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How Outward-looking is Smart Specialisation?

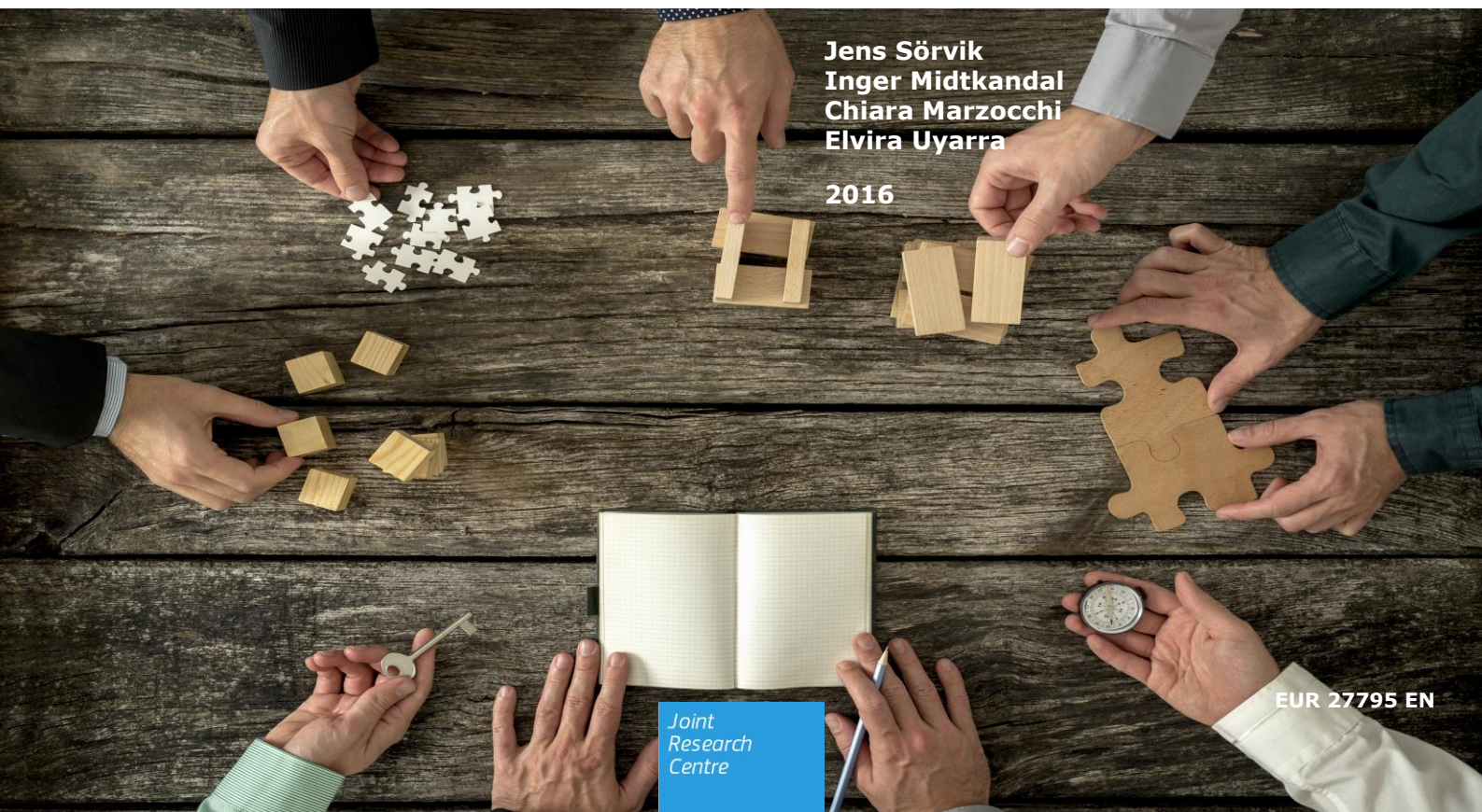
*Results from a survey on
inter-regional collaboration in
Smart Specialisation
Strategies (RIS3)*

S3 Policy Brief Series

No. 16/2016

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How Outward Looking is Smart Specialisation?

Results from a survey on inter-regional collaboration in Smart Specialisation Strategies
(RIS3)

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The Smart Specialisation (S3) Platform, JRC-IPTS

Abstract

Smart specialisation (S3) emphasises the identification of niches, cross-sectorial innovation and solving societal challenges. With this comes a need for an outward-looking dimension, to find a region's potential advantages in international markets, and to identify partners to help deliver new solutions and solve common challenges. This is the case not only for industry and academia, but also for regional policy-makers who need to engage in inter-regional collaboration processes.

The purpose of the survey presented in this report was to increase our understanding of the factors underlying successful inter-regional cooperation within S3. It builds on an analytical framework to better understand the multiple dimensions of inter-regional collaboration, developed in a previous working paper (Uyarra et al., 2014). The objectives of this study were to increase our knowledge of inter-regional collaboration in research and innovation (R&I), with the aim of supporting regions and Member States in their collaborative efforts in S3, but also to inform the S3 Platform (S3P) and other European Commission (EC) services on how to best support inter-regional collaboration in R&I policy.

The answers from the survey respondents indicate that the EU's new cohesion policy has led some regions and Member States to change their behaviour in collaboration in R&I policy. More than half of the respondents reported having prior collaboration experiences, of which 67 % reported increased collaboration in the previous 2 years and 30 % reported a stable level of collaborative effort. The factors driving collaboration and the perceived benefits of collaboration include information sharing, meeting a new orientation of regional policy and supporting linkages between R&I and industry. Collaboration largely involves low-intensity activities that bring direct and immediate benefits. Collaboration is most prominent in the first steps of the RIS3 process, analysis, design and decision-making.

The criteria underlying the choice of partners are in line with the RIS3 concept; they are based on industry composition (similar or complementary), research capabilities that are complementary or similar, as well as similar societal challenges. In contrast, the survey

findings regarding the geographical location of partnering regions could negate the RIS3 concept, as regions most often collaborate with other regions in their own country.

The main barriers to collaboration seem to be inter-related and include lack of resources, insufficient political commitment, insufficient engagement of regional stakeholders and lack of clarity of objectives. One interpretation is that it is challenging to communicate clearly to stakeholders and politicians the outcomes of an intervention, with the result that stakeholders are unwilling to commit or mobilise resources. The rationale for innovation policy interventions quite often is to support activities that provide indirect and dynamic benefits that are not easily measured, divisible or attributable to individual actors or activities. In contrast, the least problematic barriers are socio-cultural issues, legal or administrative barriers and lack of trust.

It is recommended that regions and Member States better prepare the evidence base for their projects and improve the materials they use to communicate to stakeholders the potential benefits of collaboration and how to achieve them. Regions should also engage more with private sector actors and civil society.

The paper indicates the importance of the EC communicating a more complex picture of the dynamics of inter-regional collaboration. An oversimplification of the message might lead to underinvestment and less intensive collaboration than that which is needed to address the larger challenges with potential for longer-term benefits for Europe.

The recommendations for S3P include that it should focus on learning activities and support the initiation of collaborative processes. However, it appears that the regions and Member States want S3P support to implement thematic collaboration, but then to be left to themselves to carry it out. Likewise, respondents considered it important that S3P should provide guidance, act as a knowledge hub and offer expert assistance. This indicates that S3P should continue to develop knowledge around inter-regional collaboration and assist regions and Member States in establishing and developing this.

Keywords: Inter-regional collaboration, Smart Specialisation, innovation policy, regional development, dimensions of collaboration, transnational collaboration.

Disclaimer: The views expressed in this brief are those of the authors and do not necessarily reflect the official policy or position of the European Commission.

1. Introduction

This report presents the results of a survey carried out with the aim of improving our understanding of regions' motives for participating in inter-regional cooperation within smart specialisation (S3) and the conditions that favour successful cooperation.

The current emphasis on smart specialisation among EU regions and Member States comes from a reform of European Cohesion Policy in 2010. S3 is a place-based policy that aims to engage stakeholders in valorising existing assets and local specificities and their future potential, and then mobilising key actors of economic change to realise that potential (Foray et al., 2009; Foray, 2015). The policy advocates a process of selecting prioritised areas of economic activities with high transformative potential for the economy, and that regions specialise in these domains (EC, 2012).

S3 is embodied in Regional Innovation Strategies for Smart Specialisation (RIS3), which is an ex ante conditionality of the European Structural and Investment Funds (ESIF) for the 2014-2020 programming period (EC, 2010). The European Commission (EC), together with leading scholars, has developed a guide outlining how such RIS3 can be developed (EC, 2012). In this the RIS3 process is articulated around six steps: (i) analysis, (ii) governance, (iii) shared vision, (iv) priority setting, (v) policy mix and (vi) monitoring and evaluation.

In S3 there is an increased focus on identifying niches, specialisation, cross-sectorial innovation and on solving societal challenges. With this comes an increased need for collaboration in order to deliver through value chains, to address international markets and to solve these challenges jointly with actors outside the regions. In RIS3, the emphasis is on exploring regions' potential niches in relation to other regions and on seeking collaboration with external actors to exploit these (Uyarra et al., 2014).

Research and innovation (R&I) collaboration takes place between a variety of public and private sector actors, and between research institutions, companies, funding institutions and policy-makers. These relations are increasingly international as all types of actors participate to an increasing degree in open trans-national networks of collaboration for innovation (Chesbrough, 2003; Wagner and Leydesdorff, 2005). This calls for a regional innovation policy that takes into account the increased need for actors in a region to be able to connect to, and benefit from, global networks (Bathelt et al., 2004; Trippl, 2010; OECD, 2013). Previous research on inter-regional collaboration for innovation has identified that regions face challenges in this area as a result of factors related to geographical or cultural proximities (Boschma, 2005); different levels of innovation and institutional systems; and engagement from key stakeholders (Lundquist and Trippl, 2013).

With the introduction of RIS3, there is increasing expectation that actors will collaborate across borders and beyond, and increased pressure on them to do so. Knowledge institutions and enterprises within regions often have extensive collaboration histories that go beyond regional borders. However, *regional authorities* do not necessarily have a record of inter-regional or transnational collaboration on R&I policy. To support regions in their policy collaboration efforts in RIS3, the Smart Specialisation Platform (S3P) has previously developed an analytical framework to better understand the multiple dimensions of inter-regional collaboration, namely the why, what, where, who and how of collaboration; S3P also explores how inter-regional collaboration varies according to the six steps of the RIS3 process (Uyarra et al., 2014).

The findings in the analytical framework included:

- *Why?* The reasons why regions might collaborate are multiple: to widen the pool of resources and knowledge bases; to access complementary assets; to compensate for competence or capability failures; to share cost; to counteract lock-in; and to facilitate policy coordination and policy learning.
- *What?* Regions collaborate on common problems, opportunities and learning.

- *Where and with whom?* Depending on competencies and capabilities, regions collaborate nationally and internationally, across borders and with non-contiguous regions. Partners depend on purposes and context and include public sector organisations (national and regional), industrial enterprises, academic institutions and non-governmental organisations (NGOs).
- *How?* The intensity of collaboration varies from sharing information on a one-off basis to joint strategies. The tools and mechanisms include information sharing, joint financing of projects and programmes, joint R&I infrastructure, demand-side tools such as innovation procurement, standard setting and alignment of activities and strategies.

This first study drew upon the innovation policy literature to develop an analytical framework, but in carrying out the study we identified a need to gather further data. The study described here draws upon the analytical framework to collect data to map how managing authorities or other institutions, such as regional development agencies responsible for RIS3, have collaborated with other regions or countries in their R&I policy and how they intend to collaborate with other regions or countries in the context of RIS3.

When developing and designing RIS3, few regions start from scratch; instead they are likely to build on past experience in regional economic development and innovation policy. Some of the respondents to our survey reported having participated in some sort of cross-border or wider European collaboration. The EC, for example, has for many years funded inter-regional collaboration in R&I through a number of programmes such as Interreg, Regions of Knowledge and ERANETS. The novelty of RIS3 is that all regions are expected to collaborate through their RIS3, independently of additional funding. To this end, regions can spend 15 % of the funding obtained from ESIF outside the regional territory (and, indeed are encouraged to do so), as long as it is spent within the EU.

Hence, the objectives of this study were to increase knowledge around inter-regional R&I collaboration in smart specialisation, which can support regions and Member States in better understanding the conditions around their collaborative efforts in RIS3, but also to inform S3P and other EC services on how best to support inter-regional collaboration in R&I policy.

In this paper we aim to present the results of the study and provide a basic analysis of the data collected. We also aim to give some input to regions and the EC and to identify areas and questions that deserve further exploration.

2. Survey design

2.1 Survey design and methodology

In carrying out this survey and gathering new primary data we had two principal objectives: one explanatory, to gain a deeper understanding of the nature of collaborations in R&I across regions; and one exploratory, to identify how the S3 Platform (S3P) and other EC services can better support collaborative efforts across regions.

The population of interest was mainly EU regions, but also associated countries with similar RIS3 frameworks. The targeted survey respondents were those in charge of developing and implementing RIS3, first and foremost regional development agencies and managing authorities.

The sampling frame was drawn from the population of regions registered within S3P. In terms of sample size, members of S3P comprised, at the time the survey, 14 EU Member States and 151 EU regions, plus associated regions in Norway, Turkey and Serbia (together accounting for more than 50 % of Europe's regions). Thus, the sampling frame was very close to the true population of interest and, therefore, it is expected that the study will be representative of experience of R&I collaboration across the EU.

The survey structure reflects the analytical framework that was developed in the previous working paper, and focuses on four main research questions:

1. What can we learn from the mapping of the collaborative efforts?
2. What are the drivers and barriers to collaborative efforts across regions?
3. What is the perceived impact of past collaborative efforts?
4. How do regions intend to implement collaboration within the RIS3 framework?

We used an on-line semi-structured survey that comprised both closed questions (developed according to the appropriate Likert scale, based on the previous working paper) and open questions to capture elements and factors arising from individual experience. The methodology followed a circular approach; specifically, the survey questionnaire linked different experiences of collaboration to drivers and barriers. Respondents who reported that they had participated in collaboration were first asked about the collaboration itself, about the main drivers and the perceived impact or outcome of the collaboration, and then about the barriers they encountered. Conversely, respondents who reported that did not participate in inter-regional or transnational collaboration were asked only about the barriers preventing their participation. This choice stems from the idea that experiencing collaboration does not preclude having had to face barriers to the cooperation process, and, therefore, both groups of respondents should be surveyed on this set of factors.

This approach supports exploration of the dimensions of collaborations as outlined in the first working paper and specifically in disentangling the relationship between the rationale for collaboration and how this relates to the smart specialisation agenda; the areas and goals of collaboration; the geographical boundaries of collaboration; and, finally, the mechanisms and the criteria for choosing the inter-regional partners. The table below relates the dimensions of the survey questionnaire to the above principles.

The survey was open to respondents from 15 March to 15 September, 2015. Preliminary results based on the survey data were presented at the Regional Studies Association Conference in Piacenza, Italy, 25-27 May 2015, at an EU conference on the financing of health innovations in Brussels, Belgium, on 3 June 2015, and at the Open Days Conference in Brussels 15 October 2015.

Rationale	Survey question
Why?	Q9: What have been the main factors driving your region to engage in inter-regional R&I policy collaboration? Q10: To what extent have the following benefits been realised through your R&I policy collaboration the last 5 years?
What?	Q2: In the last 5 years, has your region been engaged in inter-regional collaboration for the delivery of R&I strategies? Q7: Which are the main areas your inter-regional R&I policy collaboration has addressed in the last 5 years? Thinking ahead, what areas are you planning to prioritise in the next years? Q12: What are the main barriers to inter-regional R&I policy collaboration?
Who?	Q6: How important are the following characteristics for your choice of partner region? Q8: To what extent have the following actors been involved?
Where?	Q4: For the collaborations you mentioned in Q3, please indicate the location of your partners.
How?	Q3: In the last 5 years, how often has your region engaged in inter-regional collaboration for the delivery of the following R&I policy instruments or strategies? Q5: Has your region collaborated bilaterally or multilaterally with other regions in R&I policies in the last 5 years? Q11: Has the intensity of your region's inter-regional R&I policy collaboration changed in the last two years? Q13: There are a number of potential services and mechanisms that are and could be provided by the S3 platform and other Commission services to assist regions in their collaborative efforts.

Given the wide scope of this analysis as well as the novelty of the RIS3 experience, we faced some challenges in the systematisation of the data and in determining their validity. First, the variety of collaborations in the areas of R&I across all the EU regions presents the challenge of how to map and address correctly differences among the public actors involved. An additional difficulty is the definition of collaboration. In contrast to regional authorities, which may consider only formal arrangements, we adopt a fairly loose definition of collaboration. Another risk is the potential under-reporting of collaborative practices by regional public organisations. For example, some respondents from regional authorities may have been unaware that cluster organisations or technology centres, or even related agencies or other units in their organisation, are participating in collaborative activities with other regions. Respondents may also be unable to respond to questions about certain policies that may be formulated in collaboration with other actors, such as standards, as these instruments may be well beyond their remit.

Second, RIS3 is a relatively new concept, and there is a risk that the respondents have limited direct experience of it. On the other hand, the RIS3 design and development phase have been going on for some years now, so we expect respondents to be able to formulate unbiased and informed answers even if they do not draw on practical and direct experience of RIS3.

2.2 Respondents

The survey was sent to all the representatives from the regions and countries registered to S3P, 455 potential respondents in total. All individuals who were invited to participate in the study represent experienced actors involved in relevant strategic research and innovation processes for quite some time.

In total we received 118 responses, these came from 75 regions (we have more than one answer from some regions) and nine from national-level representatives, covering 24 Member States and two associated countries — 26 countries in total. In addition, we received 16 anonymous responses.

The geographical spread of respondents was good, with 32 respondents from the EU-13 and 68 respondents from the EU-15 of which 35 replies were from north Europe and 33 from south Europe. Relative to population size, there were comparatively few answers from Austria, Germany and the Netherlands. In contrast, Swedish and Finnish regions are slightly over-represented relative to these countries' populations.

The respondents are mainly policy-makers, with 103 representing regional organisations, 12 representing national organisations and three representing 'other' organisations.

The largest group of respondents were from the category *managing authority* (33.1 %), followed by *other* (24.6 %), *regional development agency* (22.9 %), *innovation agency* (11.9 %), *research/science agency* (3.4 %), *entrepreneurship/business support agency* (3.4 %) and *academia (university/research institute)* (0.8 %).

To the question about whether or not the region had a *smart specialisation strategy (RIS3) in place or in development*, 91.5 % responded positively while 7 % reported having a *framework of strategies in place or in development* and 60.2 reported having a *different kind of R&I strategy*. Only 2 of 118 regions replied negatively to all three questions.

Regarding respondents' roles in the RIS3 process that qualified them to answer these questions, 49.2 % were the *principal person responsible for RIS3* and a substantial number of people were *part of the RIS3 development team* (33.9 %); the remainder were *manager of the institution in charge of RIS3 development* (10.2 %), *other* (5.1 %) or *advisor, external communication* (1.7 %).

To the question of how long the respondents have worked with RIS3 or related regional research and innovation programmes or strategies, the most frequent answer was *more than 5 years* (35 %), followed by *2-5 years* (30 %), *1-2 years* (30 %), *6-12 months* (5 %) and *0-6 months* (1 %).

When asked whether or not they had collaborated in RIS3, 63 respondents, or 53.4 % of the sample, answered affirmatively. Notably, almost all French, Greek and UK regions responded negatively. Of the respondents who reported having collaborated, 42 came from regional organisations and five from national-level organisations in 20 Member States and Norway (eight came from unidentified regions). Although the respondents with collaborative experience account for a little over half the total survey population, they still represent a good geographical coverage, with 17 respondents from EU-13 and 37 from the EU-15, of whom 21 were from the north and 16 from the south of Europe.

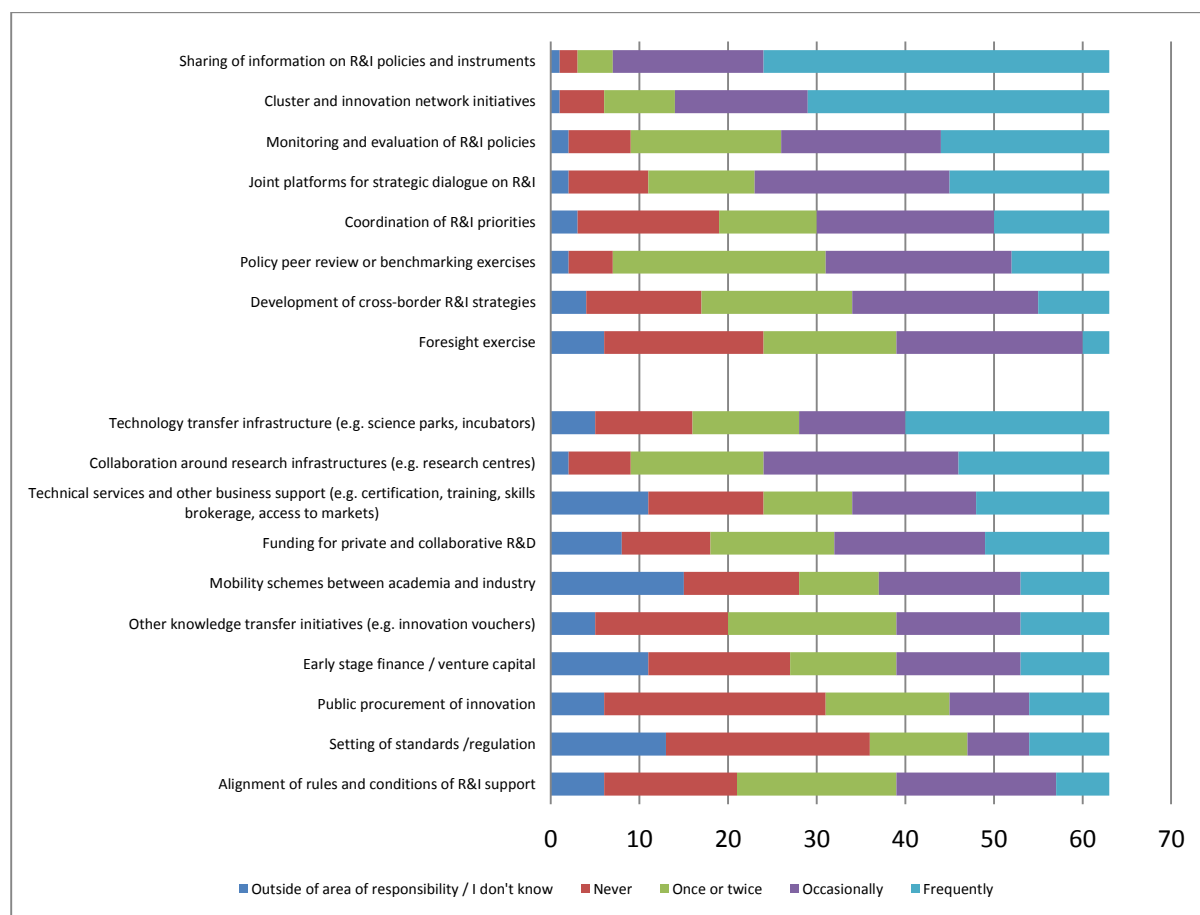
3. Results

3.1 Which R&I policy instruments or strategies?

Our definition of collaboration is broad, ranging from low-intensity activities such as information sharing between regions to more intense collaborative efforts, such as common public procurement activities. It also includes collaboration between regions within a country, as well as with regions in other countries. We did not ask whether collaboration occurred during the design, joint funding or implementation phase. However, in part of our analysis, we have attributed some activities to each of the steps in the S3 process. However, we cannot determine from the answers whether collaboration in the area of public procurement occurred during the design or implementation of this activity.

With these caveats in mind, the activity that is the most common subject of inter-regional collaboration is *information sharing*, followed by *cluster and innovation network initiatives*, *technology transfer infrastructures* and *monitoring and evaluation of policies*. The least frequent activities include *Foresight exercises*, *alignment of rules and conditions of R&I support* and *development of cross-border R&I strategies*. This may be at least partly due to the nature of the activities themselves, being carried out less frequently, and perhaps only sporadically. The least frequent activities, carried out only occasionally, include *setting of standards* and *public procurement of innovation*.

Figure 1: Responses to the question 'In the last 5 years, how often has your region engaged in inter-regional collaboration for the delivery of the following R&I policy instruments or strategies?'



The frequency with which the different activities are carried out is also reflected in the intensity of collaborations, that is, the kinds of efforts are needed to engage in the processes. Participation in information sharing in the area of R&I policies requires only

limited time and effort, but joint alignment of standards probably requires a different level of commitment, and at several hierarchical and political levels, and results in a much heavier workload; furthermore, the economic consequences may be unknown.

Attributing different activities to the different steps in the RIS3 process reveals that activities that are attributable to the implementation phase of RIS3 (lower half of Figure 1) are overall less frequent than activities related to analysis, design and governance (top half of Figure 1). This makes sense in relation to the overall cycle time of RIS3; it seems that many of regions have put effort into designing the strategies and are now moving on to the implementation stage.

3.2 Location of collaborative partners

Respondents were allowed to choose multiple answers to this question; *hence answers were not mutually exclusive with respondents collaborating contemporarily across different geographies (national, international ...) and employing different types of instruments*

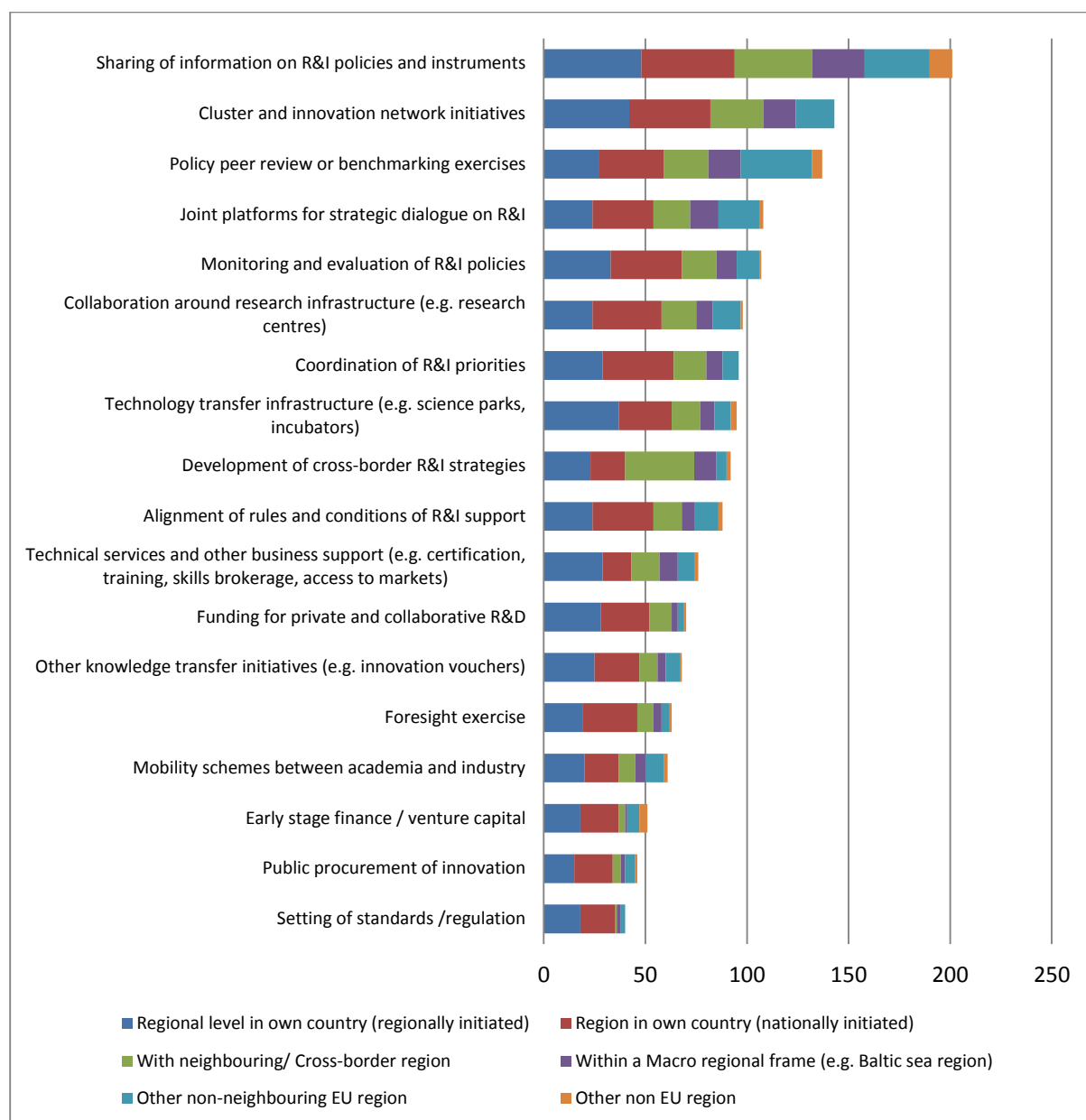
The results showed that, in the case of almost all types of activities, the most common partners for inter-regional collaboration are regions within the same country. It is slightly more common for collaborations to be initiated by the regions themselves (10 activity areas) than to be initiated at national level (eight areas).

In the case of collaboration with other countries, there is not much difference, overall, between the frequency of collaboration with neighbouring/cross-border regions and the frequency of collaboration with non-neighbouring regions (within the EU or outside it) (with the exception of the development of cross-border strategies, which, by definition, requires a common border).

Furthermore, collaboration within a macro-regional framework does not score higher than collaboration with non-neighbouring regions. This holds also if we look only at regions situated within an EU macro-regional framework (Baltic Sea Region and Danube). The EU, on the other hand, is given high importance, as collaboration with regions outside the EU is minimal and, in the case of several activities, non-existent.

The pattern of collaboration at national and EU level may simply be the consequence of available funding; EU funding will primarily support collaboration within the EU and national programmes will normally fund only collaboration within countries.

Figure 2: Responses to the request 'For each type of collaboration, please indicate the locations of your collaborative partners'

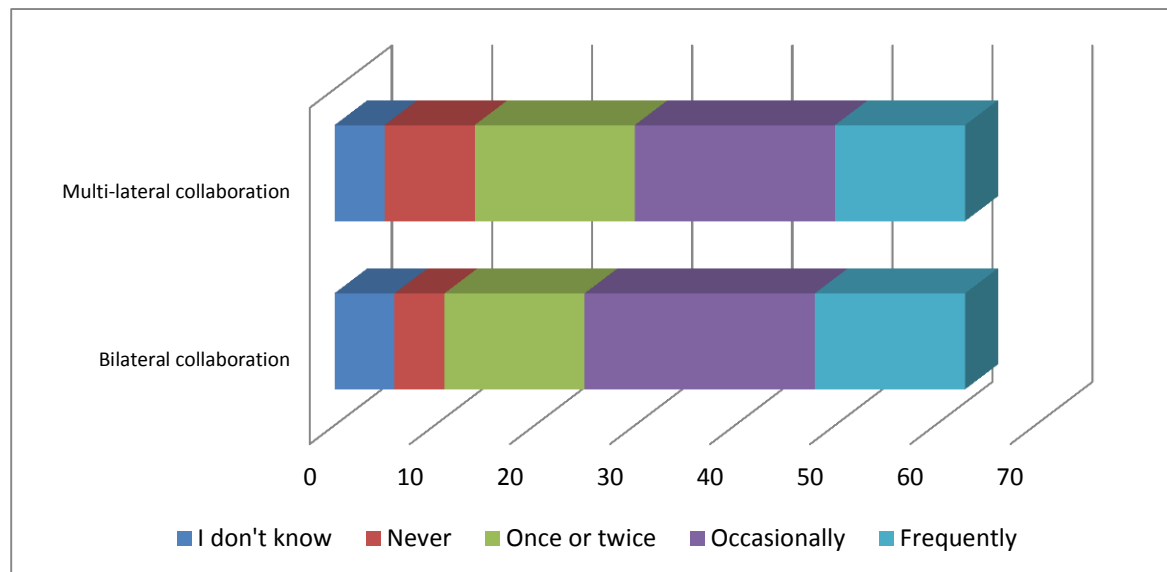


3.3 Bilateral or multilateral collaboration

In addition to asking about the geographical location of the partner regions, we also asked if collaborative efforts are bilateral or multilateral. We found that regions collaborate multilaterally to almost the same extent as bilateral collaboration, with bilateral collaboration being only slightly more frequent than multilateral collaboration (Figure 3).

This finding could, again, be the result of the mechanisms in available funding requirements, indicating that funding programmes for collaboration require multilateral collaboration. However, more data are needed to understand this pattern.

Figure 3: Responses to the question 'Has your region collaborated bilaterally or multilaterally with other regions in R&I policies in the last 5 years?'

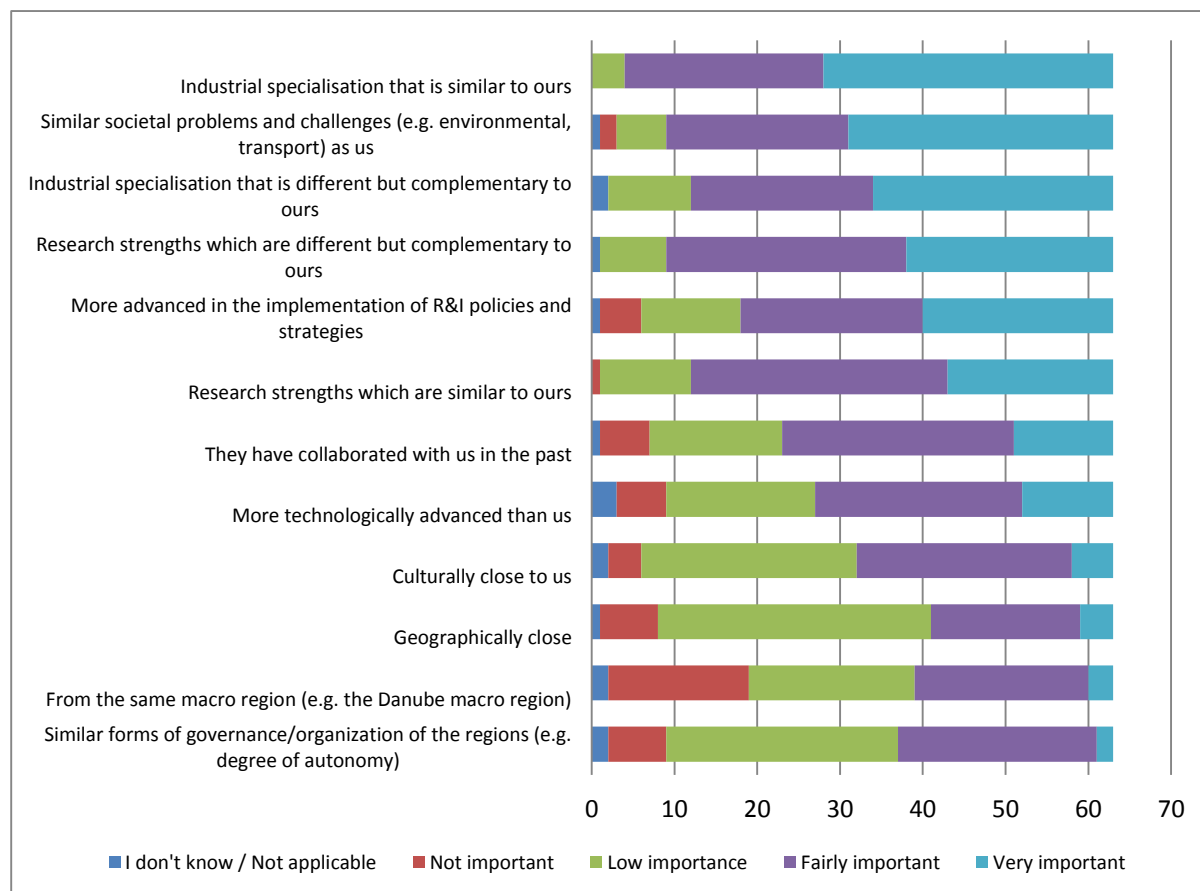


3.4 Characteristics for your choice of partner regions

Responses to questions about which characteristics are important for partner regions resonated well with RIS3 thinking. Respondents' reported that they based their choice of partners mainly on *industry composition* (similar or complementary), *research capabilities* (similar or complementary) and whether or not potential partner regions face *similar societal challenges*. Factors such as socio-culture similarities, geographical proximity, being part of the same macro-region and past collaboration seem to be less important.

This is an interesting finding and contrasts with what we describe in section 3.2. It might be that the ideal partners based on industry and research capabilities are found within the same country or that regions in the same country are more likely to face similar societal challenges. We cannot say that regions with selected characteristics are not to be found in the same country, but these contrasts might also give us reason to ask if national inter-regional collaboration is driven by other factors. Once again, from a geographical point of view, macro-regions seem to be less important.

Figure 4: Responses to the question 'Which have been the important characteristics for your choice of partner region in R&I policy collaboration the last 5 years?'



3.5 Past and future areas of collaboration

We asked respondents about the main areas addressed by inter-regional collaboration in the past 5 years and which areas they would prioritise in the future.

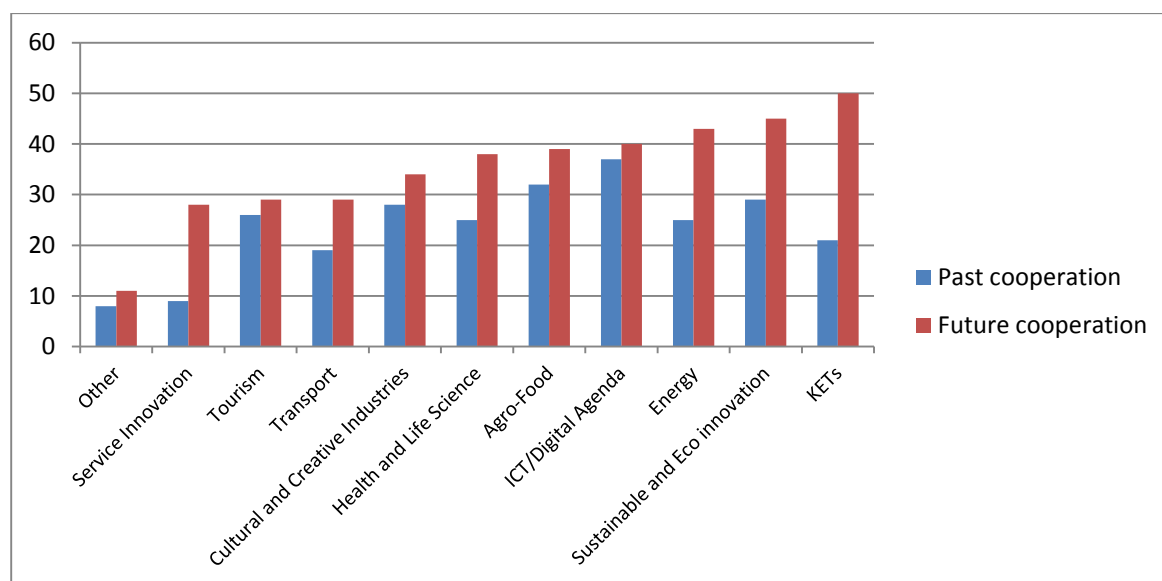
The preselected themes that the respondents could choose from were areas identified as the most common RIS3 priorities in the Eye@RIS3 database (¹), as well as in a paper mapping EU RIS3 priorities (Sörvik and Kleibrink, 2015). In addition, respondents could also indicate other areas of their own choice.

The most important areas for past collaboration were ICT/digital agenda, agro-food, and sustainable and eco-innovation. The three most important areas for future collaboration are key enabling technologies (KETs), sustainable and eco-innovation, and energy. We find the greatest growth in interest between these periods in KETs, service innovation and energy.

Among the other areas mentioned are the blue economy (three responses), aeronautics, the bio-economy, the metals industry, waste and materials, and wood and furniture. Four respondents mentioned an interest in collaborating around steps of the RIS3 process and different policies, such as cluster policy.

¹ <http://s3platform.jrc.ec.europa.eu/eye-ris3>

Figure 5: Responses to the questions 'Which are the main areas your inter-regional R&I policy collaboration has addressed in the last 5 years? Thinking ahead, what areas are you planning to prioritise in the next years? Please select as many as appropriate.'



3.6 Which actors have been involved?

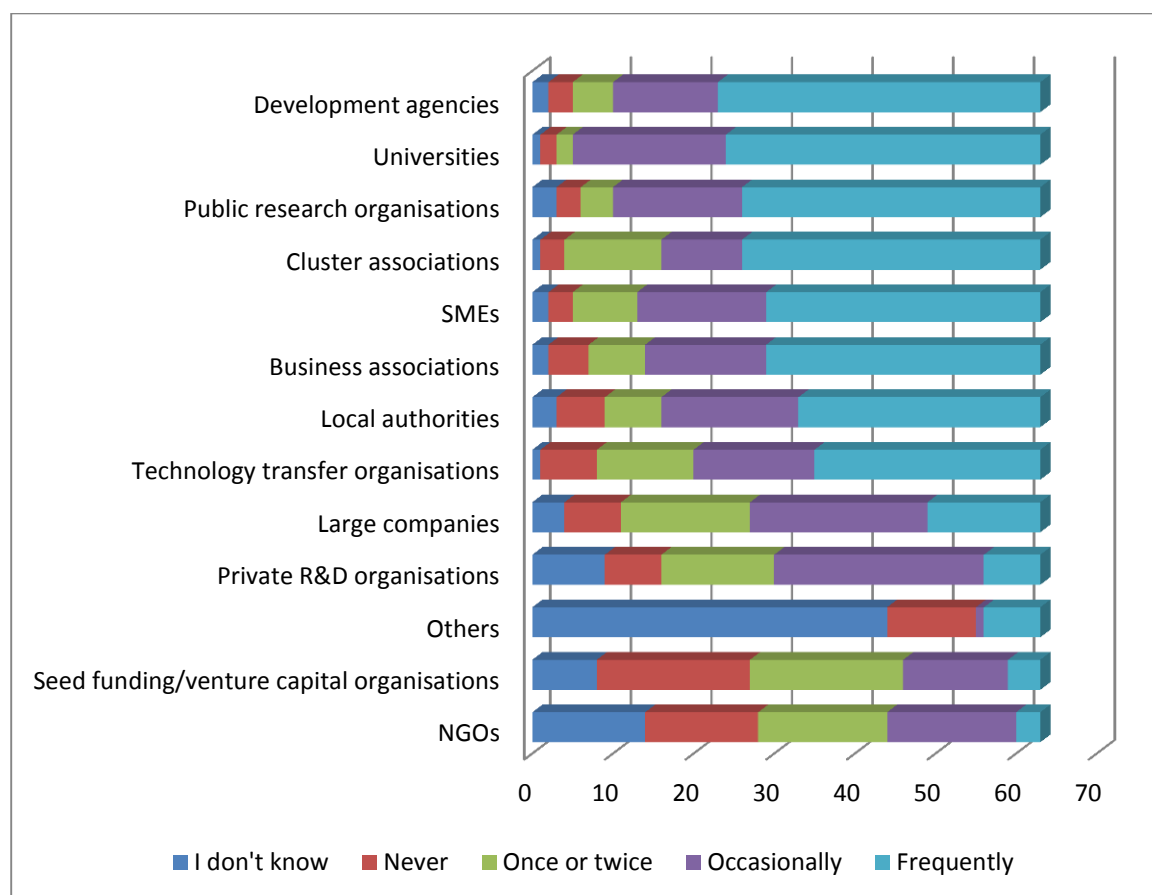
Our respondents are mostly regional and national policy-makers. However, since smart specialisation advocates a broad stakeholder involvement in both design and implementation of the RIS3, it was important to understand which actors have been involved in the inter-regional collaboration.

The most represented stakeholder categories were *development agencies, universities and public research organisations*. Also quite common were *cluster associations, SMEs, business associations and local authorities*. *Large companies and private R&D organisations* account for a smaller proportion of stakeholders, as do *seed funding/venture capital organisations* and *NGOs*.

There is a risk that large companies and private R&D organisations have not been sufficiently involved in collaborative processes. However, industrial organisations often lack the both time required and the incentive to participate in these kinds of processes. What is perhaps more important is that the needs of industry are taken into account in RIS3 and inter-regional collaboration. It may be sufficient for collaborative efforts to facilitate industrial growth and innovation without the participation of industrial actors, at least not in all activities. The ideas of a quadruple helix involving, in addition, NGOs or citizens seem to be less common, although some of the respondents who indicated that they have '*others*' as partners reported that citizens, social innovators and inhabitants have been involved in inter-regional collaboration.

The need to include venture capitalists, thus forming quintuple helices, has also been mooted. In many cases, it is venture capitalists who will pick up and finance the innovations that come out of the RIS3 process; thus, it is not unreasonable to utilise their strategic market knowledge in the RIS3 processes. The responses in this survey suggest that involvement of venture capital organisations is uncommon at present, though they have been involved in some cases.

Figure 6: Responses to the question 'Thinking again about your R&I policy collaboration experiences of the last 5 years, to what extent have the following actors been involved?'

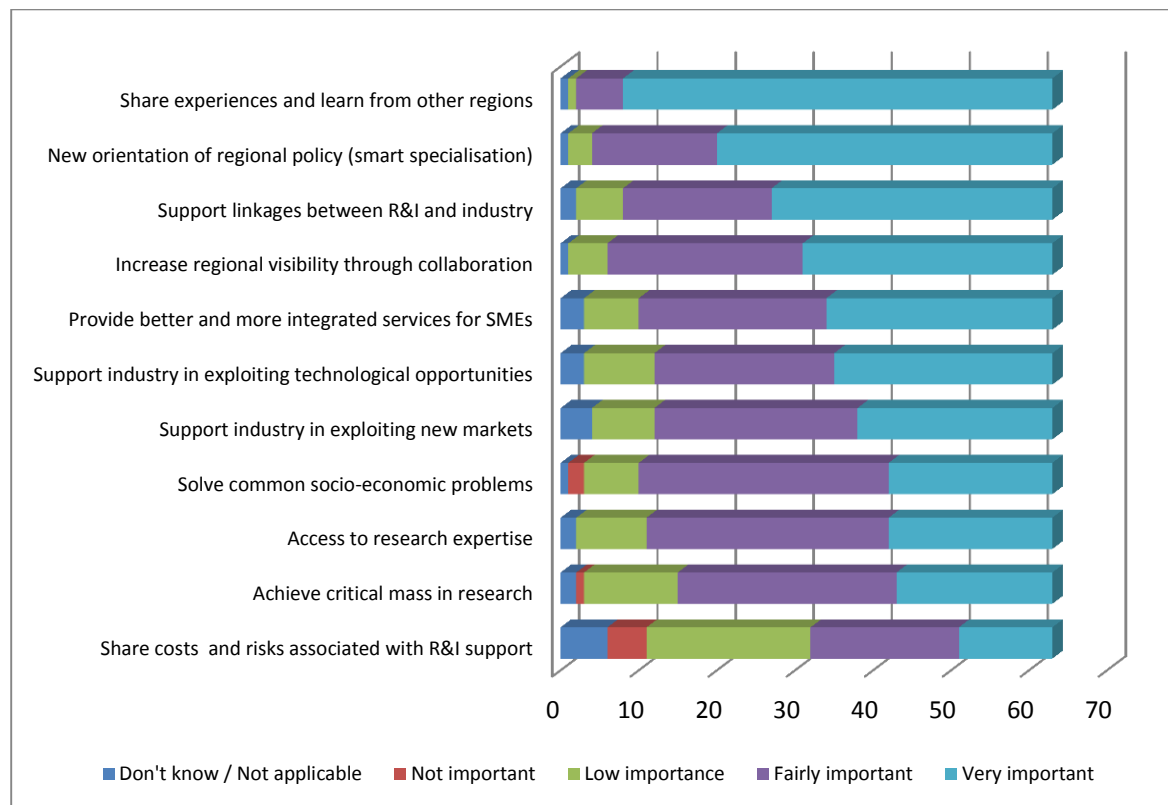


3.7 Main factors driving inter-regional R&I policy collaboration

The most important factors driving the regions to engage in inter-regional R&I policy collaboration were reported to be *information sharing, a new orientation of regional policy (smart specialisation) and to support linkages between R&I and industry*. The drivers ranked as least important were *to share costs and risks associated with R&I support, to achieve critical mass in research, to access research expertise and to solve socio-economic problems*.

The regions seem to be driven more by goals that can be achieved by low-intensity collaboration delivering more direct and immediate benefits, whereas collaboration to achieve longer-term goals with more diffuse and indirect benefits seems to be considered less important.

Figure 7: Responses to the question 'What have been the main factors driving your region to engage in inter-regional R&I policy collaboration?'



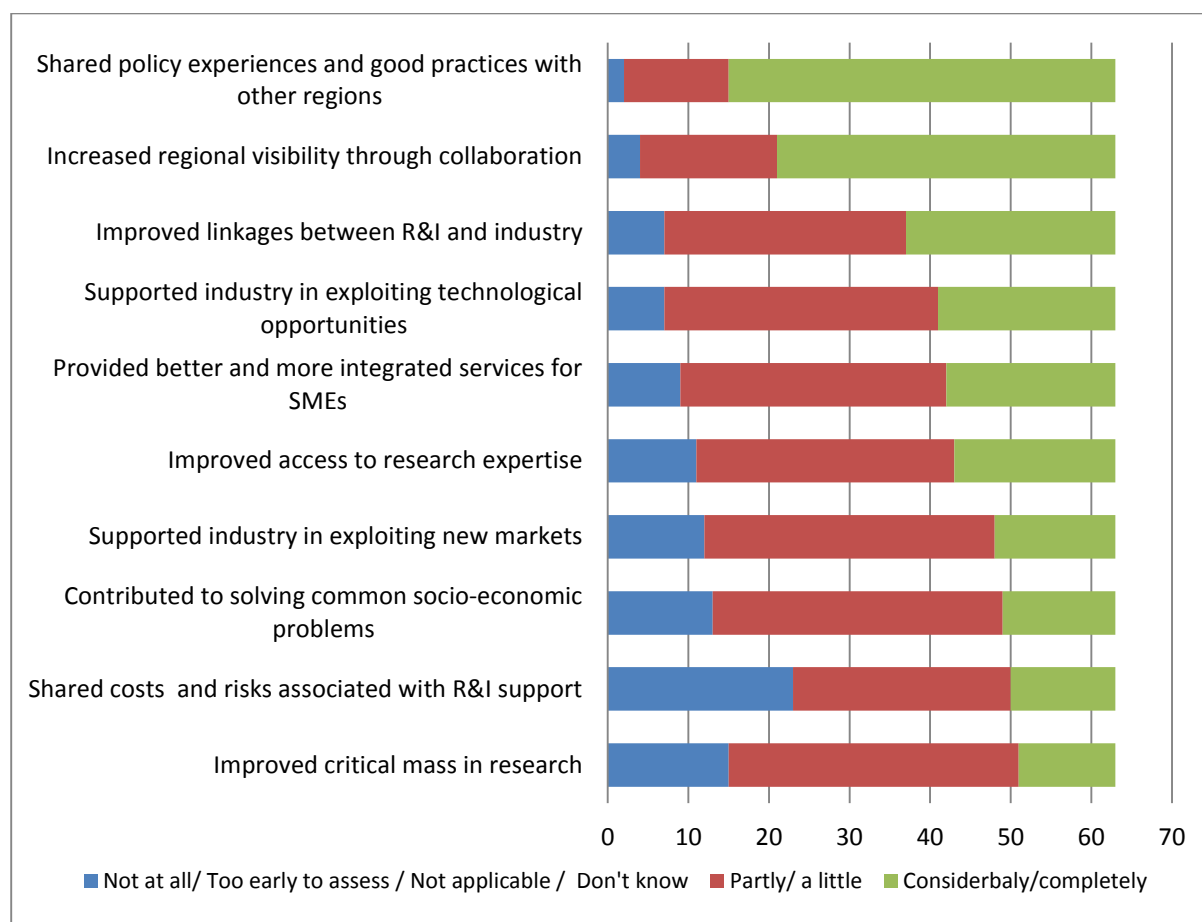
3.8 Benefits from R&I policy collaboration in the last 5 years

The perceived benefits reported match the driving factors for engaging in collaboration, indicating that the regions' expectations of inter-regional collaboration might have been met.

The main benefits mentioned by respondents were *shared experiences*, *increased regional visibility* and *improved linkages between R&I and industry*. The least frequently mentioned benefits were *improved critical mass in research*, *shared costs and risks with R&I support*, *contribution to solving socio-economic problems* and *supporting industry in exploiting new markets*.

As in the case of the driving forces, it seems that low-intensity activities are perceived as being more beneficial, with more direct returns. This might simply reflect the fact that regions participate mainly in low-intensity activities and, therefore, have more experience of the benefits of these.

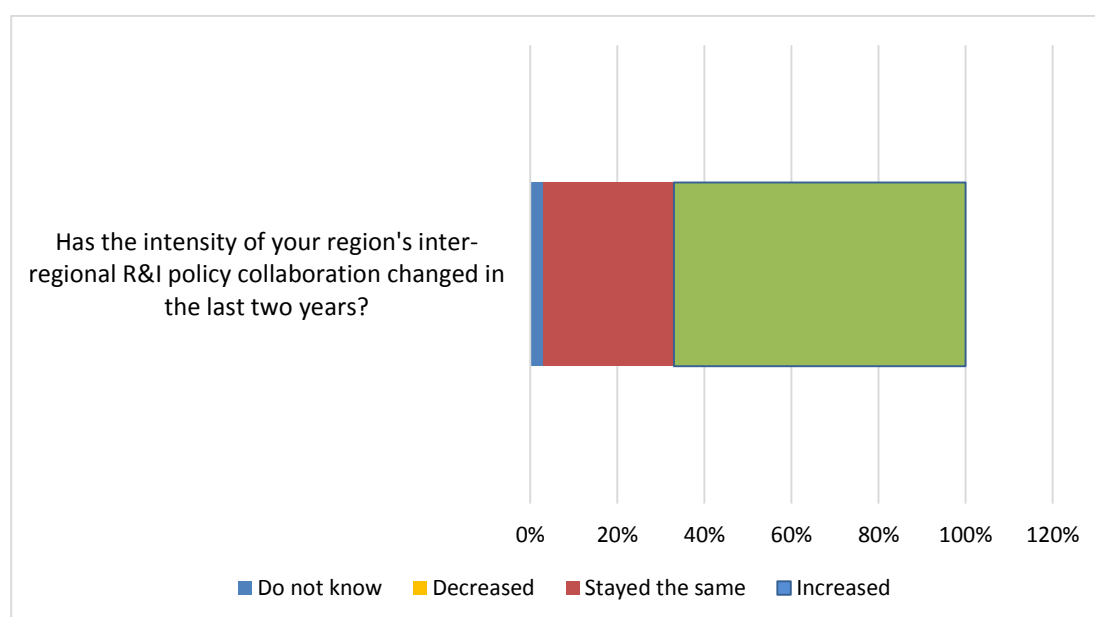
Figure 8: Responses to the question 'In your opinion, to what extent have the following benefits been realised through your R&I policy collaboration in the last 5 years?'



3.9 Change in collaboration intensity

The regions that do collaborate, which is 53 % of the regions that responded to the survey, are also becoming more intensively involved in collaboration over time, with 67 % of collaborating regions reporting that collaboration intensity increased over the previous 2 years and 30 % reporting a stable level of activity; 3 % of respondents indicated that they did not know how collaboration intensity had changed in the previous 2 years. The reasons provided for increased intensity included *increased importance*, due to *needs with regard to the development of RIS3s and membership in the S3 Platform, other EU-funded projects*, and *a need to look for new approaches due to the crisis*. The reason given for unchanged collaboration was *limited activities in the period between two structural funds periods*.

Figure 9: Change in collaboration intensity



3.10 Main barriers to inter-regional R&I policy collaboration

Our respondents reported that the main barriers to inter-regional R&I policy collaboration are *lack of resources* (e.g. financial), *insufficient political commitment*, *insufficient engagement of regional stakeholders* and *lack of clarity of objectives*. Potential barriers that were least often reported as problematic were *socio-cultural issues*, *legal or administrative barriers* and *lack of trust*.

One interpretation of these findings is that all the main barriers are related. The aim of R&I policy collaboration is to enhance innovation, which can be achieved by a wide range of stakeholders. Furthermore, it is frequently stated that public investment in R&I is necessary to fund activities that are considered high risk by pure market transactions and actors and to generate spillovers that benefit the wider economy (Arrow, 1962). Without public investment there would be an underinvestment in R&I from a societal perspective. The idea is to invest in activities that generate broad benefits and not just benefits to actors identified beforehand, the extent and value of which are sometimes unknown. This is because purely market-based transactions are unlikely to be undertaken, as the costs and benefits of such transactions, and ultimately their value, are difficult to appropriate directly by the involved stakeholders and the value can be hard to estimate (OECD, 1998, 2007). As innovation by nature is risky and not necessarily straightforward, it can be problematic to communicate objectives and to identify tangible goals, which makes it difficult for stakeholders and politicians to commit, and therefore also to mobilise, resources.

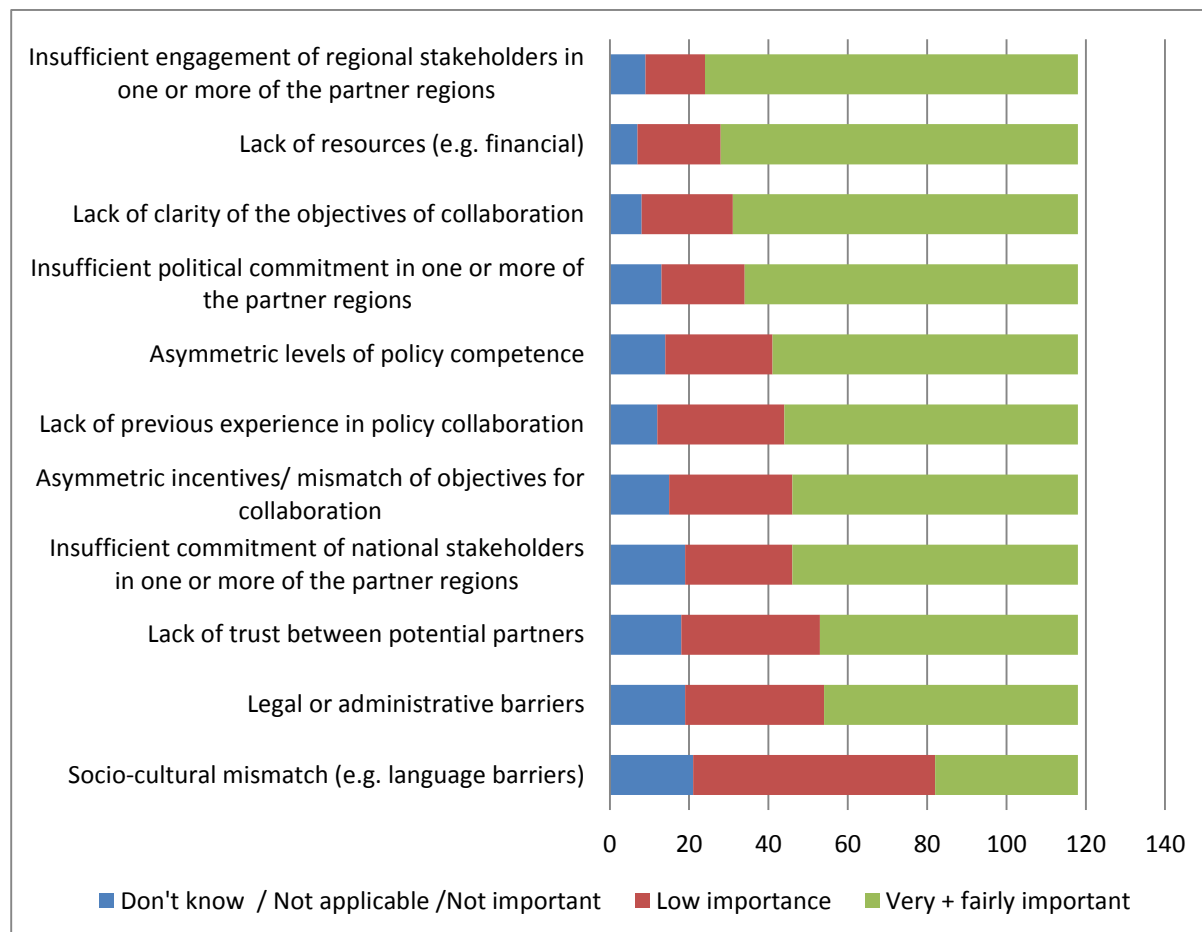
This relates to the finding that it is easier to succeed with projects that necessitate lower collaborative intensity and provide more direct benefits to the actors involved, whereas longer-term objectives with dynamic or indirect benefits are harder to 'sell' to potential partners.

Representatives of collaborating regions who responded to the survey frequently commented on the need to clarify what should be done, what are the benefits of cooperation and understanding what are the regional issues at stake. They also mention that there is a need to build trust among the actors and enhance willingness to compromise. Only one region mentioned language issues as a barrier while another cited differences in the dimensions of regions in terms of size and competences.

Among the barriers to collaboration mentioned by regions not currently collaborating were a lack of experience of previous successful collaboration and a lack of trust

between the private and public sectors. Another respondent commented on a lack of adequate human resources and the need for better knowledge and awareness of the needs of collaboration, something that, it is hoped, will be achieved when their RIS3 strategy has been developed.

Figure 10: Responses to the question 'What are in your experience the main barriers to inter-regional R&I policy collaboration?'



3.11 Potential services that could be provided to assist regions

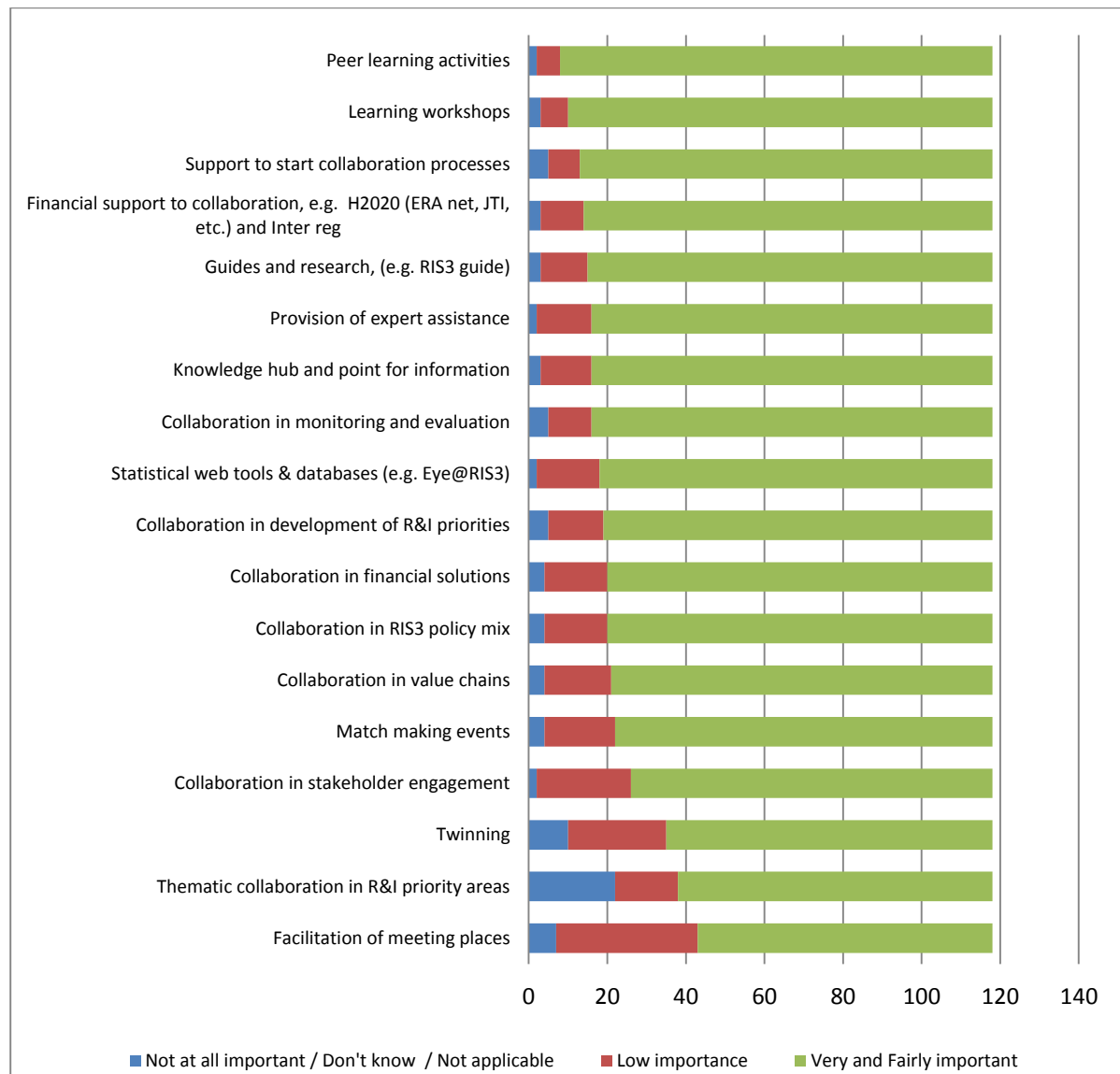
In order to understand how S3P and other EC services best can support regions in their endeavour to promote inter-regional collaboration, we asked respondents which services are important for their region. Almost all the suggested services were considered important. Among the most frequently mentioned activities were *peer learning activities*, *learning workshops*, *support to start collaboration processes* and *financial support to collaboration*.

Although still receiving high ratings, the least attractive support services were *facilitating of meeting places*, followed by *twining*, *collaboration in stakeholder engagement* and *thematic collaboration in R&I priority areas*.

These results, viewed in the light of the findings reported in the previous section, underline the importance of communicating clear objectives and expected outcomes at meetings and workshops. Nevertheless, it is a little surprising that support in the form of thematic collaboration in R&I priorities was rated so low, particularly taking into account the fact that regions indicated that would they choose partners based on thematic criteria.

At the same time, in the survey's section for other suggestions, the proposed ideas relate to setting up cross-regional platforms in innovation. We also received 23 responses suggesting different themes to collaborate around, aggregated in Table 1. This indicates an interest in thematic collaboration among regions.

Figure 11: Responses to the following request: 'There are a number of potential services and mechanisms that are and could be provided by the S3 Platform and other Commission services to assist regions in their collaborative efforts. Please indicate their relative importance for your region.'



The themes identified in Table 1 match quite well the answers in section 3.5 on past and future areas of collaboration. KETs are the most mentioned field for collaboration, followed by tourism, 'agro-food and then sustainable and eco-innovation. In the comments, energy and digital growth are less frequently mentioned, even though they are high-ranking categories. There are also three responses mentioning RIS3 process steps, such as financing and how to involve tertiary education.

Table 1: Thematic priority areas to collaborate around

Name of priority area	Sub-priorities	Main priorities
KETs		12
<i>Advanced manufacturing</i>	5	
<i>General</i>	3	
<i>Advanced materials</i>	1	
<i>Biotechnology</i>	1	
<i>Nanotechnology</i>	1	
<i>Optoelectronics</i>	1	
Tourism		10
<i>ICT and tourism</i>	1	
<i>Agro-tourism</i>	1	
Agro-food		9
<i>ICT and agro-food</i>	1	
<i>Agro-tourism</i>	1	
Eco- and sustainable innovation (excluding energy)		8
<i>Clean tech /eco-innovation</i>	3	
<i>Bio-economy</i>	2	
<i>Circular economy</i>	1	
<i>Green chemistry</i>	1	
<i>Sustainable manufacturing</i>	1	
Health		8
Culture and creativity		7
Digital growth/ICT		7
<i>ICT and tourism</i>	1	
<i>ICT and agro-food</i>	1	
Energy		5
Blue growth		2
<i>General</i>	1	
<i>Maritime technologies</i>	1	
Aerospace		1
Future and emerging technologies		1
Innovative consumer goods		1
Knowledge-intensive services		1
Mechatronics		1
Mobility		1
Security		1
Transport		1
Financing for SMEs		1
RIS3 process		1
Tertiary education		1

4. Conclusion

4.1 Summary

This findings of our survey are along the same lines as those of other studies (Midtkandal and Hegyi, 2014; Kroll, 2015): the new cohesion policy and the accompanying ex ante conditionality of smart specialisation strategies have led to a change in the behaviour of EU regions and Member States with regard to R&I policy, namely increased inter-regional collaboration.

The driving factors for collaboration and the perceived benefits of collaboration — the reasons to engage in inter-regional collaboration — are quite similar, something which indicates that the regions might be receiving what they expect from engaging in collaboration. The focus is on information sharing, to meet a new orientation of regional policy (smart specialisation) and to support linkages between R&I and industry. The reasons for collaboration ranked least important by our respondents were to share the costs and risks associated with R&I support, to achieve critical mass in research, to access research expertise and to solve socio-economic problems.

The driving forces seem to be more related to goals that can be achieved by low-intensity collaboration with more direct and immediate benefits, whereas factors driving longer-term goals and that bring more systemic but indirect benefits are considered less important.

With regard to the different steps of the RIS3 process, collaboration is most likely to occur in the first steps of the process, *analysis*, *design* and *governance*, and less so in the implementation phase. However, this coincides with the 'life cycle' of the smart specialisation work, in that regions should now (2015 and onwards) be beginning to implement their strategies.

In addition, we found that collaboration activities in the analysis and design phase are generally less intensive than activities carried out during the implementation phase. The survey data suggest that the regions have been more involved in low-intensity activities such as information sharing than in more intense activities, for example collaboration in public procurement.

The most important areas for future collaboration are KETs, sustainable and eco-innovation, and energy whereas previously the key areas were ICT/digital agenda, agro-food and sustainable and eco-innovation. The greatest growth in interest between these periods is in KETs, service innovation and energy.

The categories of stakeholders most frequently involved in inter-regional collaboration are development agencies, universities and public research organisations; in contrast, large companies, private R&D organisations, seed funding/venture capital organisations and NGOs are less likely to participate. Thus, a picture emerges of a triple helix constellation that still lacks one essential component, industry, and so fails to capitalise on a potential quadruple helix.

The rationale for the choice of partner for collaboration resonates well with RIS3 thinking, being based mainly on industry composition (similar or complementary), research capabilities that are complementary or similar, as well as similar societal challenges. Factors such as socio-cultural similarities, geographical proximity, belonging to the same macro-region and past collaboration are less important.

Interestingly, however, many regions end up collaborating mostly with other regions of their own country. Inter-regional collaboration in almost all R&I policy activities is dominated by collaboration between regions within the same country, and with slightly more collaboration activities initiated by the regions themselves. These findings are also observed in Kroll's (2015) study of smart specialisation, in which 29 % of respondents reported inter-regional collaboration within the same nation and only 26 % reported transnational collaboration. The higher rates of collaboration among regions from the

same country must be viewed in the context of the finding that only 8 % of regions perceive strong obstacles to national collaboration, whereas more than 20 % perceive the same obstacles to transnational collaboration (Kroll, 2015). The important question for smart specialisation is whether regions from the same country are the best partners in terms of complementary industrial and scientific specialisations.

The most common activity for inter-regional collaboration among our respondents is information sharing, followed by cluster and innovation network initiatives, technology transfer infrastructures and monitoring and evaluation of policies. The least frequent activities include Foresight exercises, alignment of rules and conditions of R&I support, and development of cross-border R&I strategies. The fact that these activities were reported less frequently may be related to the fact that these are activities not carried out frequently but, rather, only occasionally. The ranking of frequency with activities are carried out also reflects the type and intensity of effort necessary to engage in the processes.

The main barriers to inter-regional collaboration are lack of resources, insufficient political commitment, insufficient engagement of regional stakeholders and lack of clarity of objectives. The least problematic are socio-cultural issues, legal or administrative barriers and lack of trust. One interpretation of this finding is that all the main barriers are related; in innovation projects it can be challenging to communicate objectives sufficiently clearly to cause stakeholders and politicians to commit and, as a result, it can also be difficult to mobilise resources. This is again related to the fact that it is easier to succeed with projects of lower intensity that bring more direct benefits, whereas longer-term objectives with dynamic or indirect benefits are harder to communicate to possible partners.

4.2 Policy Implications

The rationale for public intervention in R&I quite often have had a component of addressing market failures, to support initiatives that will have spillovers that benefit many actors indirectly or have system-wide effects. These kinds of effects can be hard to document and communicate to stakeholders who can benefit from them.

It seems that some of the greatest barriers to collaboration in RIS3 are insufficient commitment from stakeholders, lack of resources and lack of clarity of objectives. With this in mind it is recommended that regions and Member States better prepare the evidence base for their proposed projects, and improve communication with stakeholders, making clear what the potential benefits are and how they are going to be achieved.

It is apparent that industrial organisations are the actors that are least likely to be involved in inter-regional collaboration activities. The capacity of industry to participate in inter-regional strategy collaborative work may be limited. However, the participation of industry is key to the success of the process, and it is essential that RIS3 addresses the aims of the inter-regional collaboration and who should be involved. We would encourage regional authorities to engage more with industrial actors in appropriate ways, which could lead to more concrete collaborative projects in the future.

It also appears that regions are most often collaborating with other regions in the same country. This might be because these are the partners that exhibit the greatest degree of similarity or complementarity in terms of innovation capabilities, or they may face common societal challenges. However, it could also simply be the case that a number of funding programmes available to regions operate in a national context and hence influence regions' choice of partner regions. Since it is now possible for regions to invest 15 % of the ERDF funds outside their own region, we would like to encourage regions to use this opportunity to seek partners with matching needs and capabilities outside their country.

How can the European Commission best support smart specialisation? Almost all suggestions would seem to be important. A few activities were more frequently mentioned notably different kinds of learning activities to support the initiation of collaborative processes and financial support for collaboration. The least useful or interesting activities appear to be facilitating meeting places, twinning, collaboration in stakeholder engagement and thematic collaboration in R&I priority areas.

Given that regions' answers to previous questions indicated that they choose partners based on thematic criteria and proposed setting up cross-regional platforms in innovation, these results are contradictory and somewhat surprising. Twenty-three respondents suggested different themes as a basis of collaboration, indicating that there is interest in thematic collaboration among regions. However, it may be that regions and Member States want S3P support to start up thematic collaboration, but then to be left to themselves to continue the process.

The S3 priority areas identified for potential collaboration correspond quite well to the areas of past and future collaboration. As reported in section 3.5, the most popular area is KETs, followed by tourism and agro-food, and sustainable and eco-innovation. Energy and digital growth were less frequently mentioned, even though they are high-ranking categories in the Eye@RIS3 database of regional priorities in RIS3. Three respondents mentioned RIS3 process steps, such as financing and how to involve tertiary education.

Our findings indicate that, if S3P does initiate thematic activities, then the themes should include KETs, tourism, agro-Food, sustainable/eco-innovation, energy and ICT. In this regard it is worth mentioning that a Smart Specialisation Platform on energy has already been initiated.² S3P, because of its central role, with an overview of EU RIS3s, could assist regions by providing data on potential partners with similar and complementary R&I capabilities in other fields.

Similarly, S3P is well placed to provide guidance, to act as a knowledge hub and to offer expert assistance. S3P should continue to develop knowledge around inter-regional collaboration and assist regions and Member States in this area. It could potentially also help regions to show the benefits of collaboration in their communications with stakeholders.

Finally, although RIS3 has entered the implementation phase, and much effort is needed to support this, many regions are still in need of help with the design or redesign phase.

The results of the survey paint a more complex picture of collaboration than the one that is often communicated by the EC. The EC advocates inter-regional collaboration as something useful and necessary, but does not communicate enough on the why, what, who and how. For inter-regional collaboration to succeed, it is important for stakeholders to have a clear picture about these dimensions. It is therefore important to further build knowledge and improve the message of why it is important, exactly what the regions should aim for, how they get there, who should be involved, what benefits could be expected, and what it takes in terms of effort to achieve these benefits. If the EC oversimplifies the message on collaboration as a solution, it might be harder to make the leap from low-intensity collaboration with direct benefits to higher-intensity collaboration addressing the larger challenges and with the potential for longer-term benefits.

² S3P-Energy is a joint initiative of the Directorate-General for Regional and Urban Policy, the Directorate-General for Energy and the Joint Research Centre (JRC). S3P-Energy is intended to become a tool to enable regions to coordinate, rationalise and plan their energy strategies, develop a shared vision on knowledge-based energy policy development, and set up a strategic agenda of collaborative work. <http://s3platform.jrc.ec.europa.eu/s3p-energy>

4.3 Future studies

This is a first compilation of the data from the survey on inter-regional collaboration in R&I policy. The next step will be to explore the data to further identify the different barriers, needs and benefits in relation to geographical dimensions. What are the differences between the north and south of Europe and between the EU-15 and EU-13? Do we need different tools or policies for collaboration? Do we need different approaches depending on objectives, intensity, driving stakeholders and expected outcomes?

Another step will be to link the survey results to external data sources, to explore factors such as the differences between innovation leaders and laggards, taking into account the geographical dimensions mentioned above. What factors identify collaborators with more innovation results and those investing more in innovation capabilities? What are the differences between experienced and inexperienced collaborators?

The findings presented here suggest that it will be beneficial to explore further the dimensions related to drivers for RIS3 collaboration and barriers. This is because our respondents indicated that their reasons for collaboration are to support linkages between R&I and industry, to share information and to meet the new orientation of regional policy, and that their partner regions of choice are regions with similar and/or complementary innovation capabilities, and those that face similar societal challenges.

However, regions mainly collaborate with other regions from the same country. Is this because such regions are the most similar or complementary? Or are there other reasons for this? From an EU perspective it would be interesting to further explore the role and importance of macro-regions. The responses in this study are not very encouraging about the importance of macro-regions.

Another question that needs to be addressed is why regions are more likely to engage in low-intensity collaboration with more direct benefits. What are the barriers to higher-intensity collaboration and are more intensive collaborative efforts worth it?

Additionally, the main barriers to engagement in collaboration relate to lack of commitment from stakeholders, uncertainties around objectives and lack of resources. As we have argued above, it is likely that these factors are connected and it would be worthwhile exploring further what factors are necessary for successful collaboration and what are the possible beneficial outcomes. Do institutional capacity and competencies matter here? If a region has a strong mandate to collaborate and has the resources and staff to prepare for collaboration and participate more intensely in these processes, does this also generate more benefits?

A number of issues should be explored in more depth, and would most likely benefit from examination of some case studies. In addition, combining different sets of data will bring a deeper understanding of inter-regional collaboration.

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