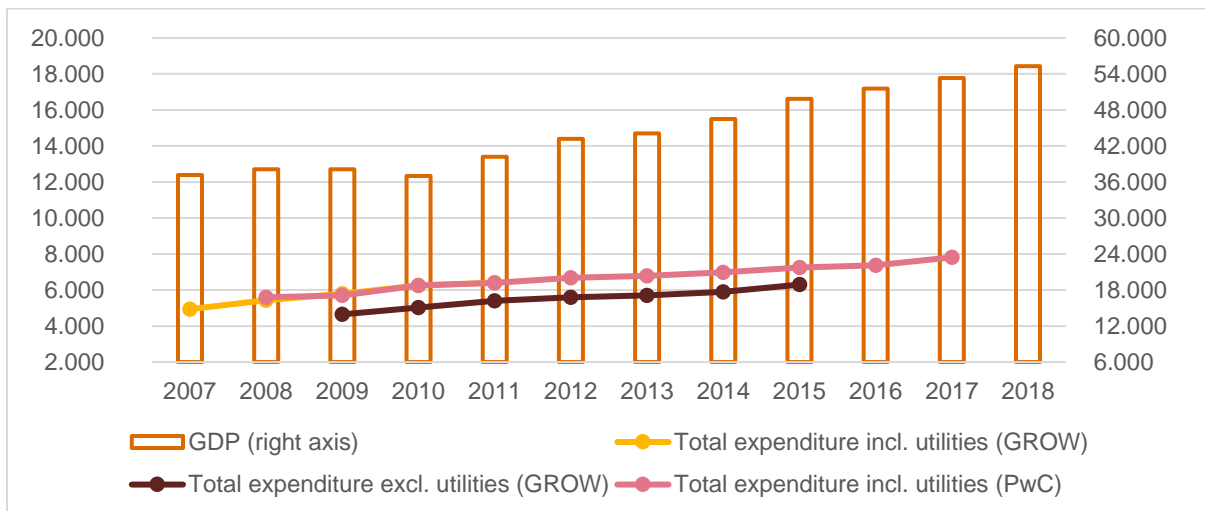
Latvia



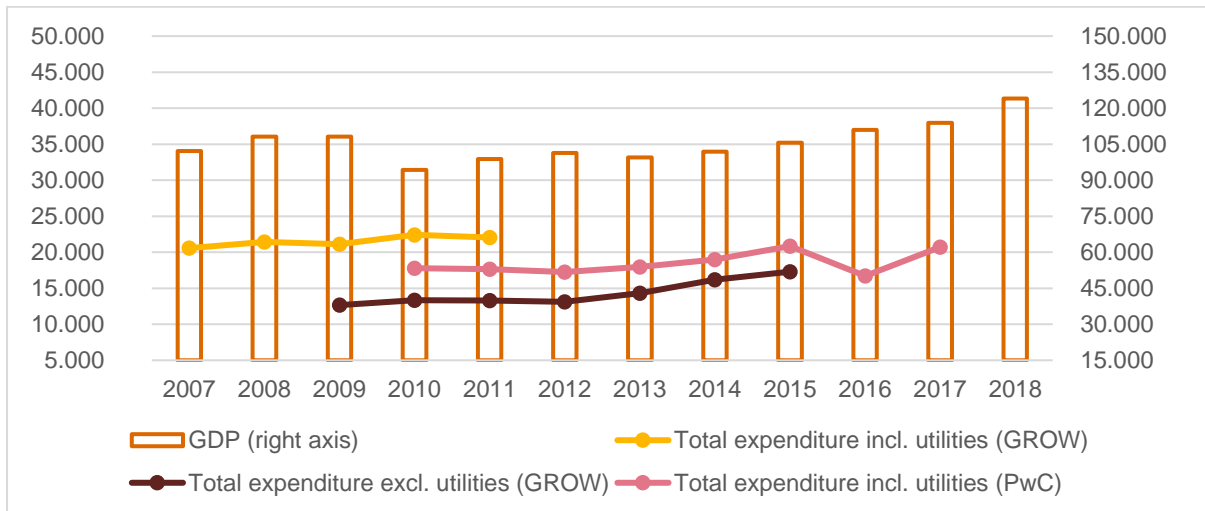
Lithuania



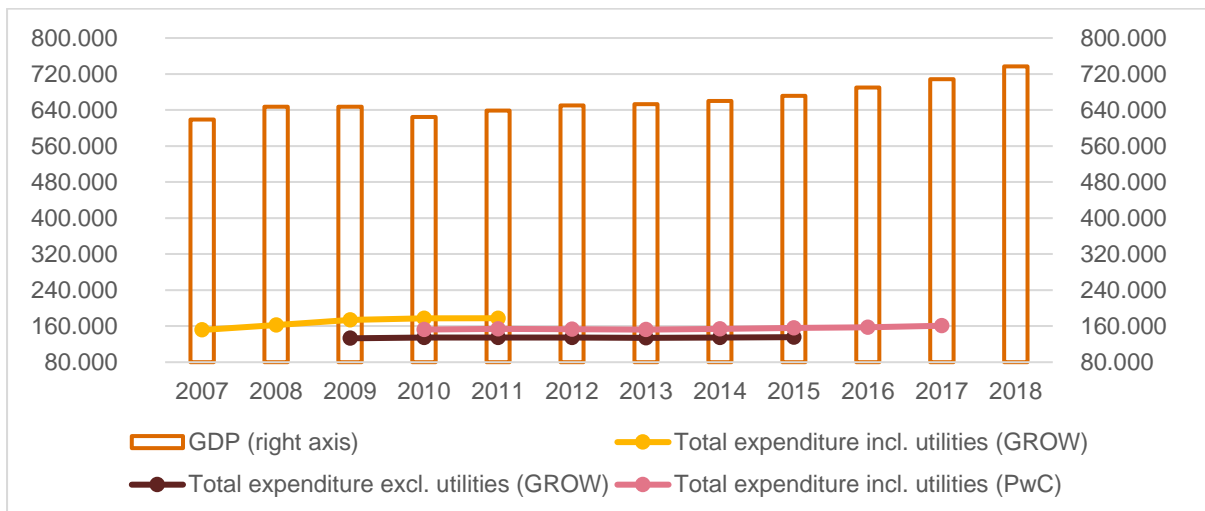
Luxembourg



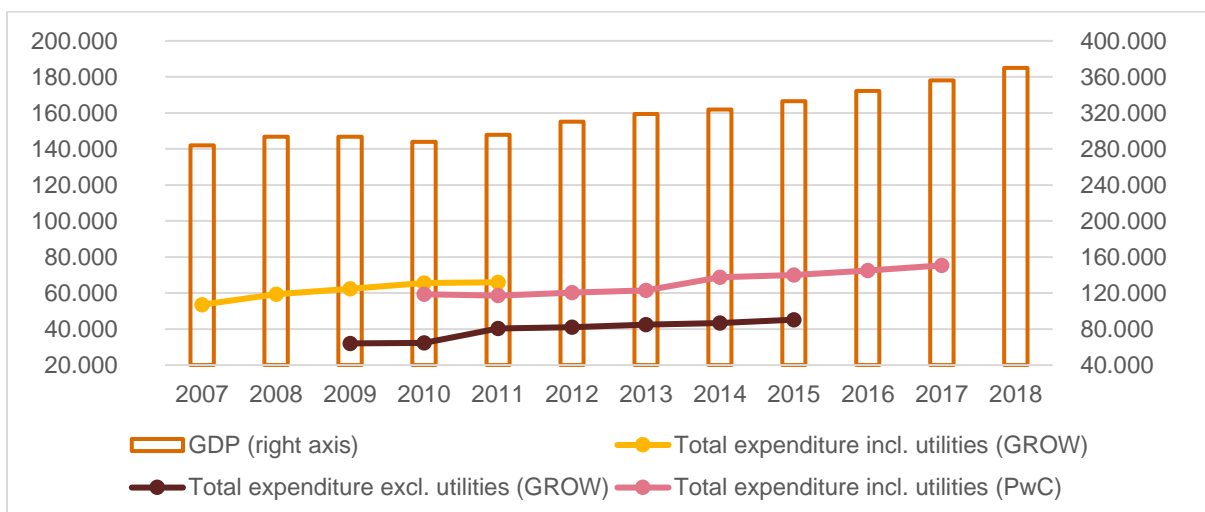
Hungary



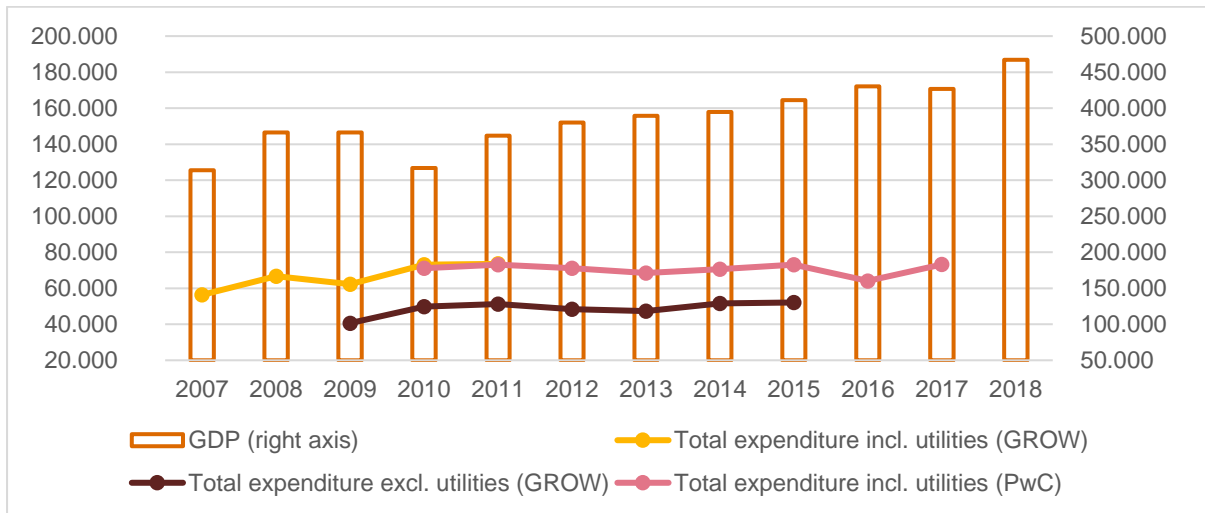
Netherlands



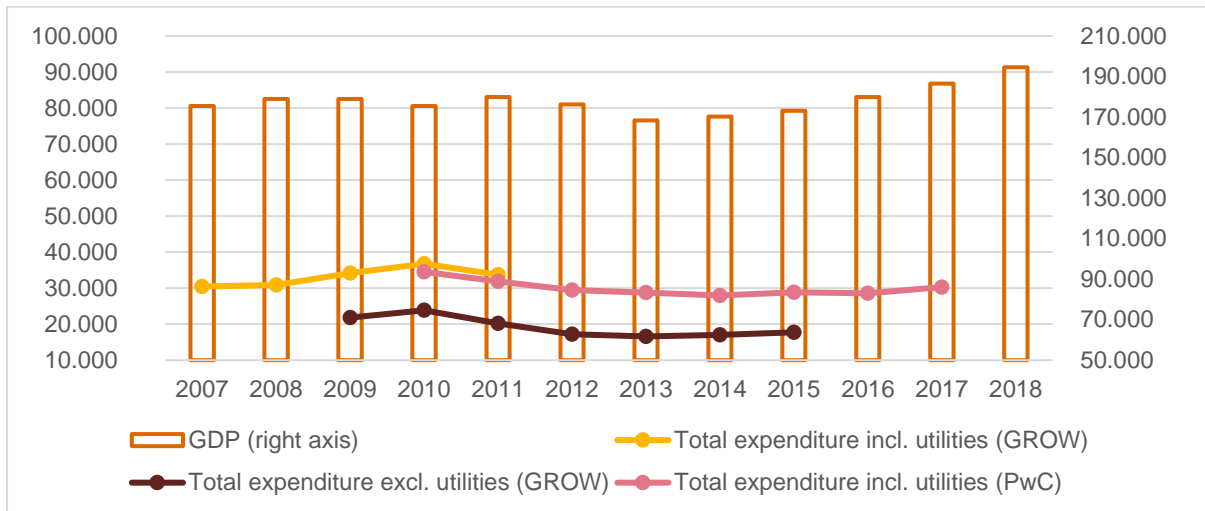
Austria



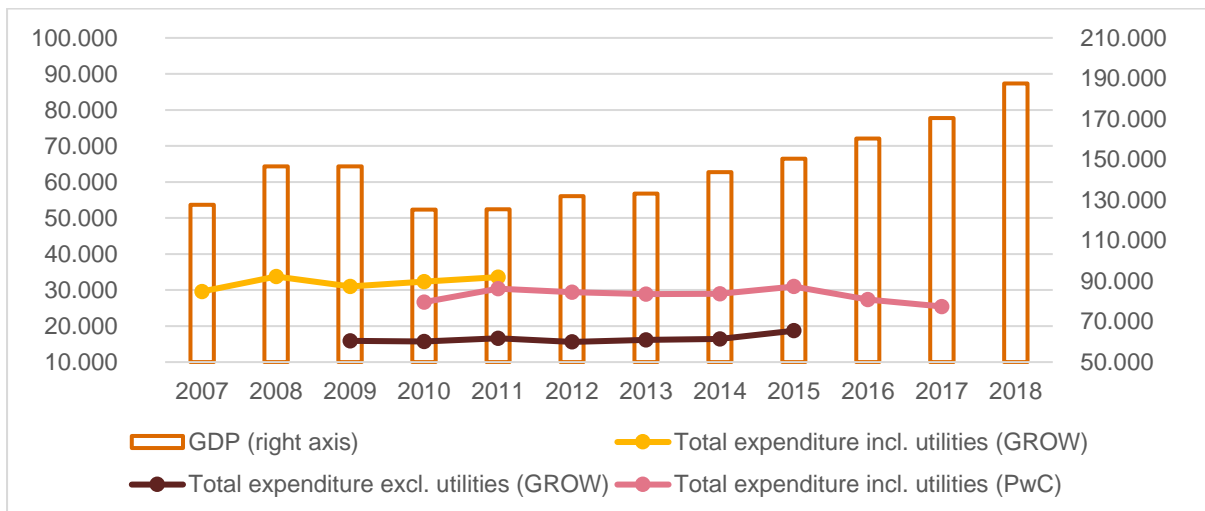
Poland



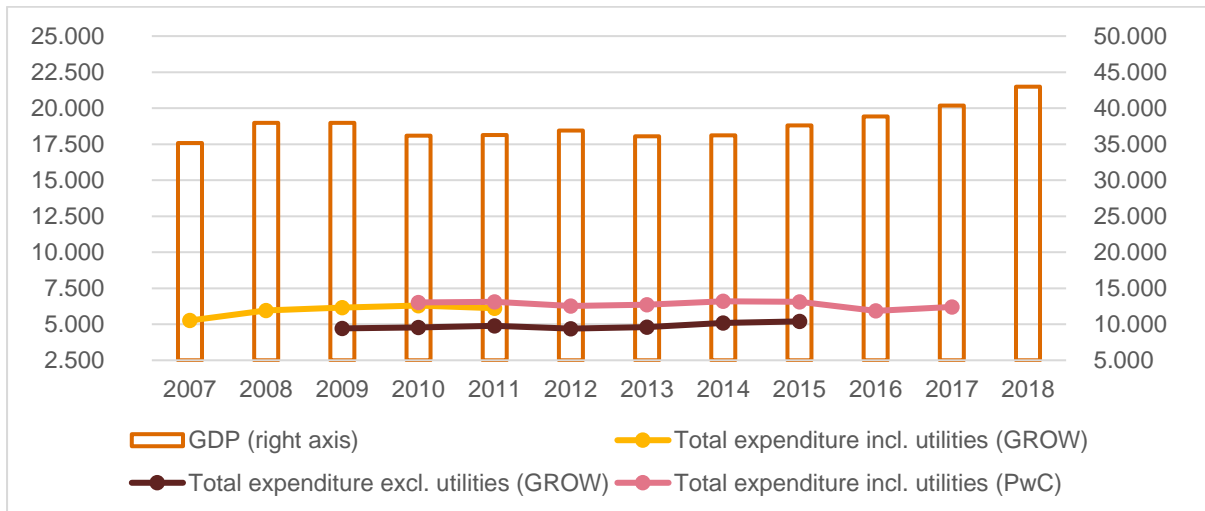
Portugal



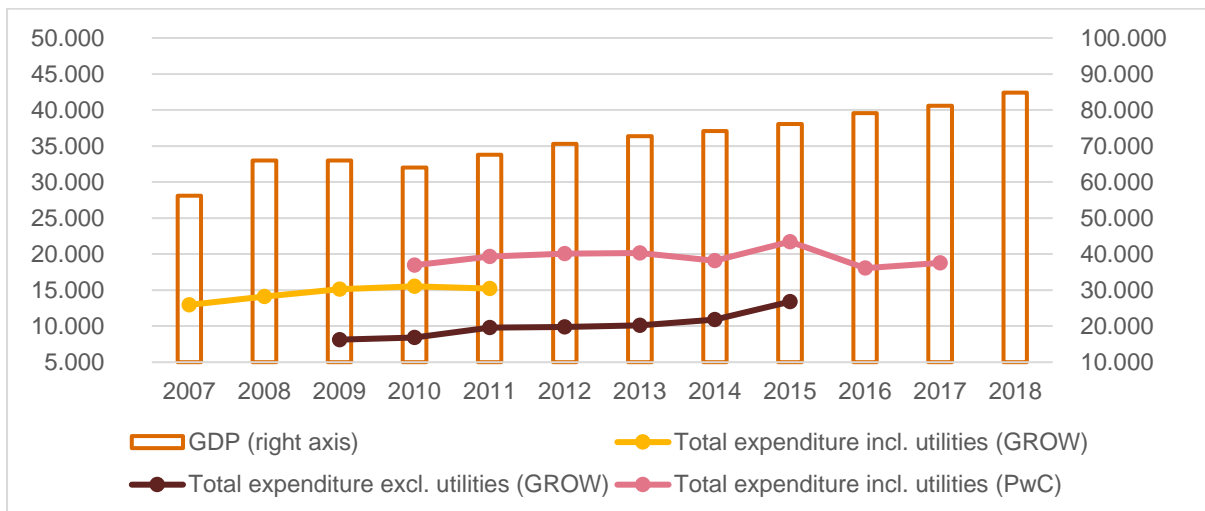
Romania



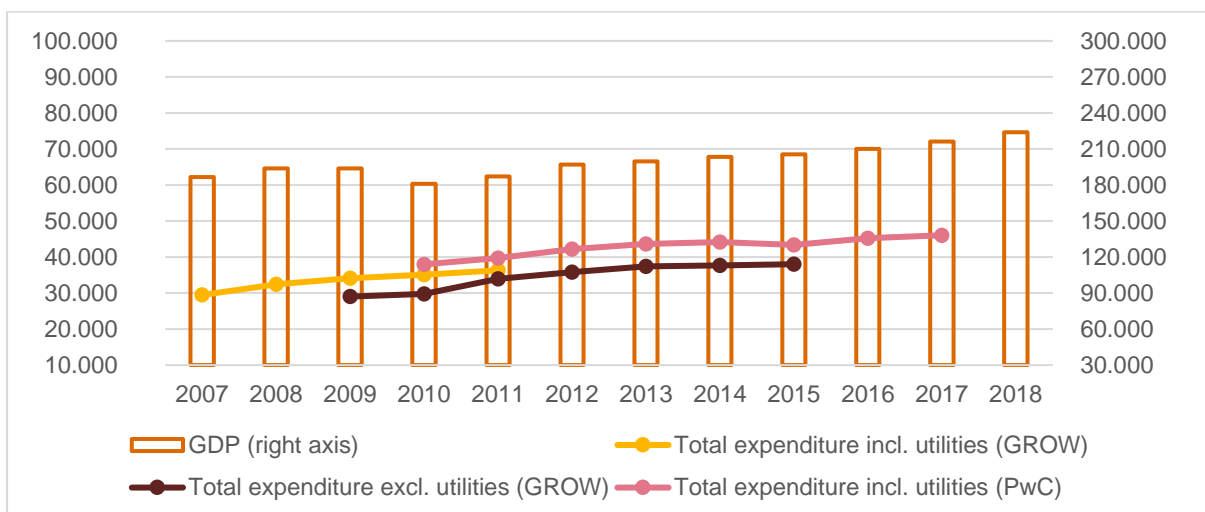
Slovenia



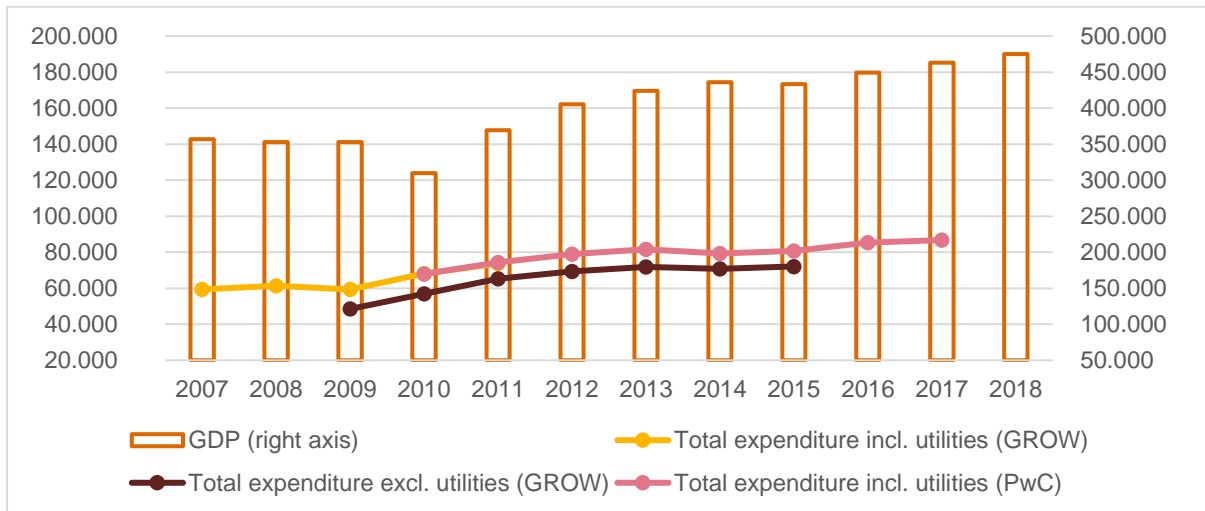
Slovakia



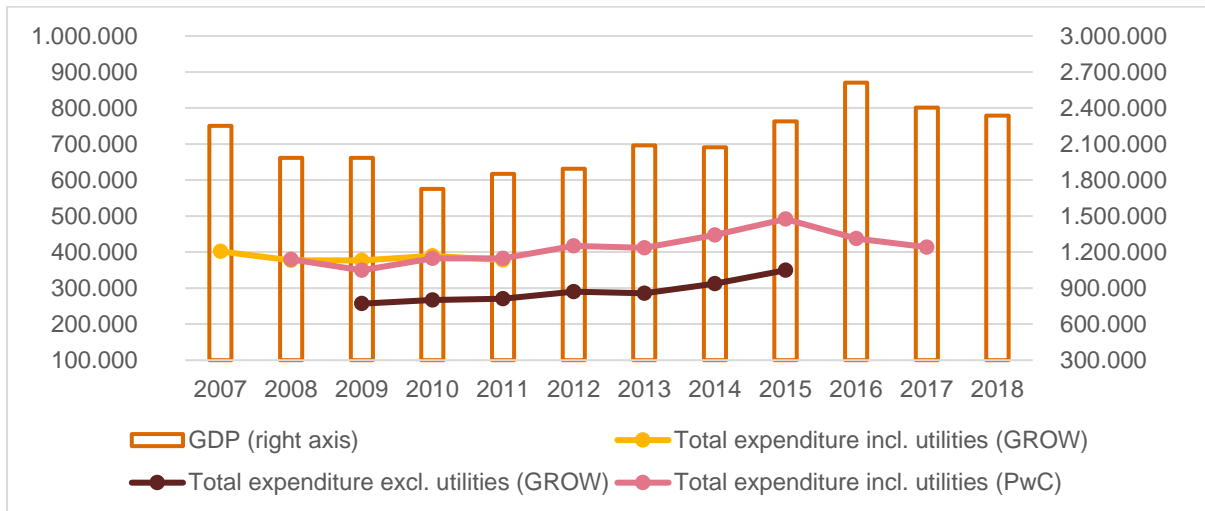
Finland



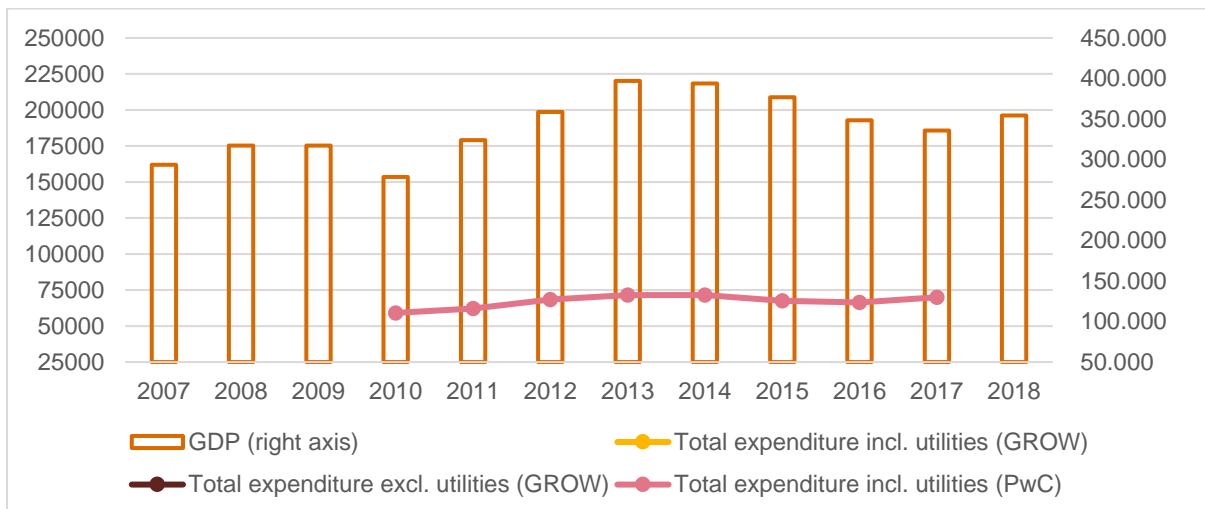
Sweden



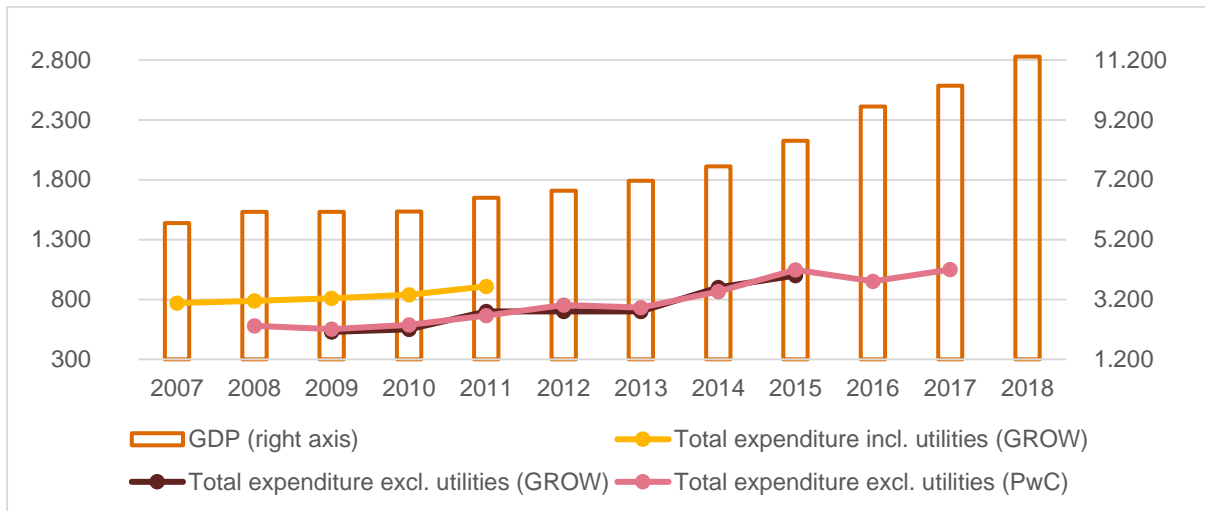
United Kingdom



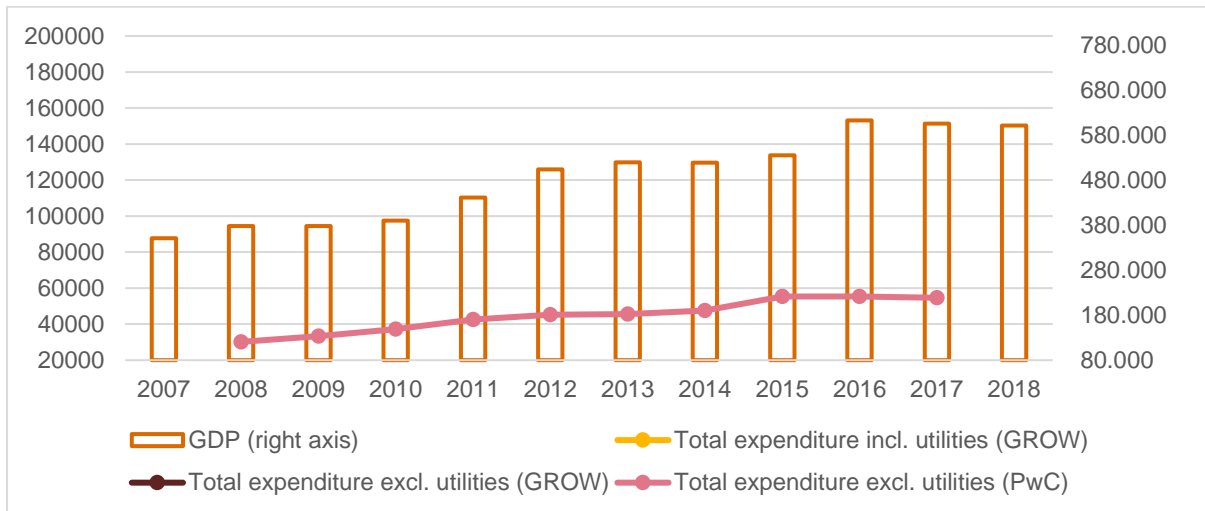
Norway



Malta (no data on utilities)



Switzerland (no data on utilities)



9.7 Annex VII – Multiplying factors for the estimation of missing values

		Countries with available values (to be multiplied by the multiplying factor)																													
		AT	BE	BG	CH	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK
Countries with missing values to be estimated	AT	1,00	1,00	2,20	0,76	1,25	1,60	1,03	0,84	1,43	1,35	1,21	0,90	1,01	1,72	1,79	0,98	1,13	1,72	0,90	1,57	1,31	0,99	0,74	1,89	1,32	2,13	0,90	1,35	1,61	0,99
	BE	1,00	1,00	2,19	0,76	1,24	1,59	1,03	0,84	1,43	1,35	1,21	0,89	1,01	1,71	1,78	0,98	1,12	1,71	0,90	1,57	1,31	0,98	0,74	1,88	1,32	2,12	0,90	1,35	1,60	0,99
	BG	0,45	0,46	1,00	0,35	0,57	0,73	0,47	0,38	0,65	0,61	0,55	0,41	0,46	0,78	0,81	0,45	0,51	0,78	0,41	0,72	0,60	0,45	0,34	0,86	0,60	0,97	0,41	0,61	0,73	0,45
	CH	1,31	1,32	2,88	1,00	1,63	2,09	1,36	1,10	1,88	1,77	1,59	1,17	1,33	2,25	2,34	1,28	1,48	2,25	1,18	2,06	1,72	1,29	0,98	2,47	1,74	2,79	1,19	1,77	2,11	1,30
	CY	0,80	0,81	1,76	0,61	1,00	1,28	0,83	0,68	1,15	1,08	0,97	0,72	0,81	1,38	1,43	0,79	0,90	1,38	0,72	1,26	1,05	0,79	0,60	1,51	1,06	1,71	0,73	1,08	1,29	0,80
	CZ	0,63	0,63	1,38	0,48	0,78	1,00	0,65	0,53	0,90	0,85	0,76	0,56	0,64	1,07	1,12	0,61	0,70	1,08	0,56	0,99	0,82	0,62	0,47	1,18	0,83	1,33	0,57	0,85	1,01	0,62
	DE	0,97	0,97	2,12	0,74	1,20	1,54	1,00	0,81	1,39	1,31	1,17	0,87	0,98	1,66	1,73	0,95	1,09	1,66	0,87	1,52	1,27	0,95	0,72	1,82	1,28	2,06	0,87	1,31	1,56	0,96
	DK	1,19	1,19	2,61	0,91	1,48	1,90	1,23	1,00	1,70	1,60	1,44	1,06	1,21	2,04	2,12	1,16	1,34	2,04	1,07	1,87	1,56	1,17	0,88	2,24	1,57	2,53	1,07	1,61	1,91	1,18
	EE	0,70	0,70	1,53	0,53	0,87	1,11	0,72	0,59	1,00	0,94	0,85	0,62	0,71	1,20	1,24	0,68	0,78	1,20	0,63	1,10	0,92	0,69	0,52	1,31	0,92	1,48	0,63	0,94	1,12	0,69
	EL	0,74	0,74	1,63	0,56	0,92	1,18	0,77	0,62	1,06	1,00	0,90	0,66	0,75	1,27	1,32	0,73	0,83	1,27	0,67	1,17	0,97	0,73	0,55	1,40	0,98	1,57	0,67	1,00	1,19	0,74
	ES	0,82	0,83	1,81	0,63	1,03	1,32	0,85	0,69	1,18	1,11	1,00	0,74	0,84	1,41	1,47	0,81	0,93	1,42	0,74	1,30	1,08	0,81	0,61	1,55	1,09	1,75	0,75	1,11	1,33	0,82
	FI	1,12	1,12	2,45	0,85	1,39	1,78	1,15	0,94	1,60	1,51	1,35	1,00	1,13	1,92	1,99	1,09	1,26	1,92	1,01	1,76	1,47	1,10	0,83	2,10	1,48	2,38	1,01	1,51	1,80	1,11
	FR	0,99	0,99	2,17	0,75	1,23	1,57	1,02	0,83	1,41	1,33	1,20	0,88	1,00	1,69	1,76	0,97	1,11	1,69	0,89	1,55	1,29	0,97	0,73	1,86	1,31	2,10	0,89	1,33	1,59	0,98
	HR	0,58	0,58	1,28	0,44	0,73	0,93	0,60	0,49	0,84	0,79	0,71	0,52	0,59	1,00	1,04	0,57	0,66	1,00	0,53	0,92	0,77	0,57	0,43	1,10	0,77	1,24	0,53	0,79	0,94	0,58
	HU	0,56	0,56	1,23	0,43	0,70	0,89	0,58	0,47	0,80	0,76	0,68	0,50	0,57	0,96	1,00	0,55	0,63	0,96	0,50	0,88	0,74	0,55	0,42	1,06	0,74	1,19	0,51	0,76	0,90	0,56
	IE	1,02	1,02	2,24	0,78	1,27	1,63	1,06	0,86	1,46	1,38	1,24	0,91	1,04	1,75	1,82	1,00	1,15	1,75	0,92	1,61	1,34	1,01	0,76	1,92	1,35	2,17	0,92	1,38	1,64	1,01
	IT	0,89	0,89	1,95	0,68	1,11	1,42	0,92	0,75	1,27	1,20	1,08	0,80	0,90	1,52	1,59	0,87	1,00	1,53	0,80	1,40	1,17	0,88	0,66	1,68	1,18	1,89	0,80	1,20	1,43	0,88
	LT	0,58	0,58	1,28	0,44	0,73	0,93	0,60	0,49	0,84	0,79	0,71	0,52	0,59	1,00	1,04	0,57	0,66	1,00	0,52	0,92	0,76	0,57	0,43	1,10	0,77	1,24	0,53	0,79	0,94	0,58
	LU	1,11	1,11	2,44	0,85	1,38	1,77	1,15	0,93	1,59	1,50	1,35	0,99	1,13	1,90	1,98	1,09	1,25	1,91	1,00	1,75	1,46	1,09	0,83	2,09	1,47	2,36	1,00	1,50	1,79	1,10
	LV	0,64	0,64	1,40	0,48	0,79	1,01	0,66	0,53	0,91	0,86	0,77	0,57	0,64	1,09	1,13	0,62	0,71	1,09	0,57	1,00	0,83	0,63	0,47	1,20	0,84	1,35	0,57	0,86	1,02	0,63
MT	0,76	0,76	1,67	0,58	0,95	1,22	0,79	0,64	1,09	1,03	0,92	0,68	0,77	1,31	1,36	0,75	0,86	1,31	0,69	1,20	1,00	0,75	0,57	1,44	1,01	1,62	0,69	1,03	1,23	0,76	
NL	1,01	1,02	2,23	0,77	1,26	1,62	1,05	0,85	1,46	1,37	1,23	0,91	1,03	1,74	1,81	0,99	1,14	1,74	0,91	1,60	1,33	1,00	0,75	1,91	1,34	2,16	0,92	1,37	1,63	1,01	
NO	1,34	1,35	2,95	1,03	1,67	2,15	1,39	1,13	1,93	1,82	1,63	1,20	1,36	2,31	2,40	1,32	1,51	2,31	1,21	2,12	1,77	1,32	1,00	2,53	1,78	2,86	1,22	1,82	2,16	1,34	
PL	0,53	0,53	1,17	0,40	0,66	0,85	0,55	0,45	0,76	0,72	0,64	0,48	0,54	0,91	0,95	0,52	0,60	0,91	0,48	0,83	0,70	0,52	0,39	1,00	0,70	1,13	0,48	0,72	0,85	0,53	
PT	0,75	0,76	1,66	0,58	0,94	1,21	0,78	0,64	1,08	1,02	0,92	0,68	0,77	1,30	1,35	0,74	0,85	1,30	0,68	1,19	0,99	0,74	0,56	1,42	1,00	1,61	0,68	1,02	1,22	0,75	
RO	0,47	0,47	1,03	0,36	0,59	0,75	0,49	0,40	0,67	0,63	0,57	0,42	0,48	0,81	0,84	0,46	0,53	0,81	0,42	0,74	0,62	0,46	0,35	0,89	0,62	1,00	0,42	0,64	0,76	0,47	
SE	1,11	1,11	2,43	0,84	1,38	1,77	1,14	0,93	1,59	1,49	1,34	0,99	1,12	1,90	1,98	1,08	1,24	1,90	1,00	1,74	1,45	1,09	0,82	2,09	1,47	2,35	1,00	1,49	1,78	1,10	
SI	0,74	0,74	1,63	0,56	0,92	1,18	0,77	0,62	1,06	1,00	0,90	0,66	0,75	1,27	1,32	0,72	0,83	1,27	0,67	1,16	0,97	0,73	0,55	1,40	0,98	1,57	0,67	1,00	1,19	0,74	
SK	0,62	0,62	1,36	0,47	0,77	0,99	0,64	0,52	0,89	0,84	0,75	0,56	0,63	1,07	1,11	0,61	0,70	1,07	0,56	0,98	0,82	0,61	0,46	1,17	0,82	1,32	0,56	0,84	1,00	0,62	
UK	1,01	1,01	2,21	0,77	1,25	1,61	1,04	0,85	1,44	1,36	1,22	0,90	1,02	1,73	1,80	0,99	1,13	1,73	0,91	1,58	1,32	0,99	0,75	1,90	1,33	2,14	0,91	1,36	1,62	1,00	

Source: Author's elaboration based on OECD/Eurostat data.

9.8 Annex VIII – List of terminology sources

- 1) <https://identity.utexas.edu/assets/uploads/publications/Current-Biometric-Adoption-and-Trends.pdf>
- 2) <http://www.canton.edu/employee/wang/cita250/ey-global-information-security-survey-2018-19.pdf>
- 3) <https://identity.utexas.edu/assets/uploads/publications/Current-Biometric-Adoption-and-Trends.pdf>
- 4) https://www.cse.msu.edu/~rossarun/pubs/NguyenLongRangeIris_PR2017.pdf
- 5) <https://www.cse.unr.edu/~bebis/CS790Q/PaperPresentations/Iris.pdf>
- 6) <https://chicago.medicine.uic.edu/wp-content/uploads/sites/6/2018/10/Mystery-Retina-2018-Final-handout-all-cases-rntc.pdf>
- 7) http://psm.du.edu/media/documents/international_regulation/united_nations/other/un_field_security_handbook.pdf
- 8) https://digital.library.unt.edu/ark:/67531/metadc1156795/m2/1/high_res_d/R45082_2018Jan24.pdf
- 9) https://www.niu.edu/clery/annual_security_report.pdf
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- 11) <https://www.siumed.edu/sites/default/files/u1891/security-report-2018.pdf>
- 12) <https://libraryonline.erau.edu/online-full-text/iata-safety-reports/IATA-Safety-Report-2017.pdf>
- 13) <https://afd.calpoly.edu/fiscalservices/pci/docs/pci%2520ssc%2520quick%2520reference%2520guide.pdf>
- 14) <https://afd.calpoly.edu/clery/reports/annual-security-report.pdf>
- 15) http://www.utsa.edu/utsapd/Crime_Statistics/2018SecurityFireReport.pdf
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- 17) <http://www.slac.stanford.edu/cgi-wrap/getdoc/slac-pub-5990.pdf>
- 18) http://www.spacegrant.hawaii.edu/2018_NASA_strategic_plan.pdf
- 19) <http://ufdcimages.uflib.ufl.edu/AA/00/05/38/93/00110/05-2018.pdf>
- 20) http://sciences.ucf.edu/class/wp-content/uploads/sites/58/2017/03/Economic-Pathways-to-Space-Mining_ISRU-Seminar_Metzger.pdf
- 21) https://web.wpi.edu/Pubs/E-project/Available/E-project-032719-165703/unrestricted/ColinCooper_HumanityandSpace_IQPreport.pdf
- 22) https://www.lpi.usra.edu/lunar/strategies/ISECG_2013_Benefits_Stemming_from_Space_Exploration.pdf
- 23) http://kiss.caltech.edu/final_reports/Asteroid_final_report.pdf
- 24) https://spi.elliott.gwu.edu/files/2018/11/Gleason-Alver_SpacePolicy_11162018-1w5y3ef.pdf
- 25) https://www.boulder.swri.edu/~bottke/Reprints/Jedicke_2018_Fron_Astro_Space_Sci_5_13_Earth_Minimoons.pdf
- 26) http://www.spacegrant.hawaii.edu/2018_NASA_strategic_plan.pdf
- 27) <http://dronecenter.bard.edu/files/2017/10/Drones-Defense-Budget-2018-Web.pdf>
- 28) <https://dronecenter.bard.edu/files/2018/04/CSD-Drone-Spending-FY19-Web-1.pdf>
- 29) <https://ssi.armywarcollege.edu/pdffiles/PUB1287.pdf>
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- 31) https://www.airuniversity.af.edu/Portals/10/CASI/Books/PLAs_Unmanned_Aerial_Systems.pdf
- 32) <http://www.ie.uh.edu/sites/ie/files/faculty/glim/Drone%2520Battery%2520RO%25202018%2520small.pdf>
- 33) <https://vtechworks.lib.vt.edu/bitstream/handle/10919/86864/water-11-00157-v3.pdf>
- 34) http://thescholarship.ecu.edu/bitstream/handle/10342/6067/jracr_6_4_165_177%2520%25281%2529.pdf
- 35) <http://ufdcimages.uflib.ufl.edu/AA/00/05/85/42/00027/07-2018.pdf>
- 36) <http://ufdcimages.uflib.ufl.edu/AA/00/05/85/42/00028/10-2018.pdf>
- 37) https://www.lpi.usra.edu/lunar/strategies/ISECG_2013_Benefits_Stemming_from_Space_Exploration.pdf
- 38) <http://large.stanford.edu/courses/2014/ph240/clark1/docs/np-2010-09-682-hq.pdf>
- 39) <http://teacherlink.ed.usu.edu/tlnasa/OtherPRINT/briefs/spinoff2008.pdf>
- 40) https://spacegrant.alaska.edu/sites/default/files/nasa_2018_strategic_plan.pdf
- 41) <https://finance.columbia.edu/files/gateway/content/rpic/Columbia-FY18-Space-Survey-Training-32718.pdf>
- 42) <http://cran.cnr.berkeley.edu/web/packages/IPSUR/vignettes/IPSUR.pdf>
- 43) <http://duspviz.mit.edu/resources/R/GGPLOT2%2520Cheatsheet.pdf>
- 44) <https://www.vaughn.edu/wp-content/uploads/2018/10/Airbus-Projections.pdf>
- 45) <http://umich.edu/~umtriswt/PDF/SWT-2017-8.pdf>
- 46) <http://graham.umich.edu/media/files/LC-IA-ACE-Roadmap-Expert-Forecast-Underwood.pdf>
- 47) https://stat-or.unc.edu/files/2018/09/Paper3_MSOM_2012_AirlineFlightDelays.pdf
- 48) <http://dronecenter.bard.edu/files/2018/01/CSD-Drone-Year-in-Review.pdf>

- 49) <https://orfe.princeton.edu/~alaink/SmartDrivingCars/PDFs/Nov2013MORGAN-STANLEY-BLUE-PAPER-AUTONOMOUS-CARS%25EF%25BC%259A-SELF-DRIVING-THE-NEW-AUTO-INDUSTRY-PARADIGM.pdf>
- 50) <http://ufdcimages.uflib.ufl.edu/AA/00/05/85/42/00027/07-2018.pdf>
- 51) <https://ned.ipac.caltech.edu/level5/Sept09/Worrall/paper.pdf>
- 52) http://www.people.hbs.edu/besty/esty_airbus_boeing.pdf
- 53) http://www.spacegrant.hawaii.edu/2018_NASA_strategic_plan.pdf
- 54) <https://www.lpi.usra.edu/books/PPV/8008.pdf>
- 55) https://keith.seas.harvard.edu/files/tkg/files/smith_et_al-2018-earth_and_space_science.pdf
- 56) <http://large.stanford.edu/courses/2014/ph240/suresh1/docs/atag-beginner.pdf>
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