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Authors:
Fabrizio Guzzo
Carlo Gianelle

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Contact information
Fabrizio Guzzo
Carlo Gianelle
Edificio Expo, c/ Inca Garcilaso, s/n
E-41092 Seville (Spain)
Email: Fabrizio.GUZZO@ec.europa.eu
Carlo.GIANELLE@ec.europa.eu

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Abstract

This reports provides some insights on the impact of Smart Specialisation on the governance of research and innovation policy systems across EU regions and countries. First, the analysis explores the governance arrangements underpinning Smart Specialisation strategies and the changes introduced by this policy concept. Second, it investigates to what extent (if any) and how Smart Specialisation has been promoting better coordination and collective action. The results show that Smart Specialisation has made the decision-making process and the governance of innovation policy more inclusive. One of the results of this policy experience is the reorganisation and/or establishment of coordination bodies, platforms, thematic working groups, clusters and the like. These organisations are reshaping and strengthening networks of engagement and modalities of cooperation between public and private actors, lowering transaction costs associated with collective action. There is evidence that Smart Specialisation has supported the production of a wide range of tangible and intangible collective goods, which are considered essential in promoting development processes. Finally, under the Smart Specialisation experience, inter-government coordination has received more attention that in the past and, as a result, new norms and arrangements have been experimented. However, despite these changes, and the general increase in pressure for coordination, the effectiveness of horizontal and vertical coordination is still weak. This depends on coordinating bodies and arrangements that are not properly functioning and the persistence of a silo approach in government, which is difficult to overcome. Clearly, this is an area where more efforts are needed in the future, along with the strengthening of the skills and resources to perform policy functions. In view of the new Cohesion Policy 2021-2027, the report provides two main recommendations. First, the Smart Specialisation approach should recognise more explicitly the need for upgrading the quality of governance and policy capacity. Where these elements are weak and/or incomplete they should be addressed with specific measures embedded into strategies and progress should be continuously monitored. Second, territories should discover what governance arrangements work best in their context, preferring the experimentation of new governance structures and processes and the increase of responsibilities and functions of management bodies and other relevant organisations as a result of capacity building processes, to the adoption of ideal models and best practices, which are often formally introduced without promoting real changes.

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Authors

Fabrizio Guzzo, European Commission, Joint Research Centre, Seville, Spain.

Carlo Gianelle, European Commission, Joint Research Centre, Seville, Spain.

Executive summary

This report provides some insights on the impact of Smart Specialisation on the governance of research and innovation policy systems across EU regions and countries. The study explores the governance arrangements underpinning Smart Specialisation strategies and the changes introduced by this policy concept. It then investigates to what extent (if any) and how Smart Specialisation has been promoting better coordination and collective action. This report draws on two data sources. The first source is represented by a survey, which gathered primary information on the Smart Specialisation experience from 79 authorities responsible for the implementation of the strategies. The second one is composed of a collection of 18 case studies.

Policy context

Smart Specialisation represents an ambitious place-based industrial and innovation policy experiment. Launched by the European Commission within the Cohesion policy 2014-2020 framework, this policy approach aims at promoting regional innovation and economic transformation, by helping countries and regions to focus on their strengths. It requires different actors (higher education and research organisations, business, public authorities and civil society) to identify strengths in their region, and prioritise support based on where local potential and market opportunities lie. To facilitate this process, Smart Specialisation seeks to improve governance arrangements, concentrate resources, build critical mass, and accelerate the uptake of new ideas. Smart Specialisation is a "complex policy space", involving different levels of government and governance arenas as well as a mix of objectives, policy domains and instruments. Given this complexity, the assessment of governance structures and processes for Smart Specialisation is crucial. It is essential to check whether proposed measures can be performed as envisioned. In this respect, the existence of a competent and functional organisation responsible for the management of the Smart Specialisation strategy is important not only to design sound policy interventions but, more importantly, it is central to translate the contents of strategy documents into effective implementation procedures, instruments and results. Often, strategies, which are seemingly well-designed on paper, are not implemented as expected due to unclear attribution of responsibilities and lack of political support, management bodies not fully operating, ineffective inter-government coordination, weak interaction with the private sector and lack of adequate skills and resources in public administrations and relevant stakeholders.

Key conclusions

In view of the new Cohesion Policy 2021-2027, the report provides two main recommendations. First, the Smart Specialisation approach should recognise more explicitly the need for upgrading the quality of governance and policy capacity. Where these elements are weak and/or incomplete they should be addressed with specific measures embedded into strategies and progress should be continuously monitored. Second, territories should discover what governance arrangements work best in their context, preferring the experimentation of new governance structures and processes and the increase of responsibilities and functions of the management body and other relevant organisations as a result of capacity building processes, instead of adopting ideal models and best practices, which are often formally introduced without promoting real changes.

Main findings

The results show that Smart Specialisation has helped to address coordination problems and thicken relations between actors. It has also made the decision-making process and the governance of innovation policy more inclusive. An additional result is the reorganisation and/or establishment of coordination bodies, platforms, thematic working groups, clusters and the like. These organisations are reshaping and strengthening networks of engagement and modalities of cooperation between public and private actors, lowering transaction costs associated with collective action. The institutional changes, promoted by the Smart Specialisation experience, have supported the production of a wide range of tangible and intangible collective goods, which are considered essential in promoting development processes. Despite the general increase in pressure for coordination, the effectiveness of horizontal and vertical coordination is still weak. This is an area where more efforts are needed in the future, along with the strengthening of the skills and resources to perform policy functions.

Related and future JRC work

This work is part of a broader assessment exercise of the Smart Specialisation experience peformed by the JRC. This broad research project gathered evidence and provided recommendations on four important components of this policy concept: governance; entrepreneurial discovery process; monitoring and evaluation; and implementation instruments.

Quick guide

This report is structured as follows. Section 1 provides an introduction. Section 2 and 3 present the policy context and the conceptual underpinnings of governance in Smart Specialisation respectively. Section 4 illustrates the research questions and the empirical strategy of the study. Section 5 presents the empirical evidence and Section 6 discusses the main findings in relation to the research questions. The final Section provides some recommendations for the future of Smart Specialisation.

1 Introduction

This report explores the impact of Smart Specialisation on the governance of research and innovation policy systems across EU regions and countries.

What are the main characteristics of the Smart Specialisation governance structures and processes implemented in different territories? What are the institutional changes promoted by this policy experience and the associated outcomes? And, finally, to what extent (if any) and how Smart Specialisation has been promoting better coordination and collective action? These are the main questions addressed in this paper.

The research draws on two data sources. The first source is represented by a survey. Launched by the S3 Platform team in June 2020, the survey gathered primary information on the Smart Specialisation experience from 9 national, and 70 regional, authorities responsible for the implementation of their respective Smart Specialisation strategies. The second one is composed of a collection of 18 case studies. Under the guidance of JRC staff, 9 national experts, from 7 EU countries (DE, ES, FI, HU, IT, PL, SI), carried out the field research and drafted the case studies in the second half of 2020.

This study is part of a broader research conducted by the Smart Specialisation Platform (S3 Platform) under the Administrative Agreement between DG Regional and Urban Policy (DG REGIO) and the Joint Research Centre (JRC) ([1]). The goal was to provide new empirical insights, along with a set of recommendations for the future of Smart Specialisation in view of the new Cohesion Policy 2021-2027. The research focussed on four core elements of this policy approach: governance, the entrepreneurial discovery process, implementation measures, monitoring and evaluation ([2]).

The rest of this paper is structured as follows. Section 2 and 3 present the policy context and the conceptual underpinnings of governance in Smart Specialisation respectively. Section 4 introduces the research questions and the empirical strategy of the study. Section 5 presents the empirical evidence and Section 6 discusses the main findings in relation to the research questions. The final Section provides some recommendations for the future of Smart Specialisation.

([1]) Administrative Agreement between DG Regional and Urban Policy (DG REGIO) and the Joint Research Center (JRC) – JRC ref. Nr. 35558-2020 – REGIO CCI 2019CE16BAT170 – "Smart Specialisation Platform – Phase V".

([2]) For the JRC Science for Policy reports on entrepreneurial discovery process, implementation measures and monitoring and evaluation see: Fratesi *et al.*, (2021), Hegyi and Prota (2021), Perianez-Forte and Wilson (2021).

2 The policy context

Smart Specialisation represents an ambitious place-based industrial and innovation policy experiment. As laid out in the official documents of the European Commission, this policy approach aims at promoting regional innovation and economic transformation, by helping countries and regions to focus on their strengths. It requires different actors (higher education and research organisations, business, public authorities and civil society) to identify strengths in their region, and prioritise support based on where local potential and market opportunities lie. To facilitate this process, Smart Specialisation seeks to improve governance arrangements, concentrate resources, build critical mass, and accelerate the uptake of new ideas (European Commission, 2017).

The adoption of a Smart Specialisation strategy was introduced by the European legislation as a requirement (*ex-ante* conditionality) for regions and Member States to access funding under Thematic Objective 1 "Strengthening research, technological development and innovation" of the European Regional Development Fund for the period 2014–2020 (European Union, 2013).

Smart Specialisation embraces a broad view of innovation, not confined to research-intensive or technology-based activities, while stressing the inclusive nature of the search and discovery process (Foray, 2015; Radosevic, 2018). It is a **complex policy space**, involving different actors, levels of government and governance arenas as well as a mix of objectives, policy domains and instruments ([3]). Such policy context includes multiple variables that are difficult to predict. This, coupled with the uncertainties related to the implementation of the policy due to contextual factors – such as the characteristics and dynamics of the territorial production and innovation systems and the quality of institutions – makes policy outcomes highly unpredictable.

Given this complexity, the **assessment of the governance arrangements and "policy capacity" for Smart Specialisation is crucial** ([4]). It is essential to check whether proposed measures can be performed as envisioned. In this respect, the existence of a competent and functional organisation responsible for the management of the Smart Specialisation strategy is important not only to design sound policy interventions but, more importantly, it is central to translate the contents of strategy documents into effective implementation procedures, instruments and results. Often, strategies, which are seemingly well-designed on paper, are not implemented as expected due to unclear attribution of responsibilities and lack of political support, management bodies not fully operating, ineffective inter-government coordination, weak interaction with the private sector and lack of adequate skills and resources in public administrations and relevant stakeholders (Capello and Kroll, 2016; Guzzo *et al.*, 2018; Guzzo and Peiranez-Forte, 2019; Marques and Morgan, 2018).

For the analytical purposes of our study, we briefly examine the main characteristics of the Smart Specialisation policy approach and their implications in terms of governance. In particular, we focus on three main characteristics.

First, **Smart Specialisation can be considered as a *meta-policy***. It is a policy process rather an innovation policy on its own right, which aims at redefining and reshaping other policies by impacting on specific criteria and priorities that these policies need to consider at national/regional level (Foray *et al.*, 2018). Smart Specialisation deals with what arrangements should exist for better policy-making. It addresses the characteristics of the decision making process, including institutional arrangements, actors to be involved, conceptual frameworks, policy instruments and coordination of different policy areas. There is a strong transformative purpose underlying the Smart Specialisation policy concept. It does not simply acknowledge the existence of "institutional thickness" (Amin and Thrift, 1994) as an essential condition for the success of the strategies; it goes further, with its attempt to promote institutional change, namely in less favoured regions. To this end, measures for enhancing the quality of institutions and the quality of the policy process

([3]) On innovation policies as a complex policy space together with policy-mixes and policy instruments for innovation, from a theoretical and empirical perspectives, see among others: Borrás (2008); Flanagan *et al.* (2011); Magro and Wilson (2013); Marinelli *et al.* (2019b).

([4]) Here, we refer to the definition of "policy capacity" proposed by Wu and colleagues (2015: 166-167). According to the authors, policy capacity is defined as the set of skills and resources to perform all policy functions (design, implementation, monitoring and evaluation). Policy capacity can be categorised in three types: analytical, operational and political. Each of these three capacities depend on resources at three different levels: individual, organisational and systemic. The model relies on a nested logic, with the different level interacting and affecting each other. Finally, in their conceptualisation, policy capacity goes beyond the government. It is acknowledged that a wide range of public and private actors are involved in the policy process, so their capacities directly affect the government's own capacity to perform.

have been actively promoted by the EU policy maker, along with guidance on how to increase openness and transparency of the decision making process (European Commission, 2012) ([5]).

The main implication in terms of governance of this first Smart Specialisation's feature is **the centrality of horizontal coordination mechanisms** to ensure effective strategy implementation and coherence between different policy areas, objectives, instruments and implementing authorities (ministries, departments, agencies, etc.). In such a context, effective inter-government coordination is essential to support integrated policy approaches and the combination of different funding sources (EU Cohesion policy funds, national funds, etc.). This type of coordination can certainly benefit from the existence of formal and informal networks of civil servants, which develop over time through the repeated interactions of these actors who work together and get to know each other well (Peters, 2018). In a similar fashion, the provision of a clear mandate and adequate resources to implementing bodies, matched with the willingness of the relevant public authorities to align their instruments and resources with the objectives of Smart Specialisation strategies, can contribute to achieve better coordination. This is not easy, however; despite, the general increased pressure for coordination in policy processes, there are reasons for the persistence of *silos* in governments and the failure to produce more coordination (Bach and Wegrich, 2019; Peters, 2018; Scharpf, 1994).

Second, **Smart Specialisation builds on a place-based approach**, in which the policy design and implementation are distributed among different territorial scales and actors. The EU establishes rules and general objectives for using the funding provided, leaving it to lower levels of government to implement the actual policies according to their specific socio-economic context (Barca, 2009).

More in detail, drawing on Sabel's and Zeitlin's (2008) work on experimental governance, in the Smart Specialisation policy context different levels of government are involved in an iterative process, which can be characterised by the following four elements.

1. Framework goals are set at EU level. General rules are imposed to national and regional governments to modify policy makers' behaviour. So, for example, the conditionality on accessing EU Cohesion policy funds for research and innovation is imposed in order to promote greater concentration of resources on a limited set of research and innovation priorities.
2. National and regional governments then decide on how to meet the general EU goals. They set specific ends that reflect their needs and potentials, provided they are consistent with the main objectives and policy architecture set at EU level, and design policy interventions crafted according to the specific territorial context.
3. Throughout policy implementation, national and regional authorities are expected to assess and revise goals, performance measures and decision making procedures on the basis of emerging evidence.
4. As an additional condition for decision-making autonomy, national and regional governments must report regularly on their performance to the EU authorities and to their constituencies more in general. They are also encouraged to exchange experiences across the EU to promote mutual learning.

The main implication in terms of governance of this second feature is **the importance of vertical coordination mechanisms**. Where existing and functioning, these mechanisms can a) contribute to bring to the fore the different agendas and interests of all relevant stakeholders, b) ensure effective implementation and coherence across different territorial levels and c) avoid duplications and the deployment of contradictory measures, while promoting synergies.

Third, **Smart Specialisation rests on the idea that public intervention must be selective** (Foray, 2015; Radosevic, 2017). More specifically, public support should focus on particular economic activities, referred to as priority areas, where the transformative and development potential is higher. These areas must have market potential (in the shorter or longer term) and build primarily on the assets and resources of the territory. In Smart Specialisation, priorities represent an effort to concentrate intervention on a few transformative activities that guarantee an effective response to social and economic challenges, and offer

([5]) To build capacity in public and private actors and foster institutional change, the European Parliament and the European Commission's Directorate-General for Regional and Urban Policy (responsible for the EU Cohesion policy) promoted and funded many support initiatives. These interventions were carried out in different countries and regions by the European Commission's Joint research Centre, the World Bank, researchers and experts. For a partial review of the capacity building initiatives experimented across the EU, see Polverari and Dozhdeva (2018).

opportunities for growth. Priorities stand at the interception of technology, industry, and societal needs (Gianelle *et al.*, 2020).

In the most recent conceptual developments of Smart Specialisation, the identification of priority areas and the exploration of the potential for economic transformation within these areas rely on a mix of planning and self-discovery logic. Strategic priority are selected through a participatory process within a top-down approach steered by national and/or regional authorities. That is the planning part. Then, once strategic priorities and direction of change have been selected, the self-discovery logic, or entrepreneurial discovery, kicks in, shaping the way the transformative activity is constructed and developed (Foray, 2019). This process requires the engagement of public authorities, firms, research organisations, technology transfer centres and intermediary organisations, including civil society groups and organisations. The abovementioned mix of planning and self-discovery is highly dependent on the "relational infrastructure" (Storper *et al.*, 2015) of territories and the capacity of government and relevant actors.

This third characteristic of Smart Specialisation have several implication for governance. Firstly, the **capacity to connect different worlds, build and nurture relations and empower different typology of actors**. Secondly, the **analytical capacity** to identify market opportunities, carry out territorial diagnostics, monitor and assess public action. Thirdly, **the ability to conduct experiments** and connect policy instruments. Selectivity also implies the need for **political and negotiation capacities**. Finally, the **capacity for policy learning**. Following the experimentalist approach (Rodrik, 2010), in the Smart Specialisation conceptualisation, territories are encouraged to invest in learning on how to navigate their own reality and discover policy options that can work in their specific context, rather than following universal recipes and best practices. This implies engaging in a continuous process of policy learning and adaptation. Such process is only possible if properly supported by the systematic production of information regarding actual policy developments through monitoring and evaluation and by the governance arrangements necessary to use evidence to improve the efficiency and effectiveness of public intervention (Marinelli *et al.*, 2019a).

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To conclude, the above exploration has outlined the complexity of such policy endeavour. Acknowledging and disentangling such complexity is a pre-requisite of any analysis of governance for Smart Specialisation. As Morgan (2017) rightly highlights, this EU wide policy experiment has put unprecedented pressure on regional and national systems. Governing such complex policy space is extremely challenging for government and relevant stakeholders. With its demands of integrating several policy domains and territorial levels, Smart Specialisation Strategy design, implementation, monitoring and evaluation pose burdensome requests, especially on those countries and regions with weak institutional capacity and limited public-private relations. At the same time, it offers an opportunity for institutional learning and the enhancement of administrative capacities, governance arrangements and the capacities of all the actors involved in the policy process (Guzzo *et al.*, 2018; Kroll *et al.*, 2014; McCann and Ortega-Argilés, 2016; Polverari, 2016).

3 The governance of Smart Specialisation

There is a wealth of literature, in different disciplines of the social sciences (economics, political science and geography), showing how **the prosperity of countries and regions depends on the quality of formal and informal institutions** ([6]). The former being the "rules of the game" (North, 1990), formal laws, codified rules and governmental organisations. The latter, the wide range of beliefs, values, culture, trust, informal norms and practices as well as informal networks of persons and organisations (Rodríguez-Pose and Storper, 2006; Rodríguez-Pose, 2013), which help to coordinate economic actors under conditions of uncertainties (Storper, 1997). Formal and informal institutions are the product of history, culture and historical accidents (Feldman *et al.*, 2016). By interacting and influencing each other they shape different development paths of territories ([7]).

"Inclusive" formal institutions (Acemoglu and Robinson, 2012) together with dynamic social contexts, characterised by trust, reciprocity and the collaborative nature of public-private relations are the backbone of long-term economic development. Focusing on the economic performance of EU regions, Rodríguez-Pose and Ketterer (2020) argue that as the level of initial development increases, the influence of more traditional growth factors wanes and government quality becomes more relevant in determining which territories are and remain dynamic and which are not. Their analysis show that the low-growth regions in Southern Europe, which failed to improve government quality, have been unable of making the most of Cohesion Policy intervention and, as a consequence, have also grown less. Further, government quality has been proven a relevant factor influencing innovation capacity, and effective and transparent public institutions represent a necessary complement to direct innovation support measures (Rodríguez-Pose and Di Cataldo, 2015). Empirical evidence also shows that regional development depends to a large extent on the existence of public goods which can be produced through the collective action of intermediate institutions ([8]).

The Smart Specialisation policy concept acknowledges the above mentioned factors and **encourages institutional change, capacity building and collective action**. In doing so, the policy embraces a "constructability perspective" according to which even when the socio-institutional context is weak and highly fragmented, public policy may influence this context, modifying the mentality and behaviour of relevant actors, facilitating the achievement of development objectives (Evans, 1996). However, it is necessary to emphasise that public intervention is not always successful in doing that. Initial conditions and the actual deployment of policy measures on the ground determine the final outcome.

The existence of a sound governance configuration is considered an important condition for the effective implementation of the Smart Specialisation strategies. At the same time, **the improvement of governance quality is one of the goals of the policy**. Building better and more inclusive institutions along with improving vertical and horizontal coordination mechanisms and promoting collective action are indeed important underlying objectives of the policy, particularly in institutionally weak contexts. A good strategy recognises institutional factors, their variability and limitations and attempts to address the weaknesses of existing governance arrangements.

Governance for Smart Specialisation implies the ability to engage with the private sector and intermediate organisations, coordinate within and across public administrations and agencies and ensure continuity of policy through electoral cycle (Radosevic, 2018).

Governance arrangements are the result of existing formal institutional settings (e.g. the distribution of roles and responsibilities between different government levels), administrative traditions and capacity, history of public-private interactions, shared norms and values, informal networks and participatory processes. These elements are context specific, so the resulting governance structures and processes tend to vary across the EU.

Given these differences, it is neither feasible nor advisable to propose a unique, monolithic, model of governance for Smart Specialisation that can be universally applied to every region or country. Nonetheless, it is still possible to draw the attention to the following **three main components** that can be considered generally relevant for effective governance.

([6]) See among others: Acemoglu and Robinson (2012); Amin and Thrift (1995); Martin and Sunley (1996); North (1990); Putnam (1993); Rodríguez-Pose and Storper (2006); Rodríguez-Pose (2013); Rodrik (2007); Storper (1997).

([7]) For a review on this interaction see Alesina and Giuliano (2015).

([8]) Intermediate institutions are formed by those organisations, whose main activity is that of providing "exclusive" public goods for specific groups of economic actors. Intermediate institutions include Chambers of Commerce, entrepreneurs' associations, local authorities, consortia, other economic and social organisations, and the norms (explicit and tacit) that regulate their relationships (Arrighetti and Seravalli, 1999).

— **Management bodies.** Clear attribution of responsibilities and political support to the organisations responsible for the management of the Smart Specialisation strategies are essential to avoid the creation of structures with limited room for manoeuvre and ensure their operational and coordination functions. The appointed bodies should be independent of and yet accountable to political representatives as well as private and civil society actors. Implementing bodies should have the necessary autonomy and adequate resources to limit rent-seeking behaviours and avoid incumbents and powerful lobbies capturing most of the policy resources or undermine the policy's transformative intention. Clearly, autonomy should be accompanied by accountability. The right mix of autonomy and accountability should be carefully designed according to the characteristics of the political and institutional context and the administrative capacities.

— **Horizontal and vertical coordination**. The channels for an ongoing negotiation and collaboration with private and public actors need to be ensured. Effective inter-ministerial/departmental coordination mechanisms and links with elected representatives should also be in place along with coordination arrangements across different spatial scales.

— **Skills and resources.** Availability of adequate skills and resources, in both public authorities and relevant stakeholders, to effectively carry out strategy formulation, implementation, monitoring and evaluation.

More emphasis should be put on the assessment of these features, especially in countries and regions where institutional capacity is one of the major constraints for effective policy design and implementation. This assessment implies an accurate description of each dimension, and the selection of criteria by which that dimension can be judged. **Box 1** provides a set of potential questions that could be used for this assessment ([9]).

Box 1. Set of potential questions for the assessment of Smart Specialisation governance

Formal institutionalisation of the Smart Specialisation policy process and its management body

— How strong is the formal institutionalisation of the Smart Specialisation strategy and its implementation tools through laws, official acts and decisions, etc.?

— Does the strategy management body have a clear political mandate? What instruments exist that secure the implementing body sufficient autonomy vis-à-vis undue influence by the private sector and political class?

— What type of control/coordination mandate does the designated management body have on the instruments and financial resources to ensure policy coherence and implement the strategy as envisioned?

Horizontal and vertical coordination

— How are the relations between the political actors, public administration, other public institutions and private sector (including civil society actors) organised? Which mechanisms exist? Do public authorities have adequate information about the specific needs of firms, research organisations and civil society groups? In which way different actors are included in the policy process?

— What are the ministries/departments/agencies involved in the implementation of the strategy? How are the relations among these different bodies organised? How are the relations among the strategy management body and the Managing Authorities of the Operational Programmes organised (where they differ)? What coordination mechanisms are in place to secure policy coherence and the coordination among the different policy areas and instruments (which are normally managed by different ministries/departments/agencies)?

— Where relevant, what mechanisms exist to secure vertical coordination between the central and regional level? How are the interests and needs of sub-regional communities and actors organised and taken into consideration at regional and national level? What negotiation mechanisms exist?

([9]) The EQuIP manual on industrial policy (GIZ-UNIDO, 2017) provided a valuable source of inspiration for the formulation of the questions included in the box.

Skills and resources (management body)

— Does the designated management body have the sufficient skills and resources to fulfil its mandate and tasks? Is the political, analytical and operational expertise currently available within the body responsible for the management of the strategy adequate? Is there the possibility to hire qualified staff and contract external services?

— Does the designated management body have an adequate infrastructure to collect and analyse data?

4 Research questions and empirical strategy

By exploring the three governance components outlined in the previous section and the changes introduced by the Smart Specialisation experience, this study aimed to answer the following main research question:

To what extent, if any, and how is Smart Specialisation governance promoting better coordination and collective action?

For analytical purposes, this broad research question has been articulated in a set of more detailed sub-questions:

- To what extent and how are Smart Specialisation governance arrangements modifying/strengthening networks of engagement and cooperation among different actors and within government?
- Are these changes inducing the creation of institutions that lower transaction costs and promote collective action?
- Are new beliefs and narratives emerging as result of the Smart Specialisation process?
- Does Smart Specialisation translate in better policy design and implementation?

Two data sources have been used to explore the main dimensions of Smart Specialisation governance and answer the research questions.

The first source of evidence is represented by a survey. Launched by the S3 Platform team in June 2020, the survey gathered primary information on the Smart Specialisation experience. Survey data include 79 valid responses from 19 EU Countries, 9 responses from national authorities and 70 from regional ones (see Annex 1). Given the number of replies and the geographical coverage, the sample is reasonably representative of the total number of Smart Specialisation strategies (more than 120) developed by Member States and regions for the 2014-2020 period. Respondents work for public administration organisations involved in the management of Smart Specialisation strategies. The survey consisted of four sections: (i) implementation, (ii) governance, (iii) the entrepreneurial discovery process, and (iv) monitoring and evaluation. In particular, the section on governance included 11 questions addressing: the changes introduced by the Smart Specialisation experience on governance arrangements; the role of the bodies responsible for the management of strategy and their effectiveness; political and management leadership; existence and quality of horizontal and vertical coordination mechanisms; and, finally, mechanisms to enhance stakeholder engagement.

A collection of 18 case studies provided the second source of empirical evidence for this study. Under the guidance of JRC staff, 9 national experts, from 7 EU countries (DE, ES, FI, HU, IT, PL, SI), carried out the field research and drafted the case studies in the second half of 2020. 5 case studies regard national strategies and 13 regional ones. The list of cases are illustrated in **Table 1**.

Case studies were conducted on the basis of a common conceptual framework and guidelines for data collection. Case study reports also followed a similar structure, which facilitates information extraction for topics and comparative analysis. More specifically, the part on governance addresses the following points: Smart Specialisation governance structures, processes and actors; changes introduced by Smart Specialisation and associated outcomes; political support and leadership; autonomy, accountability, skills and resources of the bodies responsible for the management of strategy; horizontal and vertical coordination.

Table 1. Case studies: main characteristics of the territories.

Region/country	**Population**	**NUTS level**	**ESIFs 2014-2020 classification**	**Innovation scoreboard**
North Rhine Westphalia	17,929,679	NUTS 1	More developed region	Strong + (Cologne - NUTS 2) Strong (the other four NUTS 2 regions) [1]
Lapland	180,000	NUTS 3	More developed region	Strong +
Ostrobothnia	181,000	NUTS 3	More developed region	Leader -

Helsinki-Uusimaa	1,700,000	NUTS 2	More developed region	Leader +
Six city -strategy ([2])	1,800,000	_	_	Leader + and Leader -
Lombardia	10,100,000	NUTS 2	More developed region	Moderate +
Campania	5,800,000	NUTS 2	Less developed region	Moderate
Toscana	3,730,000	NUTS 2	More developed region	Moderate +
Emilia Romagna	4,400,000	NUTS 2	More developed region	Moderate +
Abruzzo	1,300,000	NUTS 2	Transition region	Moderate
Hungary	9,800,000	NUTS 0	6 Less developed regions 1 Transition region	Moderate
Slovenia	2,100,000	NUTS 0	Eastern Slovenia: Less developed region Central and Western Slovenia: Transition region	Moderate
Spain	47,100,000	NUTS 0	1 Less developed regions 5 Transition regions 13 More developed regions	Moderate
Cataluña	7,700,000	NUTS 2	More developed region	Moderate +
Galicia	2,700,000	NUTS 2	More developed region	Moderate -
Comunidad Valenciana	5,000,000	NUTS 2	More developed region	Moderate
Poland	38,000,000	NUTS 0	15 Less developed regions 1 More developed region	Moderate
Mazowieckie	5,100,000	NUTS 1	More developed region	Moderate + (Warsaw Capital City) Modest + (Mazowieckie region)

([1]) North Rhine Westphalia is composed of five regions at NUTS2 level: Düsseldorf, Cologne, Münster, Detmold and Arnsberg.
([2]) The Six city-strategy includes individual cities from four regions across Western- and Southern-Finland, which means that there are no official classifications for it. The six cities are: Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu.

5 Empirical evidence

5.1 Governance structures and processes

Smart Specialisation governance structures and processes are the result of the distribution of powers between different government levels, the organisation of bureaucracies, laws and codified norms as well as culture, traditions of public-private cooperation, trust, existing networks of individuals and organisations and informal norms. These elements and their interplay are context specific, so the resulting governance arrangements vary across the EU.

In line with the literature (Arangueren *et al.*, 2019; Benner, 2019; Laranja *et al.*, 2020; Trippl *et al.*, 2019), our analysis shows that the governance of Smart Specialisation is inherently shaped by existing formal and informal institutions (*path-dependency*). Nonetheless, in many cases, this policy experience has brought relevant institutional changes.

The exploration of governance structures and processes has allowed us to grasp some of the main characteristics of the coordination arrangements implemented across the EU and to identify some common trends as well as differences. Below, five main findings are discussed.

First, **the role of government is crucial in shaping governance arrangements and their evolving path**. This is common to all the case studies analysed. Even though other partners are involved in the policy design and implementation, the State still plays a central role in Smart Specialisation (Rodríguez-Pose *et al.*, 2014). Drawing on Jessop's (1998) reflections on the role of the State in governance processes, in the Smart Specialisation policy setting, the government is the main organiser of the dialogue among different partners and the main organisation responsible for ensuring some coherence among the different needs and interests. The State plays a *meta-governance* role by providing the ground rules and infrastructure for governance and the mechanisms for collective learning. It acts as source and mediator of collective intelligence and exercises moral suasion over the main actors of the regional innovation system. Moreover, the government fosters meanings and beliefs among relevant stakeholders and the development of shared visions, which may promote new institutional arrangements and new activities. Finally, it deploys a relative monopoly of organisational intelligence and information and makes financial resources available to implement policy measures.

Second, **the degree of formalisation of governance structures and processes varies considerably**. For instance, Poland, Abruzzo, Campania and Comunidad Valenciana have opted for highly formalised and articulated modes of governance. It is important to emphasise, however, that in the latter three cases, the codified governance arrangements envisaged in the strategy's documents were not fully operationalised and some coordination problems remained unsolved. To overcome this impasse, in Campania, a less burdensome and more informal set of coordination mechanisms was eventually implemented. On the contrary, more informal governance arrangements have been adopted in Lapland. Similarly, in the Six City strategy (Finland), informal mechanisms and rules underpinned the stakeholder engagement process. In Ostrobothnia, a more formal governance structure has only recently been introduced. Finally, in Italy, given the distribution of powers between the central and regional governments in relation to research, technology transfer and innovation policies, the governance of Smart Specialisation in Lombardia, Toscana and Emilia Romagna is firmly grounded in existing regional laws regulating their respective research and innovation policy systems. In these regions, however, codified laws and rules are complemented by strong traditions of public-private collaboration, dense informal relations and networks of individuals and organisations. The interplay and reciprocal influence of formal and informal institutions strongly characterises governance structures and processes in these regions.

Third, although it is widely acknowledged that the Smart Specialisation experience has contributed to include relevant actors in the policy process, our collection of case studies shows that there are **notable differences on how the strategic decision-making power has been shared between the government and other parties across the EU**. On one side of the spectrum, there are territories – such as North Rhine-Westphalia, Mazowieckie, Slovenia, Abruzzo, Cataluña and Galicia – where strategic decision-making and planning have been firmly in the hands of government bodies without much involvement of relevant stakeholders. On the opposite side, there are cases characterised by more inclusive processes. The Smart Specialisation strategy of the Comunidad Valenciana is an interesting case in point. In this Spanish region, the Steering Committee, which is the responsible body for strategic decisions, is chaired by an intermediary organisation, the regional

Business Confederation (**Box 2**). More decentralised modes of strategic decision-making can also be noted in all Finnish cases as well as in Hungary, Poland, Lombardia, Toscana and Emilia-Romagna.

Box 2. Smart Specialisation governance structure in the Comunidad Valenciana and political support

In the Smart Specialisation governance settings of the Comunidad Valenciana a leading role in the Steering Committee is attributed to the *Business Confederation of the Comunitad Valenciana* (*CEV*). The President of the business association chairs this body. Regional stakeholders recognise that this arrangement has increased the level of engagement of different actors, especially from the business sector, and promoted greater confidence in the Smart Specialisation process. It has also contributed to ensure greater transparency and continued support for the strategy despite changes in government. This arrangement builds on a consolidated tradition of cooperation and social dialogue promoted by the *Valencian Industry and Economic Sectors Observatory*, where the government, business sector and trade unions negotiate and take strategic decisions.

Forth, **intermediary organisations are very relevant actors in Smart Specialisation governance**. When these organisations (namely clusters and technological districts) are adequately staffed and function well, they play a central role in promoting and facilitating collective action by reducing coordination costs (North Rhine-Westphalia, Lapland, Lombardia, Toscana and Emilia Romagna). Intermediary organisations are key partners in the production and circulation of new knowledge on economic activities, technologies and markets. They help to develop and diffuse new ideas and narratives, while strengthening networks of individuals and organisations. Government actors rely on their support to organise and keep the entrepreneurial discovery process going, to launch pilot projects and to promote joint initiatives between different typology of actors. In several regions and Member States, EU Cohesion policy resources have been specifically devoted to supporting the activities and functioning of intermediary organisations ([10]). In addition, the creation of new associations and platforms in relation to the Smart Specialisation priority areas has also been actively supported in many territories (see Box 5 in section 5.3 for some examples). By gathering firms, research and technology transfer organisations and other public and private actors in frequent meetings, workshops, pilot actions and other initiatives, these organisations support the development and strengthening of "weak ties" (Granovetter, 1973) between regional actors, which in turn reduce information and coordination costs associated with collective action.

Finally, **Governance arrangements are not static, but dynamic**. As a result of the implementation process, governance arrangements have been evolving in many territories. Some examples are the set-up of new coordination mechanisms or bodies (Ostrobothnia and Comunidad Valenciana) or the dismissal of existing coordination bodies (Slovenia), the attribution of new tasks to consultative fora (Emilia Romagna) and the inclusion of new actors in the policy process and strategic decision-making (Emilia Romagna, Toscana and Helsinki-Uusimaa). Some of these transformations depend on changes in government; others, hinge on beliefs and behaviours of actors and organisations involved in the process as well as on their policy learning and reflexive capacities. Overall, these changes reflect a genuine intention of regional and national authorities to improve the governance of their respective research and innovation systems.

5.2 Management bodies

The new enabling condition on Smart Specialisation, for regions and Member States to access resources under the Police Objective 1 – A more competitive and smarter Europe of the Cohesion Policy 2021-2027, emphasises the importance of the **existence of a competent regional/national body, responsible for the management of the Smart Specialisation strategy for an effective governance of the policy process** (European Union, 2018). In particular, Smart Specialisation entails bodies responsible for managing the strategies with a clear mandate and political support along with organisational and analytical capacities to effectively design, implement, monitor and evaluate the policy. How well these organisations perform depends on their internal organisation and expertise as well as on the political and institutional framework within which they operate.

([10]) On this see also Fratesi *et al.* (2021).

In light of this, the survey and case studies have gathered some insights on the main features of these bodies as well as on the main dimensions that affect the capacity of the Smart Specialisation management bodies to perform their functions:

- attribution of responsibilities and political support;
- autonomy and accountability;
- skills and resources.

Finally, the views of survey respondents on the overall effectiveness of these organisations to perform their governance functions are presented.

'Who' are the managing bodies?

From the case studies we can observe that the **Smart Specialisation management functions are generally placed within a unit (or across units) in ministries or departments of government** and, in a few cases, the management body of the strategy corresponds to the Managing Authorities of the ERDF Operational Programmes (Toscana and Abruzzo). However, this is not the only type of arrangement. There are territories, where **management functions are mostly carried out by government's innovation agencies**: for example, the National Office of Research, Development and Innovation (NKFIH) in Hungary and the Galician Innovation Agency (GAIN) in Galicia (**Box 3**).

Box 3. The role of the Galician Innovation Agency in Smart Specialisation

In Galicia, the Smart Specialisation strategy is coordinated and managed by the Galician government's Innovation Agency (GAIN).

The main decisions regarding the strategy are discussed and taken by the GAIN's Rector Council, while the GAIN's managing team is responsible for the implementation.

GAIN collaborates with several working groups and fora on the entrepreneurial discovery process. Additionally, the agency manages several policy instruments and coordinates other departments/agencies responsible for the implementation of some policy instruments related to the strategy.

More in detail, GAIN's Rector Council is in charge of guiding the decision making process and supervising the implementation. Among its responsibilities there are strategy design and approval (to be ratified by the Council of Ministers of the Galician government), implementation follow-up and coordination of other governmental bodies (e.g. central government and other regions).

GAIN's managing team is responsible for implementing the strategy on a daily basis. It coordinates the working groups and steers the activities of the fora. Moreover, the management team directly implements most of the measures. Other policy instruments are managed by the Galician Institute for Economic Promotion (IGAPE) and the regional Ministry of Education.

Finally, there are other cases, where **management responsibilities are distributed between different bodies** (e.g North Rhine-Westphalia, the national Smart Specialisation strategy in Spain and the Six City strategy in Finland). In North Rhine-Westphalia, an inter-ministerial working group decides on the thematic allocation of funding, defines the scope of policy instruments and designs calls for projects on the basis of stakeholder contributions. Then, the actual implementation of the strategy is mostly decentralised to an executive agency (selected through a public tender), which acts as an intermediary body. The mandate of this agency is limited to the implementation of the policy instruments (management of the calls for projects). The agency also accompanies project consortia, interacts with stakeholders and monitors project results. However, it does not perform any strategic steering function. The introduction of this agency in the governance of the research and innovation policy in the region has been positively valued by all stakeholders interviewed during the field research. In particular, they highlighted the important role this agency plays in informing both beneficiaries and ministries about ongoing plans and progress. Before there were less stable expectations given fluctuating funding and several bodies responsible for the implementation. The agency also shows a

stronger operational capacity. It managed competitive calls for projects more efficiently than before (time to grant down from 450 to 220 days) and promoted clearer expectations on funding priorities.

This diversity in management settings clearly depends on the territorial differences in the structures of government, the distribution of responsibilities within public administrations, the laws and the organisation of bureaucracies and their culture. There is no ideal model to copy. What works in one specific place may fail in another economic, social and institutional environment. There are no shortcuts. Territories must experiment with and discover what arrangements work best in their specific context.

Attribution of responsibilities and political support

Clear attribution of responsibilities and political support to the organisations responsible for the management of the Smart Specialisation strategy are essential to avoid the creation of structures with limited room for manoeuvre and ensure their operational and coordination functions. Political support is important to guarantee policy continuity and the necessary resources for implementation.

Anecdotal evidence points to the difficulties in securing continuous political support for the Smart Specialisation exercise. Initial backing can vanish in the implementation phase, due to changes in government and declining interest by politicians (Guzzo and Perianez-Forte, 2019).

Our study reveals a mixed picture in relation to these two dimensions.

According to the survey results, there is an extensive agreement among respondents on the **existence of a clear attribution of the role and competences to the management bodies**. This is confirmed by the case studies to a large extent.

In relation to the political support, the vast majority of national and regional authorities observe that the **Smart Specialisation management body can count on a continuous political support in their respective territories.** 7 out of 10 survey respondents agree or strongly agree with this statement (**Figure 2**). From the case studies, we can also observe that in North Rhine-Westphalia, Lombardia and Comunidad Valenciana continuous support to the strategies persisted despite changes in government. In Campania, the election of a new government introduced a strong discontinuity with respect to the governance arrangements planned in the strategy document, by simplifying and adopting more effective and pragmatic coordination mechanisms.

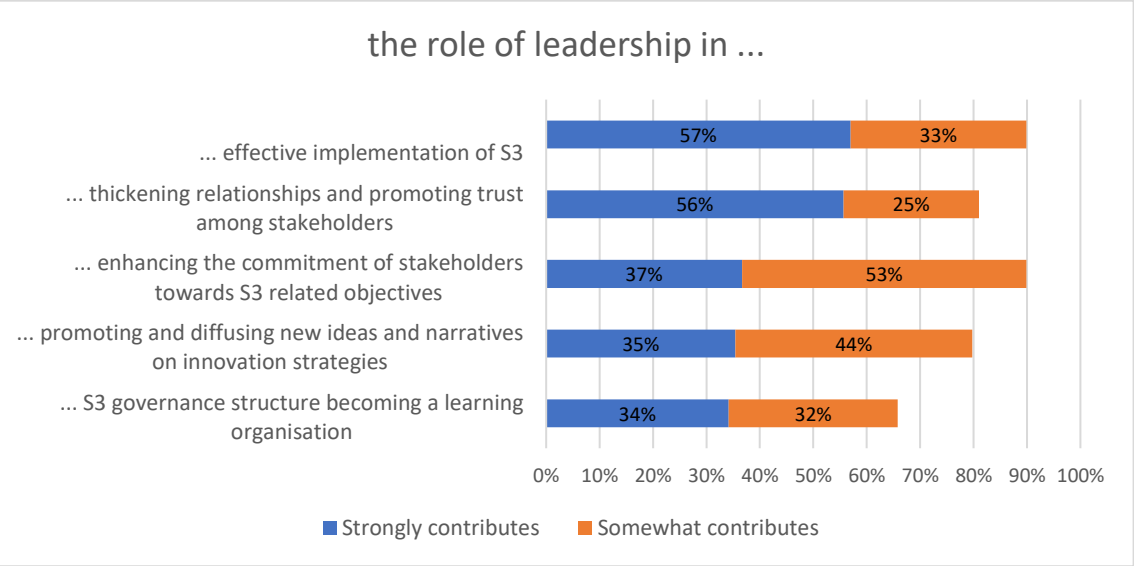
It has to be noted, however, that in the case of less developed regions, the level of agreement by the survey respondents is lower. This seems to reiterate a paradox that exists in these regions: precisely where continuous political support is most needed, it is often lacking.

Political support depends on many factors, among which the extent to which the legitimacy of the political class depends on economic development, on how politicians achieve consensus and win elections. Politicians may face strong incentives for working mostly with the usual suspects (incumbents) and perpetuating the *status quo*. This is particularly true in less developed contexts, where privileged (more powerful) elites maintain their rents by forcing suboptimal decisions and policies. As argued by Acemoglu and Robinson (2012), the presence of strong incumbents and "extractive institutions" represent a formidable obstacle to the diffusion of new policy ideas and more inclusive and effective governance arrangements. Yet institutions do change. There are circumstances in which politicians and elites contribute to shape a new vision and change beliefs and worldviews to make the territory more hospitable to game changing innovation and build a coalition with new actors (Storper *et al.*, 2015). New ideas can play a role in how the interests of those in power are redefined and pursued. Ideas can overcome resistance to change and enable society to move closer to the efficiency frontier, making both elites and non-elites better off (Rodrik, 2014).

Generally, the existence of leaders can help new ideas and narratives to develop and thrive. Leaders act as educators, promoting and accepting changing worldviews, redefining meaning and stimulating commitments. They also act as brokers: providing information, identifying possible coalitions and facilitating negotiations (March and Olsen, 1984). Having acknowledged the relevance of the leadership role in policy processes, the survey briefly explored stakeholders' view on this dimension, by focusing on the political and management leadership. The existence of strategic and operational leadership plays a central role in effective strategy design and implementation, as well as in strengthening coordination between actors and promoting collective action. Stakeholders recognise that **leadership has contributed to effective implementation and promoted a greater stakeholder engagement with the strategy's objectives**. Leadership is also

considered particularly relevant in **generating and diffusing new ideas and narratives** on innovation strategies, in **thickening relationships and promoting trust** (**Figure 1**).

Figure 1. The contribution of leadership in the Smart Specialisation experiences



Source: authors' elaboration based on survey data

Overall, respondents highlight the existence of a continuous, focused and dedicated management leadership. However, the observations are less positive in the case of political leadership. Only 60% of stakeholders strongly agree or somewhat agree that the Smart Specialisation process has been relying on a continuous political leadership in their respective territories. Here, again, the territorial breakdown of data shows that in less developed regions political leadership is perceived as less present.

The evidence from the case studies tends to confirm survey results. Generally, the operational leadership is well identified and widely recognised in management bodies, while political leadership is less clear and weaker.

Autonomy and accountability

The appointed body should be independent of and yet responsible to political representatives as well as private and civil society actors. A certain degree of autonomy of the Smart Specialisation management body is necessary to ensure flexibility and adaptability. However, autonomy requires skills and resources and should go and in hand with accountability towards political representatives, private actors and civil society actors.

In relation to this dimension, national and regional representatives were asked to assess the level of autonomy of the Smart Specialisation management bodies from undue influences by different typologies of actors aiming at maintaining the status quo and extracting rents form their position (**Figure 2**). Many stakeholders observe that the Smart Specialisation **management bodies maintain their autonomy *vis-à-vis* undue pressures from private actors** (companies, business associations, etc.), **public university and research centres**. On the contrary, **the perception of management bodies' autonomy with respect to undue intrusion of the political class is lower**. In this specific case, 60% of respondents agree that the autonomy is preserved. Interestingly, the questionnaire results show that the management bodies operating at national level are seen particularly permeable to the undue influence from politicians. Clearly, the undue influence exercised by the political class represents a risk for policy effectiveness. It may obstacle medium-long term measures (with a higher social return) and push for short-term measures (with a lower social return, but higher electoral yields). Moreover, the direct involvement of political leaders in the day to day management of the policy may be positive, but also create conflicts and tension with the bureaucracy.

Regarding accountability, **many stakeholders highlighted that the appointed organisation regularly reports to the political class and informs all relevant actors** via documents and various information

channels. **With respect to this last dimension, however, the case studies offer a more nuanced scenario**.

Formal and informal interactions and communication with politicians seem to run smoothly where the management bodies are placed closest to the highest political decision-making level (e.g. presidency of the regional government).

There are regions, such as Emilia Romagna, Toscana and Cataluña, where reporting arrangements are well developed and functioning. In these cases, effective monitoring systems provide timely and valuable data on the progresses of the strategy, which are made available to the political level and the general public through reports and web tools. For example, in Emilia Romagna, the management body regularly reports on the strategy advancement to the political class in the periodical meetings (every two months) of the strategic committee. Furthermore, the regional innovation agency provides half-yearly monitoring reports, which are publicly available. Finally, the Smart Specialisation management body actively informs all relevant stakeholders on the outcomes of the calls and other issues during frequent meetings.

However, there are also cases where no reporting activity (or very little) has been carried out (e.g Lapland, Ostrobothnia, Campania and Abruzzo) and monitoring systems are either not available (e.g. Hungary) or not properly functioning.

Overall, **reporting to the political class, relevant stakeholders and the general public is an area where more efforts are needed in the future**.

Skills and resources

Finally, the survey explored the adequacy of skills and resources available to the management bodies to perform policy functions. In this case, the general opinions are less positive compared with the previous dimensions. 58% of respondents observe that the appointed authority has the adequate skills and resources to perform its functions. For national strategies, this percentage drops to 38% (**Figure 2**).

These results are substantially in line with previous evidence from the 2018 JRC survey, indicating a general need – which is prominent in less developed regions – for integrating new skills and expertise across multiple aspects of the policy process (Guzzo *et al.*, 2018). The lack of adequate capacity in public administration is also considered as a major obstacle to the effective design and implementation of policy instruments tailored to the needs and objectives of the selected research and innovation priorities (Gianelle *et al.*, 2020).

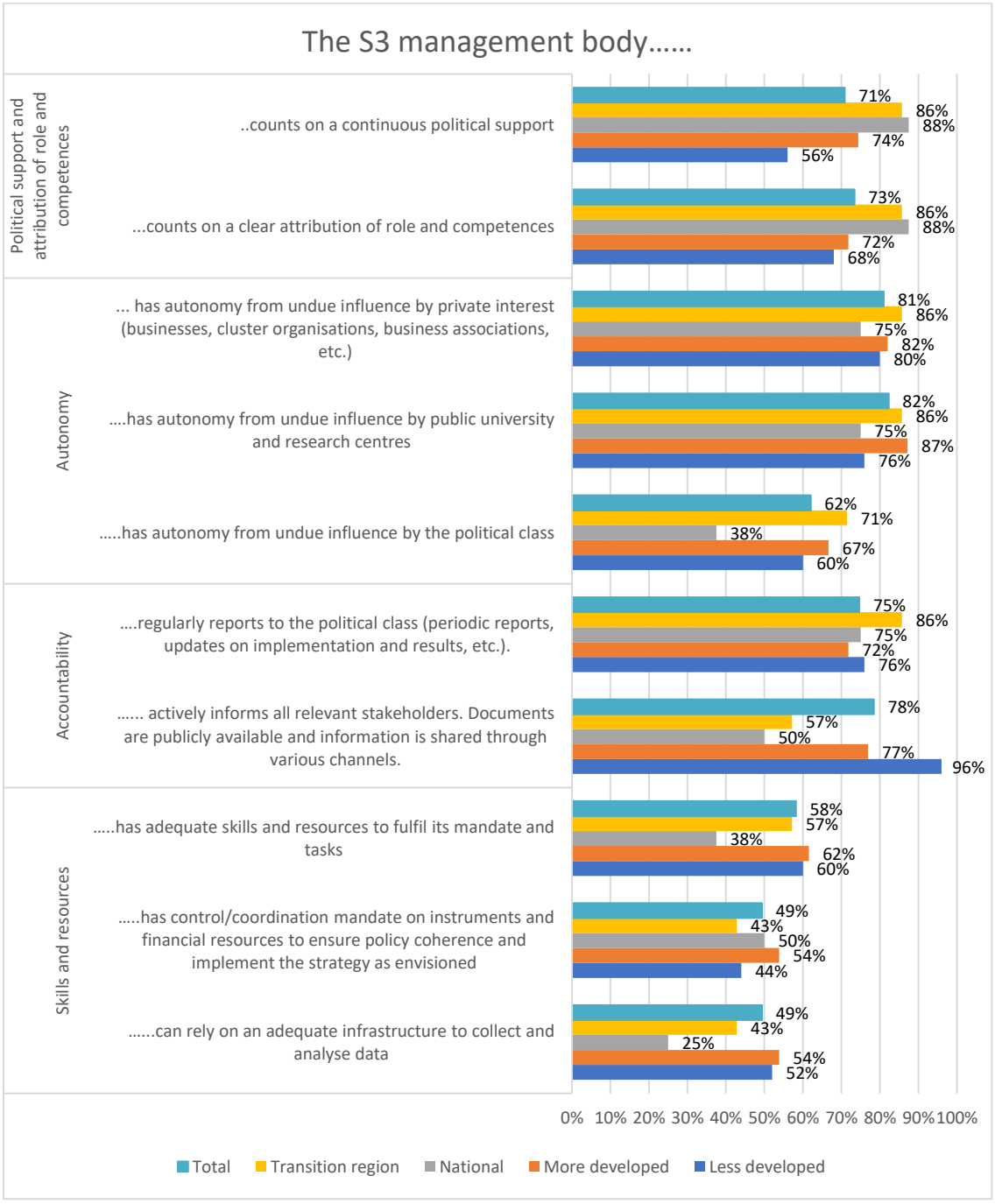
The evidence from the case studies corroborates survey results. Smart specialisation is very demanding in terms of policy capacity and, in several cases, the **skills and resources available to the management bodies are not sufficient** to face the challenges posed by this complex policy. In a better condition are those territories which can rely on departments and units with a consolidated experience on innovation policies and well-functioning innovation and executive agencies (e.g. Toscana, Emilia Romagna, Lombardia, Galicia, Cataluña and North Rhine-Westphalia).

Smart Specialisation strategies are generally characterised by the existence of measures addressing different policy areas and rely on different streams of financial resources. The effective deployment of the policy-mix requires a clear allocation of funding and coordination capacities. In that respect, **only half of respondents agree that the management bodies have control/coordination mandate on instruments and financial resources to ensure policy coherence and implement the strategy**.

Similarly, **the infrastructure to collect and analyse data available to the implementing body does not appear to be adequate in many territories**. Particularly negative are the views of the national representatives, half of them consider the infrastructure for data collection and analysis not suitable for its purpose. Clearly, this shortcoming has negative consequences on the process of policy learning and adaptation, which is central to the experimentalist approach of Smart Specialisation. Policy learning is in fact only possible if properly supported by the systematic production of information regarding actual policy developments and by the governance arrangements necessary to use evidence to improve the efficiency and effectiveness of public intervention (Marinelli *et al.*, 2019a).

On a more general level, we note that the quite critical assessment of the resources and expertise available to the management body seems to contrast with the stakeholders' positive assessment of the political support to the policy process. One would expect political support to be accompanied by the provision of adequate resources for the strategy implementation, but this does not seem to be generally the case.

Figure 2. The Smart Specialisation management body: autonomy, accountability, skills and resources (% of respondents that agree or strongly agree with the statement).



Source: authors' elaboration based on survey data

The effectiveness of the management body to perform its governance functions

To close the circle of exploration on the management authorities of the Smart Specialisation strategy, the survey gathered a feedback on the effectiveness of these bodies in performing their governance functions (**Figure 3**). Here, the information clearly come with all the limitations of self-assessment questions, as most of the respondents work within Smart Specialisation implementing bodies. That said, results still offer some interesting insights.

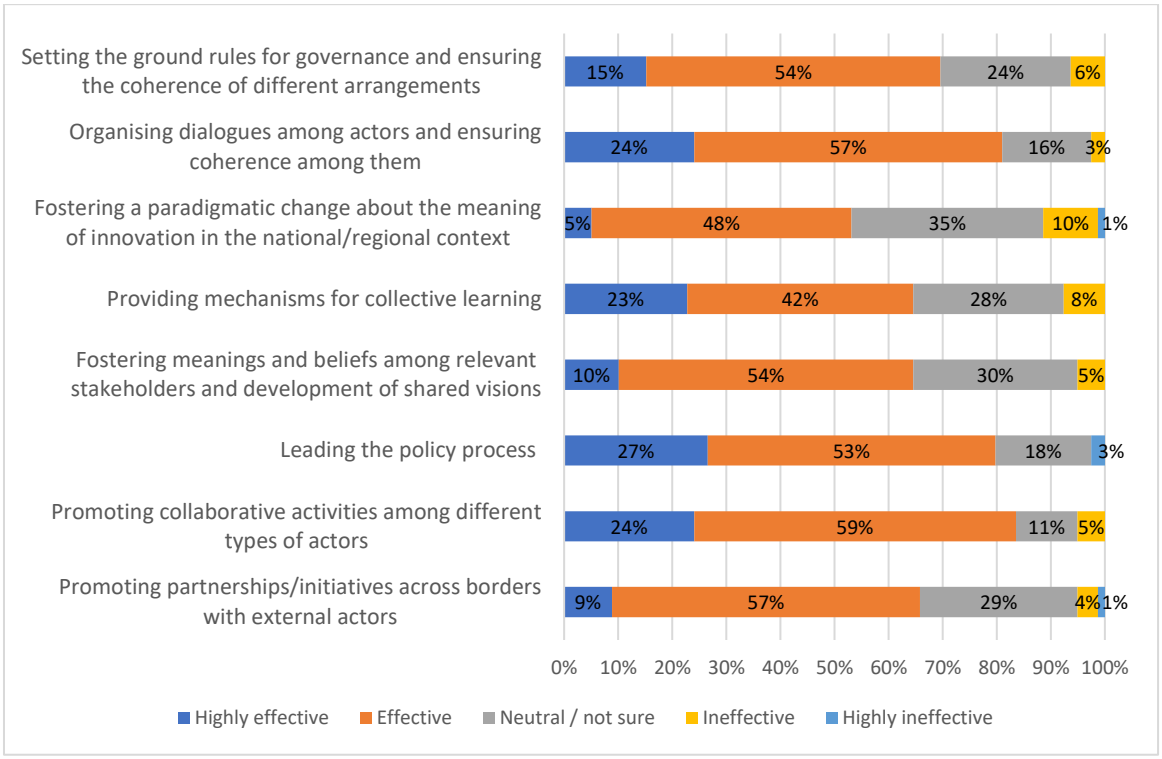
At least 80% of respondents consider the management body either "highly effective" or "effective" in: structuring the dialogue among actors; promoting collaborative activities; and, in leading the policy process.

Nearly 70% of respondents agree that the managing body is effective in setting the rules for governance and ensuring coherence of different governance arrangements.

In contrast, the effectiveness perceived by respondents is slightly lower for the following functions:

- promoting partnerships and initiatives with external actors (two thirds of respondents see the national/regional implementing body highly effective/effective in performing this function);
- providing mechanism for collective learning (65%);
- fostering meanings and beliefs among relevant stakeholders and development of shared visions (64%);
- promoting a paradigmatic change about the meaning of innovation (53%).

Figure 3. Effectiveness of the national/regional authority in executing some of its functions



Source: authors' elaboration based on survey data

5.3 Horizontal and vertical coordination

The lack of horizontal and vertical coordination is recognised as one of the main obstacles to effective public action. Transaction costs along with competition and conflicts over funds and their management prevent coordination from taking place. Policy makers are required to balance coordination costs with benefits that coordination brings (OECD, 2019).

Coordination is crucial in the complex policy context of Smart Specialisation, where different policy areas and levels of government are involved. Coordination mechanisms are necessary to harness synergies and complementarities, while avoiding overlaps.

Horizontal coordination is central to ensure effective strategy implementation and coherence between different policy areas, objectives, instruments and implementing authorities (ministries, departments, agencies, etc.). Effective inter-government coordination is required to support integrated policy approaches and the combination of different funding sources (EU Cohesion policy funds, national funds, etc.). Similarly, the provision of a clear coordination mandate and adequate resources to implementing bodies, matched with the willingness of the different public authorities to align their instruments and resources with the Smart Specialisation strategies' objectives and measures, can contribute to achieve better results.

Against this background, the survey explored the changes introduced in the forms and arrangements of horizontal coordination between ministries/departments/public agencies.

As shown in **Figure 4**, many stakeholders report that **Smart Specialisation has helped to introduce new (or to reinforce existing) informal communication channels**. As additional relevant outcomes of the Smart Specialisation policy process, two thirds of respondents highlight the **set-up, or strengthening, of existing co-ordination unit and inter-ministerial (inter-department) committee**, as well as the **consolidation of integrated measures** involving different bodies (ministries/departments/agencies).

The evidence from the case studies confirms these results and provides more detailed information on horizontal coordination mechanisms implemented across the EU (**Box 4**).

Box 4. Horizontal coordination mechanisms: some examples

In **North Rhine-Westphalia**, an Inter-ministerial Working Group for Lead Markets has been set up. This coordination body act as a horizontal forum involving relevant ministries. This is a novelty for North Rhine-Westphalia, which supported a more effective discussion and exchange between ministries, going beyond silo-thinking and the protection of each ministry's budgetary and power resources. Discussions on the different priorities take place in the thematic sub-groups of the Working Group for Lead Markets. These sub-groups interact with and receive inputs from stakeholders (clusters, etc.). The ministerial officials use this information to define the scope of calls, type of beneficiaries, etc.

In **Emilia Romagna**, the regional administration relies on its development agency (ART-ER) to enhance the coordination between regional departments involved in the Smart Specialisation strategy. ART-ER also collects data on the strategy implementation from the different departments and sustains informal communication channels.

In **Cataluña**, the Smart Specialisation policy experience has improved the horizontal coordination of research and innovation policies within the regional government, namely through the introduction of the strategy's coordination committees. Specific resources and responsibilities are now allocated for coordination. Various integrated measures for Smart Specialisation, which involve different departments/agencies, have been implemented. Overall, regional departments also collaborate more than in the past to ensure better coherence between different instruments and projects. Coordination with stakeholders is undertaken on a case-by-case basis. There are no harmonised mechanisms for interacting with the relevant actors at the strategic level. However, there is continuous interaction and collaboration between the regional administration and relevant stakeholders in the framework of specific initiatives.

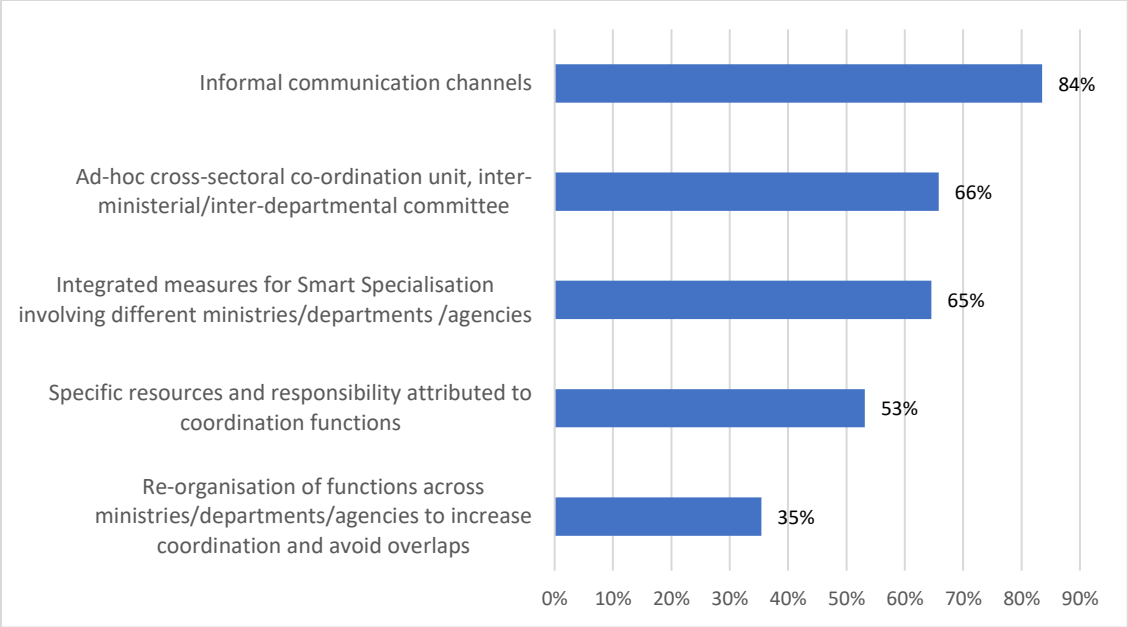
Finally, **Galicia** (Spain) and the **Norte region** (Portugal) identified cross-border cooperation as an opportunity to address common challenges through innovation policy. Their joint Smart Specialisation strategy articulates a set of actions around 6 main areas: marine and biomass energy, agrifood and biotechnology industries, industry 4.0, mobility industries, tourism and creative industries, health and active ageing. The strategy is coordinated by a committee composed of the Galician Innovation Agency (GAIN) and the Norte Regional Coordination and Development Commission (CCDR-N) as well as by political representatives. The management teams of both bodies are member of the strategy's technical secretariat, which is responsible for the implementation of the strategy. The technical secretariat undertakes the follow-up of the action plan, supervises targets' achievement, ensures cross-border cooperation and manages monitoring and evaluation activities. Additionally, the technical secretariat is in charge of coordinating the strategy's working groups, which involve stakeholders from the innovation systems of Galicia and Norte region.

Only half of the respondents report positive changes in relation to the allocation of specific resources and responsibility to coordination functions. Finally, few respondents (35%) notice changes in coordination arrangements through the re-organisation of functions across ministries/departments/agencies to increase coordination and avoid overlaps.

The data breakdown shows some interesting differences between different typologies of territories. The creation or strengthening of coordination body is mentioned by all national representatives and by the vast majority of transitional regions (86%). On the contrary, this is observed to a lesser extent in less developed regions (56%). The reorganisation of functions across ministries/departments/agencies is more frequent in transition regions (57%), and at national level (50%), than in less developed (28%) and more developed

(33%) regions. Finally, only 56% of respondents from less developed regions report the implementation of integrated measures for Smart Specialisation involving different bodies. This percentage is higher in the remaining territories: 64% in more developed regions, 75% at national level and 86% in transition regions.

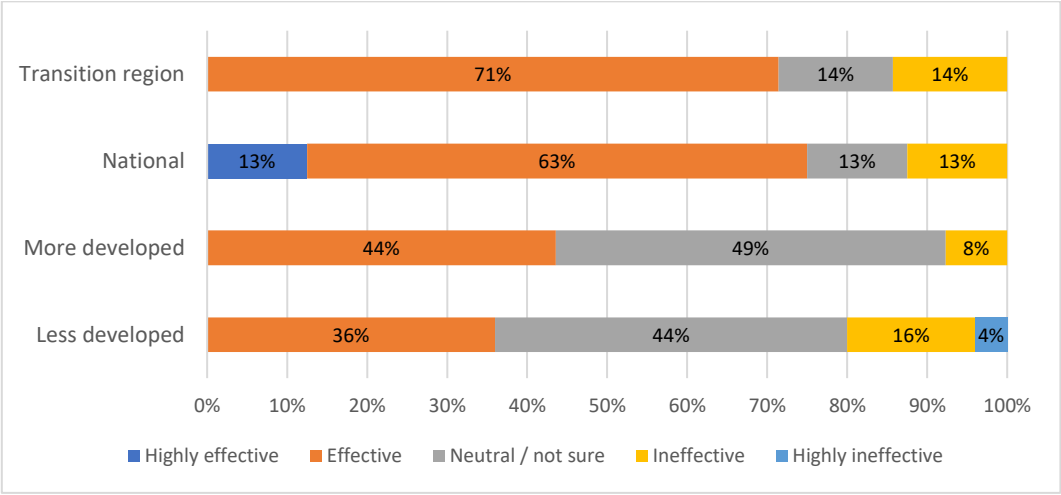
Figure 4. Newly introduced or strengthened mechanisms and arrangements to enhance horizontal coordination among ministries/departments/agencies



Source: authors' elaboration based on survey data

Finally, the **horizontal coordination arrangements are considered effective by less than half of respondents** (46%). Here, Figure 5 shows remarkable differences between territories. On one side of the spectrum, there is the majority of positive replies coming from the national authorities and transition regions (more than 70% in both cases). On the other side, there are the less developed and more developed regions where only 36% and 44% of respondents, respectively, show a positive assessment of the horizontal coordination arrangements.

Figure 5. Perceived effectiveness of horizontal coordination in the different typologies of territories



Source: authors' elaboration based on survey data

Overall, despite the changes and the general increase in pressure for coordination, results show that the **effectiveness of the horizontal coordination is still considered low** ([11]).

The case studies show that this can depend on coordinating bodies and arrangements that are not fully operative and the persistence of a silo approach in government, which is difficult to overcome. Clearly, this is an area where more efforts are needed.

Another important component of horizontal coordination in Smart Specialisation is represented by those **arrangements to ensure stakeholder engagement** in the policy process and continuous interactions between government and other public and private parties.

The existence of inclusive institutions, dense relational infrastructures and strong tradition of public-private cooperation are generally associated with greater stakeholder engagement in policy processes.

In relation to this, national and regional authorities were asked to assess the **tradition of public-private cooperation** in their respective territories. As expected, in less developed regions the tradition of public-private cooperation is considered by two thirds of respondents very weak or weak (only in 12% of less developed regions this tradition is considered strong). Less expected, this tradition results weak also at the national level (63%) and in transition regions (57%). More developed regions are the only territory where the tradition of public-private cooperation is viewed very strong or strong by the majority of respondents (54%).

The survey also explored the **mechanisms used to promote stakeholder engagement**. In particular, we asked national and regional representatives to select, from a list of instruments, those used in their territories and to provide an assessment of their effectiveness in promoting greater stakeholder engagement.

Overall, in person meetings are the most used tools and considered the most effective instruments to enhance stakeholder participation. On the contrary, on-line instruments receive less attention and are considered less effective. Pilot initiatives have a great potential in promoting stakeholder engagement, whereas public procurement for R&D and innovation are seen as viable tools by fewer people (**Figure 6**).

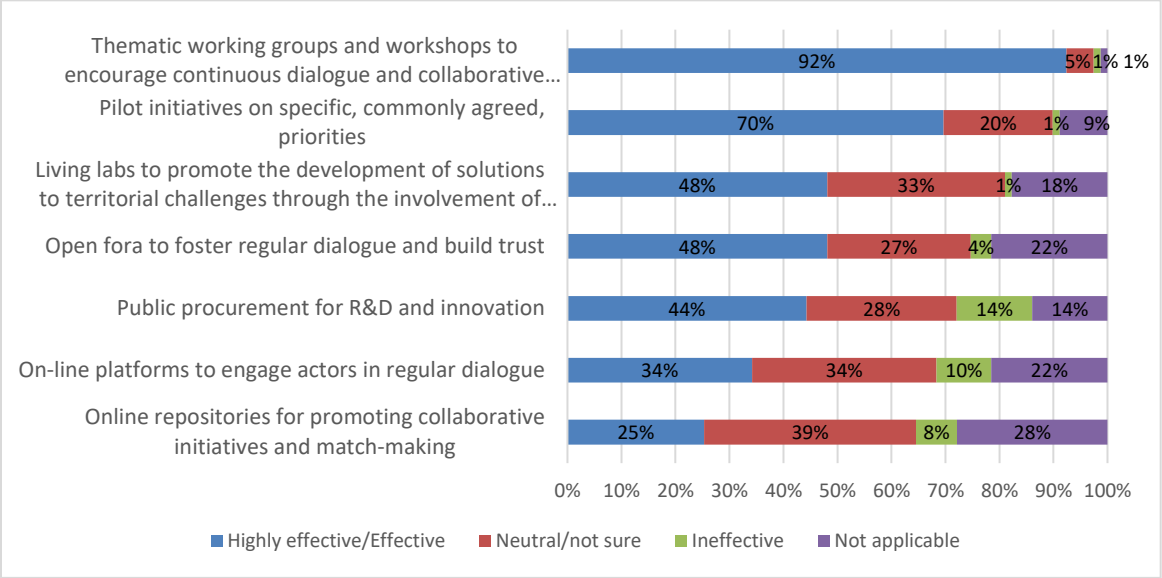
More in detail, the survey results show that *Thematic working groups and workshops to encourage continuous dialogue and collaborative activities* are the most used instruments and the ones considered highly effective, or effective, by nearly all respondents (92%). 70% of respondents find *pilot initiatives on specific, commonly agreed, priorities* particularly effective in promoting stakeholder engagement. Pilot initiatives have an extremely positive assessment in more developed regions (82%), followed by less developed ones (60%).

Slightly less than half of respondents judge as effective living labs and open fora. However, we note that both instruments are used less than the previous ones. Public procurement for R&D and innovation is considered effective in promoting greater stakeholder engagement only by 44% of respondents. Here, however, survey results show some notable differences. Nearly two thirds of national respondents and 53% of representative from more developed regions consider this instrument effective. By contrast, in less developed regions public procurement is less used and it is considered effective only by 28% of respondents.

Finally, the last two tools - on-line platforms to engage actors in regular dialogue and on-line repositories for promoting collaborative initiatives and match-making - are considered highly effective/effective only by 34% and 25% of respondents respectively.

([11]) This is in line with the main findings of the 2018 JRC survey, which highlighted how the existence of intra- and inter-organisational coordination obstacles were hindering the effective implementation of the policy in many territories (Guzzo *et al.*, 2018).

Figure 6. Effectiveness of the mechanisms to promote greater stakeholder engagement in your country/region



Source: authors' elaboration based on survey data

Box 5 contains some examples of instruments to promote stakeholder engagement from the case studies.

Box 5. Stakeholder engagement: some examples

In **Slovenia**, the Strategic Research & Innovation Partnerships (SRIPs), established within the national Smart Specialisation strategy, bring together quadruple helix representatives and promote the formulation of joint strategic projects. Their aim is to promote the convergence of a wide range of technologies and social innovations in a systematic way. More than 500 relevant actors - involving *inter alia* firms and higher education institutions - are now engaged in bottom-up initiatives and networks promoting cooperation and integration. They have adopted road maps and action plans for joint development activities, internationalisation, human resources development, entrepreneurship and joint services promotion in relation to Smart Specialisation priority areas.

In **Emilia Romagna**, the regional government launched a support measure to promote a set of associations, named CLUST-ER. These associations are networks of public and private organisations, which develop and carry out activities in relation to the priorities of the regional Smart Specialisation strategy (knowledge production, collaborative projects, pilot initiatives, etc.)

The **Comunidad Valenciana** introduced the "Innovation policy Labs" to promote stakeholder engagement in a continuous entrepreneurial discovery process. The Labs operate according to a two-steps model. The first step consists of the work of a seed-group in which representatives of the Quadruple Helix identify the mission of the lab. In the second step, labs' activities are opened to the participation of companies, producers' and consumers' associations and other relevant actors. During this stage, missions and objectives are debated and reviewed on the basis of stakeholder needs and pilot projects are identified.

In **Poland**, the national government launched the "Smart Labs". These Labs are focus groups which include business representatives, research institutions, intermediary organisations, public administrations and experts. Their task is to identify, support, assess and review Smart Specialisation priority areas. The Labs are also expected to promote the design and implementation of common projects in specific fields.

Finally, RIS3CAT Communities have been launched in **Cataluña**. These Communities are consortia of enterprises and other agents of the regional research and innovation system. They collaborate on specific projects related to the priority areas of the regional Smart Specialisation strategy. Managed by *ACCIÓ*, the Catalan Government's agency for competitiveness, this instrument aims at developing economic transformation agendas. In the programming period 2014-2020, 3 calls for proposals were launched, granting funding to 13 Communities: 1 focusing on design industries, 1 on cultural and experience-based industries, 2 on health and life sciences, 2 on food industries, 3 on chemistry, energy and natural resources, 2 on industrial systems and 2 on sustainable mobility. An interesting example is the *RIS3CAT Energy Community*. This Community is led by the Catalan Energy Research Institute (IREC). It gathers over 30 participants and more than 70 associated entities. The main goal of this Community is to enhance regional competitiveness through a more efficient and sustainable energy system, including renewable energies. Members of the *RIS3CAT Energy Community* implemented 8 projects under 3 main thematic axes: energy efficiency, smart grids, and low carbon technologies.

Existing evidence shows that the **multi-level governance dimension of Smart Specialisation is fraught with several problems and challenges**:

- unclear distribution of power and competencies between and within the different territorial levels of government;
- in highly centralised countries, institutions and actors at sub-national levels struggle for recognition, visibility and access to resources within national strategies and programmes;
- weak infrastructure of coordination bodies able to connect government and actors placed at different geographical scales;
- ineffective vertical coordination mechanisms and communication channels;
- lack of trust between authorities placed at different territorial level;
- difficulties in developing common visions that combine the needs, agendas and expectations of the different geographical levels;
- and, overlap of responsibilities and initiatives ([12]) (**Box 6**).

Box 6. Evidence on the national-regional coordination from the 2018 JRC survey

The 2018 JRC survey explored the issue of national-regional coordination in Smart Specialisation governance by asking respondents to assess to what extent they agreed or disagree with the following statements (providing a 5-point scale):

- the division of functions among regional and national Smart Specialisation governance is clear;

- the relationship between national and regional public bodies involved in Smart Specialisation governance is cooperative;

- the coordination of policies and funding instruments managed at different government level is effective;

- there are effective channels of communication for addressing issues between the regional and national public levels.

Around 45% of respondents agrees or strongly agrees with the first two statements. There is even less agreement as regards to the effectiveness of the coordination of policies and funding instruments managed at different government level and communication between the two levels (with only 27% and 24% of regions agreeing or strongly agreeing).

([12]) This evidence is largely drawn from the following activities: the JRC "Lagging Regions" project (Greece, Romania, Bulgaria and Croatia); Thematic working groups (with regions from Italy, Spain, Portugal, Romania, etc.); and the Peer-eXchange and Learning (PXL) workshops carried out by the JRC S3 Platform.

Furthermore, the differences between more and less developed regions are remarkable: just 30% of less developed regions agree with the statement that the division of functions between the national and regional level is clear, as compared to 57% of more developed regions. With respect to coordination between the two levels, only 13% of less developed regions believe that it is effective, as opposed to 37% of more developed ones. Finally, the proportion of regions believing that the communication between the national and regional level is effective is 13% for less developed regions and 30% for more developed ones. On the other hand, the proportion of regions believing that the national-regional relationship is cooperative is similar across more and less developed regions (43%) (Guzzo *et al.*, 2018).

The case studies highlighted some of these problems as well as some interesting experiences aiming at enhancing vertical coordination.

Regional strategies in **Finland** (Lapland, Ostrobothnia and Helsinki-Uusimaa) struggle for recognition and funding at national level. Regional authorities complain about the neglect of their needs and role by the central government and the lack of collaboration.

In **Hungary**, where there is only a national Smart Specialisation strategy, the national dimension prevailed over the regional one. Sub-national actors have mainly played a consultative role. The regional dimension was not a priority and the central government stopped funding the regional innovation agencies. As a result, only a few of them continued to operate through EU Programmes, but with very limited resources. This has inevitably reduced their capacity to promote regional innovation. Since mid-2018, however, the new Ministry of Innovation and Technology and the agency responsible for the implementation of the strategy have been placing greater emphasis on the sub-national level. A new regional innovation service provision network, relying on local universities, has been set up. Recently, the agency has launched the Territorial Innovation Platforms (TIPs) initiative. The TIPs are at the centre of the new regional policy approach of the ministry and the agency. Within this initiative, universities will act as regional innovation focal points.

In **Spain**, the national *Thematic Network for Public Policies in the field of Research, Development and Innovation* (Red IDI) has provided a place for vertical coordination between the central and the regional level. The network aims at promoting synergies between regional, national and European research and innovation (R&I) policies. In particular, it intends to enhance the design, implementation and development of public support frameworks for innovation. The Red IDI has three areas of activities: (1) coordination of R&I policies and initiatives: design, implementation and synergies; (2) monitoring and evaluation of R&I policies and initiatives supported by the European Regional Development Fund (ERDF); (3) information exchange, diffusion and promotion. The Red IDI offers a learning platform that supports different areas of the Smart Specialisation process (governance, entrepreneurial discovery process, and monitoring and evaluation). It has to be pointed out, however, that network activities have been fluctuating over time.

In **Italy**, vertical coordination mainly takes place, at strategic level, within the State-Regions Committee; while on a more operational level, regional administrations and actors participate in the National Technology Clusters. Furthermore, the national Agency for Territorial Cohesion (*Agenzia per la Coesione Territoriale*) designed a specific support initiative for the implementation and monitoring of national and regional Smart Specialisation strategies. The project aimed at: i) providing technical and methodological support to national and regional public authorities for strategy implementation and monitoring; ii) increasing the level of coordination among national and regional strategies; iii) promoting a more effective cooperation among different actors and levels of government; iv) supporting the design, implementation and monitoring of Thematic Strategic Plans within the national strategy context.

Noteworthy are the vertical coordination mechanisms experimented across different territorial scales within *"The Six City strategy"* initiative to strengthen the development of the six largest cities in **Finland**. Financed through the National Operational Programme for Sustainable Growth and Jobs (2014-2020), *"The Six City strategy"* has been implemented through the "Integrated Territorial Investments" (ITIs) instrument in which different territorial levels share responsibilities in the design, management and monitoring of the strategy. Through the experimentation of challenge-based calls, where cities have been required to present their proposals in cooperation among them, this initiative aimed at strengthening the role of cities as important platforms for testing innovative technologies and solutions in response to societal challenges. Governance structures and processes have included cities, with their political and management bodies, as well a regional council (Uusimaa) and national ministries and bodies. Such arrangements have provided an effective implementation of the strategy as well as knowledge creation and exchange among different actors and government levels.

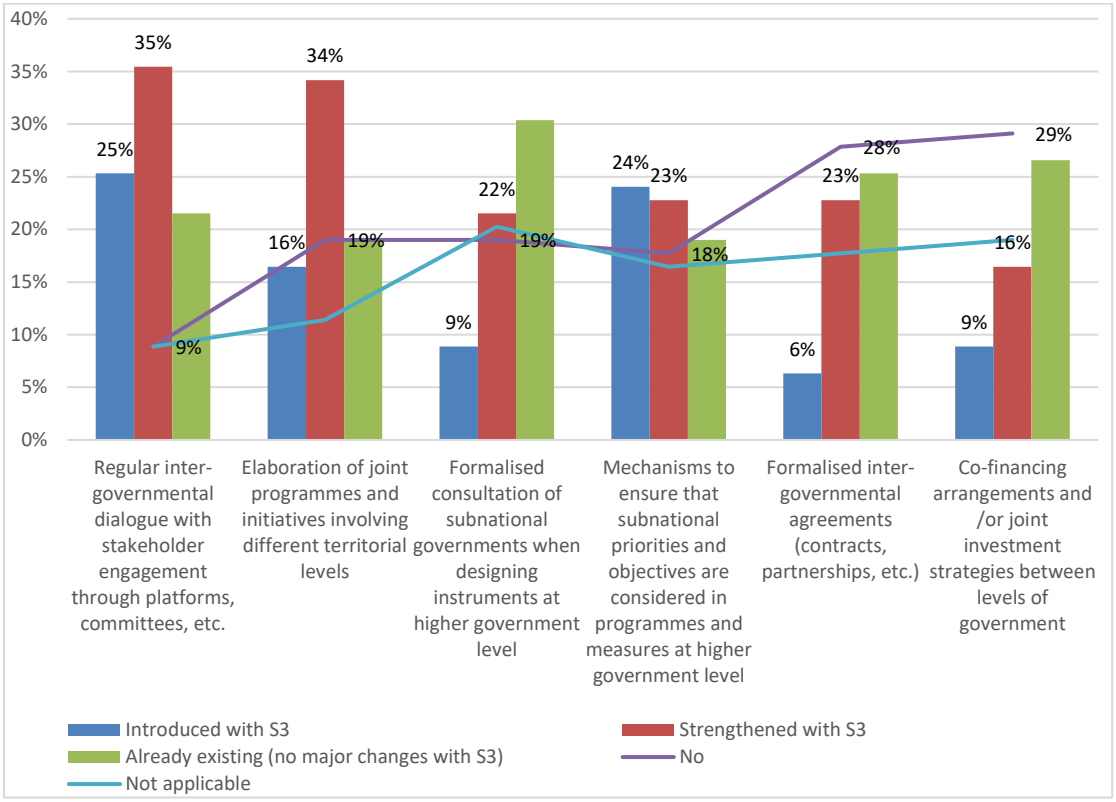
Finally, **Cataluña** has actively promoted the involvement of sub-regional governments and actors in the implementation of Smart Specialisation through a specific policy instrument, the Territorial Plans for Specialisation and Competitiveness (PECT). These plans involve local actors and are led by local public authorities (e.g. city and provincial councils). They include specific actions aiming at supporting local economic transformation and innovation. Managed by the Directorate General of Local Administrations of the regional government, this instrument was designed as a new measure linked to the Smart Specialisation strategy to ensure the development of innovation activities outside the Barcelona metropolitan area.

According to survey results, Smart Specialisation has mainly triggered:

- the reinforcement of forms of inter-government dialogue with the involvement of stakeholders;
- the elaboration of joint programmes and initiatives involving different territorial levels;
- and, mechanisms to include subnational needs and priorities in programmes and measures at higher government level.

More formal types of vertical coordination arrangements have not received much attention. Less than 30% of respondents observe changes in formalised consultation mechanisms and formalised inter-government agreements. Similarly, very few changes are reported in the area of co-financing arrangements and/or joint investment strategies between different levels of government (**Figure 7**).

Figure 7. Mechanisms and arrangements to enhance the coordination between different level of governments



Source: authors' elaboration based on survey data

National and regional representatives were then asked to assess the effectiveness of vertical coordination arrangements. Similarly to the results obtained in the case of horizontal coordination, **only 42% of respondents see vertical coordination effective** (the "neutral/not sure" reply prevails with 47% of replies). Again, the territorial breakdown of data shows that **the effectiveness is considered lower in less developed regions**, where only one third of respondents see vertical coordination as effective, followed by the national level (38%).

6 Is Smart Specialisation governance promoting better coordination and collective action?

In this section we discuss the findings of this study with respect to the main research question: to what extent, if any, and how is Smart Specialisation governance promoting better coordination and collective action?

In line with previous evidence (Guzzo *et al.*, 2018; Kroll, 2015; McCann and Ortega-Argilés, 2016; Polverari, 2016), this study suggests that **Smart Specialisation has contributed to strengthen the networks of actors and to make the decision-making process and the governance of innovation policy more inclusive** in those countries and regions that have genuinely engaged with this policy experience. More specifically, the *more structured and regular interaction between actors* is the most recurrent change reported by national and regional authorities participating in the survey. This is followed by the *restructuring and/or strengthening of existing bodies/networks* and the *widening of participation in governance processes*. Although it is widely acknowledged that the Smart Specialisation experience has contributed to include relevant actors in the policy process, our collection of case studies shows that there are notable differences on how the strategic decision-making power has been shared between the government and other parties across the EU. There are territories – such as North Rhine-Westphalia, Mazowieckie, Slovenia, Abruzzo, Cataluña and Galicia – where strategic decision-making and planning have been firmly in the hands of government bodies without much involvement of relevant stakeholders; whereas, there are cases characterised by more inclusive processes (Comunidad Valenciana, Finnish regions, Hungary, Poland, Lombardia, Toscana and Emilia-Romagna). The positioning of a specific territory on the more/less inclusive continuum seems to be strongly determined by *path dependency*. The articulation of State structures, administrative traditions along with history of public-private cooperation and participatory process largely shape the articulation of decision-making processes and the distribution of power between actors.

An increase in the density and complexity of relationships between actors is an important change observable in almost all case studies. The strengthening of existing and/or establishment of new formal arrangements, collaborative norms and procedures, consultation fora, platforms, thematic working groups, clusters, policy labs and the like are a common trait across EU countries and regions (see box 5). **Institutional changes promoted by Smart Specialisation are reshaping and strengthening networks of engagement and modalities of cooperation between public and private actors.** By facilitating repeated interactions and consultations, these changes help to promote information sharing, the strengthening of social networks and the development of trust, lowering the coordination cost of collective action (Maskell and Lorenzen, 2004).

In what follows, we provide some insights on how changes in governance arrangements have translated into better policy design and implementation.

Where observable, the **design of more targeted public intervention and the implementation of policy instruments better aligned with stakeholder needs** are the results of a greater interaction between the government and other public and private actors and the policy capacity of bureaucracies and relevant stakeholders (i.e. set of skills and resources). Experimental and more focused calls for projects based on the continuous interactions with stakeholders have been introduced in North Rhine-Westphalia (calls for *Lead Markets*), Slovenia (calls for the *Strategic Research & Innovation Partnerships - SRIPs*), Emilia Romagna (*CLUST-ER*), Comunidad Valenciana (*Innovation policy Labs*), Poland (*Smart Labs*), Cataluña (*RIS3CAT Communities*) and within the Six City strategy in Finland (challenge-based calls, through which cities had to submit their proposals jointly). Further investigations are needed to assess the impact of these instruments. However, it would not be so far-fetched here to say that a better alignment of instruments with stakeholders' needs and potential can increase the chances of success of the funded projects. Indeed, evidence from other industrial policy experiments shows that the programmes that worked best were those in which public authorities were in close interaction with the beneficiaries they subsidised (Rodrik, 2007) ([13]).

In several case studies, institutional changes led to further improvements in the policy process, through **the design and implementation of commonly agreed roadmaps for priority areas** (Lombardia, Toscana, Cataluña, Slovenia, Poland, etc.).

([13]) As disputed by Rodrik (2007: 111), the institutional challenge is to find a right balance between full autonomy and full embeddedness of public administrations. Too much autonomy for the bureaucrats minimises the risk of corruption, but can fail to provide the type of instruments and incentives that the private sector needs. On the contrary, too much embeddedness can cause bureaucrats ending up in the pockets of business interests. On the concept of embedded autonomy regarding State involvement in industrial transformation see Evans (1995).

Where it has occurred, the **reorganisation of intermediary bodies, technology transfer organisations and innovation service providers** to improve their quality and effectiveness is considered as a direct consequence of this new policy experience by national and regional stakeholders. Furthermore, in some cases, we can observe that Smart Specialisation has promoted **the redesign of some of the existing policy instrument schemes** to enhance their effectiveness.

The introduction of the Smart Specialisation approach has helped to address **inter-government coordination problems** that would otherwise be unchallenged. New arrangements have been experimented in many territories (set up of new coordination bodies, formal and informal mechanisms, etc.) and, in some circumstances, they have provided the institutional infrastructure for **greater policy coherence** (eg. Cataluña, North Rhine-Westphalia, etc.). However, as discussed in the previous section, despite these changes and the general increase in pressure for coordination, we observe that **the effectiveness of horizontal and vertical coordination is still weak**. A problem that is more pronounced in less developed regions. Coordinating bodies and arrangements that are not properly functioning and the persistence of a silo approach in government seem to represent two of the main obstacles to better coordination.

Finally, it is important to underline the **generation of a wide range of "local collective competition goods"** (Le Gales and Voelzkow, 2001) as an important result of the institutional and behavioural changes promoted by Smart Specialisation ([14]). Governance is a crucial factor in explaining the capacity of regional actors to cooperate in order to produce collective goods that enrich external economies, which in turn increase the innovation capacity and competitiveness of local firms. The creation and functioning of these collective goods depends on the existence good institutions and social relations that facilitate cooperation (Rodrik, 2007; Trigilia, 2005).

These are some examples of the typologies of collective goods produced in the cases explored by our study:

- production and circulation of knowledge on specific economic activities, markets and technologies, favoured by a greater interactions between different actors (North Rhine-Westphalia, Lapland, Ostrobothnia, Galicia, Lombardia, Emilia Romagna, Helsinki-Uusimaa, Poland, etc.);
- better understanding and recognition of different partners' worldviews and interests and greater trust among the actors of the regional research and innovation system (North Rhine-Westphalia Lombardia, Cataluña, Toscana, Emilia Romagna, Comunidad Valenciana, etc.);
- launch of collaborative projects and pilot initiatives aimed at exploring and discovering new opportunities (Lapland, Helsinki-Uusimaa, the Six-city strategy, Slovenia, Cataluña, etc.);
- development and/or sharing of (public and private) research and technology transfer facilities (Ostrobothnia, Comunidad Valenciana, etc.);
- strengthening of existing and/or creation of new intermediary organisations to facilitate the interaction between research and technology transfer organisations and the world of production (Emilia Romagna, Lombardia, North Rhine-Westphalia, etc.);
- diffusion of new ideas, narratives and common visions on innovation and development policies (Slovenia, the Six-city strategy, North Rhine-Westphalia, Lapland, Lombardia, Toscana, Cataluña);
- enhanced capacity to perform policy functions by public authorities and relevant stakeholders (greater policy intelligence, coordination and negotiation abilities, etc.) (e.g. North Rhine-Westphalia, Lombardia, Emilia Romagna, Toscana, Slovenia, Cataluña, etc.).

([14]) "Local collective competition goods" include tangible elements such as infrastructure, services, vocational training, the availability of qualified employees, the presence of research and development centres, technology transfer, the provision of information on new markets, but also intangible elements such as cooperation relationships, trust, tacit knowledge, etc. (Le Gales and Voelzkow, 2001).

7 Policy conclusions

Smart Specialisation represents an important EU wide place-based industrial and innovation policy experiment. Launched within the Cohesion Policy 2014-2020, this policy approach aims at promoting regional innovation and economic transformation. It requires different actors (higher education and research organisations, business, public authorities and civil society) to identify strengths in their region, and prioritise support based on where local potential and market opportunities lie.

Governance structures and processes are essential to facilitate this process. The existence of a sound governance configuration is considered an important condition for the effective implementation of the strategies. At the same time, the improvement of governance quality is one of the goals of the policy. Building better and more inclusive institutions along with improving vertical and horizontal coordination mechanisms and promoting collective action are indeed important underlying objectives of the policy, particularly in institutionally weak contexts.

Governance arrangements tends to vary across the EU. They are the results of the distribution of powers between different government levels, existing institutions, the organisation of bureaucracies, the tradition of public-private cooperation, shared norms and values and networks of actors.

As pointed out by Rhodes (2007), if governance is constructed differently, contingently and continuously, we cannot propose a unique model of governance for Smart Specialisation that can be universally applied or a tool kit for managing it. Instead, we need to support a continuous learning process, in which past mistakes and new insights can inform new and, hopefully, better governance arrangements. Our study has sought to make a contribution in this direction.

This report has explored the governance structures and processes underpinning Smart Specialisation strategies across EU regions and countries. It has examined the institutional changes introduced by this policy concept and analysed whether and how Smart Specialisation has supported collective action. By gathering national and regional authorities' views and data from case studies, we have provided some evidence on the impact of this policy experience on the governance of research and innovation systems across the EU.

Before discussing the policy insights deriving from the results of this study, it is crucial to bear in mind the following caveat. The limited coverage of the case studies and the limitations associated with perception-based surveys reduce the possibility of drawing some general and definitive conclusions about the impact of this policy experience on the governance of research and innovation policy systems across EU regions and countries. Further evidence deriving from other territories and experiences can certainly help to sketch a clearer picture of this policy endeavour.

Likewise, additional research is needed to explore whether, and if so how, Smart Specialisation governance arrangements have contributed to achieve better policy results, for example, in terms of overall economic performance of regions, creation of new economic activities, exploitation of new market opportunities, enhanced innovation capacity of the regional system, etc. ([15]).

The following policy recommendations rest on the belief that a good policy implementation is a key ingredient (though not the only one) for achieving expected policy results. And that the quality of institutions determines the delivery and efficacy of policy measures and incentives.

— There is an extensive body of literature concluding that the quality of institutions is critical for the success of development policies and that overcoming institutional blockages is essential to enable policies to be implemented and make real progress. Our study suggests that institutional changes occur and can lead to better policy design and implementation. Accordingly, **Smart Specialisation approach should recognise more explicitly the need for upgrading the quality of governance and policy capacity**. Where these elements are weak and/or incomplete they should be addressed with specific measures embedded into strategies and progress should be continuously monitored. Taking governance seriously is an imperative if Smart Specialisation strategy documents are expected to be translated into effective implementation procedures and instruments.

— It is essential to **identify ways of overcoming institutional resistance and redesigning incentive structures for bureaucracies and relevant stakeholders that foster changes**. For countries and regions with weak institutions and public-private relations, it is particularly relevant that Smart

([15]) As suggested by Rodríguez-Pose (2020), this type of investigation could benefit from in-depth case study and comparative analysis, over extended time horizons, to find institutional regularities contributing to the success of different type of territories and to discover institutional differences that affect the economic performance of regions.

Specialisation managing bodies "engage with the willing" (Kuznetsov and Sabel, 2017), that is the actors that perform better. The aim is to connect these actors and create a critical mass to promote the diffusion of new narrative and practices in public and private spheres.

— **Territories must discover what governance structures and processes work best in their context.** Governance arrangements that have worked somewhere can be a powerful reason to copy it. They are particularly appealing because they reduce the cost and risks of experimentation. However, there is no guarantee that they will work. They can fail because of their poor matching with the local economic, social and institutional environment. Territories should prefer the experimentation of new governance structures and processes and the increase of responsibilities and functions of the management bodies and other relevant organisations as a result of capacity building processes, instead of adopting ideal models and best practices, which are often formally introduced without promoting real changes.

— Our findings show that **intermediary organisations are crucial in supporting the collective action necessary for the production of a wide range of collective goods** that generate external economies, which in turn increase the innovation capacity and competitiveness of local firms. Where necessary, the quality and capacities of intermediary organisations should be supported by *ad hoc* measures.

— **It is essential to further enhance horizontal and vertical coordination mechanisms in order to improve policy effectiveness**. Our study suggests that, regardless of differences in State organisation and governance structures, failures in coordination are fairly common across the EU. The set-up of clear horizontal and vertical coordination mechanisms needs to be addressed since the outset of the strategy design. Furthermore, the effectiveness of these mechanisms should be monitored throughout the policy process. This is necessary to avoid coordination failure problems in the implementation phase, which would undermine the efficiency and effectiveness of public action.

— A **clear attribution of responsibilities and political support to the bodies responsible for the management of the strategy** are essential to effectively ensure their operational and coordination functions. They are essential to avoid the creation of structures with limited room for manoeuvre. Implementing bodies should have the necessary autonomy and adequate resources to limit rent-seeking behaviours and avoid incumbents and powerful lobbies capturing most of the policy resources or undermine the policy's transformative intention. Clearly, autonomy should be accompanied by accountability. **The right mix of autonomy and accountability for the management body should be carefully designed according to the characteristics of the political and institutional context and the administrative capacities**.

— Finally, the results of the study show that the skills and resources available to management bodies to perform policy functions are inadequate in many territories, as well as the infrastructure for data collection and analysis. **The complex policy context of Smart Specialisation requires pockets of administrative excellence** (Foray, 2015; Radosevic, 2017). If they are not available it is crucial to develop them. Adequate capacities for policy formulation, implementation, monitoring and evaluation are required, both at national and regional level. If necessary, a capability development plan should accompany the strategies.

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Country	**Regional and national authorities**
Austria	Salzburg, Styria, Upper Austria, Niederösterreich
Belgium	Flanders
Czechia	Southeast, Liberec Region, Central Bohemia, Prague
Denmark	Capital Region of Denmark
Estonia	**National**
Finland	**National: the Six-city strategy**, Helsinki-Uusimaa Region, North Karelia, Southwest Finland, Lapland, Ostrobothnia, South Karelia, Satakunta Region, Päijät-Häme
France	Hauts de France, Brittany, Corsica
Germany	Baden-Wuerttemberg
Greece	Eastern Macedonia and Thrace, North Aegean Region, Crete, Region of Central Macedonia
Hungary	**National**, South Great Plain
Italy	**National**, Lazio, Abruzzo, Sicilia, Provincia Autonoma di Bolzano, Piemonte, Marche, Emilia-Romagna, Veneto, Friuli Venezia Giulia, Lombardia, Toscana, Valle d'Aosta, Molise, Liguria, Puglia
Lithuania	**National**
Malta	**National**
Poland	**National**, Mazowieckie Voivodeship, Wielkopolska, Warminsko-Mazurskie, Pomorskie, Lubelskie, Podlaskie Voivodeship, Lower Silesia, Opolskie, Lodzkie
Portugal	Norte, Autonomous Region of The Azores, Algarve, Centro
Romania	South-East, North-East, Centru, North-West, South Muntenia
Slovenia	**National**
Spain	**National**, Castilla-La Mancha, Catalonia, Aragón, Extremadura, Galicia, Andalusia
Sweden	Region Gävleborg, Skåne, Jämtland Härjedalen, Värmland

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