GOVERNANCE OF SMART SPECIALISATION: EXPERIENCES OF FOUR EUROPEAN REGIONS

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Abstract
In the present article we compare four European regional development models in order to conclude on good practices on smart specialisation. The concept of smart specialisation (European Commission, 2008, Foray et al., 2009, S3 Platform, 2016) has been placed at the core of the European regional development strategies and it brought the focus on local endowments, international network orientation of the regions and their potential for excellence globally. That encouraged the regions' governments to align their actions to the general consent and to adopt place-based policies which foster innovation. The analysis draws from four European regions, each with a different innovation performance, according to the Regional Innovation Scoreboard: South-East Ireland is an Innovation Follower, Castilla de la Mancha, Spain and Central Hungary, are moderate innovators, while Bucharest-Ilfov in Romania is a modest innovator. Their different level of development gives a broader perspective on the regional development policies and, therefore, it allows us to identify good practices of smart specialisation approach and their current position in the global value chain. The present article is not limited to the description of various models for smart specialisation governance, but it also proposes a series of recommendations to better capitalise regional strengths and to create regional governance environments that generates smarter public services supportive for entrepreneurship, wealth creation and growth.

Keywords
European Union, innovation, local governance, regional policy, smart specialisation.

1. INTRODUCTION

Smart specialisation (European Commission, 2008, Foray et al., 2009, S3 Platform, 2016), a new approach of the European Commission for achieving the target of smart, sustainable and inclusive growth for 2020 (European Commission, 2010), is currently placed at the intersection of the European regional development paths. Recently introduced in the discussion of territorial development strategies, it builds on local endowments, international network orientation of the regions and their potential for excellence. Regions' governments can align their action to regional innovation and economic development strategies, which will lead to regional economic development. In this context, decision makers across Europe are encouraged to adopt place-based policies, ensuring thematic prioritisation and concentration to foster innovation, growth and entrepreneurship.

This article explores the topic of local governance of smart specialisation and territorial development strategies. It is inspired by the eDIGIREGION project, an initiative to increase regional competitiveness via research-driven clusters in the technology domain, funded under the EU's Seventh Framework Programme for Research and Technological Development (eDIGIREGION, 2016). The analysis is drawing from the experience of four regions of European countries, each with a different innovation performance, according to the Regional Innovation Scoreboard (2016): South-East Ireland, an Innovation Follower, Castilla de la Mancha, Spain and Central Hungary, moderate innovators and Bucharest-Ilfov in Romania, a modest innovator. Their diversity and their different level of development assure a balanced blend that reflects varied ways to deliver policies for regional development and innovation and allows identifying good practices in integrating smart specialisation approach.

A comparative analysis of the benchmark audits of the four regions (eDIGIREGION, 2015) is used to identify regional strengths, weaknesses, opportunities and threats for smart specialisations in order to better understand and assess the current position of the four diverse regions and to open up a debate on the various proposed policies. The indicators used for the comparative analysis of the benchmark audits include, but are not limited to: regional development policies and practices with focus on smart specialisation, the level of collaboration between relevant stakeholders, absorptive capacity, innovation capacity, and the extent of the alignment between regional research and development, and economic policies and strategies. This analytical background allows us to understand their envisioned regional growth paths, to compare their

smart specialisations strategies and to identify their specific characteristics of regional governance.

By starting off from the perspectives of regionally-driven policy practices, the article is not limited to the description of various models for smart specialisation governance and also proposes a series of recommendations to better capitalise regional strengths and to create regional governance environments that generates smarter public services supportive for entrepreneurship, wealth creation and growth.

2. LOCAL GOVERNANCE OF SMART SPECIALISATION

In the last decades, governance at local level reigns highly on the agendas of local development approaches worldwide. Literature states that local governance refers to how to formulate and implement collective actions at local level and "it encompasses the direct and indirect roles of formal institutions of local government hierarchies, as well as the roles of informal norms, networks, community organizations, and neighbourhood associations in pursuing collective action by defining the framework for citizen-citizen and citizen state interactions, collective decision making and delivery of local public services" (Shah and Shah, 2006).

A particular aspect in designing excellence-driven governance mechanisms and structures refers to the need to grow stronger innovation ecosystem (Mariussen et al., 2016) for staying globally competitive and for answering to global challenges. Research and dialogue about innovation ecosystems point that nowadays there is a free knowledge circulation and an environment of international markets with global linkages which challenge the governments to find the catalyst to increase the local attractiveness for innovators, technologies and know-how (O'Gorman and Donnelly, 2016). This will contribute to improvement of living conditions, which remains a high priority of any local governance strategy (Wilson, 2000). In dealing with this, smart specialisation (European Commission, 2008, Foray et al., 2009, S3 Platform, 2016), the newly pioneering approach in the European Regional and Cohesion Policies, offers the prerequisites of a new generation of governance able to stimulate the development of more efficient, competitive and effective regional innovation ecosystems (Castillo et al, 2014). In this context, regional policy development changed from an in-house approach to "networked development efforts

involving several peers who possess the required policymaking know-how and other critical resources" (Mariussen et al. 2016).

Following the literature, smart specialisation represents "a strategic approach to economic development through targeted support to Research and Innovation" (Carmo Farinha et al. 2015). It stimulates the discovery of new opportunities in the way research, development and innovation activities are performed, offering effective system conditions to achieve the aims of the Europe 2020 Strategy for smart, sustainable and inclusive growth.

Smart specialisation is seen as an opportunity for innovation by the European Commission which encourages its Member States to design national or/and regional research and innovation strategies drawing from smart specialisation approach as a mean to increase the impact of Structural Funds and to exploit the potential for smart growth by focusing on knowledge economy in all regions (European Commission, 2010).

Covering with this vision, the European Commission launched the Smart Specialisation Platform and connected guides, stating that research and innovation strategies for smart specialisation are "integrated, place-based economic transformation agendas that […]: focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures; build on each country's/region's strengths, competitive advantages and potential for excellence; support technological as well as practice-based innovation and aim to stimulate private sector investment; get stakeholders fully involved and encourage innovation and experimentation; are evidence-based and include sound monitoring and evaluation systems" (Foray et al., 2012). This new approach highlights that future policy for innovation should go beyond the traditional research abilities and consider all regional specificities and the technological areas with high potential for growth and to intensify the investments towards those. This framework suggests that a limited number of priority domains should be selected through collaboration of relevant stakeholders in a region, based on its particularities and on those industrial fields where there is the higher potential for a sustainable growth. By so doing, new innovations will emerge as the combination of local knowledge with its production capacity will be stimulated in order to accumulate a critical mass to compete at international level through differentiation. In this context, over the past two years, since the elaboration of innovation strategies based on smart specialisation became an ex-ante conditionality for accessing structural funds, smart specialisation has moved from a model of supporting innovation to a

strategic issue, from regional added value to mainstream, supporting the selection of a number of priorities with strategic potential and comparative advantages that allow regions to achieve critical mass in emerging fields and to become competitive globally through differentiation. In the process of identifying these pioneering areas, the commitment of all relevant actors in the innovation ecosystem is essential. Researchers, universities, entrepreneurs, public authorities and civil society, together, are in the best position to design smart specialisation strategies (RIS3) during an entrepreneurial discovery process. Generally, the aforementioned concept refers to finding creative solutions to regional problems by mixing regional assets and the new partners, risk assuming, experimentation, searching of new ideas along the value chain or for entering inside new values chains (European Commission, 2012). Specifically, entrepreneurial discovery process is a comprehensive and collaborating bottom-up approach where representatives of quadruple helix engage in co-creation experiences to discover data about emerging activities and about best policy instruments to support the realisation of the potential opportunities drawing from the interaction. The core point here is to incorporate the disparate entrepreneurial knowledge by building connections and partnerships regionally, nationally and at interregional level (S3 Platform, 2016).

This dynamic manner to redefine industry and research orientation towards emerging domains will support the exploitation of the potential of regional talent pools, physic assets and resources by taking full advantage of them and disseminating the benefits of research and innovation across region to increase a country's competitiveness and its capability to manage societal challenges. The focus is on exploiting regional priorities and regional specificities, on how to invest efficiently and effectively in innovation, on how to develop and implement strategies for smart economic development and on how to improve governance and to involve stakeholders more closely, all these with the objectives of strengthening regional innovation systems, maximising knowledge-based potential and spreading the benefits of innovation throughout the entire regional economy (Kyriakou et al, 2016).

Therefore, smart specialisation is under the spectrum of multi-level governance (European Commission, 2012), the concept being described by Bache & Flinders (cited in Pollack, 2005) as referring to an increased interdependence both between authorities working at different territorial levels and between governmental and non-governmental representatives at diverse territorial levels. Recognizing the importance of the quadruple helix approach in co-designing public policies and the interplaying between coordination and collaboration

among relevant actors (Castillo et al., 2014), smart specialisation governance is a key pillar in assuring synergies between policies, strategies, visions or funds to nurture innovation at regional level. In this context, the dynamic of smart specialisation governance involves five essential characteristics: horizontal coordination of all relevant actors from public, private, academic and non-governmental sectors, entrepreneurial discovery process to discover the most promising niches for research and industry, joint programming for innovation activities between European, national and regional authorities, interregional learning, capitalising on others experience, and monitoring and evaluation (European Commission, 2015). Designing innovation strategies based on smart specialisation involves regions in multi-level governance processes, both in terms of horizontal and vertical levels. As "smart specialisation strategies are interlinked by nature through complementary activities" (OECD, 2013), horizontal policy coordination is put in place. On the one hand, smart specialisation strategies align with the European policies for development and the macro-regional strategies, as for example the Danube Region Strategy (Mariussen, 2016), and they imply the involvement in transnational cooperation and learning experiences for transnational coordination. On the other hand, they harmonize between national and regional policies for innovation and between these and other regional strategies, as for example, industrial strategies (OECD, 2013). Moreover, designing and implementing smart specialisation strategies request an agreement between all relevant stakeholders, from public representatives to researchers, academics, entrepreneurs and civil society. Setting common regional priorities draws from the alignment of their goals which "constitute powerful governance mechanism for the vertical alignment of these strategies" (OECD, 2013). Shortly, the framework of smart specialisation governance is built on the following three pillars (Aranguren et al., 2016):

(i). General regional context and structure: it refers to general regional assets, including economic specialisation and clusters. Smart specialisation strategies take into consideration all regional characteristics from location, population structure, climate and natural resources to societal, clients and public innovation needs (European Commission, 2012).

(ii). Institutional structures and dynamics, including the path dependency, the mechanism of change and quadruple helix perspective: smart specialisation relies on the collaboration of public, private, academic and civil sectors, they being involved in a learning process to discover areas with potential for growth taking into consideration the need to adapt to economic, science and technological development of the region; this process requires structures and

instruments to select and to integrate the new discovered market opportunities in regional policies (OECD, 2013). These are prerequisites for:

(iii). Smart specialisation decision-making dynamics: it refers to decision-making mechanisms characterised by flexible hierarchies and collaborative leadership, where actors with different knowledge background are responsible for specific phases of design and implementation of smart specialisation strategies, according to their qualifications (Foray et al., 2012).

In other words, the analysis of smart specialisation governance reunites the system and the process perspectives. The former refers to the actors and institutions which constitute the innovation ecosystem and the relationship between them, while the second to co-designing and implementing strategies for innovation driven territorial development (Castillo et al., 2014). Therefore, ensuring participation and ownership is essential for robust regional governance and the following aspects taking predominance in creating a favourable context for smart specialisation implementation: (a) engaging relevant stakeholders in designing specific actions to link smart and sustainable regional development; (b) creating regional networks to support innovation and (c) finding the best way to foster stakeholders' collaboration and to implement strategies effectively (European Commission, 2012). All these will lead towards a comprehensive regional development policy, able to approach the challenges in terms of innovation by formulating a shared vision about regional strategic goals and priorities.

3. CASE STUDY. A COMPARISON AMONG FOUR EUROPEAN REGIONS IN GOVERNING SMART SPECIALISATION: BUCHAREST-ILFOV, CASTILLA DE LA MANCHA, SOUTH-EAST IRELAND AND CENTRAL HUNGARY

For this case study we employ the data collected during a research conducted under the framework of the eDIGREGION project. This is an initiative aimed to increase regional competitiveness via research-driven clusters in the technology domain, funded under the EU's Seventh Framework Programme for Research and Technological Development and run by fifteen European partners from Bucharest-Ilfov, Castilla de la Mancha, South-East Ireland and Central Hungary. Data were collected using the regional benchmarking audit technique. Within the

context of the eDIGIREGION project, the term „benchmark audit" is used to define the process of regional self-evaluation to record regions strengths, weaknesses, opportunities, threats and smart specialisations.

For the purpose of this paper, we will use the Regional Benchmarking Audit methodology developed during the aforementioned project, this process being essential in identifying smart specialisation niches (Navarro et al., 2014). There are two elements in the Regional Benchmark Audit tool: part A is for gathering relevant socio-economic and research and development profile data about each region while part B is for gathering data in nine different themes that are relevant to smart specialisation governance – policy, technology orientation, clusters and networks, research and technological development and innovation funding, smart specialisations, regional attractiveness, innovation ecosystem, triple helix, and entrepreneurial regions. Data were collected in each of the four regions by administrating a qualitative survey to relevant regional stakeholders and by mapping relevant statistics indicators. Additionally, to complete the perspective gathered during the benchmarking process in the aforementioned project, for this article we will conduct desk research and documents analysis

For the case study we will analyse the European regions involved in the eDIGIREGION project, Bucharest-Ilfov, Castilla de la Mancha, South-East Ireland and Central Hungary. For the project these were selected after mutual careful assessment of the research and innovation strategies of each region, the level of research-driven cluster activity in the domain of the Digital Agenda technologies, the opportunities for beneficial transnational cooperation between the regions and the technology capacities and technology-focus of the regions. For the aim of this article, they were also considered to ensure a diverse range of innovation performance, as Bucharest-Ilfov, Castilla de la Mancha, South-East Ireland and Central Hungary are regions with different levels of innovation development, as it is stated in the Regional Innovation Scoreboard. According to the last edition of this analysis, South-East Ireland is an Innovation Follower while Castilla de la Mancha and Central Hungary are moderate innovators, and Bucharest-Ilfov is a modest innovator (Regional Innovation Scoreboard, 2016). However, despite their different degree of innovation performance, in all these regions innovative hubs evolved and all have included smart specialisation in their strategies for development. In this context, the understanding of public authorities on how to exploit smart specialisation is essential for establishing suitable regional governance structure for value creation in terms of innovation performance to attain a competitive position in the global value chains.

For the present comparison we will use the following criteria, extracted from the benchmark audit and compiled with the indicators provided by the Smart Specialisation Platform: governance of the regions, governance of research, development and innovation policy, entrepreneurial discovery process and monitoring smart specialisation strategy.

3.1.Governance of the region

The four regions analysed have different regional governance mechanisms. According to the Regional Innovation Monitor (2015-2016), Castilla de la Mancha has autonomous Government, while the other three having no administrative or legal status, but being NUTS territorial units, designing and funding regional innovation policies following a centralised, top-down approach and the regional innovation system being public-funding driven (Regional Innovation Monitor, 2015-2016). This means that decision-making hierarchies at regional level are rather inflexible, national authorities playing the main role in orienting the regional development in three out of four regions: Bucharest-Ilfov, Central Hungary and South-East Ireland while, in the case of Castilla de la Mancha, the policies are implemented by structures of the autonomous regional government being in charge of elaborating and controlling the execution of regional policies in dedicated areas.

3.2.Governance of research, development and innovation policy

In Romania, the research, development and innovation policies are designed and coordinated at national level by the Ministry of National Education and Scientific Research with the support of its advisory councils and national consultative bodies, at regional level, the Ministry exerting little territorial coordination of the RDI policy, the most important regional innovation approach for Bucharest-Ilfov being the promotion of RDI in consolidating regional competitiveness promoted by the 2014-2020 Regional Development Plan, elaborated by the Bucharest-Ilfov Regional Development Agency – ADRBI. In Ireland, innovation policy measures are designed and coordinated by national authorities such as Enterprise Ireland, the Higher Education Authority and Science Foundation Ireland. No specific policies are seen to offer a differentiating factor for the South-East region or from other regions or areas across the national or EU. However, a core objective of

Irish Government policy approach is „balanced regional development" that is supported by the National Spatial Strategy. As regards Central Hungary, while Hungary is highly centralised both in terms of policy and economics, the same can be said of the region itself. The Research, Development and Innovation Law, established the National Research, Development and Innovation Office (NRDI Office) in 2015, and defined its mission to develop RDI policy and ensure that Hungary adequately invests in RDI by funding excellent research and supporting innovation to increase competitiveness. In parallel, the law set up a unified National Research, Development and Innovation Fund to provide public support for RDI. Central-Hungary has a unique position within this environment due to the concentration of national innovation performance in the region and the great spill over effects of regional investments. In Castilla de la Mancha, the only autonomous region out of the four here presented, the Government of Castilla de la Mancha is responsible for the coordination and governance of the activities of Research, Development and Innovation. It works closely with national public structure supporting RDI that primarily targets the Ministry of Economy and competitiveness, which also depends on the Centre for the Development of Industrial Technology and the Research Council Scientifics. The proposal and execution of government policy on economic issues and reforms is the responsibility of the Ministry of Economy and Business Support, the Ministry of Commerce, the Ministry of Research (Regional Innovation Monitor, 2016; eDigiregion, 2015).

Therefore, in Bucharest-Ilfov, South-East Ireland and Central Hungary, the research, development and innovation policies are designed and coordinated at national level, their inclusion in NUTS territorial units offering the framework to elaborate, implement, monitor and evaluate regional development policies funded by national programmes and structural funds, while in Castilla de la Mancha policies and actions supporting research, development and innovation are managed by the Regional Government bodies. This means that public authorities should engage in a collaborative process to integrate different agendas and goals of quadruple-helix actors to develop a comprehensive and shared vision about regional development.

3.3. Entrepreneurial discovery process

Designing smart specialisation governance and identifying niches with high added value functions is the result of a comprehensive collaboration process between the quadruple helix actors.

In Bucharest-Ilfov there is no regional strategy for smart specialisation. The entrepreneurial discovery process was conducted at national level in parallel with the designing of the National Strategy for Research, Development and Innovation 2014-2020. During this process there were identified four smart specialisation domains which were included in the Strategy: bio-economy; ICT, space and security; energy, environment and climate changes and eco-nanotechnology and advanced materials. At regional level, there are some initiatives for identifying smart specialisation domains, as for example that of the Bucharest- Ilfov Regional Development Agency which is a partner in the project Towards Regional specialisation for Smart growth spirit -TRES with the aim to identify good practice for developing such a strategy. The stakeholders involved during the eDIGIREGION Regional Benchmarking process appreciated that the following areas have high potential and can beconsidered smart specialisation specific to Bucharest-Ilfov: ICT, electronics, aerospace and aviation, energy, environment, protection, additive fabrication industry and bioinformatics.

In South East Ireland, there is also no regional strategy for smart specialisation. The starting point for the identification of smart specialisation in the region and the stakeholder consultation is within the framework of national and regional prioritisation exercises already undertaken. Ireland's Research & Innovation policy and associated strategies have always been to underpin the enterprise and socio-economic agendas and this has evolved to the RIS3. The Strategy for Science Technology and Innovation through the National Development Plans fastened the science base to ensure the focus of investment for economic impact and this evolved in 2012 into the National Research Prioritisation Exercise (NRPE). It seeks to accelerate economic impact through the focus on fourteen priority areas and associated underpinning platform science and technologies. The NRPE is essentially Ireland's research and innovation smart specialisation strategy; it is at the heart of STI policy and is influencing national and regional economic and higher education strategies. The potential Smart Specialisations for South-East Ireland presented during the Regional Benchmark Audit Workshop are ICT in Agriculture, Digital media / Gaming, Pharma, Bio-Tech and Life Sciences, Advanced Manufacturing and ICT in Tourism.

The development of the Smart Specialisation Strategy for Hungary followed a bottom-up, iterative process, based on consultations with regional stakeholders. The stakeholders were requested to identify the industries in which the given region possesses strengths and sees future development potential. The process resulted in the Smart Specialisation Strategy, which served as a basis for the development of the various operational programmes for the period 2014-2020. Central Hungary's smart specialisation areas for the period 2014-2020 are defined within the National Smart Specialisation Strategy. The Smart Specialisation Strategy formulates national specialisations within the context of the different regions in Hungary: systems science, smart production and smart society. National research priorities in turn are identified as sectoral priorities – healthy society and wellbeing, advanced technologies in the vehicle and other machine industries, clean and renewable energies, sustainable environment, healthy and local foods, agricultural innovation – and horizontal priorities – info-communication technologies and services, inclusive and sustainable, society, viable environment. Information and communication technologies and services are considered as supporting sectoral priorities, but also on their own, linked to numerous sectors or not specifically linked to any particular sector (e.g. Internet of things, e-learning, etc.).

Castilla de la Mancha has already developed its own regional smart specialisation strategy, in which it has performed an analysis of the region according to established guidelines. In the contents (challenges, innovative sectors, action plan) of the Strategy Smart Specialisation, Castilla de la Mancha has sought a certain degree of consistency with the main national and European strategies. Complementarities were sought with measures included in the Spanish Strategy for Science, Technology and Innovation 2013-2020, as this contains the principles and objectives that should guide the design of national public actions (National State Administration and Autonomous Regions) for the period 2013-2020. The working groups of experts who have developed the regional smart specialisation in Castilla de la Mancha performed an analysis of the situation in the region so that they could define the areas to focus on. The chosen sectors were the following: food and agriculture, including wine, oil, dairy, meat and other minor crops with potential, traditional sectors including structural ceramics, fashion (clothing and footwear), wood and furniture and metalworking, tourism and culture, including innovation in promoting tourism in Castilla la Mancha, tourism for hunting, wine tourism, language tourism, aeronautical including avionics, aviation, space structures, composite materials, energy and environment, bio-economy.

Therefore, in Bucharest-Ilfov and South-East Ireland, the entrepreneurial discovery process has been conducted at national level, without regional focus. The identified smart specialisation domains are national priorities, no regional specificity being mentioned. In Central Hungary, even if the entrepreneurial discovery process was performed at national level, the national strategy defines national smart specialisations within the context of the different regions. On the other hand, Castilla de la Mancha has its own smart specialisation strategy developed by relevant stakeholders based on regional assets and potentials. This highlights that all regions are concerned about the importance of smart specialisations for regional development, the way of integrating this approach in their innovation policies taking into consideration the structure of the governance. Also, in all regions, key actors, from universities to enterprises were engaged in defining regional priorities and niche domains regardless the local governance structures.

3.4. Monitoring smart specialisation strategy

In all four regions, the smart specialisation governance structures evolved on pre-existing regional governance institutions or become one of the attributions of these. According to the stakeholders consulted for the eDIGIREGION Benchmark audit, the best cooperation between public-academia and industry, which are the main entrepreneurial agents (S3 Platform, 2016), is in Castilla de la Mancha. The other three regions identified several issues for a robust collaboration between these relevant actors, underlying that there are many initiatives that stimulate the cooperation between them. As regards monitoring, this is performed by the same structures which define and implement the research, development and innovation policy, at national level in Bucharest-Ilfov, South East Ireland, Central Hungary and at regional level in Castilla de la Mancha

4. CONCLUSIONS AND RECOMMENDATIONS

We conclude our analysis by noting important implications in the case of the local governance of smart specialisation.
Firstly, we observed that it is too early to develop freestanding governance structures for advancing smart specialisation strategies. As far as the approach was defined by the European Commission in the context of the Regional Policy

for 2014-2020 and it is still a developing concept, there was no enough time for decision makers to build and adopt a new solid governance framework for RIS3. In this context, our analysis underlines that smart specialisation governance is based on pre-existing governance structures for research, development and innovation. In our opinion, this could be an opportunity to quickly advance the RIS3 approach because existing public administration can animate the process of knowledge based development, building on national or regional assets and on the integration of relevant stakeholders in a „collaborative leadership" (S3 Platform). On the other hand, this could also be a threat, as the resistance to change in public administration is widely recognized (Perry, Christensen, 2015) and the entrepreneurial discovery process can be seen only as a compulsory criteria to be ticked and not as a driver for change process.

Secondly, drawing from the four regions presented, we observed that the identification of smart specialisation domains was done in an entrepreneurial discovery process, where quadruple helix actors were involved, even if this happened at regional or national level. As developing strategies based on smart specialisation was an ex-ante conditionally, countries, in general, open a collaborative working process to assure that they will fulfil this condition. According to their administrative systems for RDI, some selected smart specialisation domains at national level while others go deeper with the identification and find regional categories.

Related to this, our analysis shows also that in the regions where RDI policy is adopted at national level, there is no smart specialisation strategy, while regions with autonomous government have developed their own smart specialisation strategy (e.g. Castilla de la Mancha). This highlights that decentralised systems favour an in-depth embed of RIS3 approach in the research and innovation policy.

All in all, the successful of smart specialisation approach depends on the degree of involvement and commitment of quadruple helix actors, there being different models of managing this at regional level.

In this context, we consider the following set of recommendations:

i.   To reform the structures of local governance on the quadruple helix principle in order to have an oriented governance to quadruple helix is firstly recommended. This will lead to a shared vision on how to foster regional development capitalizing all regional assets and will create flexible mechanisms which will better adapt to change.

ii.   Complementary, the culture of innovation should be fostered based on smart specialisation and each developing strategy needs to be correlated to the

existing funds in order to concentrate the objectives and the directions of economic growth and the investments towards the regional competitive advantages to accumulate critical mass for research, development and innovation.

iii.   Regarding the current strategies, they need to be framed within the regional perspectives according to the regional driven entrepreneurial discovery process and implying synergies between regional and national level in order to highlight the real potential of the regions and to shift the industry and research structures towards domains with high scientific and economic potential. This will lead towards a regional economy with greater added value and will contribute to improve the livelihoods of local communities

All in all, as smart specialisation is a new approach, European regions still work to integrate its governing principles taking into account previous experiences, existing guidelines from the European Commission, mutual learning experiences and good practices adoption. In this sense, engaging relevant stakeholders in the designing and implementing innovation strategies based on smart specialisation is the most important opportunity for fostering economic growth.

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