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Territorial governance in the context of RIS3 smart specialisation strategy

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Territorial Governance in the context of RIS3 Smart Specialisation Strategy

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Abstract: In the current new competitive environment, smart specialization has emerged strongly as a territorial development model to increase the efficiency and effectiveness of economic systems. An aspect from which it differs from previous models is the special emphasis on governance. In this framework, new RIS3 smart specialization strategies represent an opportunity to lay the foundations of a new governance to generate regional innovation systems that are more coordinated, efficient and effective. But all this raises an important sophistication from the point of view of the system and the process. The aim of this paper is to analyze the concept of governance in this context, offering a critical view of the opportunities but also the challenges and threats that arise.

Key words: governance, smart specialization, RIS3, innovation system, innovation regional strategy

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Introduction

The current context of the economies reflects an unprecedented complexity and uncertainty. As part of the unstoppable globalization, there are more and more players competing for their place in a market that has not grown to the same extent. Along with this, the social and environmental challenges determine the major competitive trends. The territories faced this context with a dilemma on how to use their assets in the most efficient and effective way versus the global determinants. The aim is to contribute to the generation of wealth and employment and achieve a development path to increase living standards.

In this context, the concept of smart specialization as a territorial development model that seeks to increase the efficiency and effectiveness of economic systems with the aim of contributing to sustainable development has emerged strongly in Europe.

One of the most valuable aspects and which is differential over previous models is the special emphasis set on governance, understood from the dual perspective of system and process. System understood as the relations between all actors, and the process as a whole of stages that allow reflection, agreements and act in one direction and with shared goals.

The new RIS3 Smart Specialization Strategies have emerged in the context of Regional Policy defined by the European Commission for the period 2014-2020. They mean the process that will lay the foundations for new governance that will offer the territories are more coordinated, efficient and effective systems. But all this raises an important sophistication from the point of view of both the system and the process.

Hence, the aim of this article is to analyze the concept of governance under the frame of the new competitive context that territories are facing, and more specifically towards the territorial development model of smart specialization. For this, in the first chapter an overview of the major determinants of the current context is provided. In the second chapter our definition of governance is presented referred to a regional innovation system, understood as a system of actors and relationships, and the process by which it achieves "autogovernance" in a coordinated, efficient and effective way. In the third chapter, our definition of governance and its elements are taken to the field of smart specialization, and the implications for innovation systems and RIS3 strategic processes are discussed. The fourth chapter seeks to go beyond the theoretical definition of governance and presents a first set of issues to consider, difficulties and recommendations arising from the implementation on the territory.

Finally, the article ends with some conclusions to be considered for those exercises that are currently being put in place to move towards a regional smart specialization and that require a more sophisticated governance that will give response to its theoretical and practical implications. Specifically in this last chapter, we seek to open the door to future research on issues that, because of the youth of the matters involved, must necessarily be addressed in the future.

1. Implications in the current competitive context

The territories are now facing an uncertain and complex context, characterized by globalization and economic, social and environmental challenges. In this context, competitiveness has become a central topic of academic, business and political debates, with regard to the ability of the economies to generate wealth and employment (Ketels 2006).

In developed countries, this leads to a continuous search for positioning through differentiation in order to maintain and increase the living standards of its inhabitants. Besides, as innovation has become the tool for differentiation, it has also become the key driver for competitiveness (Porter and Stern 2000).

There are many studies that have shown the relationship between the efforts in generating knowledge and innovation and the level of economic prosperity (Romer 1986, Lucas 1988, Freeman and Soete 1997, Porter 2003), emphasizing that both aspects are closely related.

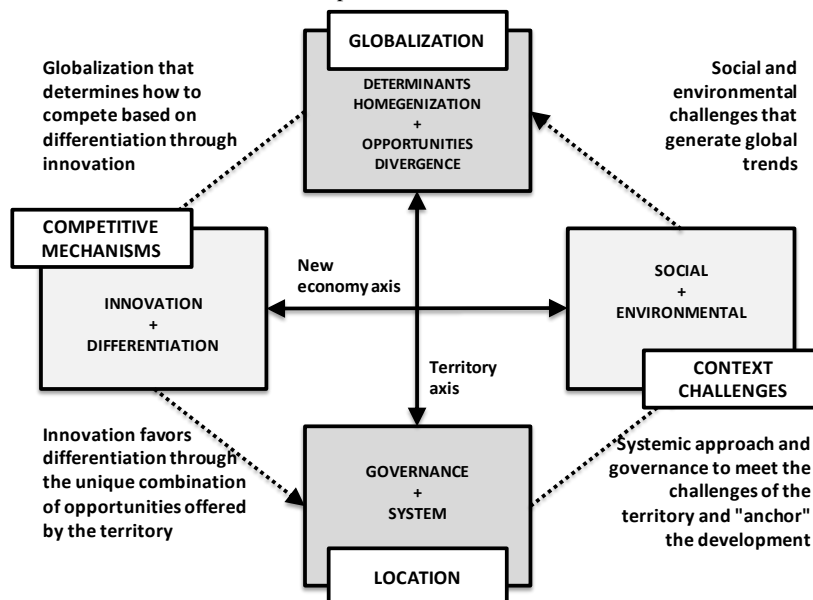
In contrast to linear perspective, and without reference to the social matters and to the territory present by neoclassical models, now other theoretical approaches affirm that innovation is a complex process that revolve around a "black box" (Rosenberg 1983), which is developed in an interactive way among many agents, immersed in a social, cultural, institutional and territorial context that conditions them (Lundvall 1992, Morgan 1997, Asheim and Dunford 1997). In this approach, social relations, the institutional context and geographical space, are not secondary issues, but fundamental and essential elements to understand how they work and how they generate innovation processes (Semitiel and Nogra 2004).

Furthermore, given that innovation has public good characteristics subject to significant market failures (OECD 1998), the key issue is how to generate the necessary conditions (social, cultural, institutional and territorial) in these complex processes, to achieve optimum levels. And it is here, when referring to the specificities linked to the territory, where governance is key to maximizing the contribution of a territory's unique assets.

However, before analyzing in depth the concept of governance and development which is currently being experienced, it is interesting to frame these evolution in the changes of context that have generated such evolution. These changes are also the ones that have positioned smart specialization as the main development model.

The determinants of the current competitive environment can be summarized roughly in four dimensions that are interconnected and interdependent. These four dimensions can be understood along two axis, one of them referring to the logic and operation of the new economy (contextual challenges and competitive mechanisms) and another that makes it at territorial level (globalization versus localization) (Paton and Garatea 2012 and Del Castillo and Paton 2012).

Figure 1. Great determinants of the current competitive context



Source: compiled from Paton and Garatea 2012 and Del Castillo and Paton 2012

Thus, in the first axis, the increase in the number of competitors has made differentiation, and innovation as a means, the default competitiveness mechanism driven by the need to respond to the challenges of society and the environment.

In the second axis, globalization and its increase in the number of competitors, has been the most visible effect, and has pressed on the homogenization of the rules of game (Friedman's "flat world" 2005). But it has also indirectly enlarged the territorial differences from an unequal starting position (Bhagwati 2010).

This "glocal" approach (Beck 2004), which seeks to position the territories globally, is what has led to the idea of smart specialization and the importance given to efficiency and effectiveness in the performance of the territorial systems (McCann and Ortega-Argiles 2011).

Largely, the heterogeneity in terms of governance is what has contributed to enlarge the territorial differences, and in this sense, smart specialization strategies aim to improve the capacity of each country to manage its processes properly (Landabaso 2011).

2. Elements of territorial governance

Governance is a relatively broad concept that reaches different areas, from economic to political science (Koschatzky and Kroll 2009). But basically it refers to *"the set of interaction and decision-making processes between a set of involved actors around a problem that leads to the creation, strengthening or reproduction of rules and institutions"* (Hufty 2011).

A more complete definition raises governance as *"... the sum of the many ways in which individuals and public and private institutions manage their common affairs in a continuous process through which interests, sometimes contradictory, are accommodated, and collaborative actions are carried out including formal and informal agreements between individuals and institutions"* (Commission on Global Governance 1995).

In a more synthetic way, and focusing on the most repeated elements, governance can be defined as the set of institutions and processes (UNDP 1997) for the coordination of collective action through systems of rules and orders (Mayntz 1993).

Given these repetitive elements in the most widely used definitions, for the study that here occupies it has been decided to limit and structure the analysis of governance from a double perspective: from a system perspective, understanding this as the set of actors and institutions that form it as well as its formal and informal relationships, and from a process approach, understanding this as the definition and implementation of a strategy (and its dynamics in time) that embodies the objectives that want to be reached in the system.

2.1. The system perspective

For the field of innovation, and in line with our concept of governance, Edquist (1997 and 2001) understands system as *"all those economic, social, political and organizational factors that influence the development, diffusion and use of innovations."* Moreover, Cooke and Schienstock (2000) frame it within the territorial scope defining it as *"a geographically defined set and institutionally supported by innovation networks that maintain a strong interaction to improve innovation performance in companies in the region."*

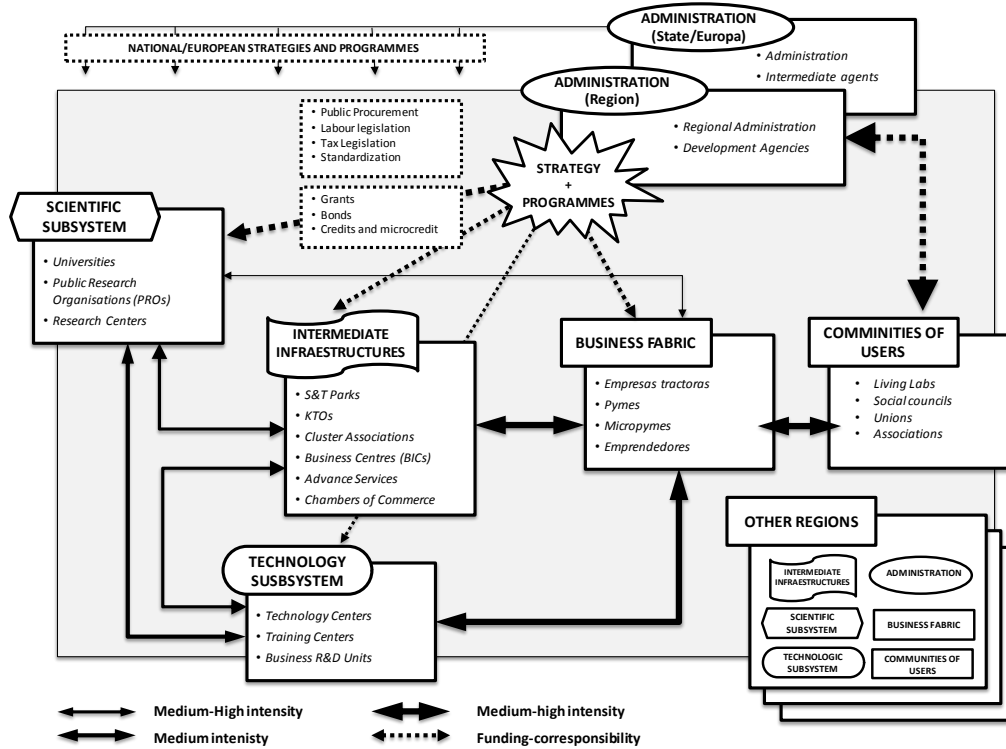
To further explore the concept of system, according to Edquist (2001) we will distinguish two levels of analysis: the components and relationships. León Delgado (2006) refers to the former as the formal structures involved as actors in the system, and the latter as a set of habits and practices established within it.

As for the components, Cooke (1998 and 2001) identifies a subsystem of knowledge generation (scientific and technological) and another of exploitation of knowledge (business network), to which Tödtlin and Trip (2007) add an additional one consisting in agents in charge of promotion policies (Administration) and support (intermediate infrastructures).

In a later study, Cooke et al. (2004) complement the scheme also emphasizing the interaction of the regional system with other regional systems in the framework of an open economy. At the same time,

Fischer (2000) includes a description of the types of agents that each component includes generally (see Figure 2).

Figure 2. Components of a territorial innovation system: agents, institutions and relations.



Source: compiled from various sources (Ibid 30 to 37)

Today, the growing importance of the "living lab" approach (Bilgram et al. 2008) and the models of open innovation (Chesbrough 2003), force to reconsider the regional system in terms of a quadruple helix (Carayannis and Campbell 2009). Thus, they are incorporated into the analysis in the shape of user communities and society in general as important agents that influence the processes of innovation and governance of the entire system.

In the framework of smart specialization, the regional system would consist of the components and subsystems before mentioned, with a conceptual approach very close to what is understood as quadruple helix. That is clearly reflected by the European Commission in the current definitions of regional policy in the field of innovation (Landabaso 2011).

As for relationships¹, it is common that among the different components of the system, reciprocal links are established. This gives place to a relatively dense relations network (science - company - supplier - customer - Administration) (Fischer 1999). The shape and intensity of these relationships determine the functioning and the level of contribution to the development of the territory.

This set of relationships is what configures the innovation networks defined by authors such as Freeman (1991), Tijssen (1998) and Fischer (2000). Figure 2 shows an orienting representation of the relationships between the most common subsystems, and also includes an assessment of their degree (intensity) from the consulted sources.

It should also be taken into account that the scope of relationships within a system is a lot more abstract and much less visible than that of the components, making it very complicated to specify its structure without individual cases. Generally, speaking about relationships we could basically refer to both the formal and informal (strong and weak) (Granovetter 1973) as well as the social capital upon which they are built and reproduced (Putnam 1993). Social capital plays indeed a decisive role. As pointed out by Lundvall (1999), there are different levels of social capital and its presence must be

¹ To refer to the relations, Morgan (1997) designates abstract institutions to the patterns of behavior, social habits, conventions (including regulation), values and routines.

balanced: to achieve too much of a kind and too little of another can impair the development of the whole system.

To all of this we must add the fact that the relations between the components of the system do not limit themselves to only one dimension across various levels. Some authors like Katz (1998) and Fischer (2000) point out three: the micro, macro and meso level. Others like Esser et al. (1996) add a fourth in which they include the relationships in the wide frame of the whole society. Following Láscaris-Comeno (2000), in our model the models in which the relationships between the components take place would be:

- A micro level referred to the relationships between the scientific and technological subsystems and the productive fabric.
- A meso level in which the former relations are included and so are the social and administration actors, including the support for the relations of the agents at the micro level.
- A macro level that encompasses the area of planning, the policies, the strategies and the regulatory frameworks. At this level the conditions necessary so that the various components can reduce their uncertainty and can operate in a coordinated and synergistic way towards territorial development objectives are created.
- Finally, the meta level incorporates aspects that go beyond the scope of innovation but that equally influence it: the social capital of the territory.

The importance of relationships relies on the fact that, as mentioned by Cassiolato (1994), the development and diffusion of any innovation requires the interaction between technological, organizational, economic, social and political forces (the components of the system mentioned above). This provides the necessary environment for innovation to flourish, and with it their contribution to the development of the territory.

As pointed out by Lascaris-Comeno (2000), being the innovation a complex process, *"the non effectiveness of some of these relationships, or failure of the purposes of any of the sectors or systems involved, affects another with which it is linked, and thus economic development as an integral process"*

Therefore we can say that for innovation systems, understood as a set of components and relationships, governance is a key aspect and their evolution is closely linked to it (Cooke 2002, Cooke et al. 2004). Hence, in the model of smart specialization, the treatment of governance should be an aspect to consider especially.

2.2. The process perspective

As we pointed out earlier in this chapter, the dual perspective chosen leads us to highlight the importance of the governance process. This process is clearly portrayed in the strategies, objectives and actions collected formally, the territories develop, and that the governance needs to determine how they are managed. This is the logic with which the former Regional Innovation Strategies (Henderson 2000, Technopolis 2006, EC 2002 and 2006) were launched in Europe during the decades of 1990 and 2000, and now the new smart specialization strategies are (Del Castillo et al 2012a). This is the reason why an analysis in terms of strategy is critical for the new governance in the current context.

Going back to the theoretical basis of the strategy, Peter Drucker (1973) defines it as the reflective-analytic process by which a set of priorities are defined and resources are committed to be transformed into actions. In his own words, strategic thinking is *"the science involved in the proposal and making of good decisions about a future that is uncertain."*

In our scope of analysis related to innovation, the strategic process by which the governance is guided is not a trivial matter, because if properly defined and applied, it gives the system more efficiency and it maximizes the impact of available resources (OECD 2007).

Since the 90s, the European Commission promoted, in over 150 regions, the formalization of Innovation Strategies (RIS, RITTS and RTP) aimed at strengthening innovation systems and at increasing their contribution to regional development (OECD 2010). These strategies were not isolated elements and were raised in a European context of growing institutional commitment in the field of innovation, as shown by the various frameworks and initiatives launched since the 90s.

In these examples spread over two decades, noted a number of common elements that are intrinsic to planning: reflection, prioritization, consensus, monitoring its implementation (Del Castillo et al. 2012a). Besides, the importance of focusing on governance policies first appeared, in particular to improve the relationships between institutions and towards generating the interactive processes necessary for the creation, dissemination and application of knowledge (OECD 1996).

Table 1. Common elements to the whole Strategy Process

<i>ELEMENTS</i>	<i>IMPLICATIONS FOR THE GOVERNANCE</i>
Reflection and definition	DEFINE THE GOVERNANCE: the objective of this first stage is to have a general frame of governance that is clear and condensed. It must direct the system with efficiency and efficacy by specific actions towards increasing the development of the territory.
Implementation	IMPLEMENT THE GOVERNANCE: it is the scope of actions (of tools or specific initiatives) that the different agents carry out across time to respond to the objectives in the strategy.
Monitoring and evaluation	ENHANCE THE GOVERNANCE: establish the mechanisms to maintain a process of revision, critical analysis and objective achieved across time, taking into consideration what was defined initially and the result after the implementation.

Source: compiled from Del Castillo et al. (2012a)

The result of these strategies was relatively positive for the regions (Technopolis 2006), even though a number of areas for improvement were also identified, particularly those related to the way the governance was carried out in the practice and its adaptation to the changing context, and in particular the growing opening of regional economies in the globalization process (EC 2011a).

Given the complexity and diversity of agents forming a system, a good strategy requires the participation of all those on which it will directly or indirectly affect. This "bottom-up" approach is necessary, first, to ensure that from the outside the vision, the priorities and actions enjoy a sufficiently broad consensus, and secondly to determine the roles of shared leadership during the implementation of the strategy and its monitoring (IPTS 2012).

This participatory governance will subsequently serve as a criterion for the justification of the priorities and assess the merits of a good RIS3 (Del Castillo et al. 2012b).

3. Governance in the frame of smart specialization

As Williamson (1985) points out, the objective of the governance is to respond to the limitation and barriers for the perfect coordination that exists due to the limited rationality, the behavioural uncertainty and opportunism of parties in a system.

In this sense, all these elements vary with the changes observed in the socioeconomic context. Thus, at present, the constraints of the context make governance fall within the logic of a model of smart specialization that, as noted in the introduction, implies greater sophistication and effort in its definition and articulation.

3.1. The new model of smart specialization

The concept of smart specialization comes from reflection generated around the structural "gap" between Europe and the USA (Pontikakis et al. 2009), as result of a lower economic and technological specialization and less ability to prioritize and to dedicate consistent efforts at the regional level.

From this reflection, this line of thought has been translated into to the new approaches of European regional policy in the context of Europe 2020, and has also established itself as one of the conditionalities for accessing the ERDF in the next programming period 2014 -2020 (EC 2011b and EC2011c).

Smart specialization is still a developing concept, initiated mainly by authors that currently advise the Commission itself (Foray et al., 2009, Foray 2009 and McCann and Ortega-Argilés 2011). From them, we can say that (Del Castillo et al. 2012a):

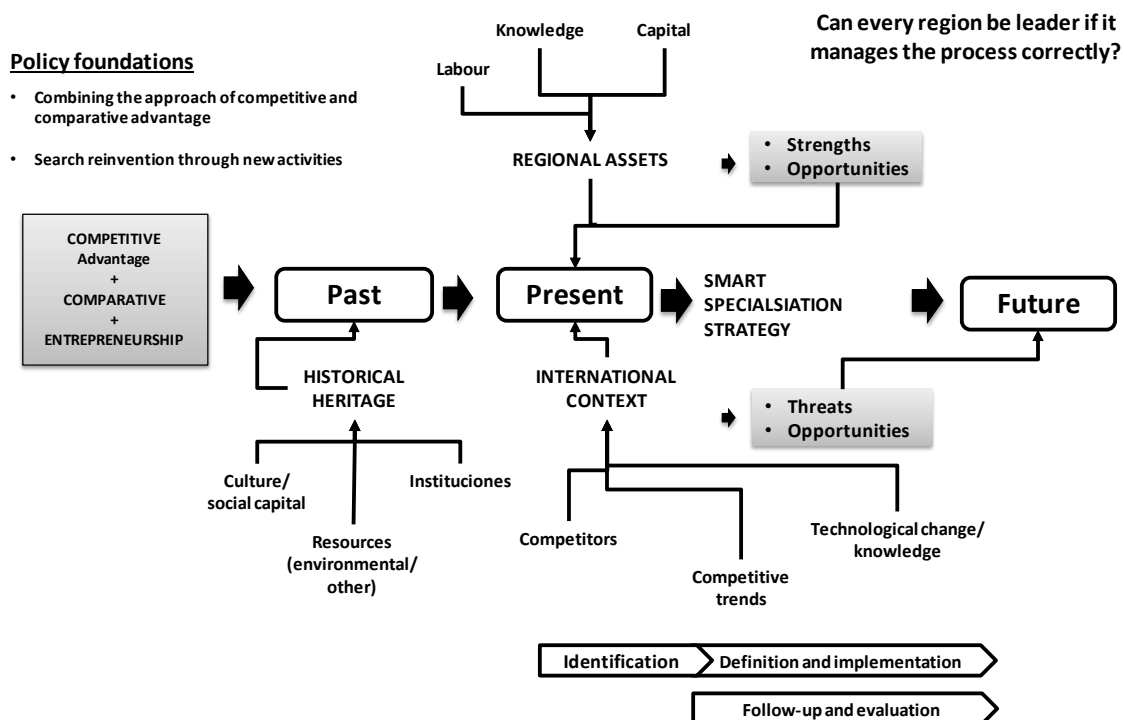
Smart Specialization is the prioritizing that takes place, at a territorial level, in economic activities, scientific areas and technological domains that are potentially competitive and generators of new market opportunities in a global context versus the prioritizing that other territories carry out.

From these authors' point of view, the concept can be broken down into three main points, to be:

1. The prioritization of specific patterns of specialization in technology domains, scientific areas and economic activities. In them, the region is competitive and focuses its efforts with a high potential return thanks to the critical mass.
2. Exploiting related diversity, from the relationships between different domains and sectors, maximizing externalities and generating new emerging activities with the combination of knowledge.
3. The consistency of the whole process within the global context, where such specialization is configured as part of a global value chain in which the region is a leader and has a comparative advantage.

The smart specialization concept comes from a reflection from the previous RIS experiences. The conclusion by Castillo et al. (2012b), is that a good model of territorial development must be based on a strategic process and governance capable of securing competitive and competitive advantages from the territory's assets (tangible and intangible) in a global context. Besides it must be completed with the reinvention through new economic activities that changes the regional economy across successive "waves of innovation".

Figure 3. Conceptual logic of the model of smart specialization



Source: Del Castillo, J., Barroeta, B. and Paton, J. (2012b)

The way by which these principles are put into practice in terms of system (role of components and structure of their relationships) as well as of strategic process (definition, implementation and monitoring), can and should vary according to the characteristics and conditions of each region.

3.2. The perspective of the system from the smart specialisation approach

The concept of specialisation is not new in the economic theory, what is new is its application in the field of the regional development policies linked to the new European Cohesion Policy legislation (Del Castillo et al. 2012b). This explains the fact that there are certain gaps in the orientations and specific aspects of the policy to be covered, especially when referring to the tools, the role of the agents in the innovation system and the governance in general.

Up to now, the only references on this field can be found on the guide published by the IPTS (2012), on complementary thematic documents (EC 2012a, 2012b y 2012c) as well as across contributions made by different experts (Del Castillo et al. 2013 and EURADA 2012).

A key aspect of the governance of smart specialization lies on how to involve the different components of the innovation system and energize all its relationships in order to achieve greater efficiency / effectiveness. To do this, the need to move towards more participatory governance linked to the quadruple helix is emphasized (EURADA 2012 and Landabaso 2011).

While participatory governance was a methodological element already included in the previous RIS, in practice, it was not always given a bottom-up approach involving all the agents, and at the time the concept of quadruple helix was not being used yet.

Therefore, a critical task in the process of governance of smart specialization strategies will be to identify the components of the system in each regional reality that must play a leading role as well as the relationships (formal and informal) and social capital that shape the system. In particular (Del Castillo et al. 2013):

- Private sector representatives related to economic technological and scientific specialization niches that are more important in the region. These agents are the ones that generate wealth and jobs through the rethinking of existing activities and the generation of new emerging activities through entrepreneurial discovery processes.
- The regional R&D agents related to niches of technological and knowledge specialisation. This group's mission is to support the work of the business fabric within the framework of smart specialization through knowledge generation and transfer as the basis for entrepreneurial discoveries.
- The various Public Administrations involved, taken from a multilevel (State, regions, local administrations) and multi-departmental perspective, should provide the roots for good governance. Specifically, they should define and manage properly the policies that support the different actors as well as monitor the progress of the governance process.
- Other agents, entities, bodies and society representatives involved directly or indirectly in the regional smart specialization process. Their role is to complement the activities of the other actors involved in the governance of the innovation system, in particular by providing references of market orientation.

In Table 2 a summary on their role and possible contribution is included. In any case, the role of each agent in the system and the relationships established between them can vary depending on the nature of social capital as well as on the economic, technological and scientific temporal reality of the territory.

As part of the strategic process a consistent distribution of roles must take place, distinguishing those that are merely collaborating from those that lead the processes and those executing them.

Table 2. The components of an innovation system related to smart specialisation

<i>COMPONENT</i>	<i>ROLE/CONTRIBUTION</i>
R&D subsystem <ul style="list-style-type: none"> • <i>Universities</i> • <i>R&D centres</i> • <i>OPIs</i> 	<p>Main basic knowledge generator that subsequently leads to key enabling technologies. It is also responsible for the training of high-level researchers.</p> <p>They can be the main source of entrepreneurial discoveries, but for this they must focus their activity to the demands of each territorial economic reality.</p>
Technological subsystem <ul style="list-style-type: none"> • <i>Technology centres</i> • <i>Training centres</i> • <i>Business R&D units</i> 	<p>They are the agents that generate knowledge and are closest to the productive network and have a predominant orientation towards market needs.</p> <p>They can play an important role as facilitators between science subsystem and the businesses, at the same time they must have a clear area of expertise</p>
Business fabric <ul style="list-style-type: none"> • <i>Tractor companies</i> • <i>Micro & SME</i> • <i>Entrepreneurs</i> 	<p>The leader of the competitive process and the generator of wealth and employment. No company, not even the tractor ones, can survive without a dynamic environment. Hence the need to rely on the other links of the system to maintain and increase their competitiveness.</p> <p>To improve the competitiveness of the territory it is necessary to incorporate to the innovation process an increasing number of innovative companies ("hidden innovators") as well as identify entrepreneurial discoveries to be commercialized.</p>
<ul style="list-style-type: none"> • Support Infrastructure • <i>S&T Parks</i> • <i>Incubators</i> • <i>Cluster Associations</i> • <i>Advanced Services</i> • <i>Finance companies</i> 	<p>They are tools to facilitate relations between subsystems (science-business-administration-users). The different types of infrastructures deal with different stages of the innovation process, from the transfer of knowledge to the entrepreneurship and innovation in existing companies.</p> <p>In the framework of smart specialization their role varies regarding the strategic approach of each territory and its specialization. In any case it is clear the role of intermediation (transfer and collaboration) to facilitate entrepreneurial discovery through related diversity.</p>
Regional Administration <ul style="list-style-type: none"> • <i>Government</i> • <i>Development Agencies</i> 	<p>It plays a key role in overcoming system failures related to R&D and innovation, and as a guarantor of institutional frameworks of governance.</p> <p>In the framework of smart specialization it should support institutional and strategic resources commitment for the territory and ensure that the governance is oriented to address and to meet the economic, social and environmental challenges.</p>
Communities of users and society	<p>Traditionally, and despite being the final part of the value chain, users and society in general, were the least involved parts in governance. However, the global challenges become trends and appear as determinants for the other subsystems, come from this group.</p> <p>In the framework of smart specialization we should go after a greater involvement of users and society in general, to reduce the distance between the generation of knowledge and its application to the specific territorial challenges.</p>

Source: elaborated by the authors.

3.3. The process perspective: the strategic approach of the Regional Smart Specialisation Strategies (Regional Strategies of Smart Specialization, RIS3)

As mentioned in the previous chapter, the process of governance proposed by the Commission for the period 2014-2020 is not new but an updated and improved rethinking of the methodology used in the development of Regional Innovation Strategies in the previous period. Currently we are facing a paradigm shift (Del Castillo et al 2012a) that will affect both the orientation of the strategy and the instruments, and therefore governance processes will differ from those that were generated in the 90.

This rethinking must respond to the difficulties and bottlenecks encountered in previous strategic processes, and especially to the new challenges. So it will contribute, from a regional policy perspective, to address the new objectives of Europe 2020 (Landabaso 2011).

This new approach includes the features of the smart specialization model (specialization, economic change and globalization) to maximize the development potential of each region. Also, the "ex ante" conditionalities that the Commission states as part of strategies must be considered. Among them is the need to develop a SWOT, the definition of priorities and actions agreed, identifying resources, and the

monitoring and following of the strategy (EC 2011). Table 3 is a summary of these issues in the context of smart specialization:

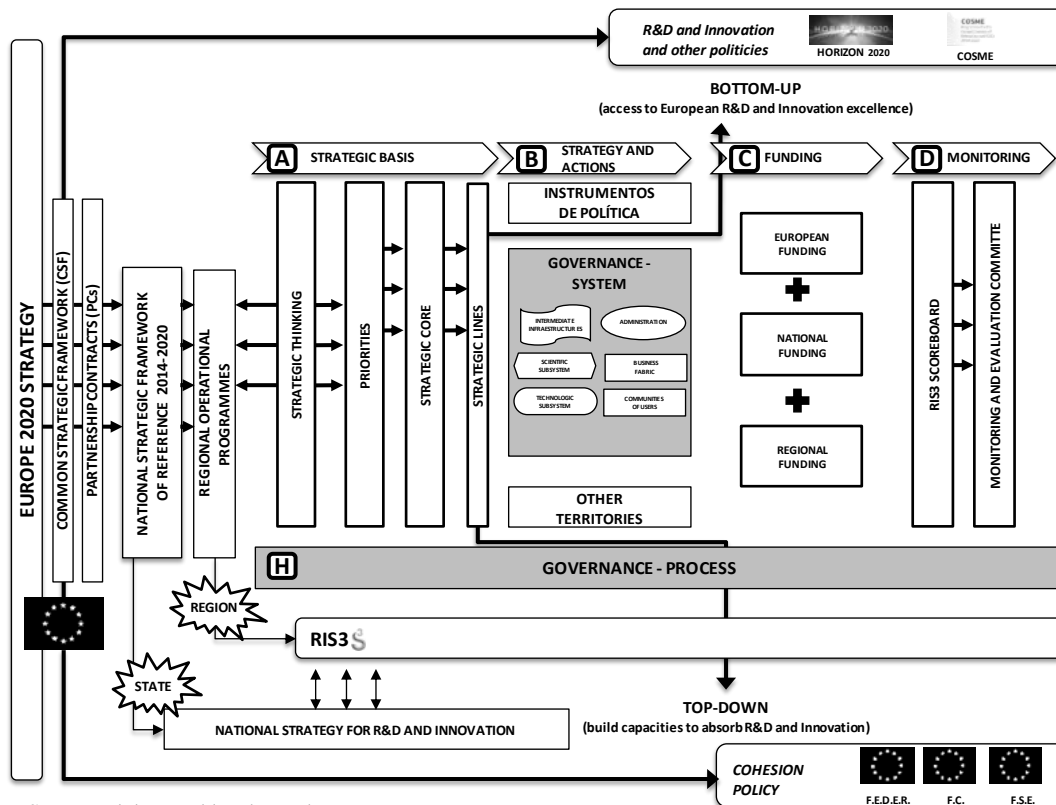
Table 3. Elements of a RIS3 Strategy Process

<i>ELEMENTS</i>	<i>IMPLICATIONS IN TERMS OF RIS3</i>
Reflection and definition	In this stage of the process there must be an strategic reflection regarding the prior areas in economic, scientific and technological terms; the kind of governance that will assure entrepreneurial discovery and its across the process (quadruple helix); the implementation tools and finally the mechanisms to guarantee a revision of the strategy and improvement of governance across time.
Implementation	During the lifetime of the strategy, the tools and procedures developed in the first stage must be also considered. Specifically it is key to maintain the governance mechanism that identifies entrepreneurial discovery processes and initiatives that generate wealth and employment. During implementation stage, although with less intensity that in the reflection and definition phase, participatory governance must allow to redefine the strategy according to the changing context.
Monitoring and evaluation	The monitoring of the strategy is a mechanism that ensures continuous improvement, efficiency and effectiveness. As part of this need there must be indicators to provide the necessary information so that there is a periodic improvement a refocusing of the strategy.

Source: compiled from Del Castillo et al. (2012b)

From the issues analysed, five elements emerge in the Smart Specialisation Strategies (steps that also respond to conditionality "ex-ante" of the Structural Funds Regulations): 1) a process guided from participation, 2) good previous forethought as the basis for the strategy, 3) clear prioritization of actions and measures, 4) complementary resources to support the proposed actions, and 5) a monitoring system to regularly update the strategy. These elements determine the stages of the process. Figure 4 shows the logic of the process at regional level schematically, taking into account that it will happen also in the framework of a Member State and the European Union.

Figure 4. RIS3 strategic approach from a governance process view



Source: elaborated by the authors

Thus, governance is now a much more complex issue than in previous processes. In the new logic of the Cohesion Policy, the RIS3 should play a pivotal role between regional policy and those of other institutional levels. Therefore, they should incorporate actions to increase the participation of the region in European programs such as Horizon 2020 and COSME ("*upstream*"), as well to generate the absorptive capacity of the results created at the European level ("*downstream*"). In other words, the RIS3 must be an interface between the funds allocated at a regional level (Cohesion Policy) and the rest of the Europe Policy funds (Horizon 2020, COSME, etc..).

4. Key aspects to be considered for a RIS3 governance

The smart specialization approach was born in response to the European challenge of lack of critical mass and "excellence" of R&D innovation, and the lack of business networks capable of internalising and valorising it (Pontikakis et al. 2009). But its translation to the field of regional policy includes a number of nuances that make the process of definition, implementation and evaluation of the strategy more complex.

In the initial postulates of the European group of experts "*Knowledge for Growth*" (K4G)², smart specialization presented a theoretical model of governance that seemed logical and straightforward, but it required taking into account important implications for its transfer to the logic of regional policy (Paton y Barroeta 2012). Below there is a description of the main opportunities and potential risks to keep in mind when considering a process of governance within regional smart specialisation:

Table 4. Key aspects to be considered in RIS3 governance: opportunities and risks related to the process.

<i>RIS3 ELEMENTS</i>	<i>OPORTUNITIESS</i>	<i>RIESKS</i>
<p>PRIORITIZATION <i>Election of priorities through specialisation patterns</i></p>	<ul style="list-style-type: none"> To prioritize the allocation of resources and efforts on a limited number of areas can help creating critical mass to achieve excellence. The process of prioritizing the demands of the business network facilitates the alignment of the regional capabilities of R&D with the market opportunities. 	<ul style="list-style-type: none"> Not all regions find themselves at the same starting point in terms of entrepreneurial capability, sometimes resulting in the creation of bigger gaps between regions. Reaching a critical mass and sufficient excellence in R&D to match the supply and demand is complicated when preferences in both fields are not always the same. The intermediary infrastructure must play a proactive role and be committed to the strategy, although the real situation does not always allows it.
<p>SPECIALISED DIVERSIFICATION <i>Exploitation of regional related variety</i></p>	<ul style="list-style-type: none"> Take into account that the horizontal specialization will contribute to the rest of the economy (knock-on effects) Exploiting of the possibilities of regional related diversity can lead to radical innovation and "rethinking" of the economy. 	<ul style="list-style-type: none"> A high degree of specialization also brings further weakness to potential crisis, technical changes and product / technology cycles. It is difficult to clearly identify the border of "diversity-related" and due to the novelty of the concept, there are still no clear methodologies for this. If there is no entrepreneurial critical mass, little social capital, little experience of the regional Administration, or even an unfavourable regional context, the governance of the process may be unworkable.
<p>GLOBAL CONTEXT <i>Coherence of priorities and the process in the frame of an open economy</i></p>	<ul style="list-style-type: none"> A "global" dimension of governance will allow for the prioritized specialization to be consistent in the global context. To define the specialization in terms of a global value chain multiplies its chances of success. 	<ul style="list-style-type: none"> Certain types of knowledge can only be developed currently by a number of advanced regions, and therefore the co-inventor and follower regions and may experience an uneven "trade-off". The final results of the smart specialization are influenced by many internal and external dimensions that are not always controllable. The approach of governance in an open economy is still not widespread although the success of the model depends on its ability to generate cooperation in a framework region-country-Europe.

Source: compiled from Paton and Barroeta 2012

² http://ipts.jrc.ec.europa.eu/atagance/knowledge_for_growth.cfm

5. Conclusions

The search for regional smart specialization can be positive to build a competitive advantage that positions the country on a path of creating wealth and employment in the context of globalization. However, there are a number of risks that can turn opportunities into threats if there is a lack of an appropriate model of governance and coherence in the structure of the process.

The most important issue is how to generate this new model of governance able to involve the different components of the innovation system. At the same time, it must guide according to the priority areas selected in the process of specialization and allow them to reinvent themselves through discoveries arising from related variety. In short, a new governance model that responds to the current problems of the evolution of regional innovation systems in an open economy simultaneously to competition and international cooperation.

There are great differences between European regions, mainly in terms of economic and technological structure, but also cultural and administrative capacity. Thus a commitment to a "*laissez-faire*" governance, as proposed by the more orthodox neoclassical positions, would generate disparate results between regions and a maintenance of the "gap" (even an increase) in the levels of development. Therefore, the role of the regional administration is essential for driving a process that will help to correct these imbalances.

There are at least two aspects that the Strategy should answer. First, a participatory governance process involving key actors within the region (companies, organizations of the innovation system, etc.) should be configured, and not only at the sectorial level but also across sectors. This involves a process of work and animation on the ground to be led by the Administration (with the help of existing intermediary structures such as clusters) to the extent that the region does not spontaneously generate these dynamics. On the other hand, it is also necessary to consider that there are differences between regions, and thus the process of defining and strategic implementation cannot be uniform.

Finally, the concept of smart specialization brings as novelty the fact that governance is no longer part of the regional logic but is inserted in the global context. This makes the process even more complex, because it is no longer enough to identify regional specialization, to structure it in the field of related diversity, and to get innovation system agents involved. Now the fact that there are similar processes in other regions, it implies a potential competition for us, but also offer opportunities for collaboration.

In this sense it seems critical to configure the governance of a specialization considering that the regional system is inserted into the national and international levels, so that at every micro-meso-macro level the actors, institutions and their relationships should contribute to specialization conceived in global terms.

It should be noted that the region will not be the only one choosing certain areas of expertise. Nevertheless, the appropriate mechanisms should be taken into consideration for any region since regardless of their stage of development; any region can reach leadership in a domain or specific sector in the medium and long term. As history has shown, competitive leadership is not so much a matter of allocation of resources and exogenous capabilities, but a process that based on the comparative advantage looks for the "construction" of competitive advantage. Hence the importance of a governance that will keep that process over time, and adapt to changes in circumstances.

Finally, the "construction" of a competitive-comparative advantage approach involves expanding the approach of the strategy beyond a simple network of structures to support innovation-demand of enterprises. In this sense it is necessary to consider various policy areas that contribute to the environment generating conditions for competitive companies. On the other hand, these other dimensions (education, culture, infrastructure, etc.) ensure a smooth progress in different dimensions that shape regional governance.

For this reason, it is essential to include in the governance of Regional Smart Specialisation Strategy, RIS3, the regional quadruple helix in the broadest sense as an active part. And this without forgetting that by the globalization process, a vision that takes into account the ability to cooperate with other territories must be maintained.

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