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Implementing Smart Specialisation: An analysis of practices across Europe

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Abstract

This report seeks to examine how the Smart Specialisation approach was put into practice across European regions and Member States. It builds upon 35 implementation cases, outlining three main types of challenges that policy-makers are seeking to address through the implementation of their Smart Specialisation Strategies: 1) the involvement of stakeholders in a continuous dialogue to drive the territorial innovation process; 2) the development of efficient innovation policy instruments to support the structural transformation of the economy at regional and/or national level; 3) the pursuit of the internationalisation of the regional/national economy as well as the positioning in European value chains. For each key challenges identified, the report sheds light on the success-conducive factors and tools that have been used by policy-makers to manage the Smart Specialisation policy process, as well as the recurring types of outcomes that were achieved thanks to the implementation of Smart Specialisation related policies. The study lays out a broad range of research and innovation support systems that have been developed and that have driven a) a wider implication of stakeholders in innovation projects; b) the articulation and better functioning of innovation ecosystem; c) the reinforcement of transnational cooperation in S3 priority domains, although joint investment is still a weak point at this stage.

Key words

Smart Specialisation, Territorial Development, Innovation Policies, Stakeholders involvement

1 Introduction

1.1 Motivation and Objectives

Smart Specialisation represents a unique opportunity in contemporary innovation policy for territorial development. Over the last few years, the Smart Specialisation approach has fostered the design and the implementation of place-based, innovation-driven economic transformation agendas in the regions and Member States of the European Union, which overall have developed more than 200 Smart Specialisation Strategies, with more than 40 billion euros available (and more than EUR 65 billion including national co-financing) allocated through the European Regional Development Fund for the 2014-2020 programming period. These strategies involve national and/or regional public authorities, together with private businesses, higher education institutions and civil society in collaborative and mutually reinforcing processes.

Over the European structural funds programming period (2021-2027), Smart Specialisation is expected to continue to play a major role towards cohesion policy and regional development, and towards economic transformation in the long run. In particular, Smart Specialisation can boost innovation-led growth in the EU industrial transition regions and further integrate regional economies in European value chains. It also has great potential to foster eco-innovation processes that respond to global environmental challenges, in line with the United Nations Sustainable Development Goals.

Smart Specialisation Strategies (S3) are defined as integrated, place-based economic transformation agendas that focus on policy support and investments on key national/regional priorities, and encourage stakeholders involvement, while taking into account territorial strengths, competitive advantages and potential for excellence (Foray et al., 2012). The essence of Smart Specialisation Strategies (S3), also referred to as Research and Innovation Strategies for Smart Specialisation (RIS3), translates to a place-based approach that builds on the assets and resources available to regions and Member States, as well as on their specific socio-economic challenges in order to identify unique opportunities for development and growth[1]. In this context, "specialisation" entails identifying a limited number of well-identified priorities in a vertical logic, for knowledge-based investments and/or clusters to achieve competitive advantage at national and regional level. Smart Specialisation is also based on stakeholders' involvement in the shaping of the innovation system, known as the Entrepreneurial Discovery Process (EDP); it relies on an interactive process between businesses, academia, the civil society and the public sector, in which participants are discovering and producing information about new activities and potential opportunities. Furthermore, Smart Specialisation is outward-looking and embraces a broad view of innovation including but not limited to technology-driven approaches, and supported by effective monitoring mechanisms. In general terms, the purpose of this innovation policy concept is to promote the whole regional/national economy (Foray, D. and Goenaga, X. 2013).

This study seeks to examine how the Smart Specialisation approach was put into practice across European regions and Member States and explores the ways in which stakeholders have taken ownership of the Smart Specialisation concept to achieve certain goals towards the structural transformation of the economy at regional/national level. The report provides an analysis of the key challenges that public authorities are seeking to address and the innovation policies that were developed, and identifies some common trends in the implementation process, in terms of recurring success-conducive factors and types of outcomes obtained.

[1]Smart Specialisation Platform's website: https://s3platform.jrc.ec.europa.eu/what-is-smart-specialisation-

1.2 Methodology and data sources

This report is based on 35 cases that were collected over almost two years (from October 2017 to June 2019), that reflect the implementation of the Smart Specialisation concept across various European regions and Member States. It combines 19 "Implementation Examples" arising from the investigation and activities of the Smart Specialisation Platform, together with 16 "Smart Stories" that convey a direct account from stakeholders[2]. It should be noted that this study concentrates on country and regions that have demonstrated a genuine engagement towards the implementation of the Smart Specialisation concept, by participating on a voluntary basis to events organised by the Smart Specialisation Platform, or responding to the S3 Platform request to provide an account of the way in which they have used the S3 concept to develop their own innovation-driven economic transformation agendas at national and regional level. The examples gathered seek to capture the changes that have occurred at various territorial levels thanks to the implementation of the Smart Specialisation principles, and in numerous instances, the positive impacts obtained in other realms than Research and Innovation. To ensure consistency in data collection, each case responds to a set of core questions regarding a) the challenges the entity is aiming to address; b) the actors involved in the process; c) the success factors; d) and the solutions encountered and/or the milestones reached. The cases cover different territorial levels: regional (23 cases), transnational (6), national (5), and urban (1). Furthermore, the study provides implementation examples from a broad geographical spectrum with distinct levels of development: in addition to the transnational cases, 12 distinct countries are covered (including Austria, Belgium, Finland, France, Greece, Italy, Lithuania, the Netherlands, Poland, Portugal, Slovenia and Spain).

A methodology was developed to collect relevant cases that highlight interesting practices in the implementation of Smart Specialisation. In most instances, the data collected emerged from direct and structured dialogue and exchange with experienced practitioners, policy-makers as well as stakeholders from across Europe, following at least one working meeting with members of the Smart Specialisation Platform[3]. Besides, the edition of the "Smart Stories" has always involved formal interactions with the stakeholders (through mail exchanges and phone conversations) to ensure that the account provided followed the methodology in place and that precise data were collected. Thanks to an approach based on regular interactions, refined and detailed qualitative responses were obtained.

[2]These cases are available on the Smart Specialisation Platform's website (cf. Implementation examples http://s3platform.jrc.ec.europa.eu/implementation-examples and Smart Stories http://s3platform.jrc.ec.europa.eu/smart-stories).

[3] Working meetings organised in 2018 "Insights on assessing the Smart Specialisation experience so far", and in 2019 "Smart Specialisation Strategies implementation: Priorities, Related Policies and Impact Assessment" https://s3platform.jrc.ec.europa.eu/s3-implementation.

2 Key outcomes of the study

The study presents **three main types of challenges** that policy-makers are seeking to address relating to the implementation of Smart Specialisation. Following a semantic and lexical analysis of the collected cases, they are presented by order of prevalence: 1) the involvement of stakeholders in a continuous dialogue to drive the territorial innovation process; 2) the development of efficient innovation policy instruments to support the structural transformation of the economy at regional and/or national level; 3) the pursuit of the internationalisation of the regional/national economy as well as the positioning in European value chains.

For each key challenges identified, the report sheds light on the **success-conducive factors** and tools that have been used by policy-makers to manage the S3 policy process. It is important to note that practitioners are using a mix of policy instruments to conduct their innovation strategy and that effective policy delivery depends on their combination. Different types of examples are presented that have a common characteristic: each case relies on a working governance system, with a coordinating entity that supports and facilitates the implementation process.

In addition, the analysis presents recurring **types of outcomes that were achieved thanks to the implementation of Smart Specialisation related policies**. It is worth noting that assessing long-term objectives within a short timeframe is a big challenge, especially when policy objectives established require longer periods to produce results. Given the relatively short study period (almost two years, from October 2017 to June 2019), it is still too early to identify economic and social spinoffs in detail. Therefore, the report highlights the key findings of the 35 cases' review in terms of milestones reached and the positive implications that can be observed thus far, thanks to the implementation of the Smart Specialisation approach and its key principles.

2.1 Stakeholders' Involvement in the Entrepreneurial Discovery Process (EDP)

Key challenges

The Entrepreneurial Discovery Process is a complex concept to implement; it relies on specific governance settings, institutional capacities and behavioural changes and requires commitment of all parties in the long run. The analysis of the 35 cases highlights that a common concern for public authorities across Europe is the **involvement of stakeholders in a continuous dialogue to drive the regional innovation process.** Policy-makers have broadly endorsed the Entrepreneurial Discovery Process (EDP) in their endeavour to better grasp key regional competences and needs, and support the innovation ecosystem accordingly. Yet, maintaining momentum in stakeholders' interaction and collaboration - i.e. between businesses, higher education and research institutions, the civil society and public authorities - to define strategic innovation priorities is acknowledged as a key challenge. For instance, major companies that are already performing well often do not see the need to engage in S3 related activities. It can be particularly difficult to convince them of the potential benefits of participating in R&D projects and sharing knowledge with others.

Success-conducive factors

When tackling the question of the continuous involvement of stakeholders in the innovation ecosystem, several iterative success drivers have been identified. To begin with, two factors are frequently at play: on the one hand, great emphasis is put on a concertation process (rather than mere consultation) by which stakeholders from the quadruple helix are engaged in the exchange of ideas, knowledge and experience on a regular basis, hence are able to develop a common reflection and to make a shared decision with regard to S3 priorities. On the other hand, many success stories lie on a *user/customer-oriented approach* that

responds to concrete business and societal needs. Sustaining a forum for dialogue and steady feedback enables to link R&I objectives with operational. Besides, features contributing to enhance the participatory process and the emergence of joints Smart Specialisation strategic projects relate to the economic and institutional environment. The development of structured networks - with formal and/or informal communication channels - involving relevant actors, as well as the set-up of thematic working groups with a wide territorial coverage, appear as common success factors. Furthermore, developing a shared vocabulary and a mutual understanding of the RIS3 trajectory within the territory are key points to unify stakeholders from the private sector, research organisation and the civil society around a common strategy.

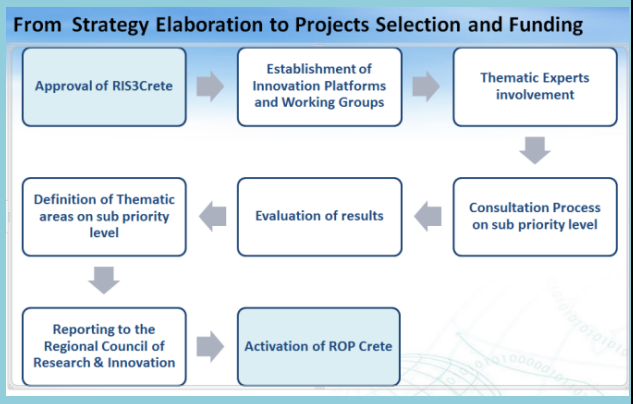
Preliminary results

Policy-makers have emphasized several beneficial outcomes resulting from the pursuit of the Entrepreneurial Discovery Process. It has led to the detection of new territorial actors within a triple or quadrupling helix framework, and to the involvement of relevant stakeholders in the decision-making process. It has also allowed establishing a more systematic dialogue and strategic approach among stakeholders (cf. example 1). The improved interactions between actors have in turn consolidated regional networks, allowing for collective learning and joint undertakings within and beyond the regional boundaries (cf. example2). Other positive results that were mentioned include bundling existing competencies, guiding the selection process of S3 priorities and generating economies of scale in priority domains. The EDP has helped design innovation policies and instruments that were more in line with territorial stakeholders' capabilities and needs. For instance, they were able to design call for proposals that reflect the competencies of stakeholders with more accuracy (cf. example 3). Moreover, through consultation and /or concertation with actors and their involvement in monitoring and evaluation exercises, public authorities have received relevant feedback from stakeholders regarding the impact of policy measures (cf. examples 4 and 5). Furthermore, trust-building between stakeholders is a crucial achievement that entails broadening local actors' confidence in the innovation system, more cohesive networks and business collaboration.

Two types of examples will be presented that relate to the use of the Entrepreneurial Discovery Process (EDP) to fuel innovation cooperation and to inform policy orientation.

Example 1. First phase of EDP Implementation

Enhancing the governance system is seen as a priority for the regional administration of **the Crete Region (Greece)** that seeks to foster stakeholders' participation and ownership of the S3 process. The regional administration has established a business support unit to mobilize local actors and coordinate joint projects. The Crete Region outlines several elements that were vital for the success of their Entrepreneurial Discovery Process (EDP), notably having in place: 1) one innovation platform; 2) a dedicated website; 3) a platform for the evaluation of stakeholders' projects during the EDP; and 4) thematic working groups per priority areas, with the organisation of meetings across the island.



The Region launched calls for expressions of interest based on each S3 priority areas to collect stakeholders' views. The consultation was coordinated by specialised thematic experts who helped participants interact with each other, provided feedback and evaluated the proposed ideas. After a series of technical meetings and consultations with companies, academic and research bodies, key proposals were presented. The conclusions of the 1st EDP phase were approved by the Regional Council of Research and Innovation and the managing authority issued the first call for proposals in December 2017, based on thematic areas identified through the EDP.

More information: Smart Story https://s3platform.jrc.ec.europa.eu/-/first-phase-of-edp-implementation-in-the-crete-region

Example 2. The role played by the EDP to intensify innovation cooperation

In 2016, the **Slovenian government** launched a public call for the establishment of nine Strategic Research and Innovation Partnerships (SRIPs) to bring together quadruple helix representatives. Their main purpose is to pool the investment and intellectual potential of Slovenian stakeholders, and help them set up a comprehensive innovation ecosystem with the aim of entering global markets and improving the position in priority domains. The SRIP cooperation model is based on the coordination of stakeholders' R&D activities, capacity sharing, especially when it comes to market foresight exercises in relation to policy-making authorities. It also relies on joint development of human resources, exchange of knowledge and experiences, networking as well as collective interest abroad. Over the last three years, more than 780 stakeholders (of which 79 % are SMEs) joined the SRIPs and their activities have already resulted in the implementation of new demo/pilot projects as well as in the development of joint innovative products, services and solutions/processes.

More information: implementation example https://s3platform.jrc.ec.europa.eu/governance-edp
and Smart Story https://s3platform.jrc.ec.europa.eu/-/intensifying-innovation-cooperation-through-slovenian-smart-specialisation-strategy

Example 3. An "Open Innovation Call" as a policy instrument for implementing S3

In order to foster continuous collaboration among actors, the **Northern Netherlands Region** has launched an "Open Innovation Call". Up to now, most of the instruments supported by the ERDF focused on the valorisation of individual innovation processes. Dedicated to businesses and knowledge centres, this new policy tool promotes the development of joint initiatives with the capacity of generating a series of related innovations, which in turns activate the region's innovation ecosystem and open ways to concrete market potential.

Particular emphasis is given to 1) promising new areas that can emerge as new strengths (i.e. new niche markets and technologies); 2) address the challenges of changing market conditions with new value chains and/or business models; 3) increase the innovation potential of SMEs, and in particular, increasing the number of small businesses that engage in open innovation processes.

To accompany further the proposed projects, the Region provides informal feedbacks to applicants in the initial phase to improve the quality of the proposal. In addition, it offers a total budget of 20 million euros, of which 12 million euros is provided through the ERDF and the remaining amount is provided by the Dutch government. The funding covers up to 40% of eligible costs for a period of up to four years and staged funding can be awarded for high-risk projects. Furthermore, top-up grants may be issued by neighbouring provinces and/or municipalities from Northern Netherlands. Moreover, to support the call, the Norther Netherlands Region facilitates the connections of emerging initiatives with relevant partners and networks, hence fostering synergies and economies of scale.

More information: implementation example https://s3platform.jrc.ec.europa.eu/policy-instruments
and Smart Story: https://s3platform.jrc.ec.europa.eu/-/smart-specialisation-comes-from-the-grassroots

Example 4. Stakeholders involvement in S3 interim evaluation

In **Lithuania,** the S3 mid-term evaluation took place at the end of 2018. The aim was to understand the "traction and direction" of implementation and take consequential action. Along the evaluation of the available data from the monitoring system, the EDP was re-established, involving relevant stakeholders. Overall, 130 stakeholders from research and business fields participated and 42 workshops were organized, in view of assessing the policy mix, the relevance of the Smart Specialisation priorities and other strategy's components. Out of 6 priority areas and 20 priorities, 7 priorities were reformulated with the involvement of EDP stakeholders. At the close of the concertation procedure, it was decided to amend the projects' selection process and base it on the potential to address important problems / societal challenges rather than focusing on S3 priorities' specification, with the view to encourage wider participation and cross-sectorial approaches. The collection of relevant data and the on-going exchange with stakeholders are considered as crucial elements for the Lithuanian government, in order to improve the traction or even change the direction of the strategy's implementation.

More information: Smart Story https://s3platform.jrc.ec.europa.eu/-/s3-interim-evaluation-stakeholders-hands-on-the-steering-wheel

Example 5. RIS3 mid-term review: proofing expected uptakes at territorial level

The Region of Tuscany (Italy) has conducted its S3 mid-term review with a stronger focus on the territorial dimension of the strategy, with the aim of wielding the cohesive potential of regional innovation policies. When drawing up the first version of its S3, regional innovation clusters were asked to organise scouting workshops with enterprises, research and tech-transfer centres, according to specific rules of engagement, in order to detect main investments opportunities. Similarly during the mid-term evaluation, they were invited to discuss the existing technological roadmaps or, in certain instances, define new research and innovation trajectories.

A "territorial proofing" approach was put in place, based on three steps:
- Detecting territorial economic relevance, through the economic impact assessment of the new roadmaps and their correlation to territorial value chains and local labour areas;
- Assessing the potential engagement of territorial tangible and intangible assets, through the correlation of the new roadmaps to endowments that enable innovation take-up at territorial level;
- Discussing the results of the previous two phases, engaging local stakeholders and the socio-economic partnership.

The updated version of the Strategy now includes five application domains focusing on the implementation of technological roadmaps in specific fields of application. It benefits from a wider governance system and involves local stakeholders and institutions. In this perspective, the territorial proofing approach represents the place-based-evidence contribution on which the regional innovation governance can monitor the effective implementation of the strategy, and in certain instances introduce refinements in an on-going Entrepreneurial Discovery Process. To this extent the territorial proofing approach can lead not only to better tailored territorial policies, but also to the consolidation of the local dimension of the regional innovation governance, and to the exploitation of regional excellence towards the reduction of territorial imbalances and the pursuit of cohesive growth paths.

More information: Smart Story https://s3platform.jrc.ec.europa.eu/-/ris3-mid-term-review-proofing-the-expected-uptake-at-territorial-level

2.2 Developing efficient innovation policy instruments to support the structural transformation of the economy at regional/national level

Key challenges

Another topic of shared interest for public authorities is the **development of efficient innovation policy instruments to support the structural transformation of the economy at regional and/or national level**. Policy-makers have outlined their quest to revitalize traditional sectors, support emerging added-value activities, and to foster technological transition, notably regarding the energy sector and the digitalisation of the economy. Other frequent challenges in that respect include the support to entrepreneurship and innovation uptake in SMEs; cross-fertilization enhancement among firms; the adaptation of workers' skills and SMEs' competences. In this endeavour, practitioners have emphasized their willingness to improve their administrative capacity, diversify the set of support measures and incentives given to stakeholders - notably targeted towards the private sector and SMEs - and further simplify projects' application rules.

Success-conducive factors

In terms of success factors, the cases show that stakeholders acknowledge that the development of a strategic vision to bring forward structural and qualitative changes to the economic and innovation system is an important exercise to carry out. Road mapping is also recognised as a significant element in the implementation phase and some initiatives are emerging. However, it tends to remain implicit rather explicit, and is not yet systematic.

A wide range of incentives and policy tools were put into place to enhance stakeholders' collaboration and involvement in innovation projects along the line of the national/regional S3 priorities. Policy instruments include inter alia: calls for expressions of interest to take into account the views expressed by stakeholders on an ex-ante basis and calls for proposals promoting joint initiatives that support cross-sectorial schemes or cross-fertilization undertakings; the setting-up of pilot environments (including fab labs, test-beds, etc.); Research and Innovation-oriented public procurement (cf. example 9); open public data platforms; free-access tool kits that bring stakeholders together or serve as reference models; and training activities to reinforce workers' and firms' competences and adapt to markets' demand for skills.

Furthermore, the investigation sheds light on new or improved organisation of institutional settings that practitioners have developed to stimulate the Smart Specialisation Strategy implementation process (cf. example 6). The revision of public policy organisation has involved institutional coordination and cross-departmental initiatives between various public bodies at both vertical and horizontal levels. Besides, practitioners have stressed that successful implementation also relies on public authorities' monitoring and evaluation skills as well as expertise with regard to EU programmes and regulations.

Preliminary results

It is worth looking at the outcomes and milestones reached thanks to the adoption of the Smart Specialisation approach from the perspective of each main actor of the quadruple helix model.

The examples collected reveal that in most cases, the Smart Specialisation approach has enabled **public authorities** at national, regional and local level to improve and build up their administrative capacity in different realms. The analysis suggests that in many instances, public support services and framework for innovation have gained in quality and efficiency and that managing authorities have improved their ability to grasp sectorial requirements and provide timely response to changing societal needs. Policy-makers were able to provide better tailored territorial policies, reinforce territorial cohesion and consolidate the local dimension. Besides, S3 have promoted techno-economic prioritisation, higher resource concentration and policy consistency compared to the past. It can notably be seen through synergies and better

alignment between funding sources, as well as through attracting additional public and private investors to pursue Smart Specialisation goals.

Businesses - and SMEs in particular - have benefited from a simplified framework to participate to innovation projects in relation to S3 priority domains. They could obtain guidance and advice from experts according to their profile. They have gained a better access to trainings, for workers to acquire new skills/competences and for firms to adapt their business models (cf. example 10). Participating in Smart Specialisation related activities have also enabled companies to access wider business networks, capture new market opportunities and expand their customer base. Practitioners mentioned greater synergies among industrial sectors embedding a wide range of knowledge domains involving cross-fertilization, further uptake of existing technologies, and technology transfer (cf. examples 3, 7 and 8).

With reference to **higher education organisations**, the analysis shows that the Smart Specialisation principles have helped some regions to develop a shared vision of a science model among actors, improve the research system towards greater prioritisation and concentration of resources, and the development of centres of excellence along the lines of S3 objectives (cf. example 6). It has also allowed for enhanced collaboration with businesses and in several cases, it fostered mapping companies' needs and setting-up of single contact point to provide a coherent and cross-sectoral offer, tailored to firms' objectives. Furthermore, the S3 has opened up new international research collaborations.

With regard to **civil society**, the benefits of the S3 approach have taken various forms including the development of a) inclusive policies and practices targeting vulnerable communities; b) more efficient methods to gather citizens' expectations; c) services and solutions tailored to citizens' needs with the production of cost-efficient goods and services; d) schemes supporting civil society's development projects. However, the small sample data size in that field suggests that civil society organisations have been less represented in the process. Further investigation is needed to identify with more accuracy in what ways the strategies have intended to respond to identified societal needs and how civil society can be further involved in participatory actions.

The examples presented hereafter place emphasis on policy and administrative measures that were put in place to boost the S3 process as well as various incentives targeting stakeholders. They also shed light on the steps taken towards structural transformation of economic settings.

Example 6. Building a Regional Stairway to Excellence

The Research and Innovation Strategy for Smart Specialisation of **Castilla y León (Spain)** was an opportunity to review the role of the regional science system in the generation of competitive advantages based on Smart Specialisation, and the engagement of the universities and other research centres in the regional Entrepreneurial Discovery Process. Excellence was also a goal of previous regional R&D strategies, but two innovative ingredients of the RIS3 - the effort for prioritisation, and the 'outward looking' perspective - implied that the concept of Excellence was understood, for the first time in the region, at the international level.

An intensive analysis of the regional science system was carried out by a focus group involving representatives of the regional government, the vice rectors of the public universities, and representatives of the regional Quality Assurance Agency for the University System in Castilla y León (ACSUCYL) as an external evaluation body. The analysis highlighted that, in general, regional research groups lacked critical mass to be competitive at a world level, and that there was significant overlapping among different research structures.

A pyramidal structure was conceived, with increasing requisites and public support in each domain of excellence, covering from the new (emergent) research groups to the most established research centres. Under this premise, the RIS3 launched the initiative Stairway to Excellence, which aims at developing regional capacities for S3 by strengthening the best research institutions towards the next level.

The final step of the regional stairway was designed in collaboration with the national government, using a common evaluation process conducted by the same international committees of independent experts for both national and regional calls. In the top regional step, research structures propose their own strategic plan in relation with the objectives of the regional Smart Specialisation, with the aim of allowing the research structure to move up to the next step of excellence, i.e. to participate in the national programme for Centres of Excellence. The strategic plan should include research activities at the highest level, but also activities for training and recruitment of human resources, internationalisation, as well as results' exploitation and dissemination (involving collaboration with industry and society). The first calls were open only to those structures that could reach the requisites of the national call within 3 years, assuring the concentration of resources and the achievement of higher impact.

Several concrete outcomes were identified, including the improvement of the research system and a better alignment with the RIS3 objectives. But above all, launching this initiative has conducted to a common vision of the regional science model shared by the government, universities and research centres. The most important success factors have been the design of the call based on an exhaustive previous analysis of the regional science system, the shared vision among the main actors (universities and research centres), and the freedom of the research institutions to design their strategy based on their own previous analysis. After the interim evaluation of the RIS3 in 2017, the update of the Strategy for the period 2018-2020 established the Stairway of Excellence as one of the Flagship Initiatives.

More information: Smart Story https://s3platform.jrc.ec.europa.eu/-/building-a-regional-stairway-to-excellence

Example 7. Synergies between funds to reach S3 goals

Through its Smart Specialisation Strategy (S3), the **Region of Lapland (Finland)** seeks to unify stakeholders around a single strategy and shared goals as well as to combine the interests of the rural communities together with those of the industrial mining and tourism sectors. This uttermost, sparsely populated region strives to maintain the right rural-urban balance, whilst developing the necessary infrastructure to keep local communities alive. Another key challenge is to create the support framework to help very small businesses to grow. To these aims, Lapland has based its S3 strategy on five key clusters.

Thanks to its systematic approach, Lapland has managed to gather about 20 million euros towards the implementation of its S3. Several success factors can be outlined. First of all, the regional authority's team, consisting of 6 people - 2 at the executive level and 4 at the operational level - have done an in-depth analysis to fully understand the rules and conditions of the European funding system and the ways in which funds can be used in synergy with one another. It has consolidated the regional financing package using H2020, Interreg Europe, Interreg Nord, Northern Periphery and Arctic, Interreg Baltic Sea Regions, Erasmus+ together with all European Structural Investments Funds associated with substantial national, regional and private contribution.

Besides, the region is engaging on a continuous basis with stakeholders via the clusters, and organises events and regular meetings to lead the process. Through an open governance system, the region ensures regional actors' interactions and partnering, the identification of common needs and goals to create a critical mass. Furthermore, the region has engaged Lapland's universities and business development agencies to play a crucial role in the S3 implementation. Researchers are involved in every cluster, hence reinforcing cross-sectoral dialogue among regional actors. In addition, Lapland pursues the internationalisation of its research and innovation activities, notably through its active participation and leadership in S3 thematic partnerships.

Lapland has used the structural funds framework to improve networking and business collaboration among regional stakeholders. The impact of the Lappish S3 strategy can also be seen through the improvement of public support services that have gained in quality and efficiency.

More information: Implementation example https://s3platform.jrc.ec.europa.eu/policy-instruments

Example 8. Enhancing cross-fertilization among manufacturing SMEs

Following the 2008 crisis, Portugal's traditional manufacturing sectors - notably the metalworking, textile, shoes, wood and furniture industries - had to face common key challenges: ensuring the swift development and uptake of new industrial technologies, involving the strategic management of industries' transformative change, and the spread of the benefits throughout the value chains.

PRODUTECH, a production technologies cluster, has played a key role to strengthen collaborations among key actors in various industries and promote joint projects and activities covering the whole innovation cycle. In line with the Smart Specialisation principles, the cluster has enabled members to identify the Key Enabling Technologies and skills needed and established the corresponding road map and an action plan.

Demonstrators and Pilot lines were important elements used by the cluster to assist SMEs in integrating R&D projects results and new technologies, in partnership with research organisations, hence providing an adequate response to customers' needs. This cooperative approach has benefited all clusters' participants. Thanks to the cluster's leading role, members were able to create a critical mass, define robust collaborative research & development projects and get a better grasp of the sectoral needs. Besides, cluster's members have invested in new technologies using a combination of funds (ESIF, national, regional and H2020) and gained access to new technologies thanks to applied research initiatives; they were also able to capitalise on existing technologies that could be transferred from one sector to another, promoting cross-fertilization and further uptake of existing technologies. Some key success factors can be outlined:

- The mobilization of the cluster's members under the same strategy and the ability to agree on priority areas

- The articulation between national and regional public authorities to develop a sound funding mechanism and a robust support framework, particularly the set of instruments managed by the National Innovation Agency (ANI).

- The development of interregional collaborations within the EU framework (namely, the VANGUARD Initiative) and participation in R&D projects and initiatives at EU level.

The Smart Specialisation thematic partnerships have also helped the cluster to address its needs through a wider access to businesses and RDI partners and funding sources; it also benefited from a targeted support to gain international expertise and visibility.

More information: Implementation example https://s3platform.jrc.ec.europa.eu/policy-instruments

Example 9. Multi-level governance that fosters innovative market solutions

The Six City Strategy, is carried out by the six largest cities in **Finland** - Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu. The network aims at developing a sustainable urban development environment that fosters new products and services, and at creating world-class reference sites as well as economies of scale. It also seeks to embed an operating model for joint urban development at different levels of the city administration.

In line with the key Smart Specialisation national priorities, the cities' innovation strategies objectives are either the same or complementary to the regional Smart Specialisation Strategies (S3). Funded through an integrated territorial investment mechanism that encompasses ERDF, State and municipalities financing as well as ESF, the Six City Strategy is based on open innovation platforms, open data and open customers' participation. The cities have opened their data to encourage its commercial use and help companies scale-up their business to the six cities. The project portfolio ranges from smart mobility, clean technologies and agile piloting, to creating development environments for product testing and boosting open data for business.

One of the cities' challenges is to adapt rapidly to the needs of the cities and regions. Thanks to the S3 implementation, the Six City Strategy has put in place a strong governance system within a multi-level framework. From a national perspective, the six cities act as an intermediate body that integrate S3 priorities to build up and implement common projects. From a regional standpoint, representatives of the six cities provide updates about the implementation of the strategy in regional management committee meetings once or twice a year. At these occasions, the challenges and upcoming changes in the operational environment can be discussed. They jointly defined the content of the calls for project proposals and participate to the selection of projects and funding allocated. Besides, the progress of the strategy is presented to city decision-makers and politicians on a regular basis. At the local level, resources for the joint strategy office are shared evenly and each city decides how to organise and allocate their part; the entrepreneurial discovery approach has strengthened the involvement of all stakeholders in co-development projects. This cooperative modus operandi enables the cities to be reactive and adjust their policy intervention swiftly according to market needs.

The six cities have improved their capacity for joint undertaking and have used the acquired knowledge in development works. A stronger network has emerged within and between the cities' operational entities. Further work is carried out on cross-sectorial and cross-administrative development projects. Besides, the collaboration between cities and companies has become more systematic. About thirty projects are running in various domains including smart mobility, cities as a testbed, gaming and learning, health and well-being, urban data modelling, education, etc. By opening their data, the cities have enabled companies to create commercial scalable products. For example, a street parking application is available within the 6 cities where users can park their cars and pay by using a mobile phone application. Moreover, new service production models and new innovative procurement processes are being tested together with companies. There are many other pilots, like robot buses, that have been tested in real user environments.

More information: Implementation example https://s3platform.jrc.ec.europa.eu/governance-edp

Example 10. Enhancing human capital in SMEs

The Centre Val de Loire Region (France) is taking part in an industrial transition pilot project launched by the European Commission to address specific challenges related to the transformation of some economic activities (including reorientation towards other markets, search for new market opportunities, companies' positioning in value chains), the adaptation of workers' competences to fit with the skills required in strategic sectors, as well as the integration of new processes notably in the ecological and digital sectors. In order to meet these challenges, the region has placed human capital as a Smart Specialisation Strategy's (S3) horizontal action and put in place a set of measures to reinforce workers' and firms' competences and adaptation to markets' demand for skills.

A proximity network of public and semi-public organisations is in charge of the development of businesses in the region, detecting innovative projects and supporting SMEs in their expansion efforts. It promotes networking among regional actors and provides adequate skills with respect to funding, research capacities, technology transfer, partnership activities, etc. It boasts of a set of instruments including a collaborative open database that fosters the advisory capacity of the ecosystem.

Besides, the Region has conducted a survey to assess the needs of 2,500 SMEs and mid-cap companies - including training needs - and to detect human resources' good practices. In addition, the Region has created a 60 million euros fund dedicated to life-long learning, to reinforce workers' skills and to ensure both customer-centred and local services.

Furthermore, the region has put in place a series of instruments and infrastructures that enhance collaborations between public research organisations and companies, along the line of the five regional S3 priorities. Three higher education organisations have mapped companies' need in terms of research capital (skills and competencies) and offered training in relation to S3 priorities.

More information: implementation example https://s3platform.jrc.ec.europa.eu/policy-instruments

2.3 Internationalisation of the regional/national economy and positioning in European value chains

Key challenges

The analysis shows that another widespread issue of interest for practitioners relates to the outward-looking dimension of their S3, in particular the **internationalisation of the regional/national economy as well as the positioning in European value chains** according to their domains of specialisation. Stakeholders have outlined several recurring challenges, notably gaining critical mass and achieving economies of scale to expand business opportunities, increasing the regional capacity to develop high added-value products services in well-established and/or new key sectors and activities, as well as being involved in wider business and innovation system networks. To this end, S3 actors are willing to develop transnational/interregional cooperation activities and are getting involved in Smart Specialisation thematic partnerships. They have stressed their efforts to set-up and manage complex transnational consortium with an adequate governance structure, with the view to develop shared infrastructure and realise joint (investment) projects.

Success-conducive factors

Several success factors have been identified in relation to the internationalisation of regional economies and fruitful interregional cooperation. First of all, a structure with a robust leadership and governance at the partnership level play a key role, together with the presence of entities - either public authorities or cluster organisations - that lead the process and facilitate cross-sectoral collaborations (cf. example 11 and 12). The study shows that well-structured governance is an important driver to conduct interregional initiatives where stakeholders develop a forward-looking vision that combines partners' strengths and potential. Stakeholders put great emphasis on developing a value-added approach to access new markets, and on skills to be more responsive to labour market demands. Besides, the roles and responsibilities of partners must be clearly defined to allow the consortium to grow and to enable joint players to advance their position in a given domain of specialisation within European value chains.

In addition, networking capacity to connect together stakeholders from various industrial backgrounds is a crucial factor. Interregional cooperation relies on the ability of partnership members, sometimes from different activity domains, to share knowledge and agree on common needs and goals. Clusters and technology transfer bodies often play an important role in that respect, as they can mobilise experts from different disciplines to pool their knowledge and experience around common development themes embedded in Smart Specialisation Strategies (S3) (cf. example 13). Trust-building stands out as an intangible asset that enables stakeholders to build on their relations and confirm their commitment on a long-term basis.

What is more, organisational and management skills form an essential building block to mobilise resources and carry out joint projects. Policy-makers have developed regulatory and financial capacity to align various funding sources and manage complex transnational consortium with the view to develop shared infrastructure and realise joint (investment) projects. In this regard, stakeholders mentioned the methodological support and guidance provided by the Smart Specialisation Platform (S3 Platform). The participation to thematic platforms in energy, agri-food and industrial modernisation and related partnerships has helped stakeholders to build on interregional cooperation and the international dimension of their strategy. By taking part in these partnerships, members have completed scoping notes, mapped precisely their domains of expertise and proceeded with benchmarking, in order to design a roadmap and a business plan for the future development of their S3 partnership. Moreover, the S3 Platform events have promoted mutual learning and helped public authorities improve the structural coordination and policy coherence of their strategy.

Preliminary results

In terms of outcomes and milestones reached, developing international collaborations in relation to Smart Specialisation priority domains have helped regions and countries in various ways. By joining their efforts, stakeholders have acknowledged that they were better equipped to get international expertise and grasp sectoral needs. They are developing monitoring and evaluation review tool, notably to identify transformative activities and boost cross-fertilization between various domains. Stakeholders participating to this study have mentioned that using regional competences in transnational setting have also enabled them to get access to wider sources of financing and realise large scale, cost-effective investment in research and business infrastructures. In turn, it has facilitated the uptake of existing technologies in specialisation niche fields. Stakeholders have built critical mass, and some were able to enter world-class clusters and better position themselves in European value chains (cf. example 14). Although joint investment is still a weak point at this stage, S3 actors have identified collaborative specialisation areas of expertise and widened their access to businesses and RDI partners, whilst creating a competitive edge. Furthermore, by the end 2019, the Smart Specialisation Platform has managed to gather 32 countries and about 200 regions altogether that take part in 32 thematic partnerships on agri-food, energy and industrial modernisation[4].

[4] Smart Specialisation Platform's website: https://s3platform.jrc.ec.europa.eu/s3-thematic-platforms

Examples of internationalisation and interregional collaboration are presented hereafter.

Example 11. Strengthening regional and interregional links and ties to boost growth and cohesion

Central Macedonia (Greece) seeks to support its economic fabric, mostly based on SMEs, to improve its innovation capacity and enter global value chains. The region has developed a vision and action plans with the aim of being one of the leading entrepreneurial and innovative regions in South Eastern Europe, based on RTDI, empowering the ecosystem, strengthening the links between the industry, research, government and society, and finally increase the development of new, or the improvement of existing tradeable products and services to be able to compete in the global markets sustainably. This framework is likely to favour value creation, and should be conducive to increase income and a decrease in brain drain.

The Entrepreneurial Discovery Process (EDP) tool has been used already to some extent but not well organized and coordinated. Through the newly established "One Stop Liaison Office Mechanism", the Region wishes to improve the interaction with stakeholders and identify further their needs.

The strategy is based on the regional participation and co-creation of a number of S3 sub-platforms focusing on Agri-Food. The main goal is to collaborate with other regions in perspective of starting a partnership for co-investments in developing new products, and services that will be competing in the Global Value Chains.

The region has been actively involved in three existing platforms and working hard to create a new one. These three platforms are: High tech farming, Nutritional ingredients, and Traceability and big Data and the one the region is developing focuses on Personalized Nutrition. The proposal is about creating a European partnership, to explore niches that have the potential to generate new innovative products and services that could be drivers in Global Value Chains. These niches can emerge from the cross-fertilization of traditional agro-food sectors and technologies and science such as Food technologies, ICT, etc. For instance, one of the first common pilot projects of the High Tech Farming Platform has been initiated with the participation the American Farm School in Thessaloniki. It focuses on establishing and operating a pilot farm for table grapes where technologies offered by technology providers within the consortium will be tested in the field, and grape producers will seek technology solutions to the problems they face. Similar demonstration farms with focus on different types of crop such as rice will also be established in the near future.

The Region wants to act as a bridge between external and local actors mainly to support SMEs in developing critical mass and entering global markets. The above, along with a number of other initiatives (e.g. CERN collaboration) represent a way to help the local ecosystem to create new links with international stakeholders, and to help regional actors, entering new markets and improve their social, cultural and economic activities, through diversification.

More information: Smart Story https://s3platform.jrc.ec.europa.eu/-/strengthening-regional-and-interregional-links-and-ties-to-boost-growth-and-cohesion

Example 12. The case of the Traceability and Big Data Partnership

Led by the region of **Andalusia (Spain)**, the goal of the Traceability and Big data partnership operating under the Smart Specialisation Platform on Agri-Food is to encourage the creation of an ecosystem to support innovation and digitization of the agri-food sector in Europe. The partnership involves regional authorities from 18 regions in 9 countries, 4 regional clusters both in the ICT and agri-food sectors, knowledge organisations and consumers associations. It focuses on key working areas of the value chains: “Lifecycles”; “Smart monitoring & competitiveness"; “Consumer experience and operators inclusion in decision-making processes”; and "Cross-cutting topics that include open data, interoperability, data governance and information security".

In order to achieve their goals, the leading and co-leading regions have defined and are implementing a well-structured governance and management framework that regulates the decision- making and operation processes of the partnership, as well as the roles and responsibilities of partners. Each one of the selected topics of interest (working areas) becomes a "sub-partnership" under the leadership of the defined co-leading regions that will work closely with interested regions to produce a working plan for each working area.
The selected governance model has already provided a number of benefits in the development of the dynamics of the partnership such as:

- Better focus of regions to selected sub-areas of the Traceability and Big Data theme according to their interests and strong regional capabilities
- More regions are actively participating in leading or co-leading roles taking responsibilities and initiatives in producing results
- Multiplier effect: each one of the four "sub-partnerships" are working in the definition of their own scoping note with objectives, framework and challenges and the identification of joint pilots (objectives, needs, funding and resources)
- Regional innovation eco-systems are developing around each one of the defined "sub-partnerships"
- Important horizontal issues of the partnership are defined and handled effectively in the level of leading & co-leading regions of the global partnership. These include: overall governance and coordination, strategic connectivity in EU level, capacity building-training-mentoring, communication and dissemination.

More information: implementation example https://s3platform.jrc.ec.europa.eu/transregional-cooperation

Example 13. How does the project "S3-4AlpClusters" support the implementation of S3?

The government of **Salzburg (Austria)** and its agency for innovation and technology transfer (ITG Salzburg) participate actively in the project "*Smart Specialisation Strategies to build an Innovation Model for Alp Clusters*" (S3-4AlpClusters) with the view to strengthen the region's international dimension and cooperation activities.
The project's innovative approach lies on the interplay between the concepts of clusters and S3 to foster innovation processes and spark entrepreneurship within clusters. Over the last two years, this Interreg project composed of 11 regions has involved its stakeholders - cluster organisations, policy-makers, academia, and businesses - in a fruitful collaboration to develop innovative new tools to enhance smart industrial transition in the regions of the Alpine area.

The main output of the project, the S3 Innovation-Model, introduces a systematic process which relies on the involvement of clusters for the identification, development and implementation of transformative activities. Tools are provided for each phase of the process to explore capacities and opportunities for transformation and to develop actions to create critical mass in innovative new fields. *Stress Tests and Synergy-Diamonds* (a tool that facilitates the identification of transformative activities) are used as innovative ways for depicting existing capacities and detecting opportunities for structural transformation, both within and across regions.

Entrepreneurial discovery workshops build on this base of evidence to identify real transformative activities. In addition, Action development workshops focus on concrete initiatives - such as R&D projects, networking or the development of critical skills - in order to gain critical mass for the identified transformative activities. The implementation of these actions is supported by a collection of best practices of cluster services covering transversal fields such as education, technology, growth, research or collaboration.

The partnership has also proposed an inter-regional cooperation scheme (Alpine Cluster Innovation Express) jointly funded by existing regional programmes. The intention is to align existing funding schemes and launch joint calls for the implementation of cross-regional actions. Finally, the S3 Innovation-Model also includes a methodology for evaluation and monitoring of the process. The entire process was tested in pilot clusters and resulted in a full training tool kit for cluster managers and regions at the end of the project.

More information: Smart Story https://s3platform.jrc.ec.europa.eu/-/how-the-project-s3-4alpclusters-supports-the-implementation-of-s3

Example 14. The case of the High Technology Farming Partnership

In the context of the Thematic Smart Specialisation Platform on Agri-food, the **Region of Tuscany (Italy)** has initiated the partnership on High Technology Farming that gathers 26 EU regions and one EU country. The partnership also counts with the participation of over 80 universities or research centres, 163 companies and 160 end-users' representatives in different countries. The main objective of the partnership is to develop joint activities for accelerating the adoption of high and new technologies that can improve the performance of farming practices and farm management.

The experience of the lead region – Tuscany

The Region of Tuscany has promoted the partnership because it believes that shifting towards precision farming is of the utmost importance for its agricultural system. It seeks to enhance its position within global value chains and to improve administrative capacity, to create synergies with other territories, and to better focus on programmes and projects. Besides, inter-regional planning and road-mapping enhance opportunities for further collaboration among regions and investment pipelines.

Participation in the thematic partnership has enabled an organisational change at the level of regional ministries, with an improved communication on Smart Specialisation. It also allowed for a behavioural change among regional officers with more effective collaboration among various operational programmes in the lead region. In the operational phases, it led to a better integration and complementarities in EARDF and ERDF operations, and a more focused discussion in the RIS3 regional coordination task force. The Tuscany RIS3 governance is based on two entities, an internal coordination task force and an external observation group formed by the main regional stakeholders in innovation. In both entities, joint investment opportunities provided by inter-regional cooperation are examined and discussed, then synergies within regional programmes are taken into consideration and integrated initiatives are fostered. Similarly, regional officials working in the agricultural department have had the chance to explore the specific opportunities offered by the Smart Specialisation Strategy roadmaps and related programming and thus contribute in a more structured way to trans-regional cooperation in Smart Specialisation at European levels.

The experience of the partnership

A number of relevant positive outcomes have been mentioned by the partnership:

- The partnership allowed for a better understanding of different scientific, business and innovative aspects related to high tech farming.
- Mapping and identification of complementarities among the regions participating in the partnerships contributed to a better understanding of technologies and actors active in the field (end-users, advisors, tech providers, researchers, etc.).
- During the scoping and mapping phases, the regions were able to collect information on capacities and needs of the regional actors (across the technology sectors).
- The mapping of competencies at regional level contributed to a better involvement of stakeholders from different business sectors. In addition to business actors, a number of clusters are directly involved in the development of business cases.
- Some partner regions have explored options for the funding and support for innovative projects with an interregional dimension (e.g. Tuscany has promoted a focus on Precision Agriculture).

More information: implementation example https://s3platform.jrc.ec.europa.eu/transregional-cooperation

3 Concluding remarks

The 35 cases analysed in this study, provide an insight on the ways in which pro-active regions and Members States across Europe have adopted and managed the Smart Specialisation concept to stimulate territorial actors engagement in innovation-led, participatory development processes. The study sheds light on a broad range of research and innovation support systems that have been developed and that have driven a) a wider implication of stakeholders in innovation projects; b) the articulation and better functioning of innovation ecosystem; c) the reinforcement of transnational cooperation in S3 priority domains, although joint investment is still a weak point at this stage.

Although it is too early to assess the full impact of the strategies towards economic transformation, it should be acknowledged that both developed and less developed territories have benefited from the S3 approach. For the former, it has consolidated an existing dynamic innovation ecosystem, and for the latter, it has brought on new innovation policies and instruments to boost the regional/national economy. Smart Specialisation Strategies provide a new paradigm based on an inclusive collaborative territorial innovation policy framework whereby stakeholders are encouraged to develop high added-value products and services in well-established and/or new key activities and get access to wider business and innovation system networks.

It also emerges from the structured interactions with policy-makers that the coordination between various levels of government that hold different mandate and perimeter of activities and responsibilities is a complex issue, which is often complicating the pursuit of policy consistency/coherence. In terms of S3 content, there is a constant need to integrate an array of ground-breaking new technologies in the S3 process, as well as a need to launch and nurture a continuous dialogue across sectors and disciplines, in order to boost cross-fertilization. Future investigation should focus on persistent challenges and how to tackle them, notably with a closer scrutiny on collaborative leadership and social innovation and the potential offered by eco-innovation models.

4 Bibliography

Barzotto, M., Corradini, C., Fai, F M., Labory, S., Tomlinson P R., 2019, Revitalising Lagging Regions: Smart Specialisation and Industry 4.0, Regional Studies association vol 1. Nb. 2.

Carayannis, E.G., Grebeniuk, A. and Meissner, D., "Smart roadmapping for STI policy", Technological Forecasting and Social Change, No 110, 2016, pp. 109-116.

European Commission, Smart specialisation website: "What is Smart specialisation?" https://s3platform.jrc.ec.europa.eu/what-is-smart-specialisation-

European Commission Communication COM(2016) 356 final, A European agenda for the collaborative economy, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels, 2016.
http://ec.europa.eu/DocsRoom/documents/16881/attachments/2/translations

European Commission Communication SWD(2017) 264 final, Strengthening innovation in Europe's regions: Strategies for resilient, inclusive and sustainable growth, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 2017.
https://ec.europa.eu/regional_policy/sources/docoffic/2014/com_2017_376_2_en.pdf

European Commission, Summary of the public consultation on Smart Specialisation: A fresh approach to European growth and jobs through regional innovation strategies, Directorate General for Regional and Urban Policy, Brussels, 2017
https://ec.europa.eu/regional_policy/en/newsroom/consultations/smart-specialisation/

Foray, D. and Goenaga, (2013) The goals of Smart Specialisation
ftp://139.191.159.82/pub/EURdoc/JRC82213.pdf

Gianelle, C., Kyriakou, D., Cohen, C. eds (2016) Implementing Smart Specialisation Strategies: A Handbook, Brussels European Commission
https://s3platform.jrc.ec.europa.eu/-/draft-implementing-smart-specialisation-strategies-a-handbook

Guzzo, F., C. Gianelle, and E. Marinelli (2018). Smart Specialisation at work: The policy makers' view on strategy design and implementation, JRC Technical Reports JRC114141, Joint Research Centre, Seville.
https://s3platform.jrc.ec.europa.eu/-/smart-specialisation-at-work-the-policy-makers-view-on-strategy-design-and-implementation

Kroll, H., Müller, E., Schnabl, E. and Zenker, A. (2014), "From smart concept to challenging practice – how European regions deal with the commission's request for novel innovation strategies", Working papers firms and region no. R2/2014, Fraunhofer ISI
https://www.isi.fraunhofer.de/content/dam/isi/dokumente/ccp/unternehmen-region/2014/ap_r2_2014.pdf

Kyriakou, D., Palazuelos, M., Periañez-Forte, I. and Rainoldi, A. (eds.), Governing Smart Specialisation, Routledge, New York, 2017.

Morgan, K., "Nurturing novelty: Regional innovation policy in the age of smart specialisation", Environment and Planning C: Politics and Space, 2016
https://journals.sagepub.com/doi/pdf/10.1177/0263774X16645106

Morgan, K. and Marques, P., "Early Assessment of the ESIF 2014-2020 Approach to Research and Innovation for territorial development", 2019

Nauwelaers, C; Seigneur, I; Gomez Prieto J., Good practices for Smart Specialisation in energy, EUR 29313 EN, Publications Office of the European Union, Luxembourg, 2018
http://s3platform.jrc.ec.europa.eu/-/good-practices-for-smart-specialisation-in-energy

Radosevic, S., Assessing EU Smart Specialisation policy in a comparative perspective. In S. Radosevic, A. Curaj, R. Gheorghiu, L. Andreescu, & I. Wade (Eds.), Advances in the theory and practice of Smart Specialisation (pp. 1–36). London: Academic Press, 2017.

Rissola, G. Fernando Hervás, Slavcheva, M. and Jonkers, K., Place-Based Innovation Ecosystems, Espoo Innovation Garden and Aalto University (Finland), EUR 28545 EN, Publications Office of the European Union, Luxembourg, 2017.
http://s3platform.jrc.ec.europa.eu/documents/20182/198909/aalto_innovation_ecosystem_case_study_formatted_online_version.pdf/5a6a8441-cfc4-47ae-afd7-9506de540073

Trippl, M., Zukauskaite, E. and Healy, A., (2019), Shaping smart specialization: the role of place specific factors in advanced, intermediate and less-developed European regions, Regional Studies
https://rsa.tandfonline.com/doi/full/10.1080/00343404.2019.1582763

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