The regional state in the era of Smart Specialisation

La estrategia de especialización inteligente marca una nueva era en la política de innovación regional en la UE y constituye un gran reto para las regiones, los Estados miembros y la Comisión europea. El artículo explora este reto en el contexto de una revisión crítica de la política de innovación regional en el País Vasco y en Gales, donde durante 30 años se han desplegado muy activamente políticas industrial El artículo sugiere que lo que una región sea capaz de hacer en el futuro depende en parte de lo que ha hecho en el pasado y de lo que ha aprendido de él. La denominada «path dependence» de la política significa que las regiones no diseñan sus estrategia de especialización en vacío, empezando de la nada, sino que su pasado reciente puede ser una guía de su futuro.

Espezializazio adimendunaren estrategiak aro berri bat markatu du EBko eskualde-berrikuntzako politikan, eta erronka handia dakarkie eskualdeei, estatu kideei eta Europako Batzordeari berari. Artikulu honek erronka hori jorratu du, Euskadiko eta Galeseko eskualdeko berrikuntza-politikaren berrikuspen kritikoaren testuinguruan. Batean zein bestean oso aktiboki aplikatu dira politika industrialak 30 urtez. Artikuluak iradokitzen duenez, eskualde batek iraganean zer egin duen eta horretatik zer ikasi duen, gauza bat edo beste egingo du etorkizunean, hein handi batean. Politikaren path dependence izenekoak esan nahi du eskualdeek ez dituztela beren espezializazio-estrategiak hutsetik, ezerezetik diseinatzen; aitzitik, haien iragan hurbila etorkizunerako gida bat izan daiteke

Smart specialisation signals a new era of regional innovation policy in the EU and constitutes a major challenge to regions, member states and the European Commission. This article explores the challenge in the context of a critical review of regional innovation policy repertoires in the Basque Country and Wales, where active industrial policies have been pursued for thirty years. What a region is capable of doing in the future, the article suggests, partly depends on what it has done in the past and what it has learned from the past. Policy path dependence implies that regions will not be designing their smart specialisation strategies in a vacuum, starting from scratch, and therefore the recent past may be a guide to the near future.

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1. INTRODUCTION

One of the many dilemmas facing the European Union is how to solve today's financial crisis while laying the foundations for a more resilient future. This dilemma is especially acute in the poorest regions, the less developed regions, where the prospects for meeting the EU goal of «smart, sustainable and inclusive» growth are bleakest of all. The existential crisis of the peripheral Eurozone countries has eclipsed two important debates that coincided with the financial crisis - the debate about the *place-based* approach to regional development and the debate about *smart specialisation*, the new generation of regional innovation policy in the EU. In their different ways, these debates constitute a major challenge to the conventional public policy paradigm, where policy is defined *ex-ante*, implemented mechanically and controlled ex-post (Huber, 2011).

This article aims to explore these twin debates in the context of a critical review of regional innovation policy repertoires in the Basque Country and Wales, old industrial regions where the regional state has pursued active industrial policies for many years.

The structure of the article is organised as follows. Section 2 examines the challenge of smart specialisation, the latest phase of regional innovation policy in the

EU, and this is framed as a challenge for the multi-level polity as a whole and not merely for the regions concerned. Smart specialisation strategies may appear to be new, but they are being designed in the context of path dependent processes, including *policy* path dependence, and the prospects for a region's future are conditioned not merely by what it has done *in* the past, but also by what it has learned *from* the past. In other words, we may get a taste of the future by having a better understanding of the past.

To this end Section 3, the empirical core of the article, explores the recent history of regional innovation policy through a critical review of the Basque Country and Wales, where state-led policy repertoires have been underway for thirty years.

Finally, section 4 tries to distil what can be learned from the realms of theory and practice to help us to better understand the demands on the regional state in the era of smart specialisation.

2. THE TRIPLE CHALLENGE OF SMART SPECIALISATION

Smart specialisation presents three different challenges – conceptual, operational and political. The *conceptual challenge* concerns the meaning of the concept and what it implies for the theory and practice of regional innovation policy. The concept of smart specialisation is so strongly associated with the work of Dominique Foray and his colleagues that they are rightly regarded as the conceptual architects (Foray *et al.*, 2009; 2011). According to these architects, the idea of smart specialisation has two facets: (a) it is important to focus on certain domains in order to realise the potential for scale, scope and spillovers in knowledge production and use, as these are important drivers of productivity in the domain of R&D and other innovation-related activities; and (b) it is important to focus on certain domains in order to develop distinctive and original areas of specialisation for the future. Strongly mimetic regional programmes to promote export capacity expansion in certain fashionable high-tech domains or foster industrial agglomerations of high-tech firms that duplicate what's happening in neighbouring EU regions have the effect of dissipating potential gains from agglomeration economies, and vitiating efforts to create multiple lines of regional and national specialisation that are sustainably profitable (Foray *et al.*, 2011: 4).

The architects freely acknowledge that the idea of smart specialization, though simple in principle, involves a great deal of complexity in practice, especially when selecting the most promising domains in which to specialize, a task allotted to «the entrepreneurial process of discovery». At first sight this looks like a new name for an old laissez-faire philosophy, a view the architects reject because they say that «entrepreneurs in a broad sense (firms, higher education institutions, independent inventors and innovators) are in the best position to discover the domains of R&D and

innovation in which a region is likely to excel given its existing capabilities and productive assets» (Foray *et al.,* 2011:7). Although this is the core of the concept of smart specialization, it still leaves many questions unanswered. For example, some scholars have been uneasy about the lack of regional specificity in the original framing of the concept and they have sought to provide a richer spatial context by drawing on key concepts from economic geography – like the concept of *related variety*, which suggests that it is not diversification *per se* that is most important for regional growth, but *specialized diversification* across related technologies (McCann and Ortega-Argiles, 2013). Other scholars have highlighted the different roles that the state might assume in the entrepreneurial process of discovery, depending on the level of economic development, the tacitness of the knowledge involved and the capacity of the state (Navarro *et al.,* 2011). Clearly, the concept of smart specialization will be debated for many years to come because it is a highly contested concept and even its architects concede that it is a perfect example of «policy running ahead of theory» (Foray *et al.*, 2011:1).

Translating the concept into a coherent policy agenda constitutes the *operational challenge.* To operationalise the concept the EC offers a generic definition along the following lines. Smart specialisation strategies, it says, are integrated, place-based economic transformation agendas that do 5 important things: (1) they focus policy support and investments on key national/regional priorities (2) they build on each country's/region's strengths (3) they support technological as well as practice-based innovation (4) they get stakeholders fully involved and encourage innovation and experimentation and (5) they are evidence-based and include sound monitoring and evaluation systems (EC, 2012: 8).

To meet the operational challenge the EC has translated this generic definition into a concrete 6 step approach to help regions to design and deliver their SS strategies: (1) analysis of the regional context and framing the potential for innovation (2) set up a sound and inclusive governance structure (3) produce a shared vision about the future of the region (4) select a limited number of priorities for regional development (5) establish suitable policy mixes and (6) integrate monitoring and evaluation mechanisms (EC, 2012:17). Although these steps might look prosaic and simple, in practice every single one of them has the potential to provoke deep divisions, especially in regions where there is little or no tradition of robust public debate. To illustrate the kind of divisions that could be triggered by the SS process, let us take the first two steps as examples.

The first step is more complex than it looks because it involves at least two potential sources of conflict: (a) framing innovation in a new and broader sense (to include social innovation for example) is clearly a challenge to traditional regional stakeholders, who tend to frame innovation narrowly as industrial innovation; and (b) the entrepreneurial discovery process raises many unanswered questions, like which actors, other than firms, are to be included when the European Commission

has explicitly stated that «entrepreneurial actors are not only firms, but also any individuals and organisations who have some entrepreneurial knowledge» (EC, 2012:20).

The second step – creating a sound and inclusive governance structure – is arguably even more challenging because a very special effort has to be made to ensure the process is not captured by «specific interest groups, powerful lobbies, or major regional stakeholders» (EC, 2012:21). In other words, the ideal governance structure would include new stakeholders from the worlds of business and civil society, selected for their competence in the network rather than their status in the hierarchy, and this is a radical innovation in its own right because it runs counter to everything we know about how regional elites usually deploy their power and patronage, especially in the face of novelty (Morgan and Nauwelaers, 2000; Morgan, 2013).

This brings us to the *political challenge*, which is how to ensure that the multi-level polity is mobilised to meet the operational challenge associated with the 6 step approach. Although there are many reasons why previous regional innovation policies failed to deliver, one is because basic EC guidelines were ignored with impunity and regional elites were not held accountable. One way to overcome this problem is for all levels of the multi-level polity – regional, national and supra-national levels – to respect the policy implications of the *place-based approach* to regional development (Barca, 2009; Barca, 2011; Barca et al, 2012). There are two key aspects to the place-based approach: (a) the first is that geographical context really matters and context is understood to include the social, cultural and institutional characteristics of the place and (b) the second is the idea that most of the knowledge for the development of a place is not readily available *in situ* and must be fashioned through a participatory and deliberative process involving the interplay of local and external actors.

The place-based approach carries three important policy implications for the multi-level polity. First, it commits local elites to tailor-made institutional changes coherent with general principles set exogenously by the agency running the policy, the EC in the case of smart specialisation. Second, it creates room for an intense endogenous public debate, where individuals and groups inside and outside established elites have a chance to voice their ideas and dissent. And third, it establishes a monitoring and evaluation system, based on widely agreed outcome indicators, through which this public debate can be supported and steered. These are the mechanisms through which the endogenous and exogenous forces of the multi-level polity interact and where «development policies win or fail» (Barca, 2011:62).

The unresolved question about the place-based approach concerns political commitment. That is to say, will the multi-level partners be able to create credible commitments among themselves and be willing to impose sanctions on parties that fail to respect these mutually agreed commitments? If this is the big political question about a place-based approach to smart specialization, the answer will be re-

vealed in practice, when the strategies are actually implemented after 2014. In the meantime, all we can say is that regional governments will not be drafting their smart specialization strategies in a vacuum, starting from scratch as it were. On the contrary, what regions do in the future partly depends on what they have done in the past, and more importantly on what they have *learned* from the past. Just as geography matters in the place-based approach, so too does history. This is the reason why, in the following section, we explore the recent history of regional innovation policy in the Basque Country and Wales.

3. REPERTORIES OF REGIONAL INNOVATION POLICY

The regional realm is such an extraordinarily diverse realm that it makes little or no sense to generalise about the role of «the region» in economic development. Indeed, even within the same country, the calibre of regional institutions can vary widely, as Robert Putnam demonstrated in his celebrated analysis of Italian regions (Putnam, 1993). Such regional diversity means that we have to understand the specificities of a region before we can fully appreciate what regional innovation policy can or cannot be expected to achieve in developmental terms. Given the powerful role of habits and routines in economic life, including economic policy, one of the questions addressed in this section is the extent of path dependency in the operation of regional innovation policy. The Basque Country and Wales would seem to be ideal candidates for such an inquiry because, as old industrial regions, they have pursued regional innovation policies longer than most other regions in Europe.

Although they are part of larger state systems in Spain and the UK, the Basque Country and Wales are sufficiently devolved to have their own regional state apparatus for the design and delivery of regional innovation policy. While the governance of research and innovation differs from country to country, and from region to region, a three-tier system can be discerned in many cases: a *governmental* tier, consisting of the cabinet and government departments; an *intermediary* tier, consisting of agencies, research council and the like; and an *operational* tier consisting of research performers like firms, universities and research organisations (Boekholt *et al.*, 2002; OECD, 2002). If we apply this stylised governance system to the following case studies, we can say that the biggest difference between the two regions concerns the role of the governmental tier. In Wales the governmental tier has assumed more importance over time relative to the other tiers due to the political centralisation that followed the abolition of the Welsh Development Agency, the key intermediary agency in the regional innovation system. The Basque Country, on the other hand, presents us with a fascinating paradox: the role of the regional state has been pervasive without being invasive; that is to say, it has respected the principle of subsidiarity and has not sought to micro-manage or abolish agencies in the intermediary and operational tiers.

3.1. **The Basque Country: Towards a Second Great Economic Transformation?**

«The Basque Country», according to a recent OECD review, «is a regional transformation success story. The so-called 'First Great Economic Transformation' helped the region recover and thrive after an economic crisis in the 1970s and 1980s that resulted in high unemployment and outmigration» (OECD, 2011:42). That the Basque Country managed to renew itself is largely due to a combination of three factors: (1) indigenous industrial sectors that sustained a commitment to incremental innovation (2) a market-facing regional technology network that helped indigenous firms to upgrade and (3) a highly supportive regional state that enjoyed the highest degree of financial autonomy in the EU. With a population of just 2.1 million (4.7% of Spain), the Basque Country accounts for more than 6% of Spanish GDP and its per capita income and industrial productivity levels are consistently higher than the national average (OECD, 2011). While these bald statistics capture the broad economic trends, the existential sense of renewal is better conveyed by the physical transformation of Bilbao - from an old industrial city based on steel and shipbuilding to an urbane European city, symbolised by the iconic Guggenheim Museum.

Economic renewal has been underwritten by a regional political system that furnished a remarkable degree of stability, particularly with respect to industrial policy, despite the stereotyped image of a region beset by internecine conflict and terrorism. For most of the period since the restoration of democracy in 1978, the moderate nationalist party, the Basque National Party (PNV), has been in power and this factor helps to explain the unusual degree of policy continuity over the past 32 years.

Political stability and policy continuity enabled successive Basque governments to construct a regional innovation system that has been evolving for three decades. The evolution of the Basque regional innovation system, formally known as the science, technology and innovation network, is a thickly populated institutional network embracing public and private institutions. Over time the system has become ever more complicated because new priorities have spawned new institutions rather than new mandates for old institutions, creating a problem of institutional complexity that we address later.

The Basque regional innovation system is distinctive in a number of ways. First, the central role played by the Department of Industry in fashioning the whole system and, in particular, its pivotal role in promoting applied research in non-academic institutions like the network of technology centres is an unusually broad remit for an industry department. As we will see later, the role of the Department of Industry is centrally implicated in a new debate as to whether it is best suited to promote innovation in a knowledge-driven economy. Second, the Basque Country is unusual in the sense that its universities have played such a modest role, a situation that is largely due to the weakness of the university sector as an economic actor.

Third, to compensate for the weakness of the university sector, the historic bias of the Basque system has been towards applied rather than basic research, and towards technology transfer rather than knowledge generation, and in this system the technology centres have historically played the central role, which is why they are regarded as the «jewel in the crown» of the Basque regional innovation system. Even so, the technology centres are not above criticism, like the charge that the technology centres, driven by the need to secure income from R&D projects, are infused with a supply-side culture that is not sensitive to the demand-side needs of local firms (Olazaran *et al.*, 2009).

Although this system has served the Basque Country well in the past, when incremental innovation was sufficient for industrial renewal, the big question now is whether it is fit for the future, when scientific knowledge generation is assuming more importance within industry and when the realm of innovation needs to embrace social innovation and public service innovation as well as manufacturing. In other words, «the path dependency associated with prior policies and strategies may make it more difficult for the Basque Country to evolve in pace with changing conditions of competitiveness» (OECD, 2011:104).

To accuse the Basques of policy path dependency is to miss some of the new directions introduced over the past decade, beginning with the STI Plan of 2001-2004, which for the first time sought to add a *science* dimension to the traditional technology strategy. The most tangible signs of this new science-based policy path were the following:

- *Cooperative research centres* (CICs) were created by the Department of Industry with a mandate to develop basic and applied research in priority sectors that were new or under-developed in the region, such as bio-science, nano-science and renewable energy. There are currently 7 CICs in operation;
- *Basic excellence research centres* (BERCs) were created by the Department of Education to develop basic research in association with university research centres, but they are more flexible than universities because they operate under private law even though they are largely funded from the public purse. There are currently 6 BERCs working in a variety of fields, including biophysics, materials physics, cognition and language, and climate change;
- The *Basque Foundation for Science* (*Ikerbasque*) was created in 2007 with a mandate to attract and retain scientific talent from around the world to strengthen the region's basic research base. In its first 5 years, Ikerbasque has attracted 190 researchers from 20 countries;
- A dedicated regional innovation agency, *Innobasque*, was also created in 2007 as a private-public partnership to promote innovation throughout Basque society with the involvement of the business community and civil society organisations.

Taken together, these changes signal a determined effort to create a regional innovation system that is better attuned to the challenge of knowledge generation and not simply the transfer of existing knowledge (ie traditional technology transfer). If the Basques cannot be accused of being locked into an outmoded innovation policy mix, the unanswered question is whether these new initiatives will deliver the anticipated developmental dividends. Although this question can only be answered *ex-ante*, it raises one of the most intractable problems in policy analysis, which is how to judge the success of a regional innovation policy initiative when so many other imponderables are involved, not least the absorptive capacity of local firms and their ability to commercialise R&D projects. If the involvement of firms is a necessary condition for success, to what extent have they been mobilised in state-sponsored regional policy projects in the Basque Country? To explore this question we consider two regional innovation projects: the first is an example of diversification in a traditional industry (energy), while the second involves a wholly new technology (bio-science).

Energy is one of the strongest industries in the Basque economy, with 350 companies providing over 24,000 jobs in the region. Basque companies spend Euro 190m a year on R&D, of which 58% is spent within the region, which is way above the 35% of their turnover that comes from the region, reflecting the fact that they have concentrated their higher added value activities in the Basque Country. Energy companies are supported by a dense technological infrastructure, which consists of the technology centres, university research centres, and the CIC energieGune. To provide a stable framework for investment and collaboration, the regional state has set out a long range energy strategy (3E2020) with three clearly defined action lines addressed to: (1) *energy consuming sectors*, where the aim is to re-shape energy demand by promoting energy efficiency and renewable energy (2) *energy markets and supply*, where the aim is to improve the cost, quality and security of supply and (3) *technological and industrial development*, otherwise known as the EnergiBasque programme, where the aim is «to turn the Basque Country into an international knowledge pole and a reference for industrial development in the energy industry» (EnergiBasque, 2012:6).

As the third action line demonstrates, regional energy policy is being deployed as a catalyst for a series of regional innovation projects and the Basque Energy Agency (EVE), which was created thirty years ago, is responsible for managing these new projects, all of which fall under the EnergiBasque programme of research and industrial development. The EnergiBasque programme has identified eight priority areas in which the Basque Government has decided to focus its investments, with energy storage at the core because of its centrality to every other area, like smart grids, transport electrification and the integration of renewable energy. What is most distinctive about this energy strategy is that the Basque Government is actively engaged in every stage, from funding the research conducted in the EnegiGune CIC to the actual process of commercialisation, where it has formed joint ventures with private

companies to explore the commercial prospects for new products and services. This highly distinctive regional strategy is most advanced in two ambitious energy projects –transport electrification and smart grids–.

Transport electrification is described as the sector's response to the fight against climate change and it revolves around the technologies associated with the electric vehicle, where the biggest barriers are technological, infrastructural and commercial (eg the limited capacity of battery technology, the lack of a widespread EV-charging network, and uncertainty about the size of the market). A large number of auto companies in the BC have decided to target this new transport paradigm and the Basque Government has decided to play the role of an early entrant to develop the market on behalf of its auto sector. Through its energy agency, EVE, it has formed IBIL, a 50/50 joint venture with Repsol to develop a re-charging points network. Launched in 2010, IBIL claims to have built the most extensive network in Spain, with 200 re-charging points already operational. The joint venture partners commissioned the Boston Consulting Group to design a new business model for the new company along with new technical specifications for the metering system and the ICT control system, both of which have experienced teething problems because of the novelty of the technology and the steep commercial learning curve. Despite these teething problems, IBIL is already established in eight Spanish cities and plans to have a presence all over Spain.

Smart grids is another technology/market in which the Basque Government has formed a joint venture to help to create a market for its regional energy companies. The joint venture company, BIDELEK, is majority-owned by Iberdrola, the Basque-based utility company. Although a great deal of political pressure was put on Iberdrola before it agreed to enter the joint venture, the utility seems to have come round to the view that a smart grid experiment in Bilbao, a city of 350,000 people, would generate valuable technical and commercial insights into the emerging market for «smart city» services. The smart grids project also involves the Iberdrola supply chain, the aim being to use the exercise to raise the capacity of local SMEs to address the growing markets for smart grid products and energy services in public buildings, where public procurement is also being deployed to ensure the demand side is calibrated with the supply side of these energy projects. These two projects – transport electrification and smart grids – illustrate the extent to which the Basque Government is trying to fashion new markets for regional firms by leveraging its pervasive influence in the energy sector, an influence that straddles research, demand and supply. However, as one senior manager in EVE put it, the continuity of these projects is highly dependent on «our generous fiscal system».

If the energy sector is hosting bold experiments in regional innovation policy, an even more ambitious experiment is underway in bio-sciences, where the region had little or no track record. When the bio-science strategy was launched in 2003, it was widely believed that «the Basque Country was not apparently a region in which a bio-

science 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» (Navarro *et al.*, 2011:14). Defying conventional wisdom, the Basque Government thought that the region could use its healthcare sector to nurture a new bio-sciences cluster and that its traditional engineering expertise could be harnessed to supply machinery and scientific instruments for bio-science laboratories. This industrial rationale animates the entire bio-science strategy, symbolised by the fact that the BioBasque Agency, which is spearheading the strategy, is actually located in SPRI, the regional development agency. Ten years on from the launch, the Basque Country claims to have transformed itself into «a small but vibrant bioregion, named BioBasque, with a growing cluster of life science companies rooted in a renovated research and innovation system» (www.biobasque.org).

While it is too soon to pronounce it a success, the bio-science strategy has already achieved more than the conventional wisdom deemed possible, especially as regards the attraction of scientific talent, a task that fell to the CIC bioGune (Centre for Cooperative Research in Biosciences). Officially opened in the Technology Park of Bizkaia in 2005, the bioGune is a non-profit organization designed to promote scientific research *and* technological innovation, a dual mandate that is highly unusual for a bio-science research centre. By 2011 the bioGune had managed to attract 132 researchers from 17 countries and the main attractions for young researchers was the opportunity to work with state-of-the-art laboratory equipment and the chance of a fast-track career compared to universities, which are more bureaucratic and more hierarchical by comparison.

The dual mandate also differentiates the CIC research culture from the conventional university research culture. Researchers are always reminded of the two guiding principles of the centre: (a) to do good science and (b) to do science that is focused on and relevant to human health. If they are only interested in the former, they are told they should go to a university laboratory. The General Director of the CIC, Jose Mato, is personally very committed to the dual mandate philosophy because, having been well resourced by the public purse, he believes it is only right that «we have to give something back to the Basque Country». To that end, every researcher is encouraged to have a personal link with companies in the healthcare and biotech sectors to try to ensure that their research remains focused and relevant to one or more of the 70 odd firms that constitute the region's life sciences sector.

As part of its technological mandate, the CIC is also trying to broker new conversations between the region's traditional firms and leading bio-science companies outside the region. In one recent case the CIC introduced local firms in the Mondragon Group to major bio-science players to explore the prospects for technical collaboration in the laboratory equipment market. While no agreements have yet been struck, the CIC believes that such joint ventures are the way ahead if traditional engineering firms are to diversify into new but related sectors like laboratory in-

strumentation, sectors where the user knowledge of the CIC can facilitate the diversification process.

This bio-science research cluster has been resourced almost entirely from the public purse. Of the 104.3 million operating revenues secured since 2002, 56.1% has come from the Basque Government, 20.1% from the Spanish Government, 12.4% from Bizkaia Provincial Government, 10% from research contracts and 1.4% from EU projects (CIC bioGune, 2012).

Such generous funding may be a thing of the past, given the new age of austerity, and the CIC science community fears that the Basque regional innovation system has reached its institutional limits because of two new problems – *cannibalization* and *complexity*. First, a process of institutional cannibalization is perceived to be taking place as the technology centres, in their quest for new revenue streams, seek to enter the scientific research arena, a move that threatens to duplicate the work already being done in the CICs. Second, the problem of institutional complexity has reached a critical stage because, according to senior figures in the CIC community, the Basque Government has created too many centres and there needs to be more focus since each centre costs a small fortune and the funds are no longer available to maintain a regional innovation system that was designed in an age of plenty.

The question of institutional coherence brings us to one of the most intractable political problems in the Basque Country, the problem of rivalry within the regional governance system. Although this problem has exercised the regional policy community for many years (Cooke and Morgan, 1998), it shows no sign of being resolved. On the contrary, a recent OECD review identified three governance problems that needed to be addressed as a matter of urgency, namely: (a) the need for more inter-departmental cooperation in STI policy; (b) the need for less duplication between the multiple layers of governance; and (c) the need for more robust monitoring and evaluation systems (OECD, 2011:217). Let us briefly examine each of these governance problems.

The need for more inter-departmental cooperation in the design and delivery of STI policy has become more rather than less important in recent years because of two developments. First, the creation of a wholly new innovation agency, InnoBasque, triggered new rivalries in the STI policy system because this field had hitherto been the sole preserve of the Department of Industry and its regional development agency, SPRI. InnoBasque was created in 2007 as an initiative of the President's Office and therefore it received high level political support. The problems of rivalry emerged at the operational level, when InnoBasque needed to secure the cooperation of other departments and agencies in the preparation of the new STI Plan (STI 2015), which is being designed as an inter-departmental exercise for the first time rather being an internal process within the Department of Industry. Second, innovation is being framed in a much more capacious way than ever before: no

longer conceived as a purely industrial matter, innovation is now being conceived in social as well as ecological terms so as to address the great societal challenges of climate change, public health and ageing for example. A broader conception of innovation entails a broader set of stakeholders, in health, agriculture and civil society for example, and InnoBasque has been tasked with enlisting stakeholders beyond the «usual suspects» in STI policy. However, the STI rivalries within the Basque Government require sustained attention at the very highest levels.

The problem of duplication between regional and provincial governmental tiers is even more difficult to resolve, not least because the fiscal autonomy of the 3 provinces has no precedent in the EU. Although the OECD accepts that the multi-level polity creates unparalleled opportunities for local experimentation within the region, the result is often a costly process of duplication because the provinces deploy their resources in a parochial and self-referential manner. With customary diplomacy, the OECD concluded by saying that, given the small surface area of the Basque Country, «this competition may not always serve the best interests of the region» (OECD, 2011:214). Time alone will tell whether the age of austerity alters the political calculus with respect to the costs of rivalry and duplication in the Basque Country.

Finally, the lack of a robust monitoring and evaluation culture is a bigger problem for the Basque Country than for many other regions because of the relatively high levels of public expenditure devoted to STI activities. The OECD noted that evaluations of public spending do not appear to have been conducted, implying that the regional authorities are not in a position to know the real impacts of their policies. This knowledge deficit may be treated more seriously from now on because value for money considerations, including the need to know what works where and why, will loom larger in the future than in the past. Despite all the achievements of the past 30 years, the key question for the Basque Country today is whether the governance system that delivered the first great economic transformation, is smart enough to deliver a second.

3.2. **Wales: The Limits of a State-Centric Repertoire**

If the Basque Country is widely perceived as a regional success story, Wales is mired in a seemingly vicious circle of relative economic decline. Far from delivering an economic dividend, as many supporters of political devolution imagined, the creation of a Welsh Government has been unable to stem the process of relative decline. In fact Wales is now officially classified as the poorest of all the nations and regions in the UK, so much so that it will once again qualify for the highest level of EU regional aid after 2014, when West Wales and the Valleys will be the only «less developed region» in the UK. In contrast to the Basque Country, which recovered from the decline of its traditional industries, Wales has fallen further and further behind the UK in terms of GDP per capita. Although the reasons for its poor econom-

ic performance are complex and many, the main explanation lies in two factors: (a) the fact that low wage/low skill foreign direct investment replaced the high waged coal and steel industries and (b) the fact that Wales failed to generate sufficient high growth indigenous firms, a weakness that can be traced to its low wage/low skill occupational profile.

A deteriorating economy has coincided with the growth of a new regional state system following the creation of a directly elected Welsh Government in 1999. Although democratic devolution was thought to be a prelude to a new era of political pluralism, something rather different occurred when the Welsh Government took the unilateral decision in 2004 to abolish the arm's length public bodies that delivered training, tourism and economic development, the most famous of which was the Welsh Development Agency (WDA), the first regional development agency of its kind when it was created in 1976. Running against the grain of economic governance trends in Europe, where regional governments have created arm's length agencies because they are deemed more commercially agile than a government bureaucracy, the Welsh Government transferred the economic development functions of the WDA into its own civil service and packaged it politically as a «bonfire of the quangos». Although this «bonfire» was rationalised in the name of democratic accountability, it was really driven by the desire to exert greater day-to-day political control over development agencies that had hitherto enjoyed some relative autonomy from the inert and risk-averse compliance culture of government, a culture that extolled process over outcome, control over competence. Despite being popular in left-of-centre circles, the «bonfire» rendered Wales a much more state-centric system in which institutional diversity and intellectual pluralism were significantly reduced. Less diversity makes for group-think and this in turn makes it more difficult to challenge the conventional wisdom, especially the conventional political wisdom, and both democracy and development can suffer when there is little or no constructive challenge to a dominant party, which is what the Labour Party is in Wales. Although it was predicted at the time, the damaging effect of the decision to abolish the WDA has become ever more apparent because on a whole series of fronts – like regional innovation policy, inward investment and European engagement for example – Wales has gone from a leader to a laggard (Morgan and Upton, 2005; Morgan, 2012).

Unlike the Basque Country, where the institutional thickness of the regional innovation system has become thicker over time, as new functions and agencies have been added, the regional innovation system in Wales was significantly hollowed out with the abolition of the WDA, which had straddled the whole system in much the same way as SPRI currently does. Today the key public sector actors in the regional innovation system in Wales are the Welsh Government and the universities and both are intimately involved in the two innovation projects to which we turn now. The first of these projects – the Technium Centre Network – is highly instructive because it spawned a very expensive failure, a «cathedral in the desert» as the Italians

say, a classic example of what can happen when the regional state pursues a state-centric approach to regional innovation with little or no reference to others. The second project – SPECIFIC – is equally instructive, but this time it is an example of the regional state working in concert with other public and private partners in a process that resembles a regional ecology in which each partner contributes to an outcome that none could have achieved by working alone. Let us begin by exploring the rise and fall of the Technium Centres (see Morgan, 2012 for a fuller account).

The basic rationale for Technium was twofold: (a) to commercialise advanced academic research and (b) to create high value jobs so as to retain graduates in and around Swansea, the second city of Wales. The idea of an incubator facility to support new technology businesses was first mooted in the Regional Technology Plan (1996), the first regional innovation strategy ever produced in Wales. But the concept would not have been realised had it not met the emerging agenda of the property division of the WDA, which was at that time searching for a flagship project to spearhead the physical regeneration of Swansea Docks. This marriage of convenience spawned the concept of the Technium, which was presented to funders as an alliance between the university sector, which was reckoned to have expertise in *intellectual* property, and the WDA, which was responsible for physical property and business support services. Having secured the backing of the recently created Welsh Government, to which the WDA was formally accountable, the concept was eventually funded for a two year period through a £1 million grant under the ERDF programme (DTZ, 2009).

The original Technium was opened in Swansea in 2001 in a brand new 21,000 sq ft building, the flagship development in what is now known as SA1 Swansea Waterfront. The aims of the Swansea Technium were: to create a business innovation centre; to support the growth of new and existing knowledge-driven SMEs; to create a one-stop shop for mobile R&D investment projects in the region. As regards what client firms could expect from a Technium location, the chief benefits were threefold: the provision of dedicated office space and state-of-the art facilities; onsite access to specialist business support and access to academic research centres; and networking opportunities with leading national and international companies and academics. After two years of operation an evaluation of the Swansea Technium found that it had been successful because, on average, the 14 Technium client firms had delivered some positive results: commercial turnover increased by 39%; staff levels increased by 306%, of which 75% were graduates; and 72% of staff were focused on R&D.

However, the most extraordinary aspect of the Technium experiment was the political decision to have a national programme of Technium centres *before* the Swansea Technium had been evaluated. In other words, a new regional innovation strategy was announced in 2002, half way through the Swansea experiment, and the centrepiece of the strategy was to be a nation-wide Technium network. In the fol-

lowing five years another nine Technium centres were created exclusively in the Objective 1 region of Wales and the development cost of the whole network was initially estimated to be £93.4 million, of which 89% was funded by the public sector, underlining the fact that this really was a state-led project. Only one independent evaluation of the Technium Centres was ever conducted and its conclusions, summarised below, were profoundly unflattering.

No clear rationale. The most important finding was the absence of a clear rationale for the nine additional Technium centres. The evaluators, DTZ, were surprised to find that there was no documentary evidence to suggest that robust project appraisal or business planning had been carried out to ascertain the need for a Technium in the areas in which they were built. «It appears», said DTZ, «that many of the Techniums assumed that their rationale would be the same as that stated for the original Technium in Swansea and specific local circumstances were not adequately considered» (DTZ, 2009: viii). In too many cases «the Technium was seeking to create a market, rather than serve a market» (DTZ, 2009: 15).

Lack of explicit objectives. Few of the Techniums had explicit objectives and, where they were available, they differed. The lack of commonality in the way each Technium was managed, meant that the evaluators were forced to call it a «network» rather than a programme because the latter suggests common aims, objectives and governance structures.

Poor monitoring. The evaluation found that Technium Managers were unable to provide detailed data on the Technium clients, either current firms or firms that had graduated from the incubator, and therefore a rigorous evaluation was rendered impossible. Although one of the original objectives was to create jobs to retain graduates in the area, monitoring data only measured the number of «jobs created» so there was no way of knowing whether graduate jobs had in fact been created.

Business support. One of the key claims of the Technium concept was that it offered state-of-the-art business support to new technology start-up firms. The evaluation found that, while some businesses had used these services, the level of take-up was not as high as expected and it was not possible to form a view of the value that business attached to these services when such services were also readily available to non-Technium businesses.

Sectoral specialisation. Many of the Techniums had a strong sectoral focus and this was allegedly designed to reflect the strength of local business clusters or academic expertise. But the evaluation unearthed the truth of the matter, which was that it was due to the funding agency, the Welsh European Funding Office (WEFO), which managed EU regional grants on behalf of the Welsh Government. It was discovered that «the rationale for sector specialisation appears to have been a response to a request from WEFO rather than clear evidence that the market required sector specific incubation» (DTZ, 2009: 15). This is an extraordinary finding when one

considers that nine of the ten Techniums had a sectoral focus, a rationale that reflected the bureaucratic requirements of a funding agency, which wanted to differentiate the incubators to satisfy funding procedures, rather than the economic conditions of the areas in which they were created. A network of ten incubators would not have been financially feasible had EU regional funds not been so readily available and, as these funds had to be spent within a specified timeframe, the hasty and injudicious roll-out of the Technium programme may have been driven by the need to comply with these supra-national regulations.

Given all these shortcomings, it was hardly surprising that the Welsh Government decided to radically reduce the network in 2010 by closing six of the Techniums, a decade after the concept was conceived. What is surprising, however, is the fact that there was no public inquest into the failure of an experiment that eventually cost some £111 million. In the absence of a public inquest, one of the original architects of the Technium concept, Professor Ken Board of Swansea University, attributed the failure to three key factors: (a) poor programme management on the part of the Welsh Government, which was too eager to have a national roll-out of the incubators before the lessons of the first incubator had been absorbed (b) the absence of a regular flow of start-up companies and (c) the lack of leadership in the university sector, where management was more interested in creating intellectual property than exploiting it, with the result that universities were never fully engaged in the process.

Remarkably, a similarly forthright analysis had been produced for the Welsh Government by an independent review of publicly-funded commercialisation activities, a review that the government had commissioned but ignored. The independent review, published in 2007, captured the key problem with the Technium programme when it said that, laudable though it was, the key weakness was «the absence of a continuous pipeline of strong technology based tenant companies» (Gibson *et al.*, 2007:13). It also exposed the fallacy of property-led innovation policy by saying «one of the key priorities for any programme of commercialisation is not accommodation but the quality of advice and support given to companies which in this case appears more apparent than real» (Gibson, 2007:13). Because it contained too many inconvenient truths, this report was ignored by politicians and civil servants alike.

Clearly, the main lesson from the Technium saga is not that there was a lack of information about the problems but, rather, that there was no incentive for either politicians or civil servants to act on the information because there was no constructive challenge within or without the system. In such a state-centric system, it is exceedingly difficult to expose problems because the process of fashioning new development paths – which is what the Technium concept was ostensibly about – is invariably subordinated to the political ambitions of politicians whose horizons and metrics are calibrated to short term electoral cycles. Instead of addressing the problems to sustain the

original purpose of Technium as a novel *intellectual property* experiment, the problems were ignored and the programme was allowed to degenerate into a glorified *industrial property* venture, a regional development model that was more attuned to the traditional skill sets of the government and its development agency.

The Welsh Government felt it had a right to exercise full control because the Technium network was largely funded from the public purse, and it felt no need to enlist the expertise of others because, as it morphed into an industrial property project, it had the requisite knowledge in-house to deal with it. The case of the second project – the SPECIFIC project – was an altogether different proposition.

SPECIFIC (Sustainable Product Engineering Centre for Innovative Functional Coatings) is a £20 million project based in a new Innovation and Knowledge Centre in Baglan Bay, in which Swansea University and Tata Steel are the lead academic and industrial partners, though many other partners are also involved, including Imperial College and Cardiff among the universities and BASF and Pilkington among the industrial partners. Although it was officially launched in April 2011, the project grew out of a long term partnership between the local steel industry and the world class Materials Research Centre at Swansea University. The core aim of the SPECIFIC project is to develop functional coated steel and glass products that will transform the roofs and walls of buildings into surfaces that will generate, store and release energy – in effect, turning buildings into power stations, with the potential to create a radically new £1 billion UK industry according to the project partners (SPECIFIC, 2012).

Although half the £20 million investment has come from a UK research council (EPSRC), the project is so much more than a pure research project. SPECIFIC has been quite consciously designed as an «open innovation» exercise in which a unique collaboration between government, academia and industry has enabled rapid progress to be made beyond the R&D stage in a very short timescale. A new pilot manufacturing facility has already been set up to enable the portfolio of product concepts to be produced at pilot scale and tested in a range of differing environments. SPECIFIC has also begun collaborating with the construction industry and supply chain partners to deliver high performance products and intelligent solutions for the market. According to the research director, the key is to enlist other partners to ensure these pilot projects have «viable routes to market» (Worsley, 2012).

With so many different partners involved, there is no single metric to judge the success of the SPECIFIC project. From the regional policy standpoint, however, the key test is how to capture the commercial and employment benefits of the project as it moves from pilot production to manufacturing at scale, not least because the Baglan Bay site lies in one of the poorest parts of Wales. Although it is barely half way through its scheduled 5 year lifespan, the SPECIFIC project is already perceived to be one of the most successful of the regional innovation projects currently under-

way in Wales. The crucial differences between the SPECIFIC and Technium projects are twofold: (a) that the knowledge involved in the former was too tacit and too specialised for the regional government to play a role (b) that the bulk of the funding was met by the other partners, with the Welsh Government having to contribute just 10% of the total cost, and a smaller stake implied a smaller voice and (c) that politicians and civil servants may have learned the lesson of the Technium fiasco, which is that state-led innovation projects tend to fail if the skills of more knowledgeable partners in industry and academia are not harnessed and respected.

Although it is a taboo subject in Wales, the state-centric repertoire is arguably one of the reasons why Welsh economic performance has been so poor in recent years. On a per capita basis, Wales spends more than any other nation or region in the UK on economic development measures, but it has least to show for it. This contrast is most acute in the sphere of EU regional aid, where more than £6 billion has been committed since 2000, but Wales has made far less progress than Cornwall, which deployed its Objective 1 funds to better effect. This has raised profound questions about the developmental capacity of the regional state, particularly of WEFO, the agency that manages and dispenses EU regional aid. A Welsh parliamentary inquiry recently criticised WEFO's lack of strategic leadership, its lack of engagement and its poor monitoring and evaluation processes (NAW, 2012). If these problems are symptomatic of the regional state as a whole, then the solution is not to be found in more devolution, more powers and more money - the current prescription for Welsh development problems - but in changing the political culture from a *transactional* culture, which is obsessed with process and compliance issues, to a *transformational* culture which is outcome-oriented and informed by the place-based policy paradigm that we discussed in section two.

Significantly, an outcome-oriented political culture was a recurring theme of the smart specialisation public consultation exercise in Wales. Equally significant is the fact that the Welsh Government decided to open up the policy-making process to an extent unthinkable in the past; so much so that it can legitimately claim that its SS strategy has been *co-produced* with key stakeholders in business, academia and civil society (Welsh Government, 2012). To this extent, the demands of the smart specialisation process are already beginning to change the habits of the Welsh Government, illustrating the positive interplay between exogenous and endogenous forces envisaged in the place-based approach to public policy.

4. CONCLUSIONS AND IMPLICATIONS

More than just another regional policy, smart specialisation signals a challenge to all levels of the multi-level polity because it implies a radically different approach to the way that policy is designed, delivered and evaluated. Both theorists and prac-

titioners seem to agree on this point because, in recent years, a remarkable convergence has occurred between evolutionary economic theory, which conceives of economies as complex adaptive systems that are permanently in flux, and reflexive policy practitioners who have come to the conclusion that complexity and uncertainty need to be factored into the policy-making process rather than denied or assumed away. Policy theorists increasingly conceive the policy process as a communicative process in which dialogue, negotiation and local experimentation are the keys to success rather than traditional systems of command and control (Uyarra and Flanagan, 2013; Morgan and Henderson, 2002). For their part, policy practitioners are trying to incorporate trial and error mechanisms into their programmes along with stronger conditionalities attached to the use of public funds (Landabaso, 2012). Another reflexive policy practitioner has summarized the new policy paradigm in the following way:

> «A 'policy' is not any longer a static set of public activities defined *ex-ante*, implemented mechanically in a linear and hierarchic structure and controlled *ex-post*, but should rather be seen as an emergent dynamic phenomenon of creating and gradually modifying a joint understanding of the «what», «why» and «how» of certain public activities in an on-going communication process. Based mainly on trial and error, this process, again and again and at the same time, reflects past results, monitors on-going activities and develops new perspectives for future activities»
>
> (Huber, 2011:171)

Being attuned to complexity, uncertainty and flux, this new policy paradigm is ideally suited to the smart specialization era, which requires policy-makers to be more deeply involved in the knowledge networks that they are seeking to stimulate. Policy-makers are valued and respected when their involvement is based on their competence in the network rather than their status in the hierarchy. This new policy paradigm poses challenges for all levels of the multi-level polity and not merely for the regional level that will deliver smart specialization strategies after 2014. At the EU level the European Commission needs to enhance its role on two fronts: on the *vertical* front it needs to become a stronger and more competent centre of expertise vis-à-vis member states and regions as envisaged in the Barca Report; while on the *horizontal* front it needs to become a more integrated actor because institutional rivalry between directorates within the Commission makes it impossible to manage the synergies between enterprise, innovation and regional development. The smart specialization process seems to have triggered a greater degree of inter-services cooperation because eight directorates are now involved in the Smart Specialisation Platform at the JRC-IPTS in Seville, an innovative mechanism that facilitates robust peer-review and promotes knowledge exchange vertically and horizontally. Time alone will tell if this is the peak or merely the start of a new era of inter-services cooperation within the Commission.

Far from being undermined by globalization, the national level remains as important as ever for both social cohesion and economic development. But the policy challenge for the national state is to learn how to foster rather than frustrate innovation by calibrating its supply- and demand-side repertoires. Although the supply of skills and infrastructure remain critically important, the national state needs to do much more to socialize risk and foster innovation – for example by creating stable regulatory regimes for long term investment, by helping firms gain easier access to funds and by deploying its power of purchase as an early user of innovative products and services. This integrated repertoire of supply and demand side interventions would foster a more fertile eco-system for innovation.

Regional states may have little or no control over global and national forces, but they are not powerless victims of circumstance. Depending on its capacity to adjust to external forces, and its ability to make the best of the region's assets – both its own assets and the assets of its partners in and beyond the region – the regional state has the potential to make a difference to how well or badly the regional economy fares. From the review of regional innovation repertoires in section 3, the evidence strongly suggests that, despite formidable economic and political challenges over the past 30 years, the Basque Country has been a regional success story. If the regional state's contribution to this success story is difficult to define with precision, it seems considerable. The key contributions would seem to be the following: (a) sustained public investment in R&D, which benefited both firms and technological intermediaries (b) sustained public investment in the regional technological infrastructure, particularly the network of technology centres (c) a regional innovation repertoire that encourages firms to learn from other firms through a wide array of associational activity, like cluster associations for example (d) sustained public investment in the urban fabric, enabling Bilbao, Vitoria-Gasteiz and San Sebastian to become highly attractive cities for talent attraction and retention in the Basque Country (e) continuity of regional innovation policy over 30 years, which is combined with a willingness to pursue novelty, thus reducing the lock-in effects of policy path dependence and (f) a high level of professional competence in the public administration. This final point helps to explain the Basque Paradox, which is that the influence of the regional state has been *pervasive* without being *invasive.* That is to say, the regional government has pursued one of the most active industrial policies in the EU, yet it seems to have respected the principle of subsidiarity in its dealings with its partners, which is why it has not sought to micro-manage their affairs even when they have received public funding. This policy culture bodes well for the future because it is aligned with the policy requirements of the place-based approach to innovation policy. Far from having to design a smart specialization strategy from scratch, therefore, the Basque Government can legitimately claim that it has been building-up such a strategy for the past thirty years (Department of Industry, 2012).

Notwithstanding its achievements, the Basque Country now needs to confront its problems with urgency and honesty because the system that delivered the first economic transformation may not be able to deliver another. Some of the key problems were identified in section 3 and they include the following: (a) the fiscal crisis has undermined the benevolent public expenditure system on which the Basque model was predicated (b) the regional innovation system has become too complex and some elements are beginning to cannibalise each other in the competition for funds (c) the university system will be the Basque Country's weakest link in the era of smart specialization, an era when knowledge generation will be as important as knowledge transfer (d) the perennial governance problem appears to be getting worse not better and these rivalries (between departments within the Basque Government and between the latter and the provincial governments) can ruin the best laid plans for smart specialization.

If the regional state in the Basque Country has to confront serious problems, its Welsh counterpart finds itself in a worse position because it has failed to check a long term process of economic decline. If anything, the regional state has exacerbated the problem because, having decided to abolish the WDA, its arm's length development agency, its growing influence over economic policy contrasts with its limited competence, a toxic combination. The costs of this state-centric system were brutally exposed by the rise and fall of the Technium Centres, designed to be high-tech incubators for high-tech start-ups. As we saw, however, a national programme was launched before the first centre had been properly evaluated because of a process that served the interests of political agendas rather than the business needs of the areas concerned. The Technium saga is a sobering reminder of what can go wrong when a state-centric system has access to large amounts of EU regional aid and fails to mobilize knowledgeable partners in business and academia. Another disturbing feature of this saga is the fact that Technium Centres satisfied the criteria of EU regional aid, furnishing a perfect example of the difference between a *transactional* culture, geared to process indicators, and a *transformational* culture, which is oriented to outcomes in the spirit of the place-based approach. But the state-centric culture in Wales is clearly not set in aspic because, as we saw in the SPECIFIC case study, the regional state adopted a role that is much more attuned to the era of smart specialization, where the parties to the entrepreneurial discovery process will be valued for their competence in the network not their status in the hierarchy.

Despite their differences, the Basque Country and Wales share one glaring weakness in common: they have not done enough to learn from their past policies and to assess what works where and why. This capacity to learn from the past will be a major asset when regions come to design their smart specialization strategies, which is simply another way of saying that monitoring and evaluation mechanisms will be of immense significance to the success of place-based innovation policies like smart specialization (Technopolis, 2013). To the extent that centralized governance

systems are less committed to learning from past policies, because political elites are more concerned with control than with innovation, then the highly centralized governance system in Wales may be less attuned to the place-based approach than the more pluralistic governance system in the Basque Country, where the intermediary and operational tiers play a much greater role in the innovation system.

Finally, perhaps the most important point to make in conclusion is that the role of the regional state in smart specialization will vary from region to region, and from project to project within the same region, making it impossible to specify this role *ex ante* (Navarro *et al.*, 2011). What we can say, however, is that the demands of the smart specialization process will force regional states, and their national and supra-national interlocutors, to recognize innovation for what it really is – namely a *collective endeavour* in which the capacity to work in concert may be the most decisive factor that separates success from failure.

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