

Smart Specialisation Strategies: The Case of the Basque Country

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Abstract

There is a clear acknowledgment in the literature of the importance of developing regional innovation strategies to build competitive advantages. However, the concept remains fuzzy in terms of its limits and contents applied to the territorial field. This paper analyses one concrete type of territorial strategy that is currently being disseminated by the European Commission for regional development: the smart specialisation strategy (S3). Specifically, this paper analyses the aspects that remain under discussion and are opened to greater development and precision under the smart specialisation concept. The focus is on two dimensions: the content of the strategy and the process of the strategy (the “what” and the “how and who” of the strategy). By analysing the evolution of S3 since the 1980s and three cases of S3 based on research and development (R & D) in the Basque Country, the paper emphasises the convenience of adopting a broad definition of S3 and the different roles of the government depending on the existing capabilities in the region. Moreover, the paper indicates that it is preferable to simultaneously and not consequentially develop the necessary scientific and technological capabilities and the generation of a shared vision of the S3 strategy in an entrepreneurial process.

Resumen

La literatura actual subraya la necesidad de desarrollar estrategias de innovación territorial para la construcción de ventajas competitivas. Sin embargo, el concepto de estrategia no resulta claro, en sus límites y contenidos, cuando se aplica al territorio. Este documento analiza un tipo concreto de estrategia territorial, que está siendo impulsado en la actualidad desde la Dirección de Política Regional de la Comisión Europea: las estrategias de especialización inteligente. Más en particular, trata de aquellos aspectos actualmente en discusión y necesitados de adicional desarrollo o concreción. La discusión se concentra en dos dimensiones: en el contenido y en el proceso de la estrategia. Esto es, en el “qué”, por un lado, y en el “cómo” y “por quién”, por otro, de la estrategia territorial. El análisis de la evolución de este tipo de estrategias en el País Vasco desde comienzos de los 80 pone de manifiesto la conveniencia de no tener una visión restrictiva de tales estrategias y el diferente papel que el Gobierno desempeña dependiendo de las distintas capacidades existentes en la región. Más aún, el documento subraya que es preferible desarrollar simultáneamente, y no secuencialmente, las necesarias capacidades científico-tecnológicas y la generación de una visión compartida de la estrategia de especialización inteligente en un proceso de emprendimiento.

Laburpena

Gaur egungo literaturak azpimarratzen du ezinbestekoa dela lurraldeko berrikuntza estrategiak garatzea lehiatzeko abantailak eraiki nahi badira. Baina, lurraldeari buruz hitz egiten dugunean, estrategia kontzeptua ez da batere argia, ez mugetan eta ez edukietan. Dokumentu honek lurralde estrategia mota jakin bat du aztergai, gaur egun Europar Batzordeko Eskualde Politikako Zuzendaritza sustatzen ari dena: espezializazio adimenduneko estrategiak. Zehazki, oraindik eztabaidagai diren hainbat alderdi lantzen ditu, aurrerago garatu edo zehaztu beharko direnak. Eztabaida bi dimentsioren ingurukoa da: strategiaren edukia eta strategiaren prozesua. Hau da, lurralde strategiaren “zer” alde batetik, eta “nola” eta “nork” beste aldetik. Euskal Autonomia Erkidegoan 1980ko hamarkadaren hasieraz geroztik horrelako estrategien bilakaera aztertuz gero, ikusi ahal izango dugu ez dela komeni estrategia horietan ikuspegi murriztailea erabiltzea. Gainera, ikus daiteke eskualdeko gaitasunen arabera, gobernuen egitekoa ere aldatu egiten dela. Are gehiago, dokumentuak azpimarratzen du hobe dela beharrezko gaitasun zientifiko-teknologikoak eta ekintzailtza prozesuetan espezializazio adimenduneko strategiaren ikuspegi partekatua batera garatzea, eta ez bata bestearen ondoren.

1. Introduction

Within the various trends that have analysed the close relationship between competitiveness, innovation and development since the 1990s (e.g., Porter, innovation systems and Triple Helix Model), there is a progressive explicit recognition that territories need to develop innovation strategies to build competitive advantages drawing upon their particular resources, competencies, capabilities and existing trends (Porter, 2010; Asheim et al. 2006; Etzkowitz and Klofsten, 2003). Today, it is common to find the term “territorial strategy” in the field of economic development, in the innovation literature, in regional policies driven by the European Commission (RIS RITTS, RIS-NAC, RTP) and, more generally, in the speeches of public decision-makers.

As with the terms “competitiveness” and “benchmarking”, which were imported from other fields to the fields of economic geography and development economics (Navarro et al., 2011), this new use of “territorial strategy” was not preceded by a clear definition with regard to those fields. This oversight has resulted in frequent ambiguous and contradictory use of the term (Navarro et al., 2012).

These ambiguities and the need to clarify its meaning are present too in the “smart specialisation strategies”. The first section of this article explores this type of territorial strategy, initially designed by Dominique Foray with the collaboration of several authors (Foray and Van Ark, 2007; Foray et al., 2009; Foray, 2009a; Foray, 2009b; David et al., 2011; McCann and Ortega-Argilés, 2011), and afterwards utilised by a series of documents and communications of the European Commission (Barca Report 2009; COM (2010) 553 final; SEC (2010) 1183). Such strategies will have significant relevance in future European regional development. The recommendations and the allocation of funds for regional development by the European authorities will align to these strategies. However, similar to the first interpretations of any approach of this type, certain aspects are questionable, inaccurate or in need of further development.

To develop the current approach of smart specialisation strategies, the second section analyses the case of the Basque Country and, from an inductive approach, reflects on how its experience contrasts with the current approach of smart specialisation strategies. In the first part of the second section, the smart specialisation strategies implemented during the Basque Country’s different stages of development since the early 1980s are reviewed, and in the second part, we analyse the strategy for diversification into emerging sectors based on research and development (R & D) since 2000.

Finally, the third and final section draws some conclusions and recommendations for the enrichment and application of smart specialisation strategies. First, a narrow approach to smart specialisation strategies should be avoided, so that regions at less advanced stages of development can apply these strategies. Second, the role of government should change according to the capabilities of the regional agents. Specifically, the government must assume a larger role than a mere facilitator when the rest of the actors in the region lack scientific and technological capabilities as well as the systemic vision to develop smart specialisation strategies. For regions where these capabilities exist, the government may have a facilitative role. Finally, in the development of these strategies, it is preferable to deal simultaneously, rather than consecutively, with the development of the necessary

regional scientific and technological capabilities and the generation of a shared vision of this strategy in an entrepreneurial process.

2. The strategy of smart specialisation

The concept of smart specialisation strategies (which will be referred to as S3) arises from the observation that most regional powers are replicating approaches or policies without really taking into account the plurality and diversity of their contexts. This practice led to excessive uniformity and the inability to achieve in the regions the critical thresholds necessary for a minimum efficiency and effectiveness of investments to allow the EU to play a leading role in most areas in the world (see COM (2010) 553 final). In this regard, the European Commission working paper on the contribution of regional policy to smart growth in Europe 2020 (see SEC (2010) 1183) advocates that regions should apply smart specialisation strategies. The first of the two documents cited states, "In a nutshell, smart specialisation is about placing greater emphasis on innovation and focusing scarce human and financial RTDI resources in a few globally competitive areas" (p. 41) and "a smart specialisation strategy should be the end result of an entrepreneurial process of discovery" (p. 44).

Problems or difficulties arising from this proposal are largely linked to the lack of forethought about the features of the strategy when imported from other areas (mainly from the business world) and applied to territories. As Navarro et al. (2012) have shown, the differences between business and territorial strategies exist at three levels: (i) in the objectives, (ii) in the basic questions that are necessary to define strategic positioning and its supporting foundations, and (iii) in the development process, i.e., the "why", the "what" and the "how / by whom". *First*, in terms of objectives, the Anglo mainstream advocates that business strategy should seek to maximise value and economic profitability (Thompson et al., 2008), although there are approaches that broaden the focus and demand that the interests of all stakeholders be taken into account, including ethical and social objectives (White, 2004). Regarding territories, it is generally considered that the development strategy should improve the welfare of the population and be linked to the achievement of economic goals (a restricted view), or also include social and environmental objectives (a broader concept as advocated by the *Europa2020* agenda).¹

Second, companies seek to differentiate themselves with respect to markets (i.e., the type of products produced by the company, which customers and needs are served and the company's access to these customers), as well as the companies' internal resources and capabilities (Porter, 1996). On the contrary, in regions, differentiation involves determining the clusters and sectors that will be focused on, the specific assets that will be offered to firms, the key players in the economic activity or innovation (e.g., SMEs or large companies and private or public organisations) and the type of relationships that the region will maintain both with respect to other territories (neighbouring regions, the rest of the State and the geo-economic region in which they are located or the global economy) and to the different spaces that compose the region.

¹ The instrument proposed by McCann (2011) to identify the main characteristics of a region in the three dimensions of the *Europa2020* agenda, which allows public decision-makers to better design integrated development strategies, is suggestive in this respect.

Third, with regard to the process of strategy development, the management literature has a wide variety of approaches, from those where it is primarily a function of the managers (Thompson et al., 2008) to those with more open processes in which "virtually anyone in the organisation can be a strategist" (Mintzberg, 1994; 26). In any case, business strategy involves all components of the organisation and in this sense has a coercive component. In territories, participatory processes are essential because none of the various stakeholders and authorities have the authority, knowledge or resources to unilaterally impose or execute the strategy that they may desire for the territory. It is also necessary to note that government is a major player in territories and that its role may vary (from strategy design to merely facilitating) depending on the different contexts. The role played by the government will thus be determined by the powers of the government and the capability of the government to make use of such powers (Ismeri Europe and Applica, 2010; Walendowski et al., 2011; OECD, 2011).

Having not been based on a previous reflection on the components that characterise a territorial strategy, S3 is only positioned with respect to some of such components. Even when dealing with such components, there are notable ambiguities and inaccuracies. In line with the Europa2020 agenda, S3 must pursue not only economic but also social and environmental objectives. Therefore, in the remainder of this section, we will just focus on an analysis of the content of such strategies (the "what" of the strategy) and the typical process that is followed to develop them (the "how" and "by whom" of the strategy).

2.1. Content of a smart specialisation strategy

As noted above, in the Commission document COM (2010) 553 final, this strategy is defined as follows: "In a nutshell, smart specialisation is about placing greater emphasis on innovation and focusing scarce human and financial RTDI resources in a few globally competitive area" (p. 41). Previous approaches, including Gill (2011) and the 2009 World Development Report, state that to encourage the development and the reduction of inter-territorial differences, policies should be neutral from the territorial point of view (spatially blind) and share an approach similar to the OECD (see OECD, 2009; Garcilazo et al., 2010). The European Commission and the authors close to it (Barca Report, 2009; Barca and McCann, 2010, ...) indicate that policies must take into account the context (i.e., must be spatially aware or place based). The context varies considerably from one area to another. In this regard, a smart specialisation strategy would be a place-based policy because to define it, one should take into account the productive assets and knowledge bases in the region that have comparative advantages, upon which smart specialisation can be based (McCann and Ortega-Argilés, 2011; McCann, 2011).

Parallel to this discussion between supporters of neutral policies and those of territorially aware policies, there is another discussion between proponents of neutral sectorial and technological policies (according to which policies must accelerate the pace of development or innovation to overcome market or system failures) and supporters of active sectorial and technological policies (according to which policies should affect not only the pace of development and innovation but also their direction). In this second debate, S3 can be described as an active policy (Foray, 2009a).

Consistent with the results shown by recent empirical studies, smart specialisation is interpreted not as the impulse towards a pure specialisation that exploits the economics of

localisation but as a "specialised diversification" (a term coined by McCann and Ortega-Argilés, 2011) that exploits the economies derived from related variety. In the words of the European Commission, regions should pursue a diversified portfolio of related activities, to find sufficient specialisation to enable competitiveness without having so much specialisation as to hinder diversification and expose the region to the risks of market condition changes or other unpredictable external events (COM (2010) 553 final). S3 is constituted by a set of actions undertaken to move towards this specialised diversification. Camagni (2011) more precisely defines the terminology and prefers to discuss a strategy of diversification and intelligent improvement ("smart diversification and upgrading") of existing activities and functions, that is, "a creative and appropriate diversification of existing specializations and an upgrading of their quality"(p. 59).

Similar to other nascent trends, there is no full consensus on precisely what is meant by this concept or on what level (e.g., sector, cluster, scientific or technological area) we are speaking of when referring to it. The interpretation of the authors who coined this concept (Foray et al., 2009, David et al., 2011) is that it is not an industry specialisation but rather a specialisation of R & D and innovation. Moreover, in the original papers of these authors, the territorial specialisation issue is fundamentally related to the positioning of the regions around the so-called general purpose technologies (hereinafter, GPT).² European Commission documents, however, do not share such a restrictive interpretation of smart specialisation. Likewise, the OECD (2011a) insists on not reducing the strategy of innovation to R&D strategy in various parts of its report.

According to this reductionist view of S3, leader regions would be recommended to invest in the invention of GPT or a combination of different GPTs, whereas the less developed regions would be encouraged to invest in the co-invention of applications, i.e., in the application of a GPT to one or several important domains of their regional economy (Foray et al., 2009). The reason for this recommendation is that according to these authors, less-developed regions lack the minimum size and capacity to develop GPT inventions. Therefore, the expenditure in these areas will be inefficient and ineffective, whereas with the development of particular applications, less-developed regions can renew and diversify their traditional sectors and find niches in which they are globally competitive. These authors present several examples, including nanotechnology applications in the food sector in Portugal to improve quality control in the production of cheese, wine and olive oil; biological applications in the marine resources sector in Galicia and ICT applications in the maintenance of the historical and archaeological heritage in Florence.

Aside from the reductionism that this approach presents to focus on just one form of progress towards related diversification (i.e., in the GPT), we should mention the reluctance among some authors (e.g., Pontikakis et al., 2009; Kyriakou, 2009; Giannitsis, 2009) to support the proposal that less developed regions limite themselves only to the development of GPT applications of their activities and therefore must not themselves develop GPT

² The OECD (2011a) attributes the following meaning to smart specialisation: "to build on existing skills in generic technologies to develop unique and original activities and, in the longer term, entirely new sectors" (p. 82). For McCann and Ortega-Argilés (2011), this meaning could be related to the context and original focus that led to the creation of this approach, i.e., the lag that the EU suffered with respect to the USA resulting from less development and the application of a generic technology: ICT.

inventions. These authors acknowledge that specialisation has certain advantages (e.g., taking advantage of economies of scale, a focus on the most promising areas), but they suggest that certain risks are also derived (e.g., monopolies, reduction in variety, loss of flexibility) and therefore indicate that " policies regarding followers should be flexible, gradual and avoid the risk to prevent or to deter efforts to build capabilities and specialisations in promising fields" (Giannitsis, 2009: 5). In the same vein, Etzkowitz and Klofsten (2005) argue that an innovative region requires multiple knowledge bases to be able to renew itself but that only some of this knowledge will be applicable in the short term because, if the academic background is too focused, the region will not have the ability to develop alternative knowledge bases when needed for economic renewal. Moreover, although the regions are apparently executing the same strategies (as derived from the phrase: "any self-respecting region has in its catalogue, a bio strategy, nano strategy or an ICT strategy"), they do so at the aggregated level, and diversification is not observable at a greater level of detail (Giannitsis and Kager, 2009). Similarly, Smith (2009) argues that the available statistics are not sufficient to determine whether there is an excessive duplication of effort, and the data have not been managed with a sufficient level of disaggregation to support such assessments.

From a broader approach to S3 that is not restricted to GPTs, other ways of moving towards " specialised diversification" (McCann and Ortega-Argilés, 2011) or to "smart diversification and upgrading" (Camagni, 2011) might be considered. Many of these methods are contained in the COM (2010) 553 final document referred to above.³ In this paper, we distinguish among the following strategic objectives: "retooling", "extending", "emerging" and "cross-sectoral".

The retooling" of an existing industry would consist of supporting the upgrading of human and technological resources within an existing industry, as indicated by the document of the European Commission. The Commission refers to cases of redesign and the implementation of a GPT in a given sector (for example, nanotechnology in the paper industry in Finland).

Beyond the application of a GPT in a sector, the Commission states in its document that "clusters are an important component of regional smart specialisation strategies" (p. 5), so the policy of clustering (i.e., the collective work in the field of training, R & D and internationalisation within a set of specific activities) would be another way to move towards smart specialisation. Although not mentioned by the Commission, well-run traditional vertical policies, such as the restructuring of industries, to the extent that they strengthen and improve the expertise of a territory would be included within "retooling".

According to the Commission, "emerging" is the discovery of an entirely new niche which is likely to be viable and economically important, by applying research and innovation in a particular area. Thus, the development of ICT applications for the management and maintenance of archaeological historical heritage, i.e., exploiting the synergies between

³ Foray, in a July note to the *Mirror Group* supporting the S3 platform, mentions four possible structural change patterns that coincide in great part with those contained in the Commission's document: modernisation of an existing sector, transition to a new sector, synergistic diversification and radical foundation.

innovation activity and the traditional care of the patrimony, has opened a new business opportunity and expanded the scope of economic activities.

"Extending" consists of the discovery of a new niche by exploiting economies of scope. Thus, entrepreneurial activities and educational and research infrastructures existing in an area (e.g., aircraft) would be extended and applied to a new area (e.g., satellites and GPS).⁴

According to the Commission, "cross-sectoral" refers to the new combination of sectors that facilitate the generation of innovative ideas for new products and services. In this regard, trans-sectoral cooperation (or inter-cluster collaboration) is one of the mechanisms by which to generate ideas for new innovative applications and integrated solutions that are typically mentioned in related literature.

Although the documents describing assets that enable competitiveness of a territory in specialised economic activities refer to "research and innovation" in general (and their complementary assets, particularly human resources), all of the examples and the spirit behind the documents indicate that innovation is understood primarily as technological innovation. And within technological innovation, innovation is based on R & D. However, growth accounting based on intangible assets (Corrado et al., 2006) has shown that productivity increases in a territory are more responsive to other factors (e.g., organisational improvements, design) than to spending on R & D, and, consequently, these factors should not be ignored when planning the smart specialisation strategy of a territory. This consideration is most evident in less-developed regions, where the R & D capabilities are much lower and competitive advantages often lie in factors other than R & D.⁵

It should be noted that in addition to the ambiguities or gaps presented by activities or assets, S3 does not take into account other components that a regional strategy should contain in terms of strategic positioning. S3 does not explicitly mention the commitment that the strategy should make in terms of key players in the regional system. It does not stress either the need to choose one or another type of relationship with outside elements

⁴ Although corresponding to other schools of thought, Hausmann and Klinger (2006 and 2007) and Hidalgo et al. (2007) provide a methodology to improve the sophistication of the products exported by a country based on its current export structure. This methodology consists of sorting all of the products subject to global export according to their sophistication (measured by attributing greater sophistication to products exported by countries with higher income per capita), obtaining a measure of distance between some products and others (using the probability that a country has a relative comparative advantage in both products to approximate the degree of closeness) and, in response to products currently exported by a territory, identifying products that are more sophisticated and are not produced by that country. The production of more sophisticated products by the country can thus be mapped from the baseline of its current exports. As Boschma et al. (2012) show, this could orient the diversification of the structure of a territory towards higher value-added activities, based on the concept of related variety.

⁵ See the limitations of typical smart specialisation strategies in some types of regions as described by McCann and Ortega-Argilés (2011).

(beyond general references to a competitive position with respect to third parties and the need for certain joint actions, such as co-invention with third parties) or within the region.

2.2.Smart specialisation strategy processes

Foray is the father of the so-called smart specialisation strategy. In his documents that were used by the European Commission to design this strategy (Foray and van Ark, 2007; Foray et al., 2009; Foray, 2009a; Foray, 2009b; David et al., 2011), he argues that the discovery process that determines the activities in which a territory should specialise should be entrepreneurial ("entrepreneurial discovery process") and that the government should not be "bureaucratically selecting areas of specialisation and fostering the development of 'national champions' in inter-EU competition" (Foray et al., 2009, p. 4). Instead, he suggests that the government's role should include the following objectives:

- providing incentives to entrepreneurs and other organisations (universities and research centres) to be involved in the discovery of the respective regional specialisation;
- evaluating and assessing the effectiveness of such support, so that it is not interrupted too early or continued too long, and ensuring that support is directed towards economic sectors with significant weight and opportunities for improvement;
- providing complementary investments (e.g., in training and education) for the emerging specialisations;
- providing information and facilitating coordination and connections among the different actors of a given territory and with other territories.

It should be noted that in other documents Foray accepts a role for government that goes beyond a mere facilitator and catalyst. For example, Foray (2009a) states, " the central question is how to make top-down initiatives favouring some fields (for instance to address climate change) and market-driven resource allocation logic allowing for "multiple decentralised experiments" compatible? (...)The main challenge is therefore to create positive expectations for multiple and diversified agents with regard to some fields while not attempting to impose predefined technologies, freezing or petrifying competition and finally dissipating the extraordinary power of a free market economy in boosting large numbers of experiments in a decentralised way " (pp. 64-65). In other words, "it is crucial to be non-neutral to identify a very broad agenda, while being neutral vis-à-vis specific applications" (Foray 2009a: 69). At this second level, the government would not be the appropriate entity to select the right technology, but by means of policies of supply and demand could increase the rate of return in the chosen fields.

Although at the general level, Foray's approach raises no major objections, there are problems in the intermediate zones. For example, within the field of nanotechnology, should the government, when considering the creation of research centres or financing agent activities, not take up position and lean towards broad technological lines that are better adapted to the local productive structure (e.g., in the Basque Country, materials, rather than photonics or magnetism)? Where is the line that separates the macroscopic

level (in which government choices would be justified) from the microscopic level (in which local agents should be making choices in a decentralised manner)?

It should be considered that a greater involvement of economic actors is more likely in the most-advanced regions than it is in the less-advanced regions, given that one of the characteristics of the less-advanced regions is the absence or weakness of the agents to which Foray assigns the lead in the process of entrepreneurship. Since the early 1960s, Gerschenkron (1962) noted that in the most backward countries among the late-developing European countries, state intervention was needed the most in the process of industrialisation. This thesis, with slight modifications, has been supported by more recent versions of the late-development theories. At the regional level, as indicated by McCann and Ortega-Argilés (2011: 12), "everything that we know from economic geography tells us that the targets of regional policy are precisely those regional domains that tend to lack sufficient levels of at least two of the three key elements that the smart specialisation schema requires in order to be an operational policy. In contrast, the regions which appear to be the most conducive and favourable for the operation of smart specialisation-type processes are the buoyant core regions." Thus, because of the lack of the conditions necessary for the less advanced regions to develop appropriate specialisation discovery processes required by entrepreneurs, contrary to what Foray proposes, it appears that the momentum of smart strategies requires a more active involvement of public authorities in such regions (which are the most numerous regions).

The texts of the European Commission related to smart specialisation, following Foray, indicate the need to promote "entrepreneurial discovery processes" to identify areas of expertise. Nonetheless, these texts seem to allow a more active role of the government in discovery processes.⁶ The OECD (2011a) goes further. Apart from stating that "regional governments play a key role in recognising opportunities for change, mobilising resources towards diversification and identifying new frontiers" (p. 157), it expressly states that "There are risks associated with excessive private influence on regional strategies or policies, calling for balance in the mix of public and private actors and perspectives (...) The goal is to ward off undue pressure or even capture of strategies or particular funding instruments." (p. 142).⁷ As Breznitz (2007) shows, the private sector lacks the skills and abilities or the willingness to undertake such trials in some cases, and the government should take an active role in such identification and implementation. As the process moves forward, the government should take a facilitative and organisational role, rather than a commander one, and motivate others to become involved and assume leadership of the

⁶ For example, in the 2011 *Innovation Union Competitiveness Report* (p. 440), governments, together with entrepreneurs and universities, are included in the group of decision-makers who participate in the selection and development of a smart specialisation strategy.

⁷ For businesses, the OECD notes that the risk is particularly high when a company or industry specialisation is dominant in the regional economy; it also indicates that universities that have a dominant influence in strategy and in public investment can stray far from the needs of the private sector. However, it also points out the greater awareness of the private sector of global trends and of market conditions, and the greater awareness of university and research centres of areas that promise advances in basic research. Barca (2011) proposes multi-level governance as a main characteristic of "place-based" strategies and policies so that the exogenous factor precludes regional government control of the capture of revenue by local elites.

project.⁸

It should not be assumed that these public authorities have the necessary skills to make such commitments. As Avnimelech and Teubal note (2008), vertical programs that serve a particular industry or technology respond to needs that are much more difficult to identify, and their design and implementation are complex. Such programs require the prior accumulation of conditions, including a clear vision. Therefore, in regions where these capabilities are not developed (as is often the case in less developed regions), Avnimelech and Teubal consider it preferable to put the emphasis on horizontal programs, and as experience and policy learning accrue, the program can shift to more targeted or vertical programs with a higher degree of selectivity.

A recent analysis of the Regional Innovation Monitor (see Walendowski et al., 2011) demonstrates that the competency decentralisation ("devolution") that has occurred in most European countries has not been accompanied by a parallel growth of the capabilities of such authorities to exercise such powers and develop policy, although it has endowed regional administrations with more power. With the exception of some regions (generally, those that previously had a high level of power and had established a learning process in the policy field), the policies implemented by the regions generally presented clear deficiencies. This issue of the lack of efficacy of the policies implemented by regional governments is the subject of a significant number of reports on the use of European cohesion policy funds (see, for example, Barca, 2009; Bonnacorsi, 2009; Farole et al., 2009).

In any case, the aim should be the maximum participation and involvement of existing agents. The decisions should not reflect the "mission-oriented", "infant industries" or "picking winners" policies, which ignore existing or potential capabilities of the territory in question (Foray, 2009a; Avnimelech and Teubal, 2008; Porter, 1990); rather, they should be based on consistent policies and largely in line with market signals. Avnimelech and Teubal advocate, for example, the application of "evolutionary targeting", i.e., that policies leverage naturally arising processes that meet certain conditions, because the current changes are so fast and complex that without such public interventions, the cumulative processes that lead market forces would be "too little, too late."

Despite the emphasis that the S3 literature places on the importance of the process for defining regional strategies, they have hardly pinpointed how this type of process should be executed and mostly limited to indicating that processes must be "entrepreneurial discovery processes". They have not taken much care of the necessary intangibles for a successful process, for example, the issue of social capital or the types of leadership

⁸ After this article was written, research performed in the Mirror Group S3 platform has focused on this question. Foray and Goenaga recognise that the role of public decision-makers, in addition to supporting the discoveries of entrepreneurs, can "perhaps even orient them in specific directions", and with incentives and ideas, public decision-makers approach the type of desired structural evolution: "the political process is in a position of guiding all smart specialisation strategy". Nauwelaers, in his paper entitled "Designing a RIS3 Strategy", considers that the first step in such a process (proposing a vision) is highly political, and in all of the remaining steps, the involvement of public decision-makers is very important.

characteristics. This literature delves deeper into the roles of different actors (especially government) in these processes.⁹

3. The case of the Basque Country

The discussion above suggests that smart specialisation strategies must contain elements of two basic aspects of any strategy: the need to choose and differentiate (the "what" of the strategy) and the way to be used to choose (the "how" and "by whom" of the strategy). However, the analysis of both the content and the process of the strategy included in existing research on smart specialisation strategies are quite ambiguous and do not exhaustively explore all issues relating to the nature of territorial strategy. Additionally, It is obvious that this strategy is not completely novel. Strategies implemented in some regions, although not originally referred to as such, could be described as smart specialisation strategies. Moreover, analyses of the strategies applied in such regions not only serve to illustrate to other regions how to apply strategies of this type but also clarify some of the issues that remain ambiguous or need to be developed in the literature about regional smart specialisation strategies.

One of the most successful regions in transforming its economy is the Basque Country (Orkestra, 2008; OECD, 2011b). Such success is the result of active industrial policies, which, in response to a territorial development strategy, were implemented by the regional administration. The administration was endowed with an almost unparalleled level of competence among European regions (Cooke and Morgan, 1998; OECD, 2011b). Therefore, the purpose of this section is to outline the specialised diversification that was pursued and conducted in this region¹⁰ with a goal of drawing some lessons for the present discussion about this type of strategy.

3.1 Phases of the Basque Country's territorial strategy

From 1980, when the first Basque Government was created after the adoption of the Statute of Autonomy, until today, the Basque economy has undergone three principal phases (see Aranguren et al., 2012): 1980-1990, 1991-1998 and 1999 until the present.

In the **first period, 1980-1990**, the new government built the regional administrative framework and addressed both a serious economic crisis that had shaken the Basque economy since the second half of the 1970s and the entry into the European Community in 1986. The Basque government showed a strong commitment to maintaining its traditional industries, which was centred on metal and include steel, shipbuilding, forging, casting and machine tooling. When the literature advocated a neutral industrial policy from the sectorial perspective, the Basque Government, both through its notable participation in the restructuring plans set by the central government as well as the establishment of its own programs of support to businesses and industries, which were mainly composed of SMEs,

⁹ Again, after this article was finished, some of the new papers prepared by the Mirror Group have advanced this issue. Those of Morgan and Goddard, "The Process: Developing the Governance Policy Bodies for a RIS3 Strategy", and that of Nauwelaers, "Designing a RIS3 Strategy", should be highlighted.

¹⁰ In Aranguren et al. (2012) the nexus of strategy and industrial policy in the Basque Country is analysed in a manner relevant to the structure of territorial strategy discussed in the first section of this paper. However, because of size limitations and because the objective of this paper is to contribute to the literature on smart specialisation strategies, our analysis will be limited to how aspects more closely related to diversified specialisation have been addressed. See also Orkestra (2008) and Porter et al. (2011).

prompted a decisive restructuring policy that allowed the renovation and restoration of viability of much of the Basque industry. In the terminology employed by the Commission, they applied a "retooling" strategy. In contrast to the definition proposed by the reductionist view of S3, the policy was not based as much on productivity gains obtained through the application of R & D (strictly speaking or through GPT); rather, it was more heavily rooted in traditional innovation activities (mainly investment in machinery and organisational improvements).

The role exerted by the Basque Government during this period was far beyond the role of a facilitator or catalyst that was advocated in the S3 literature. The role played by the government was somewhat forced because the private sector was unable to assume that role, in part because of the global economic crisis (the crisis was more pronounced in the Basque Country because of its focus on the sectors that were most affected by the crisis), a change in the economic framework (the transition from a relatively closed and protected economy inherited from Franco to an open one integrated into the European Community) and the behaviour of the ETA (which was active against the business class, e.g., through kidnapping and the "revolutionary tax") (Orkestra, 2008). The high level of professional competence demonstrated by the government should also be highlighted, especially because it was a government that was created from virtually nothing and, therefore, without a previous "learning policy" to enable its capabilities. It is noteworthy that the members of the government were recognised as professionals from the private sector and academia who were temporarily involved politics through their strong desire to build their nation. Finally, with regard to the process, the industrial restructuring policies set by the Central Government were negotiated with the unions, and in generating its restructuring policies, the Basque Government frequently consulted employers and unions, although the regional sectoral restructuring policies were not formally accepted by the unions. This type of actor (general business associations and unions) lost prominence in subsequent phases as partners or participants in the design of policies.

The **period from 1991-98** was a transition period in which the policies were not as reactive as in the previous period. A clear top-down process created formal industrial strategy plans. With regard to the policies of specialised diversification, the most notable is a pioneering and determined clustering policy. This policy is largely focused on the traditional sectors and activities of the Basque economy. Although it includes strategic R & D projects by the cluster, the primary activity is focused on facilitating cooperation and actions in areas such as quality improvement and internationalisation. Such a clustering policy might be considered a form of "retooling", but it is more advanced than the mere sectorial policy of the previous period. In all of these cases, although the first call for the implementation of the policy came from the government, based on a study to identify possible clusters conducted by a consulting firm linked to Porter, the identified clusters were not activated if the companies were not willing to participate. Unplanned activities were developed at the request of industry associations that eventually formed a partnership cluster, and the government continued to maintain a significant role in the clusters.

In addition to facilitating clustering in traditional sectors, the Basque Government commenced work to boost industrial diversification projects that could be included under the category of "extending" by the European Commission. These projects included the robust support given by the Basque Government to three major companies (ITP, Gamesa

and Sener), which had several contacts within the aviation industry, to develop a project to enter this market. More than a dozen small businesses were later added to this project. This development led to the emergence of activity in the region in the field of aeronautics and in the creation of a cluster association for the support of this activity. In sum, the exploitation of economies of scope led to the penetration of a niche activity in a different sector.

The diversification strategy of the Basque Government went beyond industry and addressed the regeneration of cities, especially in Bilbao. A prominent sign of this policy was the Guggenheim project, which sought to place the city in a global network of cultural and recreational centres. Although this strategy may be viewed as an improvement or retooling of a series of activities linked to creative industries, the transformation experienced by Bilbao affects so many aspects and has been so profound that it can also be seen as an extending too. In any case, the regeneration of cities was a strategy for which the main innovation source was not R & D.

Finally, the period **from 1999 to the present** is a period that continues comprehensive plans or formal competitiveness strategies, that now were designed through a participatory process. These strategies pursue the transformation of the Basque economy from a competitive stage based on efficiency to one based on innovation. In reference to vertical measures linked to smart specialisation, the following can be distinguished:

In addition to restructuring and expanding the number of activities subject to cluster initiatives and various measures intended to improve their performance and provide them with a more strategic orientation (which could be categorised as retooling by means of clustering), in 2011 the Department of Industry began to encourage inter-cluster initiatives that in the categories created by the European Commission, fit with the "cross-sectorial" specialised diversification. A policy of strategic diversification based on R & D began in the fields of technological science and innovation in the new millennium.

From this analysis we can deduce that, depending on the stage of development in the region, smart specialisation strategies vary and are not necessarily reliant on R & D. Since the early 1980s to today, different forms of S3 have been applied in the Basque Country. With the exception of the last stage, these policies have not primarily relied on R & D. Therefore, a broad approach to the S3 concept is more appropriate as it would permit to cover too strategies for the regions that are at less advanced stages of development.

The latest initiative of the Basque Country fits the most with the smart specialisation strategy approach proposed by Foray and his associates. Those diversification strategies based on R & D will be analysed in the following section. As it will be shown, the goals, penetration patterns of diversification and the government's role in the process differ substantially among the three implemented diversification strategies that are based on R & D.

3.2. Specific strategies of diversification based on R & D¹¹

The 2001-2004 Science, Technology and Innovation Plan of the Basque government included a set of priorities in science, technology and innovation that were defined by their scientific-technological, sectorial or social characteristics. That plan also mentioned some of the general purpose technologies (particularly, ICT and biotechnology). But it was the 2010 Science, Technology and Innovation Plan (PCTI 2010) who first expressed that the support of new sectors from science and technology that contribute to diversification was one of its major commitments. The plan stated that "unlike the actions that fall within the objective of improving competitiveness, and which could be considered as 'demand pull' because their development is aimed at responding to the needs and opportunities of business, the actions undertaken in this block can be considered as 'science push' and 'technology push'. In this case, advocacy and leadership rests initially in the administration itself "(p. 61).

Another notable feature of the diversification strategy for R & D in the Basque Country is the commitment to basic research related to that strategy. Efforts into basic research were largely channelled through the creation of Cooperative Research Centres (CIC). Such diversification of basic research is in contrast to the channelling of basic research through universities advocated by the Triple Helix Model (Etzkowitz and Leydesdorff, 2000; Etzkowitz, 2003). The basic research performed at the CICs was largely financed by the Department of Industry (and not by the Ministry of Education).

There are four commitments mentioned in the PCTI 2010: biosciences, nanosciences, alternative energies and electronics for intelligent transport. Of these four commitments, only two had strategies that were specifically designed, approved and made public: the BioBasque Strategy (2003) and the nanoBasque Strategy (2008). In the energy area, various initiatives were pursued with the Basque Energy Board (EVE), but not until 2011 was a clearly defined strategy developed: the energiBasque Strategy (unpublished). This strategy provided coherence for the various initiatives. As to the commitment to electronics for intelligent transport, the plan indicated that it was necessary to guide the development of ICT towards an application, that there was a general increased mobility of people and goods and that the Basque industry showed remarkable expertise and strength in the automotive, rail and aviation sectors. This idea was not further developed and was almost abandoned. In the future, the ICT will likely be guided to some other application, probably in the field of healthcare. Therefore, we focus on the other three areas, where a clear strategy to diversify into emerging sectors based on R & D has been established.¹²

¹¹ To prepare this section, in addition to documents released by the government and relevant institutions (listed in the bibliography), we have relied on the two global approaches to the innovation system offered by Navarro (2010a and 2010b) and OECD (2011b), on the few articles and papers on these activities in the Basque Country (Gómez-Uranga et al. 2007 and 2011; Goffard et al., 2009; Hormaechea, 2010) and on interviews with María Aguirre (head of the BioBasque agency), Amaia Martínez (head of the BioBasque agency), Javier Marqués (EVE, Basque Government's energy agency), Cristina Oyón (responsible for diversification strategies, SPRI) and Joseba Jaurequizar (former Director of Innovation of the GV and currently Managing Director at Tecnalia).

¹² Another project worthy of mention is the location of the European Spallation Source in the Basque Country. This project, which attempts to fill a gap in the Basque innovation system (which does not have any large scientific infrastructure as a catalyst for innovation), tried to finance the capabilities of Basque engineering companies and therefore develop a scientific equipment industry in the Basque Country. However, the project was transferred from the Department of Industry to the Ministry of Education during the last change in

We begin by noting that the **BioBasque strategy** was the result of an exclusive decision by the Department of Industry of the Basque Government. It was consistent with the idea expressed in the PCTI 2010 that in cases of a "science push", the roles of advocacy and leadership initially rest with the government. At that time, the Basque Country was not apparently a region in which a bioscience strategy would be logical because it lacked the essential elements of a bio-region: pharmaceutical companies and a university that were noted for their research capacity in biotechnology. However, the Basque government believed that the region had certain capabilities¹³ that, if well focused, coordinated and accompanied by a strong investment in research capacity building, could lead to a diversification of the Basque industry towards such activities. The government did not believe that such interventions would make the Basque Country a world leader in the world of biotechnology. Based on an awareness of these limitations and still seeing remarkable abilities in a number of other technologies complementary to biotechnology, a strategy that was not purely focused on biotechnology was pursued. The strategy focused on the biosciences, in which biotechnology was a component of the unique mix technologies upon which the life science cluster is drawn in the Basque Country. Although with quite a broad approach, the strategy fostered the lines that matched the most with the Basque system: human health, but with less of a focus on the bio-pharmaceutical chain because the lack of companies in that sector and more of a focus on diagnostic systems and bioengineering.¹⁴

The 2010 BioBasque Strategy, which was released in 2003 after two years of thorough analysis, preceded actions and set a fairly time course for implementation. The BioBasque Agency, which was created by and dependent upon SPRI (and through it, on the Department of Industry of the Basque Government), implemented the strategy and coordinated the relevant actors in the sector. Throughout this period, the expectation was to develop a physical infrastructure (research centres and incubators), research teams and a group of companies.¹⁵ In effect, the strategy that was planned for the 2010 scenario was what Foray, in his note to the Mirror Group, called the "radical foundation" of a bio-business sector,

government and the goal of developing a scientific equipment industry was side-lined. (See in Oyón 2011 the initiatives to create the "science industry" in the Basque Country).

¹³ There were a few research teams in the university, a potential healthcare system, a network of incubators, societies of public capital risk, an entrepreneurial spirit and a capable government benefitting from significant management and financial skills, in addition to great expertise in the region in several technological fields (e.g., materials, engineering and electronics) that could be combined with research in biotechnology to develop the final bioscience products. Furthermore, the project of facilitating biosciences by the Department of Industry coincided with another project of the Department of Health to facilitate research and innovation in the same area (as a result, Bioef, a foundation from which two research and innovation institutes developed, and a bio-bank were created). Instead of pharmaceuticals, it was thought that the drivers of the sector could be the powerful Basque healthcare sector and the traditional industry in its user role.

¹⁴ In the fields of science and technology as well as the in the 2010 BioBasque Strategy, pharmacy was mentioned as a possible area of specialisation, in part because that sector seemed to be the principal draw in the majority of the bio-regions. However, it was then seen that the nascent pharmaceutical business sector existing in the Basque Country (essentially limited to two medium-sized companies and two small ones), could not exercise the role of a driver, and although the pharmaceutical demand is global today, it was thought that the drawing effect of the Basque bio-region could be provided by the healthcare sector and from traditional industry in its user role.

¹⁵ The objective set in the 2010 BioBasque Strategy was to create a new company each quarter. This goal was exceeded, according to the 2010 Activity Report of the SPRI Group, which identified 75 companies.

rather than what the European Commission called "retooling" (improvement of a traditional activity by the incorporation of a GPT).

With these objectives successfully achieved,¹⁶ the objective of the updated BioBasque strategy (currently under development) is to influence not only the central part of the bioscience value chain (i.e., the bio-business group) but also the entire value chain, including the suppliers (driving the diversification of the significant machine tool industry towards the production of instruments and equipment for the bio-business sector and research in the field of health) and users (driving diversification in sectors such as agro-food, environment and chemicals) where, although the Basque country does not have high levels of specialisation, there is significant employment and economic activity. At this stage, "retooling" would appear, taking different forms in the provider and user sectors.

At this new stage, the firms and research centres set up in the last decade (and organized in a business association) are having a larger role in shaping the strategy. Regarding the government, the role held by the Department of Industry must be shared with other departments, especially with Health and to a lesser extent, Education. Moreover, in this new phase, after reaching a critical mass, it is believed that it is time to focus more the lines of activity.

In contrast to the case of biosciences, where the publication of the strategy preceded action being taken in the field, the **nanoBasque Agency and Strategy** (which includes both the nano and the micro-technology fields), was made public in 2008, which was several years after significant actions in the field had occurred (for example, the establishment of the CIC microGUNE in 2004).

The 2010 PCTI and nanoBasque Strategy implied that one of the objectives of this strategy was the creation of a new industry from start-ups and spin-offs. Nevertheless, it is currently thought that the creation of pure nano-firms will be marginal¹⁷. The main objective of the strategy is to advance the diversification of all sectors of the Basque economy through the introduction of micro and nanotechnology applications (i.e., the "retooling" of traditional industry by applying this GPT). In this regard, the nanoBasque Strategy clarifies PCTI considerations in the sense that it is a "science push" initiative, and it notes that "the nature of horizontal application and enabler of nanotechnology, along with the potential to influence the different links in the value chain of products, makes the coexistence of this approach viable with a demand pull approach (...) Thus, nanotechnology ascribes to both the technology push and demand pull approaches"(p. 18).

Another difference from the BioBasque strategy is that there were already significant university research capabilities, technological centres and more than 60 companies with R & D projects in the fields of micro and nanotechnology. In this sense, although the

¹⁶ The commitment of the Basque Country to the diversification of the Basque economy through biosciences was recognised in June 2011 by the jury of the European RegioStars Awards, which was created to "identify, from the 268 European Regions, good innovation practices related to regional development, which can serve to attract and inspire other regions".

¹⁷ Today, there are only two pure nano companies: Graphenea (located in the nano incubator) and Nacoalia.

government was ultimately responsible for the approval of the strategy, there was a greater involvement of existing agents in its development.

It was also easier to identify areas of specialisation that meet the needs of the productive system because there was already a group of companies belonging to different user sectors. Thus, although the definition of the groups and main the lines of research were provided by the CIC nanoGUNE at its inception, it is now considered that the nanotechnology commitment in the Basque Country must be linked to the field of nano-materials (and not, for example, to nano-magnetism or nano-optics). It is also believed that the scientific and technological infrastructure should aim to respond to one of the greatest barriers to the entry of traditional industries into the micro-nano world: tools and techniques.¹⁸

Indeed, one of the greatest shortcomings in the Basque Country in the development of nanotechnology is the lack of business groups or large attractors performing nanotechnology applications and pulling their supply chains towards this area. The current strategy aims at the Basque business groups entering the nano-world and exercising an attractor role, following the significant investment made in the development of such facilities with public funds. The nanoBasque Agency has conducted an inventory of those facilities and is pushing a plan for effective provisioning and use by Basque companies who wish to enter the sector. However, a systematic communications campaign for such possibilities has not yet been initiated to address business users or the rest of the value chain: neither in the field of biotechnology (in which it was considered necessary to create and organise the bio-business group previously) nor in the fields of micro and nanotechnology (where priorities have been focused on the generation of capabilities and the detection of business needs). For traditional companies to enter the micro and nanotechnology fields, it seems essential that they be accompanied by an agent of the system (usually a technology centre), as this has been the case for more than 90% of the 68 companies that have conducted nanotechnology R & D projects. In this sense, it seems necessary to change the pattern of relationships between existing agents to bring them closer and make them more proactive.

Finally, in terms of the energy strategy, since the early 1980s the energy strategy in the Basque Country has undergone several revisions. As previously noted, the PCTI 2010 chose alternative energies as an emerging sector for diversification, and the Basque Government developed several initiatives in this regard (for example, the opening of CIC EnergiGUNE in 2008). Nevertheless, a comprehensive strategy was not articulated until 2011: the **energiBasque Strategy**. This strategy established the key lines in technology and business development corresponding to the 2020 Euskadi Energy Strategy (Strategy 3E2020) and is in line with PCTI 2015.

¹⁸ According to Mangematin (2006), cited by Saphira and Youtie (2008), in contrast to the bio applications, nano applications are not commercialised as much by start-ups located around leading scientific institutions; rather, they are commercialised through application in traditional sectors by existing large companies. This need for commercialisation by large companies is a result of the significant investment that nano applications require. As Gómez-Uranga et al. (2011) note, large companies are associated with fields such as nano-materials, in which the Basque Country wishes to specialise.

The energiBasque Strategy is a strategy that, in terms of procedure, is similar to the "entrepreneurial discovery process" that Foray advocates for smart specialisation strategies because, although coordinated by the Basque Government's energy agency, businesses and agents knowledgeable in the industry have participated in this process. Indeed, in contrast to the cases of the biotechnology field (in which bio-enterprises and prominent research capabilities hardly existed) or the nanotechnology field (where, although there were more significant research capabilities and a group of companies already involved in the development of applications, both were clearly inadequate), in the Basque energy sector, there were more than 350 companies, some world leaders in their niches, that performed significant amounts of R & D in the region. For this sector, there exists a robust technology infrastructure, with more than 1,900 people engaged in R & D in the universities, the CIC EnergiGUNE, the 2 major technology corporations (Tecnalia and I4), corporate centres specialised in R & D, and the competence centres of multinational corporations. In contrast to the biotechnology and nanotechnology strategies, in the energy field, the Basque Country can aspire to be a world leader in the selected niches.

The energiGUNE strategy identified 15 potential areas within the energy sector. Among them, selected 5 strategic areas in terms of market appeal and existing capacities in Euskadi and added another 2 crosscutting areas because of their synergy with the 3E2020 strategy. Although the final number of selected areas (8) seems high, it should be noted that these areas have some consistency because they all revolve around electricity: four in generation (unconventional gas exploration, wind, marine and solar thermal), two in demand (electrification of transport and energy services management) and two that connect these fields (storage and smart grid).

To sum up, an analysis of the Basque Country case shows that different modes of diversification strategies based on R & D can coexist in a single territory. In each mode, the roles of government and other agents differ according to the entrepreneurial and scientific-technological skills available in the region. When such capabilities exist in the private sector or university environment, the government can take a primary role as a facilitator (as in the case of energiBasque). In other cases where such skills are non-existent or only potential, the role of government is much more active (as in the case of BioBasque). A key factor in the apparent success of strategies such as BioBasque (discouraged at times by international experts)¹⁹ is that under an apparently similar name, the Basque Country has not tried to apply the successful model of other regions; rather, it has adapted the strategy to regional circumstances.

Another factor in the success of the strategies followed by the Basque Country, which makes this initiative difficult to replicate in other regions, lies in the high degree of competence of the regional government, which acts in a coordinated manner on multiple key success factors. The Basque Country has enjoyed a large and sustained investment

¹⁹ In interviews held to analyse the Basque case, we were told, for example, that one of the main experts in the bioscience field, Philip Cooke, when consulted by the Basque government on his desire to establish a bio strategy in the Basque Country, advised against it, as he did not see objective conditions to enable its success. An equally contrary recommendation on the initiative to develop an aeronautical cluster in the Basque Country was given by Michael Porter in the 1990s.

capacity that has been made possible by its unique system of economic agreements and the progress demonstrated by the Basque economy.

The current university environment presents some notable weaknesses. The transformation into an "entrepreneurial university" can be a long and costly process. The regional government may not have the necessary powers to regulate and modify certain university structures. The Basque case shows that structures that are not strictly educational can be used to meet the needs of basic research (for example, by means of the CIC), although the most desirable and profitable outcome in the long term is to transform the university.

Finally, the methods by which bio and nanotechnology are developed in the Basque Country show the difficulty of the diversification of these two GPTs if the diversification had been attempted by the companies themselves, i.e., without previously developing an infrastructure or major support agents in the environment. The process of "co-invention" referred to by Foray in his call for a discovery process to initiate potential specialisation is difficult to imagine without some previous commitments by governments, by which such infrastructure and support organisations are created. Given the difficulty, complexity and long lead times required for the success of projects in these fields, it does not seem likely that the three steps that Foray identifies in a smart specialisation process will occur (i.e., individual discovery of a specialisation potential, imitative entry by a group of followers and structural evolution of the entire regional economy), or at least not in a short time frame.

4. Conclusions

The term "strategy" as applied to territories is increasingly common in the literature on innovation and competitiveness and in policies implemented at different levels. However, such use has not been preceded, except in exceptional cases, such as Sotarauta (2004), by an express discussion about what "strategy" means or what makes it different from "strategy" applied to other areas, especially business strategy. In the analysis of territorial strategy, the general use of the term often leads to ambiguity and contradiction, or key aspects of what constitutes a regional strategy are ignored, which can be summarised by three phrases: the "why", the "what" and the "how / by whom".

This article differentiates between the conclusions drawn from the contrast between the literature of territorial and smart specialisation strategies and those arrived at through the analysis of the strategies applied in the Basque Country.

With regard to the contrast between the literature of territorial and smart specialisation strategies, smart specialisation strategies (S3) are a type of territorial strategy that will expand enormously to affect future European regional policy. Regarding the "what", the S3 can be considered as a "place-based" policy (and not "territorially blind"). The S3 can also be considered a non-neutral sectorial or technological policy, with an explicit objective to impact the direction of change. In particular, the S3 pursues a specialised diversification of the territory. The original S3 literature virtually ignored other types of innovation that are not based on R & D, especially non-technological innovation, despite the greater impact that these innovations present in terms of productivity according to growth accounting. Similarly, the S3 literature has hardly highlighted the strategy's requirement for positioning or commitment in relation to the key players in the regional system and the types of external and internal regional relationships.

Regarding the process of formation of the S3, this paper warns that Foray's emphasis on an "entrepreneurial discovery process" and the lack of direct government participation in detailed choices is somewhat misplaced. This lack of direct government involvement may not be applicable in many regions in which the business and knowledge bases are very weak. Nonetheless, analyses show that it is not sufficient for governments to be equipped with power. Governments must also have capacities, and in their absence, it is preferable to execute a process of "policy learning" based on the use of horizontal policies. Regardless of the final level of government involvement, the process must be as participatory as possible.

The progress in defining how to frame these strategies requires experimentation that allows for reflection and learning about the key aspects required for these processes to be efficient. The S3 literature emphasises that the government should have a facilitating role, but how the government performs this function remains unclear, partly because it is a role that is learned by doing. A different role is required for the government and other actors; therefore, it is necessary to build a capacity for this process, not only in the government but also among the rest of the actors. The generation of these capabilities (e.g., strategic capability and shared leadership) takes time and cannot be developed in the short term. It is therefore recommended that from the early stages of development of an S3 strategy, both the "what" and the "how" should be addressed, and the capacities should continue to address the "how" once the "what" is set.

In terms of lessons learned from the case of the Basque Country strategies, the experience of this region confirms and addresses some of the criticisms of the S3 approach. The experience of the Basque Country has been analysed from two perspectives: first, evolutionarily, i.e., the progress of smart specialisation strategies from 1980 until now, and second, by focusing specifically on diversification strategies based on R & D applied in this millennium.

Regarding the evolutionary perspective, the Basque case shows that for a lower level of development, smart specialisation strategies tend to rely less on R & D policies and more on restructuring policies with traditional measures. In such phases, it is common for the involvement of actors to be lower and generally focused on consensus and legitimising the adjustments. The Basque case, in which the regional government was created entirely from scratch and in which decision-makers and public leaders had no prior "policy learning", shows that public policy can be appropriate even in newly created regional governments if the new public policy makers are professionally and academically outstanding.

As a region moves towards more advanced stages of development, the strategies of clustering and diversification gain prominence. Diversification is more generally based on the extension into new activities by building on the skills developed in existing sectors than on the development of generic technology applications to existing sectors based on R & D (although the least-developed stage of these generic technologies could have been influential when the Basque Country underwent this phase). At this stage of development, the level of participation of companies increases, although the participation more often takes place through industry associations and medium-large companies than through general business associations, given the selective nature of such policies. In sum, the analysis of the evolution of the strategies of the Basque Country from the 1980s shows that the S3 approach should have been broader, i.e., not only focused exclusively on generic

technologies. The regeneration of the Basque cities and the Guggenheim phenomenon show that this strategy of diversification can reside in activities such as creative industries that rely on knowledge bases different from those of a scientific technology.

For diversification by incorporating generic technologies or through R & D activities, the Basque case shows that even in the same region, the S3 strategy may take different forms. The form will depend both on the characteristics of the technology (for example, the appearance of pure biotechnology companies is more common in the biotechnology sector than in the nanotechnology sector) and on the assets and capabilities of the region, in terms of production and knowledge alike.

Generally, the role of government is greater when the production base and knowledge in the strategic area of diversification are lower. Even in a relatively advanced region, such as the Basque Country, the pure "entrepreneurial discovery processes" seem to be more an exception than the rule, and the regional government's role can go beyond that of a mere facilitator or catalyst. As noted by Etzkovitz (2003), entrepreneurship need not be restricted to the private sector; it can also be undertaken by the government.

The success of these strategies seems to require the rejection of the completely general approaches that are not linked to the characteristics of the territory. In addition, it can also be asserted that the initial approaches should be somewhat flexible and not completely closed. Only as the process advances should the process of specialisation be deepened.

The form that diversification adopts based on the incorporation of generic technologies can be very diverse, as anticipated in the SEC (2010) 1183 document of the European Commission. In some cases, the diversification clearly takes the form of "retooling" (e.g., bio and nanotechnology applications in traditional user sectors); or a mixed form of "retooling/extending" (for example, when Basque machine tool manufacturers start to produce new instruments for biotechnology companies or the health system) or a "extending/emerging" form (as may occur, for example, through the development of attractive new businesses in the off-shore wind energy sector by combining traditional sectors and technological activities developed in energy); or the form of "emerging" (when, for example, the new world of bio-business arises); or is based on a cross-sectoral activity (like the initiative of the electric car)

Even in cases as successful as the biosciences in the Basque Country, the process is very long and requires huge investments. At 10 years after its inception, although it has generated some remarkable research and equipment capabilities and more than 75 biotechnology companies have survived, the process has not yet approached the most impactful economic stage: influencing preceding stages (suppliers) and downstream stages (users) in the value chain. According to the managers of the initiative, it was not possible to properly address these stages in the region without a group of bio-businesses where suppliers and users could experience the challenges that diversification poses.

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