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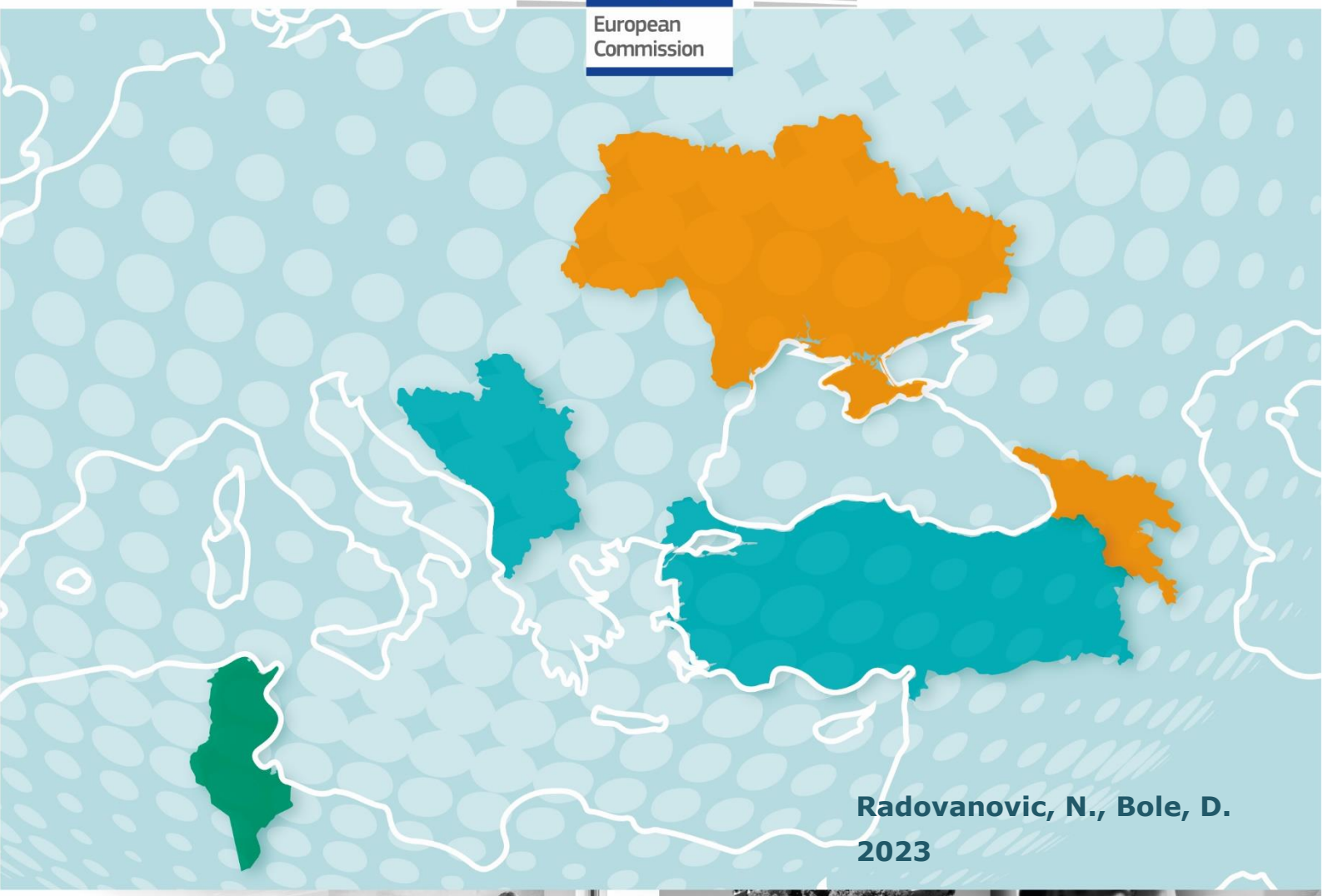

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2023

SMART SPECIALISATION IN THE EU ENLARGEMENT AND NEIGHBOURHOOD REGION

Methodological guidelines for qualitative analysis of economic, innovation and scientific potential in the EU enlargement and neighbourhood

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Contents

Abstract

In the last seven years, following the success of Smart Specialisation implementation among the EU Member States and their regions, a growing number of economies from the EU Enlargement and Neighbourhood region have expressed their commitment to pursue innovation policy development based on the Smart Specialisation approach. To facilitate the process in methodological terms, the JRC proposed a framework describing the specificities of each phase and providing guidance for their implementation, now known as the S3 Framework for the EU Enlargement and Neighbourhood Region (S3 Framework). As the qualitative mapping exercise represents one of the most important stages of Smart Specialisation, this report aims at supporting the S3 Framework in order to maximise the benefits and avoid potential issues in the qualitative mapping process. The focus is on providing instructions and advice on how to prepare each step of the qualitative analysis, taking into account the characteristics of the regional context. As the appropriate setup of the qualitative mapping sets the conditions for an efficient stakeholder dialogue in the entrepreneurial discovery process, which represents a Smart Specialisation cornerstone, this report underlines the necessity of systematic involvement of stakeholders in a transparent and fully participatory manner during the qualitative mapping phase.

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Executive Summary

More than a decade ago, European countries and regions adopted a new approach to defining their innovation policies, based on the Smart Specialisation concept. The objective was to define priority areas for further investments and to create a strong structure for developing and maintaining their economic competitiveness. In the late 2010s, most of the economies in the EU enlargement and neighbourhood region decided to undertake the same approach and pursue development of Smart Specialisation strategies within their own capacities. In conducting their Smart Specialisation processes, they were being guided by the European Commission's Joint Research Centre in following the Smart Specialisation methodological framework developed specifically for this region by the European Commission. This framework follows all the stages required by the Smart Specialisation concept, while taking into account the economic particularities of the region, which is characterised by an economic transition.

The concept of Smart Specialisation relies on active and intensive engagement of various stakeholders coming from very different backgrounds, such as from SMEs, large companies, multinational organisations, faculties, research institutes, non-governmental organisations and many others. They are usually categorised as members of the quadruple helix and divided into businesses, academia, government and civil sector. The crucial elements of the Smart Specialisation approach, namely transparency and evidence-based justifications, can only be achieved through the full participation of all these stakeholders, starting in the qualitative mapping phase and culminating in the stakeholder dialog in the entrepreneurial discovery process.

In the context of the EU enlargement and neighbourhood, such engagement of different helices becomes even more demanding. Establishing long-standing links between stakeholders and maintaining their commitment to the development of innovation policies is very challenging due to the lengthy process of economic transformation and existing remnants of traditional bottom-down approach to policy-making. Having all this in mind, it is important to understand the nature of motivation and potential contribution of stakeholders so that interactions between them can be fully exploited. These factors make the role of facilitating such interaction all the more important.

Since the qualitative stage of the mapping of economic, innovation and scientific potential includes initial involvement of relevant stakeholders for the definition of the list of priority areas, it requires an appropriate preparation of facilitators of the process for extracting crucial information from the stakeholders. These guidelines are structured to facilitate a stage-gate approach to qualitative mapping exercise, whereas each stage is explained in detail. Special focus is given to linkages and interdependencies between activities performed under each stage. In order to simplify the process and at the same time enable the authorities in charge of mapping to conduct the exercise in an efficient manner, checklists for specific stages have been developed and presented in this document. In this view, this paper represents the first guide for conducting qualitative mapping exercise elaborated in this manner and scope.

1 Introduction

Smart Specialisation represents an evidence-based participatory approach for designing innovation policy (Foray et al, 2009; Foray, 2014; Morgan, 2016; Gianelle et al., 2016; Kyriakou et al., 2016). As such, it is based on thorough analyses of economic, innovation and scientific potential and involvement of quadruple helix representatives in in-depth discussion on proposed promising areas for Smart Specialisation.

The quantitative analysis of economic, innovation and scientific potential is the first stage of the so-called 'mapping exercise' which aims at examining various indicators for providing justification of potential priority areas (Sorvik and Kleibrink, 2015). Following the quantitative mapping of the economic, innovation and scientific potential, the economy or the region needs to engage in an in-depth analysis of emerging key priority domains to establish a justification of the promising priority domains and to build a framework for the efficient entrepreneurial discovery process. In order to systematise the process and provide detailed guidance for conducting Smart Specialisation in the EU Enlargement and Neighbourhood region, the Joint Research Centre has developed a specific framework (Matusiak and Kleibrink, 2018). Such framework sets the norms for both quantitative and qualitative mapping phases.

In the Smart Specialisation stages that follow the quantitative analysis of economic, innovative and scientific potential, the S3 design process becomes increasingly more visible to the stakeholders outside the government sector. The participation of academia, industry and the civil sector is at the core of the S3 process. The key to their participation lies in strengthening the trust:

- that this process will ensure their input really matters and that the required level of participation is acceptable to them, and
- that the policy mix developed with and for them will actually be approved and implemented.

To ensure the above, the methodological guidance will be based on the Smart Specialisation Framework for the EU Enlargement and Neighbourhood Region. This will ensure that stakeholder input is thoroughly reflected in the policy mix and embedded in the strategy document. It will also be adapted to the local context so that it is implementable for the local S3 team and acceptable to key stakeholders. Finally, recommendations will be made for the appropriate setup (political support, governance, resources, etc.) that will support the implementation of the findings.

This report is composed of the following sections:

1. Framework for the qualitative analysis stage;
2. Regional experience and lessons learned;
3. Detailed methodological guidelines for the execution of the qualitative analysis.

2 Smart Specialisation Framework for the EU Enlargement and Neighbourhood Region

2.1 Smart specialisation

Smart Specialisation is a modern approach to regional development in knowledge-based economies of the European Union. A national or regional Smart Specialisation (S3) strategy is in place to concentrate resources on a limited set of R&I sectors where the state has the critical mass of knowledge, capacities and competencies and in which it has innovation potential for global market positioning to maximise the positive impact on competitiveness, growth and jobs (Foray et al 2009, Gianelle et al, 2016, Kyriakou et al, 2016). Implementation of S3 can also lead to increased collaboration in selected priority areas (Marques Santos et al, 2021).

The Smart Specialisation strategy is about defining existing specialities and developing new ones, and involves all forms of innovation (not only high-tech). It represents an inclusive, bottom-up approach adding users and civil society to innovation ecosystem while being 'evolution- driven' by the entrepreneurial discovery process.

The key element for the successful design and implementation of the strategy is the entrepreneurial discovery process (EDP), which in fact represents a continuous public-private dialogue among four helices of the modern innovation society (so-called quadruple-helix), consisting of academia, industry, government sector and civil society (Perianez-Forte and Wilson, 2021; Radovanovic and Benner, 2019; Marinelli and Perianez-Forte, 2017; Kyriakou et al, 2016; Gianelle et al, 2016). Through this process, the main stakeholders are systematically scanning for technological, political, regulatory, demographic and social changes to discover gaps and opportunities. For successful smart specialisation, stakeholders engage in different stages of the policy-making process and commit to the strategic objectives identified in S3 strategies. The stakeholder trust and continuous participation are therefore seen as critical success factors.

Consequently, the S3 policy making substantially differs from a traditional one (Foray et al., 2009). The process leads to the selection and prioritisation of certain priority areas, with the policy mix intended for the "chosen ones" (Nauwelaers et al, 2014). It is not a neutral policy and government is taking a certain risk with prioritising the selected ones. The process should be inclusive and transparent, which means that conclusion, decision-making and the final policy mix need to follow appropriate procedures and should be documented to enable final approval of the RIS3 document by the European Commission (Matusiak and Kleibrink, 2018). The government sector should not have the leading position, but rather an equal role by being an enabler and facilitator. It should enable platforms for targeted stakeholders' interaction and policy coordination, and secure resources to build flexible structures and incentives to allow policies to evolve and adapt to a changing reality (Kyriakou et al, 2016). Therefore, another critical success factor in the S3 process is to have inclusive governance, as well as financial and cross-ministerial support.

The place-based and fact-based findings from the relevant stakeholders in the EDP are the main input for the key document of the smart specialisation process, which is the strategy itself (Foray et al., 2009; 2012; Kyriakou et al., 2016; Perianez-Forte and Wilson, 2021). The document contains a targeted policy mix for identified set of priorities in order to build global competitive advantage by developing and matching research and innovation own strengths to business needs so that emerging opportunities and market developments are addressed.

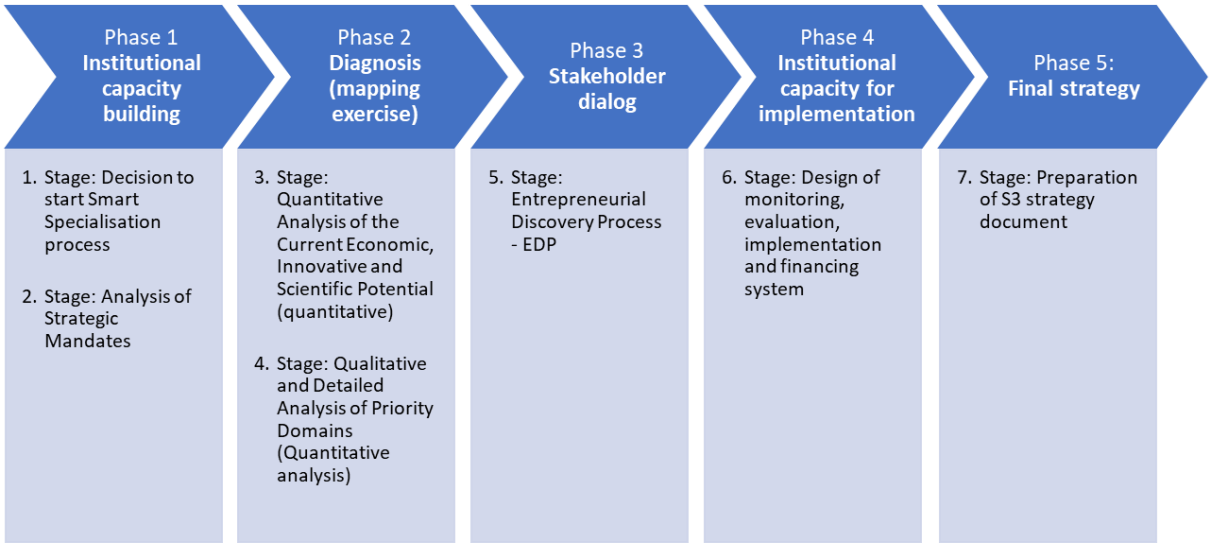
Close to 200 regions have so far developed their Smart Specialisation strategies (RIS3). Recent study by Gianelle et al. (2020) showed that Smart Specialisation are implemented in a variety of ways, with some common characteristics which were used to develop a framework for the design of RIS3 in the EU Enlargement and Neighbourhood region aiming at supporting national policy makers in developing a strategy that would meet the standards of EU innovation policies.

2.2 The RIS3 design framework

The framework for the design of RIS3 in Enlargement and Neighbourhood Countries in accordance with the standards of the European Union (EU) is described in the "Smart Specialisation Framework for Enlargement and Neighbourhood Countries" chapter (S3 Framework) published in May 2018 within the document "Supporting an Innovation Agenda for the Western Balkans - Tools and Methodologies" (Matusiak and Klebrink, 2018). In 2022 The S3 Framework for the design of RIS3 was complemented with the Smart Specialisation implementation framework for the EU Enlargement and Neighbourhood Region (Matusiak et al., 2022), focusing on the implementation of RIS3.

The S3 Framework models a RIS3 design as a typical stage-gate process, where the next phase should only start after the previous one has been completed. The process is divided into 5 phases consisting of 7 stages leading to the development and formal approval of the first RIS3.

Figure 1: Phases and stages of the RIS3 design Framework



Source: own elaboration

The RIS3 design process should not proceed to the next stage until the previous stage has been formally approved. This is to ensure that the process at each stage is carried out in accordance with the sub-stages and standards of the S3 Framework. These standards embody the following key elements of the smart specialisation process:

- Identification and participation of relevant stakeholders;
- Full evidence-base;
- Transparency and clear rules;
- Consequence and trust building;
- Continuous involvement.

These high standards are necessary to ensure the quality of the outputs of each stage. The outputs are also the mandatory inputs required in the next stage of RIS3 design.

The S3 framework requires high standards for continuous and active stakeholder participation. Stakeholders from business, academia, government and the civil sectors are required to participate and engage in intensive constructive dialogue. For strengthening the validity of the RIS3 design process in a preliminary priority area, it is highly recommended to have 30 or more individual key stakeholders (at least half of whom are from industry) continuously participating in the following stages:

- in the EDP stage (continuously attend at least four EDP thematic workshops and provide feedback on the meeting minutes and report of each workshop);
- in the final strategy development stage (additionally, attend at least 1 workshop on RIS3 draft document and provide feedback on the meeting minutes and report of the workshop).

To reduce the risk of potential failure in securing the required stakeholder participation, the process leading to the stakeholder dialogueneeds to provide crucial input for the EDP to be successful. This essential contribution should, according to the S3 framework, provide answers to the following questions:

- What is the position and scope of RIS3 within the national development policies?
- What is the existing economic, scientific and innovative potential?
- What are the preliminary priority areas and their key characteristics?
- Who are the relevant stakeholders in these areas?
- What are the preferences of the relevant stakeholders regarding the execution of EDP?

The above input should be provided before the start of the EDP phase. This is the main objective of the first two phases of the RIS3 design process: Phase 1 - Institutional Capacity Building; and Phase 2 – Diagnosis (Mapping exercise), which ends with the In-depth analysis of priority domains.

2.3 Enhanced framework for the qualitative analysis stage

The fourth stage of the S3 Framework is the 'In-depth analysis of priority domains', often abbreviated as 'Qualitative analysis'. Qualitative interpretation of the results is necessary to overcome the limitations of the existing classification of industry and academia and to discover the actual priority areas and value chains they represent. To ensure that the process is transparent and that stakeholder input is documented and reflected in the findings, qualitative analysis should be conducted according to the S3 Framework.

Qualitative analysis is also the stage where the S3 design process normally becomes increasingly visible, stakeholder engagement begins and the crucial input for broader stakeholder participation needs to be secured. To achieve an optimal outcome, the entire process of qualitative analysis needs to be conducted with high standards and attention to the key elements of smart specialisation that local team members might not be familiar with. To fill this gap in the specific knowledge and experience, this section presents the detailed steps that can make the qualitative analysis stage highly efficient.

2.3.1 Overall and specific goals

The overall goal of the local team engaged in conducting qualitative analysis is to provide improved description and justification of the promising priority domains in a country/region, in terms of value chains, existing critical mass and/or future potential, cross-innovation potential and macro-regional competitiveness, as well as to provide the list of key stakeholders and their preferences for the design of the EDP. This data should be, in the greatest extent, provided based on the analysis of the stakeholders' feedback in relation to the set of specific research questions.

One set of specific goals for the in-depth definition and decision on preliminary priority domains is to collect information on the following matters related to the preliminary priority areas:

1. What are the sub-specialisations within the priority area? What are the outstanding products and services?
2. Where in the value chain was the largest value created globally and what is the position of national players in the global value chains?

3. Which sub-sectors/parts of the value chain of the identified sectors are present in the country and what are the regions with their strongest presence? Are there any parts that are missing?
4. How competitive are the companies from the identified sectors internationally and regionally?
5. What are the main international/regional comparative strengths and challenges of the preliminary priority areas?
6. Is the level of internationalisation generally high or low?
7. How dynamic are the identified sectors and what is the role of start-up, scale-up and other small and medium companies in their development?
8. What are the future trends that are significant for the development of the identified sectors?
9. What is the potential for cross-sectoral innovation of the identified sectors?

Another set of specific goals, as the input for the composition of EDP working groups, is to collect following information for the list of key stakeholders:

1. Which companies are the most innovative in each identified sector and what success stories can be used as lessons for other companies?
2. Which actors from academia are the most innovative in each identified sector and what success stories can be used as lessons for the others?
3. Who are the key stakeholders from government and civil sectors in the preliminary priority areas?

In order to mitigate the risk of low participation of stakeholders in the following stages of RIS3 design (most importantly, in the EDP), additional information should be considered concerning the engagement of stakeholders. In that regard, the following questions could be posed to the stakeholders during the qualitative analysis stage:

1. How often would you be willing to come to the EDP workshops?
2. In your opinion, how long should the EDP workshop last?
3. Would you attend EDP workshops in other regions of the country?
4. Would you need a formal invitation to the workshop?

Another important goal at this stage would be to identify the "ambassadors" of the processes in each priority area. The ambassadors are normally the representatives of the economic, scientific and civil sector, who quickly recognise the usefulness of the S3 process and who are influential enough to be able to ensure participation of other important stakeholders and prepared to contribute to the quality of the process by frequently providing feedback and recommendations. Some of the questions that may help in identifying this group of stakeholders include the following:

1. Could the respondent secure the participation of other stakeholders?
2. Is the respondent willing to provide in-depth feedback on the process and content between different EDP workshops?
3. How frequently can the respondent be contacted in regard to the S3?

2.3.2 Input and output of the qualitative analysis stage

The critical input needed for the qualitative analysis should come from the first three stages of the RIS3 design. Before starting the qualitative analysis stage, the following elements should be agreed upon:

1. The place of S3 in the strategic framework, i.e. its relation to other relevant national/regional development policies and strategies;

2. The standpoint of the key stakeholders on how the RIS3 priority areas and related policy mix will be harmonised with other relevant policies and strategies;
3. The decision on the territorial dimension of the S3 (depending on the size of the country and the existing sub-national administrative structure) - national vs. regional approach;
4. The identified sectors which have economic, scientific and innovative potential for smart specialisation.

The output after the implementation of qualitative analysis sub-stages should include answers to the following questions:

- What are the preliminary priority areas for EDP and their key characteristics?
- Who are the relevant stakeholders in these areas?
- What are the preferences of the relevant stakeholders regarding the execution of EDP?

This information also constitutes the crucial input for the next stage of RIS3 design, i.e. the entrepreneurial discovery process.

2.3.3 Qualitative analysis sub-stages and associated support

According to the proposed enhanced qualitative analysis framework, the qualitative analysis stage is composed of 5 sub-stages, as given in the Figure 2.

Figure 2: Sub-stages of the qualitative analysis

Source: own illustration

The Preparatory sub-stage focuses on identifying specific value chains for preliminary priority domains, including challenges and trends. It is performed with the input from the experts representing the key and most innovative companies, as well as sector experts and researchers cooperating with businesses (key stakeholders). Before collecting such inputs, it is important to build the capacity of the dedicated local team through training. It is also important to adapt the qualitative analysis to the local context. The key elements of such an adaptation would be the creation of a plan for activities and resources, management and documentation protocols, and communication rules and procedures. A process plan, a list of relevant stakeholders and a comprehensive questionnaire and invitation protocol should also be proposed.

The support and tools available to the local team include a specific training that should take place before the qualitative analysis, methodological guidelines and checklists for the flowchart, the list of stakeholders and the questionnaire.

At the end of this sub-stage, workshops with local S3 team should be organised in which a qualitative analysis process plan with timetable, invitation and documentation system, needed resources, list of stakeholders to be consulted and a unified comprehensive questionnaire should be co-created.

The collection of expert qualitative input includes the collection of input based on in-depth interviews with key stakeholders. At least 50% of the stakeholders interviewed should be from the business sector. If interviews are considered, at least 10-15 interviews with key organisations per preliminary focus domain should be conducted. Stakeholders should be invited according to the invitation protocol and all questions in the questionnaire should be asked to allow for structured documentation of responses. As one of the main features of the Smart Specialisation process is its

transparency, all interviews should be documented according to the documentation protocols to ensure maximum uniformity, transparency and traceability of input.

Tools available to the local team include methodological guidelines and the checklist for structured data collection.

At the end of this sub-stage, the local team should present the input from all types of stakeholders in the uniformed and structured manner, including the meeting minutes of the interviews conducted.

The interim analysis of expert input comprises the 'first' or early analysis of the input from the interviews in terms of answering the research questions. The answers should be derived solely from the in-depth analysis of stakeholder input recorded in the form of structured data or transcripts. The results of this analysis should provide the initial insights for justifying the priority areas for EDP and identify gaps in terms of feedback on the research questions. This analysis will be a key input for reviewing the findings and identifying the need for additional data collection. In addition, the interim report should include the timetable and proposed agenda for subsequent focus group meetings.

The tools available to the local team include methodological guidelines and the interim report checklist.

At the end of this sub-stage, the local team should provide an interim report with initial findings and identification of gaps in stakeholder input, as well as a detailed action plan for organising focus groups.

The following step includes verification of findings and publication of the final report. To verify the results and collect the missing information identified in the interim analysis, focus groups should be organised for each preliminary priority domain and the data collected in the focus groups should be used for the final analysis. The results of this analysis will support the definition of the preliminary priority domains for the purposes of the entrepreneurial discovery process. The qualitative report with the proposed lists of priority domains, the list of stakeholders and the preferences for EDP should be made available to the public at least in electronic form and published on the respective national/regional S3 portal. If necessary, it should also be translated into the respective national language. Quantitative and qualitative reports can be published together.

The tools available to the local team include methodological guidelines and a checklist for the final report.

At the end of this sub-stage, the local team is expected to publish the final report with confirmed meeting minutes from the focus groups.

Decision on priority domains for EDP. Following the quantitative and qualitative analyses, a joint panel should be organised involving the national Smart Specialisation Team, experts and, if possible, JRC representatives that support the process to define priority domains for the entrepreneurial discovery process. The minutes of the panel meeting and the formal decision with the final list of priority domains for EDP represent the final outputs of this sub-stage.

3 Macro-regional specifics influencing the qualitative analysis stage

So far, the economies that have advanced the farthest in following the S3 Framework for Enlargement and Neighbourhood Region in their respective RIS3 design processes have been Montenegro and Serbia, who finalised their Smart Specialisation strategies and related action plans. Progress was also made in the majority of other economies from the region, where qualitative analysis based on surveys and in-depth interviews with key ecosystem actors often compensated for the limited results of quantitative analysis, which were hampered by the unavailability of relevant statistical data.[1] Experience has shown that the process in the qualitative analysis stage is strongly influenced by the specificitiesof the region which are related to the existing economic development policy framework, characteristics of innovation ecosystems, as well as the motivation, resources and ownership concerning the S3 process.

3.1 Existing economic development policy framework

Smart Specialisation strategies are becoming one of the most important strategic documents of regional economic development. However, in the case of economies in transition, the RIS3 is often considered as just one of the strategies that contribute to the regional development. There are other strategies, such as the strategy on capital investments, the strategy on foreign direct investments, the industrial strategy or even sector specific strategies, which have already secured their position in the policy framework and with which the RIS3 should not overlap. These well-established strategies usually pose strong competition to new RIS3, as their positive impact on increased job creation and better infrastructure for the general population is very often evident already in the short term.

Political commitment of national authorities and collective awareness of S3 remain to be among the main challenges for S3 governance in the region (Radovanovic and Gerussi, 2020). Governments need to grow awareness that focusing on narrow areas of specialisation will have a significant impact on job creation and overall development, as these are often the most competitive areas globally where the return on public investment is highest.

Additionally, in order to facilitate the RIS3 design and implementation, cross-ministerial collaboration is required, which is often challenging in the EU enlargement and neighbourhood region. While securing the position of RIS3 in the policy framework, overlaps with other key strategies should be circumvented to avoid conflicts and maintain the willingness for collaboration.

In terms of content, the RIS3 policy mix should include vertical research and innovation measures aimed at increasing the global competitiveness of the identified areas of smart specialisation. These measures should be innovative, build the capacities of key stakeholders, support collaboration and enhance internationalisation. However, in less developed economies and economies in transition, horizontal framework conditions tend to be the main subject of interest to key stakeholders. As horizontal measures should not be the main component of RIS3 policy mix, there is a possibility that most of the stakeholder input will not be included in the strategy document, significantly reducing the importance of participation in the eyes of stakeholders.

The RIS3 policy mix should to be written according to the EU standards set by the S3 framework. Technically, this means that the strategy document should contain the general objective(s), specific objectives, measures and indicators. These should be complemented by the action plan for implementation, monitoring and evaluation, including all necessary resources. However, for the strategy document to be adopted at national level, it should also meet national requirements which are not necessarily harmonised with EU standards.

(1) As of April 2023.

3.2 Specifics of innovation ecosystems

The innovation performance of an economy depends heavily on collaboration within its innovation ecosystem, which enables flow of knowledge and technologies into industry. While most economies in the EU Enlargement and Neighbourhood region perform relatively well in the creation of human capital and production of knowledge and scientific and technical articles, the region mostly performs poorly in the university/industry research collaboration and int the state of cluster development that would allow this knowledge to be diffused and absorbed by industry[2].

There is still a strong bias against research commercialisation and broader collaboration between academia and industry. This situation can be recognised in the innovation ecosystems in the EU Enlargement and Neighbourhood region, where collaboration between helices decreased due to past political and economic structural changes. Instead of intensive collaboration, today's parts of innovation ecosystems mostly operate in silos and maintain culture of insufficient dialogue and collaboration, which further widens gaps among them.

Gaps and systemic distrust can make stakeholders suspicious about the clear intention of the RIS3 process and consequently unwilling to participate or share information. This is even intensified when the value proposition of the required participation is not clear and messages about the overall process and next steps are not consistent. Low visibility that is not supported with official government communication strategy can further undermine trust in S3 process.

These specificitiesof regional innovation ecosystems make the high demands on stakeholder participation set by the S3 framework even more challenging. In smaller regions with small number of stakeholders, this issue is even more intensified and can jeopardisethe success of the whole process. Therefore, much attention should be paid to mitigating this issue even before the launch of the EDP.

3.3 Motivation, ownership and resources for S3

The motivation for the development of RIS3 in the EU Member States is influenced by many factors. One of the most influential is the European Commission's cohesion policy, which aims to reduce disparities and ensure balanced development between regions, of which the Structural Funds are the most important instrument. Their efficient use and management has proven to be very important for regional development in Europe, especially in overcoming the economic crisis and strengthening the recovery of the regions. For this reason, the development of a RIS3 was a prerequisite to receive funding from the European Regional Development Fund (ERDF).

In the case of the EU Enlargement and Neighbourhood Region, there are various instruments that can support the development and implementation of RIS3. Although the main (political) motivation in the EU enlargement region is progress in the EU accession process, the possibilities for economic support can be explored in the pre-accession instruments (in the case of the EU enlargement region), the Eastern and Southern Partnership instruments (in the case of the EU neighbourhood), the international donor institutions and others, but economies should be ready to explore their own possibilities to support the smart specialisation process, which directly influences the motivation.

Experience to this date shows that in order to develop a sound and innovative policy mix that is also implementable, a broad range of stakeholders from different ministries, academia and industry should have a strong sense of ownership of the process. This ownership can only come from a collaborative development where all stakeholders feel that they have contributed and that they will also benefit from the process.

The final RIS3 should include the action plan for implementation, monitoring and evaluation. This is directly related to the allocation of financial and human resources needed for implementation. It is equally important to ensure that the human resources responsible for implementing the policy mix in

(2) See Global Competitiveness Report 2019

the different ministries are in place. However, reallocating typically scarce resources for a new strategy, can lead to conflicts and hamper ownership needed for implementation.

Preparing the resources required to carry out the RIS3 design process in accordance with the S3 framework can often be challenging. The process becomes increasingly resource-intensive as it enters the quality analysis stage, where extensive expert support is needed in different priority areas. The organisation and implementation of the EDP workshops alone requires significant human and financial resources. Additional resources are needed for the PR campaign, event management and IT support. A lack of resources for the design of RIS3 can seriously affect the quality and flow of the process.

Another issue that needs attention is the lack of capacity of the local expert team in terms of practical experience in evidence-based policy making, including the application of all the principles of S3 to ensure accountability, transparency of decision making and quality of the qualitative analysis report. The ability to fully understand and properly explain the next steps and requirements of the future process can greatly increase the confidence needed for continued and active stakeholder participation in the process. Maintaining high standards in the outputs of the process can also often be a challenge, as the final report should meet the standards of a scientific publication.

All these features have a strong impact on some of the key success factors of the S3 process, which include inclusive governance, financial and cross-ministerial support and, above all, stakeholder trust and continuous participation.

4 Lessons learned from the EU enlargement region

Meeting the high demands that the S3 framework places on stakeholder participation is one of the biggest challenges in the macro-region. Therefore, much attention should be paid to this issue before EDP starts. The last stage before the launch of EDP is the qualitative analysis stage and its crucial outputs based on the interviews conducted, are as follows:

- in-depth definition and decision on preliminary priority domains,
- list of key stakeholders, and
- preferences for the design of an EDP.

As a rule, the most interesting topic for the local teams conducting interviews in the EU enlargement region was the first output from the list above. Strategically, however, the other two outputs are much more important. Namely, the qualitative analysis interviews represent the first and crucial face-to-face contact with the key stakeholder regarding the S3 process and it is the point at which trust and much needed motivation should be established to ensure future participation.

Based on the experience from the EU enlargement region, preparation prior to conducting the qualitative analysis is crucial to improve the likelihood of success of the qualitative analysis stage, which in turn has an impact on the whole RIS3 design process. The general recommendations that complement the S3 Framework are the following:

1) Ensure top-level policy support with proactive inclusive governance

The design, adoption and implementation of the Smart Specialisation strategy requires the active participation of the various government agencies. In the design phase, the different ministries should first (re)allocate human resources to jointly draft new RIS3, which increases the ownership of RIS3 by the different ministries. With ownership established, reallocation of financial resources of different ministries should be easier, which would facilitate the adoption and implementation of RIS3. Since many stakeholders are involved, inclusive governance with full-time proactive coordination should be in place, usually in the form of cross-ministerial working groups. In general, cross-ministerial collaboration needs to be underpinned by the proactive support of the Prime Minister's Cabinet. Therefore, one of the first tasks of the S3 coordinator is to raise awareness of S3 and its benefits in order to gain top-level support. Such support adds credibility to the process and enables formal invitations to quality analysis interviews to be sent out when needed. It is also needed when national policy standards need to be synchronised with those set by the JRC.

2) Ensure careful selection of the local team of experts, their availability and capacity building

The role of the local expert team in conducting an in-depth qualitative analysis and thus establishing initial contact with key stakeholders for the forthcoming entrepreneurial discovery process is of paramount importance. It is therefore desirable that the team is highly motivated to carry out the tasks of qualitative analysis, that they are fully available and resourceful, and that they have a firm integrity for the complex work. For conducting the interviews, it would be optimal to have a two-person team for each interview, with at least one of the experts having extensive experience in the field of the focal area in question. The team should be appropriately trained to undertake these tasks and have strong analytical and communication skills.

3) Create clear value proposition to motivate stakeholders

As described, the innovation ecosystem in the EU enlargement region is often characterised by gaps and systemic distrust, which in turn can translate into an insufficient culture of dialogue and non-collaboration. All these factors reduce the likelihood of much-needed stakeholder participation. To improve the odds, a clear value proposition should be developed before stakeholders are contacted for a quality analysis interview. This value proposition should not only aim at gaining stakeholders' consent to the quality analysis interview, but rather motivate them to participate in the whole RIS3 design process. Therefore, the value proposition should clearly present what S3 is about and what

direct benefits are possible for the different types of stakeholders. It should also clearly communicate what the place and scope of RIS3 is, e.g. what kind of measures (horizontal/vertical) can be included in the policy mix. Finally, the financial means for implementation should be defined, at least in relative terms. Such a value proposition would arouse the interest of stakeholders.

4) Develop clear vision of the future process and required stakeholder participation

Stakeholders are usually aware that every benefit "has its price". In terms of RIS3 design and implementation, this means the necessary stakeholder participation. To increase trust, a clear vision and general action plan for the future process should be developed. This will provide information on the required stakeholder involvement in terms of specific activities, the time required and the frequency. It will also provide a timeframe in which the proposed benefits will be materialized. The qualitative analysis interviews should be used to test the adequacy of the requetsed stakeholder participation and adjust the plan according to stakeholder feedback. This will also create a sense of ownership of the future process by the stakeholders.

5) Implement targeted and uniformed (public) relations

In order to gain credibility, visibility and attention of the target groups, a common communication action plan, and communication content and guidelines should be in place. These should be developed before the invitations to the quality analysis interviews are sent out. Everyone officially involved in the design and implementation of RIS3 should follow the guidelines and use the same uniform messages, e-mail templates, 'elevator' pitches and one-minute pitches[3]. This will further enhance the integrity of the process, increase overall trust and willingness of key stakeholders to participate.

6) Set up the system to reflect maximum transparency

All decisions in the S3 process must be fact-based and place-based. Hidden agendas, that are already heavily affecting the distrust in the innovation ecosystem, should be managed. The best way to ensure this is to ensure transparency and clear rules. Therefore, protocols for standardised and secure data collection should be developed and supported by a IT platform and a trusted service provider. All documents and records should be approved by stakeholders. The documentation system should allow for traceability and revisions and support fact-based decision-making.

7) Secure financial, capable human resources and sufficient time

As there is no ERDF funding for RIS3 implementation available like in the case of the EU member states, efforts should be made to allocate national and international funds, as substantial funding will make the process more attractive for stakeholders. The process of RIS3 design itself requires resources. Financial resources for experts, event management, IT and PR need to be secured. Before the execution of qualitative analysis interviews, the capacity of the local team should be built to improve the integrity of the process and meet the expectations of key stakeholders. In such a complex process, time proves to be one of the most valuable resources. It is necessary to design the timeframe of the process in such a way that there is enough time for analysis and preparation of the next stage, as time pressure could eventually have a negative impact on the quality of the results. A lack of resources for RIS3 design can seriously affect the quality and flow of the process. Therefore, the process should not start until the necessary time, human and financial resources are secured.

8) Identify ambassadors of the process

Previous experience in the region has shown that "influencers" have a significant impact on the perception and behaviour of innovation ecosystem stakeholders. Namely, there are widely recognised individuals in different preliminary priority areas who understand the importance of S3 and are willing to participate in the process. In theory, they should be willing to promote the S3 process and secure the participation of other stakeholders in the EDP, provide substantive feedback on the design process and its content, and allocate more resources to RIS3 implementation. It is important that the

([3]) An elevator pitch, elevator speech, or elevator statement is a short description of an idea, product, or company that explains the concept in a way such that any listener can understand it in a short period of time.

identification of these 'ambassadors' begins at the qualitative analysis stage through interviews. Ambassadors should come from the industry, academic and government sectors of all preliminary priority areas.

5 Methodological advice

5.1 Preparatory stage

Adequate preparation of the local team before conducting qualitative analysis interviews is essential to ensure sustained stakeholder participation as a key factor for the success of the RIS3 design process. Namely, the local team is normally the first one to come face to face with key stakeholders. These should not only agree to the qualitative analysis interview, but also become and remain active participants in the whole RIS3 design process.

The national working group should provide reliable information on the scope and resources for RIS3, while local team members need to build their capacity to become the main drivers of the smart specialisation process.

The decisions that need to be made by the government sector to build a solid foundation for the success of the future RIS3 process are related to the position of key policy actors on how the RIS3 policy mix should be harmonised with other relevant policies (such as industrial or SME strategies). It is important to understand what the horizontal measures are, where their appropriate 'place' is and how all this is linked to RIS3. The decisions should also have an impact on the motivation of the key stakeholders in terms of estimating the financial resources allocated to the implementation of Smart Specialisation.

In order to become the main promoters of smart specialisation and to ensure the future participation of key stakeholders in the RIS3 design process, the local team needs to build capacity in the following areas:

- general framework and principles of the RIS3 design process;
- scope of measures that can make part of the RIS3 policy mix;
- available resources for implementation;
- vision of the future process and required stakeholder engagement.

This should be done through trainings prior to the execution of the qualitative analysis interviews.

Furthermore, it is necessary to adapt the qualitative analysis to the local context. The key elements of such an adaptation should be co-created with the local team, ideally in local workshops. These workshops should lead to detailed qualitative analysis process plan, identification of stakeholders and creation of harmonised list of stakeholders, and uniformed questionnaire for stakeholders from the identified preliminary priority areas.

At the end of this sub-stage, the local expert team should provide the following:

- local S3 team meetings/workshop(s) for capacity building and co-creation of the process plan;
- process plan (timeline, invitation and documenting system, resources);
- list of stakeholders to be interviewed;
- comprehensive and unified questionnaire.

A specific in-depth training programme for the preparation and implementation of the qualitative analysis stage should be organised by an external party (e.g. EC). In addition, the checklists for the preparation of the process plan, the list of stakeholders and the questionnaire, presented in Annexes 2, 3 and 4, were developed to support the local expert teams in preparing the necessary outputs of this sub-stage.

5.1.1 Process plan

The qualitative analysis stage is very complex, involving numerous activities and human resources, but also limited by deadlines and stakeholder expectations.

The process plan should be developed from the bottom up, taking into account the resources available for the execution of qualitative analysis and ensuring the fluidity of the process. In order to keep stakeholders motivated, it is advisable that there be about 3-6 months between the qualitative analysis interviews and the start of the EDP workshop. The whole qualitative analysis should not take longer than 4-6 months, which is only possible if a detailed plan is developed and properly executed and managed.

A detailed process plan should include:

- action plan with activities, responsible owners and deadlines;
- plan of physical and financial resources;
- protocol and templates for invitations (e.g. pitches, e-mail templates, formal supporting letters);
- preparation for documenting process (e.g. tables, report templates for meeting minutes, documenting system, access setting);
- data privacy and data sharing approval form;
- process management protocols: reporting, communication and documenting and approving procedures;
- PR communications rules and procedures.

5.1.2 List of key stakeholders for interviews

The most important input for the qualitative analysis comes from the experts representing the most innovative companies, from sectorial experts and from researchers cooperating with businesses (key stakeholders).

The composition of the list should have the following structure:

a) managers of major companies and SMEs (at least 50% of stakeholders);

b) relevant researchers (not less than 10%);

c) government officials (not less than 10%);

d) representatives of civil organizations.

At least 10-15 stakeholders for each priority area should be identified and they should all meet the following criteria to be considered highly relevant:

- to have in-depth knowledge of the sector including knowledge about position in the global value chain, competitiveness on global and regional level, trends, key actors and best-case examples of (open) innovation activities;
- to have extensive personal network;
- to have high reputation in the community.

Coordination in preparation of the list is important as overlapping (same important stakeholder to be asked twice for the same thing) should be avoided.

5.1.3 Comprehensive questionnaire

A uniform questionnaire for all stakeholders from the identified preliminary priority areas should be prepared during the workshop together with the local expert team.

The questions do not have to be the same as the research questions presented in chapter 2.3.1 and should be adapted to the local context to facilitate understanding and data collection. However, the

questionnaire should be comprehensive so that all information relevant to answering the research questions is collected.

5.1.4 Governance and support activities

An action plan developed by the local expert team should demonstrate that the qualitative analysis stage is composed of many tasks and activities assigned to different actors in different institutions and sectors. This requires ongoing coordination and intensive communication, which should be regulated with protocols agreed between the S3 working group and the local team. As operational management is intensified, it is recommended that only 'tactical' matters are discussed within the policy level working group, while operational issues are to be coordinated between the national S3 coordinator and the local expert team.

To facilitate monitoring of progress, key performance indicators should be introduced and updated frequently. Weekly or bi-weekly meetings between the national S3 coordinator and the local expert team are also recommended. These meetings should be dedicated to reporting on progress, exchange of experience from the interviews and early findings that could improve the qualitative analysis process in any aspect. To support the implementation of the qualitative analysis and ensure much needed visibility, credibility, transparency, traceability and data security, additional supporting activities should be organised, including at least a PR and a IT support.

5.2 Collection of expert qualitative input

Input will be gathered based on in-depth interviews with key stakeholders. At least 50% of the stakeholders should be from the business sector. As mentioned above, at least 10-15 interviews should be conducted with key organisations per preliminary priority domain if interviews are considered. Stakeholders should be invited according to the agreed invitation protocol. All questions in the questionnaire should be asked in a way that allows for structured documentation of responses.

The Smart Specialisation process needs to be transparent. All interviews should be documented according to the documentation protocols in order to achieve maximum consistency, transparency and traceability of input. At the end of this sub-stage, the local expert team should present the input from all types of stakeholders in the uniformed and structured manner and provide the approved meeting minutes of the interviews conducted.

The proposed checklist for structured data collection in Annex 5 was developed to assist the local expert team in preparing the necessary outputs for this sub-stage.

5.2.1 Conducting interviews

In the first step of the qualitative analysis, personal one-to-one interviews should be conducted with key stakeholders. Invitations should not be sent out all at once, but gradually. It is advisable not to contact the most important stakeholders right at the beginning, but to test questions and assumptions with the 'best known' stakeholders. Later, with more experience and insights gained, the focus should be shifted towards the most important stakeholders. When inviting stakeholders, all members of the local teams should follow the invitation protocols and use predefined e-mail templates, formal invitation letters or telephone pitches'.

Interviews within a preliminary priority domain should be conducted optimally by a pair of local team members, at least one of whom is an expert in the field, allowing for nuanced conversation and understanding of the interviewee's sector-specific contributions. The other person conducting the interview should focus on taking notes and ensuring that all questions in the unified questionnaire have been asked correctly. At least 10-15 face-to-face interviews should be conducted per preliminary priority area with key stakeholders from the identified preliminary priority areas, including managers from large companies and SMEs (at least 50% of the stakeholders interviewed must be from this category), relevant researchers, government officials, business associations and civil organisations.

The recommended scenario for conducting the interviews is the following:

1) Introduction of the S3 concept and general value proposition (scope and resources for the implementation);
2) The predefined questions should not be asked in a formal way, but rather through a conversation. Their sequence is not that important, but the questions asked should be uniformed to enable structured documentation of answers;
3) Explanation of the future (EDP) process and required stakeholder engagement;
4) Test the willingness of stakeholders to participate and provide feedback in regard to the planned EDP;
5) Ask for the information on other key stakeholders that should be invited to the interviews and to the EDP. If possible and if considered needed, ask for referrals and introduction;
6) Ask for the feedback on the interview and possible recommendations for improvements of the process;
7) Following the interview, try to document data as soon as possible while impressions are still "fresh".

5.2.2 Documenting stakeholder input from interviews

The data collected during interviews should be carefully and promptly documented in the uniformed manner, usually in a spreadsheet programme that supports the structured entry of responses to the pre-determined questions. The personnel conducting interviews should compile the inputs as a team. They should also compile joint conclusions 'on the go', improving their qualitative insights into the sector, which contributes to the quality of further interviews and facilitates the overall analysis and preparation of the interim report.

Figure 3: Spreadsheet for transparent and unified documenting of interviews for each priority area

Stakeholder Name	Stakeholder type (Academia, Business, Govt, Civil)	Narrow priority	Amabasador (Y/N)	QA question 1	QA question 2	…	EDP Question 1	EDP Question 2	…	Comments
Stakeholder 1										
Stakeholder 2										
Stakeholder 3										
Stakeholder 4										
Stakeholder 5										
…										

Source: own illustration

Input from each interview should be summarised in meeting minutes (the report should be based on the predefined template), which should be approved by the relevant interviewee to ensure consistency. These minutes should be attached to the qualitative analysis report to ensure transparency and traceability of the fact-based decisions made. The whole process of inviting, conducting, documenting and approving the results of an interview should not take more than half a day per interview, so that a team can conduct 2-3 interviews per day. The IT platform (usually a IT cloud system) used to store this data and documents related to the interviews, should be secure and allow for limited access, document sharing, traceability and revisions.

5.3 Interim analysis of expert input

The input in relation to the interviews should be analysed in terms of answering the research questions posed. Answers should be derived solely from in-depth analysis of stakeholder input recorded in the form of structured data or meeting minutes. The results for each preliminary priority area should be clustered in the same way as the research questions presented in Chapter 2.3.1:

1) Justification of priority domain and critical mass,
2) Composition of EDP working groups,
3) Input for the future EDP,
4) Identification of ambassadors.

The results of this analysis should provide early (or rudimentary) findings for the justification of priority domains for the EDP and the identification of gaps in relation to feedback to research questions. In addition, the interim report should include a proposal for a detailed action plan for the organisation of focus groups according to preliminary priority areas.

At the end of this sub-stage, the local expert team should provide an interim report with early findings, including the identification of gaps in stakeholder input, and a detailed action plan for organising the focus group meetings.

The interim report should be based on the checklist for questionnaire presented in the Annex 4.

5.3.1 Qualitative data analysis standards

The main source of data for the interim report should be the stakeholder input collected in the interviews. For this analysis to be effective and to be able to compare the answers obtained in the interviews, the same questions need to be posed to all stakeholders. The responses from the interviews within each priority area should be analysed in depth to identify common denominators and major deviations and to explain what factors lead to the differences (e.g. responses may differ because stakeholders come from different sectors, helices, narrowly defined priorities, regions, etc.). This will also provide the qualitative insights needed to successfully manage the future dialogue (EDP) of very heterogeneous stakeholder groups operating in each of the identified priority areas.

5.3.2 Outline of interim report

The interim report should be based on the following proposed structure:

1. Qualitative analysis and collection of qualitative data
    a. Methodology
    b. Data collection via qualitative interviews by preliminary priority areas
        i. Execution of the plan
        ii. Questionnaire
        iii. List of stakeholders
2. Data analysis with early findings and identification of gaps by preliminary priority areas
    a. Area 1 (justification, critical mass, stakeholders, ambassadors, EDP input)
    b. Area 2 (justification, critical mass, stakeholders, ambassadors, EDP input)
    c. Area 3 (justification, critical mass, stakeholders, ambassadors, EDP input)
    d. Area 4 (justification, critical mass, stakeholders, ambassadors, EDP input)
    e. Preliminary priority area X….
3. Detailed action plan for the organisation of focus groups by preliminary areas

a. Area 1 (proposed agenda, stakeholders and action plan)
b. Area 2 (proposed agenda, stakeholders and action plan)
c. Area 3 (proposed agenda, stakeholders and action plan)
d. Area 4 (proposed agenda, stakeholders and action plan)
e. Preliminary area X.…

4. Annex I: Confirmed meeting minutes from the qualitative analysis interviews

5.4 Verification of findings and publication of the final report

To verify findings and collect missing input identified in the interim analysis, focus groups should be organised for each preliminary priory domain. The data collected during the focus groups will be used for the final analysis. The outcome of this analysis is the improved definition of the preliminary priority areas for the purposes of the entrepreneurial discovery process.

At the end of this sub-stage, the local expert team should publish the final report with the confirmed minutes of the focus group meetings. The proposed checklist for the questionnaire can serve as a checklist for the preparation of the final report.

5.4.1 Verification of early finding through focus groups

After conducting interviews and documenting the input from stakeholders, the data collected should be analysed and recorded in the interim qualitative analysis report. All findings of the interim qualitative analysis report, including any identified gaps in stakeholder input, should be confirmed in the focus group meetings for each preliminary priority area. In addition, the focus group meetings should be used to clarify the external party's comments on the interim report (e.g. JRC experts).

Each focus group should ideally consist of up to 5-6 key stakeholders identified as potential ambassadors, as well as other key stakeholders who should also participate in the future EDP. The composition of these groups should also follow the similar structure as the population of respondents in the interviews, i.e:

- managers of major companies and SMEs (* at least 50% of stakeholders),
- relevant researchers,
- government officials,
- representatives of civil organisations.

5.4.2 Documenting stakeholder input from the meetings of focus groups

The data collected during the focus group meetings should be documented in the form of meeting minutes with the proposal of the main conclusions. The minutes must be approved by the participants to ensure consistency. Only after approval should the conclusions be included in the final qualitative analysis report. The approved minutes should be attached to the final qualitative analysis report to ensure transparency and traceability of the fact-based decisions made.

The IT platform (usually a IT cloud system) used to store this data and documents should be secure and allow for limited access, document sharing, traceability and revision.

5.4.3 The final report

The data collected in the focus group sessions will be used for the final analysis. The analysis should be conducted according to the standards of qualitative data analysis described in chapter 5.3.1. The outcome of this analysis should be the improved definition of the preliminary priority domains for the purposes of the entrepreneurial discovery process. The qualitative report should be made available

to the public at least in electronic form and published in English on the relevant S3 portal. If necessary, it can also be translated into the respective national language.

The final qualitative analysis report should contain:

- justification of preliminary priority areas with the proposal of priority areas for the EDP;
- list of key stakeholders in proposed priority areas for the EDP;
- preferences on future EDP in proposed priority areas.

It should to be written following the relevant standards of a scientific publication.

5.4.3.1 Justification of preliminary priority areas

To justify the identification of sectors as potential areas of specialisation, a detailed sectoral analysis should be carried out. As a result, it is recommended that the following categories are elaborated for each priority area :

- main products / services;
- positions in the value chain;
- human resources / skills;
- regional distribution of stakeholders;
- internationalisation level (domestic vs. export, export vs import);
- main statistics and trends to demonstrate critical mass per identified sector, i.e. number of companies, employees, turnover of researchers, competitive projects in H2020, national collaborative projects, etc;
- main comparative strengths that could make the sector successful at an international market;
- description / best cases of the key players from different helices and demonstration of the innovation collaboration;
- innovation and cross-innovation potential;
- national and international R&D projects awarded;
- international intellectual property rights pending or granted.

In order to propose sub-sectors / specific priorities within one priority area, the existing industry groups identified in the quantitative analysis need to be (re)clustered based on the findings of the above analysis. If possible, the number of sub-sectors / specific priorities should ideally be between two and four. An important criterion is that stakeholders within a sub-sector are similar enough to produce a common SWOT analysis. However, there should be a balance, as too much fragmentation could make it difficult to coordinate future EDP workshops.

Description of sub-sectors/specific priorities should come with the following:

- main products and services, intellectual property, value chains, target markets, data demonstrating critical mass and / or potential, internationalisation impact, human resources / skills requirements and availability and regional distribution of stakeholders;
- cross-innovation potential within specific priorities and within preliminary priority areas and main comparative strengths;
- indication of an 'attractive' name of the priority area and sub-sector/specific priorities.

5.4.3.2 Key stakeholders in proposed priority areas for the EDP

The list of key stakeholders is one of the most important inputs for the stakeholder dialogue stage as well as for the upcoming stages that follow the completion of the qualitative analysis. The composition of the list should be similar to the population of respondents in the interviews, i.e. it includes:

- managers of the major companies and SMEs (at least 50% of stakeholders);
- relevant researchers (not less than 10%);
- government officials (not less than 10%);
- representatives of civil organizations.

At least 30, but preferably more, stakeholders should be listed for each priority area. The list should be composed of the group of all stakeholders mentioned in the interviews or focus groups, extended by the proposal of further stakeholders by the local team.

Tables listing the key stakeholders for each of the preliminary priority areas should indicate the following elements:

- helix that each stakeholder belongs to (business, academia, government or civil sector);
- corresponding sub-sector(s) / narrow priority area(s);
- geographic region;
- potential "ambassador" status;
- information if the referral for that stakeholder came from the stakeholders or a local team.

5.4.3.3 Preferences for the EDP

The answers given on the future EDP should be analysed to see which information or values occur most frequently. Indeed, the aim is to find out which are the most important preferences that correspond to most of the key stakeholders. These parameters can later be used to adapt the future RIS3 design process to the preferences of the most important stakeholders.

A summary of general findings on future EDP for each preliminary priority area should include:

- average preferred duration of each EDP workshop (with indication of the highest duration);
- indication of stakeholders' willingness to attend the EDP workshops in other regions (with possible indication of most preferred destination(s));
- indication of the need for formal invitation to the EDP workshops;
- *optionally*, indication of proposals of an appropriate name for the priority area.

5.4.4 Quality standards of the final report

The main source of data for the final report is the analysis of feedback from the qualitative analysis interviews. Additional sources may be used to support the conclusions from the interviews. Alternative sources should only be used in cases where no input could be obtained from stakeholders to answer the research questions. These alternative sources are usually:

- recent national sectoral analysis, product space analysis, etc;
- recent national statistical databases regarding the IPRs;
- recent financial sheets of key stakeholders;
- information from the Smart Specialisation platform of the European Commission;

- published macro-regional analyses of the specialisations.

Any source used should be indicated. Authors of the final report should use concise, scientific language and style, avoid repetition of the same text throughout the document, refrain from using abbreviations before introducing them, and check the text grammatically and stylistically before submission.

5.4.5 Outline of final report

The proposed structure of the final report is the following:

1. Introduction;
    a. Progress within the RIS3 design process;
    b. Summary of the quantitative analysis of the economic, innovation and scientific potential;
    c. Decision on preliminary priority areas;
2. Qualitative analysis and collection of qualitative data;
    a. Methodology;
    b. Actual data collection by preliminary areas;
        i. Qualitative Interviews;
        ii. Focus groups;
        iii. Other;
3. Justification of preliminary priority areas;
    a. Preliminary area 1 (justification, critical mass, stakeholders, ambassadors, COVID-19 (*optional*));
    b. Preliminary area 2 (justification, critical mass, stakeholders, ambassadors, COVID-19 (*optional*));
    c. Preliminary area 3 (justification, critical mass, stakeholders, ambassadors, COVID-19 (*optional*));
    d. Preliminary area 4 (justification, critical mass, stakeholders, ambassadors, COVID-19 (*optional*));
    e. Preliminary area 5 (justification, critical mass, stakeholders, ambassadors, COVID-19 (*optional*));
    f. Preliminary area X….
4. Conclusions
    a. Proposal of priority areas for the EDP;
    b. Key stakeholders in proposed priority areas for the EDP;
    c. Preferences on future EDP in proposed priority areas;
5. Annex I: Confirmed meeting minutes from the qualitative analysis interviews;
6. Annex II: Confirmed meeting minutes from the qualitative analysis focus groups.

5.5 Decision on priority domains for EDP

After the quantitative and qualitative analysis, a joint panel should be organised involving the national smart specialisation team, experts and possibly JRC representatives to define priority domains for the entrepreneurial discovery process.

The crucial result of this panel is the formal decision with the final list of priority domains for the future EDP.

6 Conclusions

The importance of the mapping exercise for a Smart Specialisation process is evident. It is the first complex stage involving an evidence-based analysis of the region's or country's strengths that the S3 strategy document will rely on. The transition from quantitative to qualitative mapping can be highly demanding for a regional or national Smart Specialisation team. This challenge stems from the need to engage a wide range of stakeholders in assessing the justification for the selection of priority domains and is even further underlined with the task of securing stakeholders engagement in the later stages of the process, i.e. in both the design and the implementation of a Smart Specialisation strategy. The research and innovation environment of a transformative economy, characterised by top-down policy making as often found in the EU Enlargement and Neighbourhood region, also underlines the importance of adequate preparation for establishing initial contact with all relevant stakeholders, which will lead to the stakeholder engagement required for S3 policy formulation.

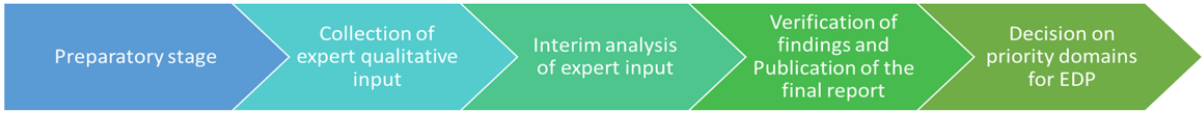
In view of the above, the preparation of the qualitative analysis of economic, innovative and scientific potential needs to be based on inclusiveness and prudence, always bearing in mind that stakeholder feedback is arguably the most important element of the Smart Specialisation process. Qualitative mapping needs to be well-structured, evidence-based and transparent in order to fully exploit the potential of the upcoming EDP. Certain steps can be adapted if the local context requires some customisation, however, the local expert team conducting the exercise needs to make sure that the best efforts are put into carrying out the stage systematically with the full engagement of stakeholders. To achieve this, it is important that stakeholders are familiar with the requirements of the process, as well as all the potential benefits that Smart Specialisation can bring.

These guidelines have been developed to enable the local expert team to take all the preparatory steps for conducting the qualitative analysis and to develop an appropriate plan for the exercise. Various checklists and additional tools have been developed to facilitate the implementation of the different sub-stages of the qualitative analysis. These have been developed based on the requirements for conducting the qualitative mapping in the Smart Specialisation context, as well as the experience of conducting the same exercise in several economies of the EU Enlargement and Neighbourhood region.

Annexes

ANNEX 1: ENHANCED QUALITATIVE ANALYSIS FRAMEWORK FOR THE EU ENLARGEMENT AND NEIGHBOURHOOD REGION

The qualitative interpretation of the results is necessary to overcome the constraints of existing industry and scientific classifications and uncover real sectors and value chains they represent. To justify the priority domains for the Entrepreneurial discovery process, the research questions set need to be answered on the basis of qualitative input form the key experts representing the key and the most innovative companies, sectorial experts and researchers cooperating with business.



Substage:	Preparatory stage	Collection of expert qualitative input	Interim analysis of expert input	Verification of findings and publication of the final report	Decision on priority domains for EDP
Activities:	Identification of specific value chains for preliminary priority domains, including challenges and trends is performed with the input from the experts representing key and the most innovative companies, sectorial experts and researchers cooperating with business (key stakeholders). Prior to the collection of such input the capacities of the dedicated local team should be built through trainings. It is necessary to align qualitative analysis with the local context. The key elements of such alignment would be to create plan of activities and resources, management protocols and communications rules and procedures. Comprehensive questionnaire, list of relevant stakeholders and process plan should be provided.	Collection of the input is done on the basis of in-depth interviews with key stakeholders. At least 50% of stakeholders must represent business sector. If interviews are considered, minimum 10-15 interviews with key organisations should be conducted per preliminary priority domain. Stakeholders should be invited following the invitation protocol. All questions from the questionnaire should be posed to enable structured documentation of answers. The smart specialisation process has to be transparent. All interviews should be documented according to the documenting protocols for maximum uniformity, transparency and traceability of the input.	The input from the interviews should be analysed in terms of providing answers to the set research questions. Answers must be derived using only in-depth analysis of stakeholder input recorded in form of structured data or minutes. The results of this analysis should provide the early (or rudimentary) findings for the justification of priority domains for the EDP and identify gaps in relation to feedback to research questions. This analysis will provide crucial input needed for the verification of findings and additional data collection. Additionally, the interim report should include the timeline and proposal of the agenda of focus groups.	To verify findings and gather missing input identified in the interim analysis, focus groups for each preliminary priory domain are organised. Data collected during focus groups is used for the final analysis. The result of this analysis is the improved definition of preliminary priority domains for the purposes of entrepreneurial discovery process. The qualitative report should be made available to the public at least in electronic version and be published (in English) on the S3 Platform portal. If necessary, it should also be translated to the local language. Quantitative and qualitative reports can be published together.	After the quantitative and qualitative analysis, a common panel should be organized involving national smart specialisation team, experts and JRC representatives in order to define priority domains for the entrepreneurial discovery process.
Support & Tools	- Training - Methodological guidelines - Check lists for process plan, list of stakeholders and questionnaire.	- Methodological guidelines - Checklist for structured data collection	- Methodological guidelines - Checklist for the Interim report	- Methodological guidelines - Checklist for the final report	- Methodological guidelines
Outputs:	- Local S3 team workshop(s) - Process plan (timeline, invitation & documenting system, resources - List of stakeholders - Comprehensive questionnaire	- Input from all types of stakeholders presented in the uniform and structured manner - Confirmed meeting minutes from conducted interviews	- Interim report with early findings and identification of gaps in the input from stakeholders - Detailed action plan for the organisation of focus groups	- Publication of the final report - Confirmed meeting minutes from the focus groups	- Meeting minutes from the panel - The formal decision with the final list of priority domains for EDP

ANNEX 2: CHECKLIST FOR THE DETAILED QUALITATIVE ANALYSIS PROCESS PLAN

Decisions of the government to ensure firm foundations for the success of the future RIS3 process:	
1. What is the position of the key policy stakeholders on how RIS3 policy mix will be harmonized with other relevant policies (e.g. industrial strategy, SME strategy)?	☐
2. Where is the place for horizontal measures and how are they connected with the RIS3?	☐
3. Is there an (at least, rough) estimation of allocated financial resources for the RIS3 implementation?	☐
Building capacities of the local team on the following topics:	
1. General framework and principles of the RIS3 design process	☐
2. Scope of measures that can be a part of RIS3 policy mix	☐
3. Available resources for implementation	☐
4. Vision of the future process and required stakeholder engagement	☐
5. Specific goals of QA and aspects for justification of priority domains (narow priorities, value chains, critical mass and future potential, cross-innovation potential, macro-regional competitiveness)	☐
Existence of elements of the qualitative analysis stage that should be co-created with the local team:	
1. Qualitative analysis action plan	☐
2. Identification and harmonisation of lists of stakeholders for each preliminary priority domain	☐
3. Available resources for implementation	☐
4. Uniformed questionnaire for stakeholders from the identified preliminary priority areas	☐
5. Data privacy and data sharing approval form	☐
6. Invitation protocol and standardised templates for invitations (e.g. pitches, e-mail templates)	☐
7. Preparation for documenting the process (e.g. table templates, report templates, documenting system)	☐
8. Quality analysis management protocols: reporting, communication and documenting and approving procedures	☐
Existence of support services during the QA execution	
1. PR campaign to ensure visibility and credibility	☐
2. IT support to ensure traceability, traceability and data security	☐

ANNEX 3: LIST OF STAKEHOLDERS TO BE INTERVIEWED

The list should contain only relevant stakeholders with in-depth knowledge about the sector including knowledge of innovation activities and players.

Preliminary priority domain

Nr.	Organisation	Position of the organisation's representative	Helix membership (government, business, academia, civil sector)	Main activity, products and services	Relevant
1					☐
2					☐
3					☐
4					☐
5					☐
6					☐
7					☐
8					☐
9					☐
10					☐
11					☐
12					☐
13					☐
14					☐
15					☐
				Total of relevant stakeholders:	

The list includes minimum 10-15 relevant representatives per preliminary priority domain	☐
Relevant stakeholders include managers of the major companies and SMEs, relevant researchers, government officials (and civil organizations)	☐
At least 50% of interviewed stakeholders represent the business sector	☐

ANNEX 4: COMPREHENSIVE AND UNIFIED QUESTIONNAIRE

Justification of preliminary priority areas	
1. What are the sub-specialisations within the area? What are the outstanding products and services?	☐
2. Where in the value chain was the largest value created globally and what is the position of national players in global value chains?	☐
3. Which sub-sectors/parts of the value chain of the identified sectors are present in the country and what are the regions with their strongest presence? Are there any parts that are missing?	☐
4. How competitive are the companies from the identified sectors at the international and regional level?	☐
5. What are the main international/regional comparative strengths (skills) and challenges of the preliminary priority areas?	☐
6. Is the level of internationalisation generally high or low?	☐
7. How dynamic are the identified sectors and what is the role of start-up, scale-up and other small and medium companies in their development?	☐
8. What are the future trends that are significant for the development of the identified sectors?	☐
9. What is the potential for cross-sectoral innovation of the identified sectors?	☐
Identification of key stakeholders	
1. Which companies are the most innovative in each identified sector and what success stories can be used as lessons for other companies?	☐
2. Which actors from academia are the most innovative in each identified sector and what success stories can be used as lessons for others?	☐
3. Who are the key stakeholders from government and civic sectors in the preliminary priority areas?	☐
Critical mass	
1. Most recent statistics and trends to demonstrate critical mass per identified sector, i.e. number of companies, employees, turnover, export	☐
2. Number of researchers, competitive projects in research framework programmes, national collaborative projects, etc.	☐
3. Recent national and international R&D projects awarded & trends	☐
4. Recent international intellectual property rights pending or approved & trends	☐
Entrepreneurial discovery process (EDP) input	☐
1. How often would respondent come to the workshops?	▭
2. How long should the EDP workshop last?	▭
3. Would they attend the EDP workshops in other regions of the country?	☐
4. Would you need a formal invitation to the workshop? Who should be the institution sending the invitation (EC institutions, relevant national ministry, chamber of commerce, other)?	☐
5. What would be an attractive name for the priority area?	☐

ANNEX 5: CHECKLIST FOR STRUCTURED DATA COLLECTION

Preliminary priority domain _____

Nr.	Organisation	Position of the organisation's representative	Helix membership (government, business, academia, civil sector)	All questions posed	Meeting minutes created	All answers documented	GDPR statement signed	ALL CONDITIONS ARE MET
1				☐	☐	☐	☐	☐
2				☐	☐	☐	☐	☐
3				☐	☐	☐	☐	☐
4				☐	☐	☐	☐	☐
5				☐	☐	☐	☐	☐
6				☐	☐	☐	☐	☐
7				☐	☐	☐	☐	☐
8				☐	☐	☐	☐	☐
9				☐	☐	☐	☐	☐
10				☐	☐	☐	☐	☐
11				☐	☐	☐	☐	☐
12				☐	☐	☐	☐	☐
13				☐	☐	☐	☐	☐
14				☐	☐	☐	☐	☐
15				☐	☐	☐	☐	☐
							Total	

Minimum 10-15 relevant representatives per preliminary priority domain answered the questionaire	☐
Relevant stakeholders include managers of the major companies and SMEs relevant researchers, government officials (and civic organizations)	☐
At least 50% of interviewed stakeholders represent business sector	☐

References

Foray, D. (2014). Smart Specialisation - Opportunities and Challenges for Regional Innovation Policy, Routledge, UK. ISBN: 9781315773063.

Foray, D., Goddard, J., Goenaga Beldarrain, X., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C., Ortega-Argilés, R. (2012). Guide to research and innovation strategies for smart specialisation (RIS 3). Luxembourg: Publications Office of the European Union.

Foray, D., David, P.A., Hall, B. (2009). Smart specialisation - the concept. Knowledge Economists Policy Brief No. 9, June 2009.

Gianelle, C., Kyriakou, D., McCann, P. and Morgan, K. (2020), Smart Specialisation on the move: reflections on six years of implementation and prospects for the future, Regional Studies 54(10): 1323-1327.

Gianelle, C., Kyriakou, D., Cohen, C. and Przeor, M. (eds) (2016), Implementing Smart Specialisation: A Handbook, Brussels: European Commission, EUR 28053 EN, doi:10.2791/53569.

Kyriakou, D., Palazuelos Martínez, M., Periáñez-Forte, I. and Rainoldi, A. (eds) (2016), Governing Smart Specialisation, Routledge, UK, ISBN9781315617374.

Marinelli E., and Perianez-Forte I. (2017). Smart Specialisation at work: The entrepreneurial discovery as a continuous process, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-74377-1, doi:10.2760/514714, JRC108571

Marques Santos, A., Edwards, J., Neto, P. (2021) Smart Specialisation Strategies and Regional Productivity: A preliminary assessment in Portugal, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-31375-5, doi:10.2760/002330, JRC124389.

Matusiak, M., Radovanovic, N., Nauwelaers, C., Kaczkowska, K. and Kramer, J. (2022), Smart Specialisation implementation framework for the EU Enlargement and Neighbourhood Region, EUR 31018 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-49360-0, doi:10.2760/056593.

Matusiak M. and Kleibrink A. (eds.) (2018), Supporting an Innovation Agenda for the Western Balkans: Tools and Methodologies, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-81870-7, doi:10.2760/48162, JRC111430.

Morgan, K. (2016). Nurturing novelty: Regional innovation policy in the age of smart specialisation. Environment and Planning C: Politics and Space, Volume: 35 issue: 4, page(s): 569-583.

Nauwelaers, C., Perianez Forte, I. and Midtkanal, I. (2014). RIS3 Implementation and Policy Mixes. S3 Policy Brief Series No. 07/2014. JRC91917. EUR 26875 EN. doi:10.2791/13295.

Perianez-Forte, I. and Wilson J. (2021) Assessing Smart Specialisation: The Entrepreneurial Discovery Process, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-37823-5, doi:10.2760/559139, JRC124405.

Radovanovic, N. and Benner, M. (2019), Smart Specialisation and the Wider Innovation Policy Context in the Western Balkans, EUR 29918 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-12550-1, doi:10.2760/380898, JRC118199.

Radovanovic, N. and Gerussi E. (2020), "Challenges in Governance of Smart Specialisation in South East Europe", Smart Specialisation – JRC Policy Insights, JRC120642, May 2020.

Sorvik, J. and Kleibrink, A. (2015). *Mapping Innovation Priorities and Specialisation Patterns in Europe*, S3 Working Paper Series No. 08/2015, Joint Research Centre of the European Commission, JRC 95227, ISSN 1831-9408 (online).

List of abbreviations and definitions

DG NEAR	Directorate-General for European Neighbourhood Policy and Enlargement Negotiations
EDP	Entrepreneurial discovery process
EU	European Union
ICT	Information and communication technologies
IPR	Intellectual property rights
IT	Information technology
JRC	Joint Research Centre
OECD	Organisation for Economic Co-operation and Development
SME	Small and medium-sized enterprise
R&D	Research and development
R&I	Research and innovation
RIS3	Research and innovation strategy for smart specialisation
RES	Renewable energy sources
S3	Smart specialisation
S&T	Science and technology
STI	Science, technology and innovation

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