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Nurturing novelty: Regional innovation policy in the age of smart specialisation

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Abstract

Smart specialisation is the most ambitious regional innovation programme ever to be launched in the European Union and it affords a unique opportunity to explore the interplay between institutions, innovation and development. The article argues that smart specialisation makes unprecedented demands on public sector bodies to nurture more collaborative forms of economic search and craft more inclusive forms of regional governance. To explore these issues with the granularity they deserve, the article offers detailed case studies of two regional innovation policy repertoires in Wales and the Basque Country, where it is argued that the 'old industrial region' moniker conceals as much as it reveals because, for all their apparent similarities, they have pursued very different repertoires. The article concludes on a more general note by suggesting how regional innovation studies could be enriched by engaging with theoretical perspectives from other fields.

Keywords

Governance, innovation policy, institutional capacity, networks, regional policy

Introduction

A new era in the history of European regional policy began in 2014 with the launch of the *Research and Innovation Strategies for Smart Specialisation* (RIS3) programme, the most ambitious regional innovation programme ever introduced in the European Union (EU). The fact that innovation-related measures have been the fastest growing theme in the past 25 years of the Structural Funds speaks volumes for the political resonance of the innovation agenda in EU policy circles. From just 8% of total regional policy expenditure in the 1988–1994 programming period, innovation-related measures have increased to nearer a third of the total in the 2014–2020 period. This means that the Structural Funds are increasingly the vehicle for a spatially targeted form of innovation policy rather than simply a spatial expression of social welfare policy. Political resonance may help to explain the cachet attached to regional *innovation* policy, but to what extent does the new smart specialisation agenda really address the underlying problems of old industrial regions?

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Some of these problems have a familiar ring (like the 'regional innovation paradox'), while others have a more recent pedigree (like the 'age of austerity'). The regional innovation paradox is a highly condensed way to summarise the challenge of innovation in less developed regions (LDRs). It highlights the fact that, while LDRs have a *greater need* for innovation-related investment, they also have a *lower capacity* to absorb public funds earmarked for innovation compared to economically more advanced regions (Morgan and Nauwelaers, 2000; Muscio et al., 2015; Oughton et al., 2002). The weaker absorptive capacity in LDRs reflects a noxious cocktail of factors, including mature industrial structures and low value-added activities in the regional economy as well as weak and sometimes corrupt public administrations. The interplay of economic and institutional development is attracting more and more attention from theorists and policy-makers alike, not least because there is mounting evidence to suggest that the quality of regional governance matters to economic performance and public service provision to a greater extent than was once thought (Charron et al., 2012; Rodriguez-Pose and Di Cataldo, 2014).

The RIS3 agenda also faces a more recent set of problems, many of which have been triggered by the 'age of austerity'. Far from being a natural visitation, the 'age of austerity' is a conscious political strategy on the part of neoliberal governments in thrall to a pre-Keynesian creed who are ideologically fixated on balancing budgets and shrinking the state. One of the many debilitating effects of this pre-Keynesian creed is to eviscerate the public sector in many European countries, inflicting the greatest damage on the poorest regions, which are more dependent on public sector employment and public sector investment. Eviscerating the public sector by cutting investment, employment and expertise presents major problems for the smart specialisation agenda because the latter is predicated on a smarter, more agile and more experimental state, attributes that are difficult to reconcile with a besieged public sector (Morgan, 2016).

To address the above issues in a more granular fashion, the article is organised as follows. Section 2 identifies some of the key institutional challenges facing the RIS3 agenda, especially with respect to the regional state, which is expected to rise to the occasion by nurturing novel *economic search processes*, in which the regional state acts more as the curator than the controller of regional innovation projects, and new *forms of governance*, in which the regional state is expected to broker more inclusive forms of governance.

Section 3 sacrifices breadth for depth by focusing on the regional innovation policy (RIP) repertoires of the Basque Country and Wales, where the regional state has played a highly interventionist role for the past 30 years. The main aim of this comparative section is to explore the formation and evolution of these *regionally specific* repertoires and assess how they have dealt with the challenge of novelty.

Section 4 distils the comparative analysis and argues that RIP studies would be enriched by drawing on two streams of hitherto unrelated theory: (i) the *new industrial policy* (NIP) literature, which features the concept of the embedded state, a state that eschews hierarchies and aims to work in and through networks to foster innovation and (ii) the *institutional entrepreneurship* literature, which helps us to avoid the trap of state-centricity by focusing on how actors in and beyond the state effect institutional change.

Smart specialisation and the challenge of novelty

Evolutionary economists have done much to help us to understand the dynamic and restless character of capitalist development, a process succinctly captured in Schumpeter's compelling characterisation of capitalism as a process of 'creative destruction' (Schumpeter, 1943). Contemporary evolutionary theorists have refined this perspective by

arguing that the interplay of variety and selection mechanisms is what propels capitalist evolution and, because economic selection tends to destroy effective variation, some process is needed to replenish variation – and that process is innovation, 'the generator of novelty' (Metcalfe, 2014: 13). While firms are the main vehicles for generating novelty in this perspective, public institutions are also called upon to play important roles to stimulate the generation of variety, promote connectivity between actors and reduce the threat of lock-in by fostering openness and diversity (Boschma, 2005; Metcalfe, 1994). Promoting connectivity is particularly important because:

> Capitalist economies are ignorance economies, in which highly specialised individuals and teams know a great deal about very little, so that the productive strength of the system, its collective knowing, depends on how the pools of specialised, narrow understandings are connected. Connectivity requires organisation and organisation depends on rules of the game and on belief and trust so that we can rely upon the testimony and actions of others. Failure of trust leads to failure of connectivity and a corresponding loss of system coherence. (Metcalfe, 2014: 11)

In advanced regions 'connectivity' will often be secured through the purposive actions of talented firms (and sustained by advanced regional innovation systems) but this is not the case in less advanced regions, where public institutions are needed to broker connections and nurture novelty. Although novelty tends to be framed in narrow economic terms – where it is applied to technologies, products and services – it is equally applicable to the political sphere, where institutional arrangements can either foster or frustrate innovation depending on whether the institutions of development are enabling or constraining, inclusive or extractive in nature (Acemoglu and Robinson, 2012; Asheim and Gertler, 2006; Cooke and Morgan, 1998; North, 2005). The question of *institutional capacity* has begun to loom large for scholars and policy-makers alike. Although regulatory authorities like the European Commission (EC) used to be very coy about encroaching on politically sensitive issues like the competence and probity of national and sub-national institutions, these reservations have been rapidly jettisoned because the 'institutional deficit' in many Member States is now so acute that it is compromising the efficacy of European regional policy.

These institutional deficits are often most pronounced at the sub-national level, especially in Italy, Spain, Belgium, Romania and Bulgaria, where the LDRs are believed to be 'stuck in a low-administrative quality, low growth trap' (EC, 2014: 168). A similar conclusion emerged from a highly influential analysis of quality of government and innovative performance, which found that high levels of corruption and low levels of policy-making capacity were the most important governmental qualities that constrained the efficacy of innovation policies – so much so that institutional reforms to reduce rent-seeking and combat corruption need to be considered as 'de facto innovation policies for the regions in the periphery of Europe' (Rodriguez-Pose and Di Cataldo, 2014: 22).

The question of institutional capacity was taken seriously in the design of the RIS3 programme, perhaps for the first time in 25 years of RIP. RIS3 is officially defined as an integrated, place-based economic transformation agenda that seeks to do five important things: (i) focus policy support and investments on key national/regional priorities (ii) build on the strengths of each country/region (iii) support technological as well as practice-based innovation (iv) involve stakeholders and encourage innovation and experimentation and (v) provide an evidence base by having a sound monitoring and evaluation system (European Commission, 2012: 8). In terms of intellectual antecedents, RIS3 is predicated on the *place-based* approach to regional development, an approach recently associated with the work of Fabrizio Barca. There are two key aspects to the

place-based approach: the first is that *geographical context* really matters and here context is understood to include the social, cultural and institutional characteristics of the place; and 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 (Barca, 2009; Barca et al., 2012).

To design and deliver the RIS3 programme, the EC prescribed a number of operational steps, two of the most challenging of which concern *economic search* and *inclusive governance*. Although these operational steps are presented as prosaic technical procedures, they are actually intensely political activities that presuppose a high degree of competence on the part of the regional state (Morgan, 2013a). This serves to illustrate the point that the 'policy mix' is a more complex assemblage than we commonly think and innovation policy studies needs to address it in a more critical spirit (Flanagan et al., 2011).

The first 'step' concerns the design of a new 'entrepreneurial discovery process' in which various actors, particularly firms, universities, research institutes and the like, are enjoined to collaborate to explore the domains of R&D and innovation in which the region is most likely to excel given its existing capabilities. This 'step' is likely to trigger intense struggles around which agents are deemed to be appropriate 'entrepreneurial actors' and whether the process is designed to privilege the role of the business community, in which case it might be criticised for being a de facto neoliberal agenda. However, the emphasis on 'entrepreneurial discovery' is much broader than a neoliberal agenda and it resonates with what regional scholars have called 'institutional entrepreneurship', which highlights how actors broadly defined can act as purposive agents to transform the institutional settings in which they are embedded (Sotarauta and Pulkkinen, 2011).

The second 'step' concerns the creation of a more inclusive governance structure to ensure participation and ownership of the RIS3 strategy. According to the EC, a truly inclusive RIS3 governance structure 'should be able to prevent capture by specific interest groups, powerful lobbies, or major regional stakeholders' (EC, 2012: 21). A genuinely inclusive governance structure, in other words, would include stakeholders selected for their competence in the network rather than their status in the hierarchy, a radical institutional innovation in its own right because it runs counter to everything we know about how regional elites deploy their power and patronage in the face of novelty (Morgan, 2013a).

Fashioning a more collaborative process of economic search and crafting a more inclusive governance structure are goals that will stretch the very best regional administrations and they may be too demanding for the poorest regions, where the weakness of regional economy and regional polity will compromise the promise of the RIS3 programme (Foray, 2014). The great danger of the RIS3 programme as it stands is that it is perceived as a policy template, offering prescribed steps for all regions regardless of regional context. If we have learned anything from the history of RIP over the past 25 years, it is that *place-specificity* is the single most important variable in shaping the policy mix. In short, 'one size for all' is a recipe for disaster because there is no such thing as an 'ideal model' for innovation policy when the spatial context varies so much as between central, peripheral and old industrial regions (Todtling and Trippl, 2005). Indeed, as the following section shows, place-specificity varies a good deal even within the category of 'old industrial regions', a category that often conceals more than it reveals.

Repertoires of RIP

The regional realm is such a heterogeneous realm that it makes no sense to speak in bald terms about 'the region' as a developmental space or about the role of 'the regional state'

in fostering/frustrating economic renewal (Morgan, 2013a). Such regional diversity means that we have to understand the *specificities* of a region – including the peculiarities of its economic structure, the idiosyncracies of its institutions, the character of its political culture and its relational connections in the world – before we can begin to appreciate what RIP can feasibly accomplish. Given the powerful role of habits and routines in economic life, one of the questions addressed in this section is the extent to which RIP repertoires have been subject to path-dependent processes. A RIP repertoire refers to an assemblage of cognitive processes, policies and practices that is routinely used to frame and foster a particular model of regional development and it is shaped by an inherited 'artifactual structure', which consists of the accumulated beliefs, institutions, instruments and technologies that condition the choices of agents (North, 2005). Because it is politically fashioned by the dominant political elite and culturally embedded in the prosaic practices of officials, a RIP repertoire is more deeply rooted in the institutional fabric of a region than conventional policy studies might imagine. The Basque Country and Wales would seem to be ideal candidates for such an inquiry because they have pursued regional innovation policies longer than most other regions in Europe.

While each regional innovation system has its own peculiarities, reflecting the significance of place-specificity, a three-tiered organisational structure for governing research and innovation has been discerned in many countries based on the following: a *governmental* tier, consisting of the cabinet and government departments; an *intermediate* tier, consisting of agencies and research councils and the like; and an *operational* tier, consisting of research and innovation actors like firms, universities and research organisations (Boekholt et al., 2002; OECD, 2002).

As we will see, one of the great contrasts in the RIP repertoires in Wales and the Basque Country concerns the changing dynamics of this three-tiered system. In Wales, the repertoire has become ever more state-centric following the political decision to abolish intermediate agencies. In contrast, the Basque Country presents a fascinating paradox because the regional state has been pervasive without being invasive: it has respected the principle of subsidiarity and eschewed state-centricity.

The Basque repertoire of RIP

With a population of 2.1 million, the Basque Country is an old industrial region with a difference: it is one of the most prosperous regions in Spain and it outperforms the national average on a whole series of indicators, especially Gross Domestic Product (GDP) per capita, educational attainment, patenting and unemployment (Valdaliso, 2015). Indeed, the Basque Country is widely regarded as an old industrial region that successfully met the challenge of economic renewal in the 1970s and 1980s, so much so that it is internationally lauded as 'a regional transformation success story' (OECD, 2011: 42). Although many factors contributed to this process of economic renewal, three factors merit special attention: (i) mature industrial sectors that sustained a dogged commitment to incremental innovation (ii) a market-facing regional technology network that helped indigenous firms to upgrade and (iii) a highly supportive regional state that enjoyed the highest degree of fiscal autonomy in the EU (Morgan, 2013a). Economic renewal was also underwritten by a regional political system that furnished a remarkable degree of policy stability, a great contrast with the stereotype of a region riven by internecine conflict and ethnic terrorism. The moderate nationalist party, the Basque National Party (PNV), has been in office for most of the time since 1978, when democracy was restored after the Franco dictatorship, a striking example of single party hegemony and the main reason for industrial policy continuity (Valdaliso, 2015).

A combination of political stability and policy continuity (institutional features that are not necessarily correlated) enabled successive Basque governments to fashion a regional innovation system that stands at the 'thickest' end of the spectrum of institutional thickness (Morgan, 2013b). This system, formally known as the Science, Technology and Innovation (STI) network, has been evolving for 30 years and it now constitutes a dense ecosystem of public and private institutions that has grown in number and complexity as we will see. The evolution of the STI network has been marked by three distinctive institutional features. First, the Department of Industry has played a pivotal role in driving the formation and evolution of the network, both directly and indirectly through Society for the Promotion of Industry (SPRI), its regional development agency. Second, Basque universities have played a very modest role in the STI network largely because of the weakness of the university sector as an economic actor. Third, to compensate for the shortcomings of the universities, the Basque government invested heavily in the creation of a network of technology centres, with the emphasis on *applied* rather than basic research and on *technology transfer* rather than knowledge generation because this focus was most attuned to the task of industrial upgrading. The political status of these technology centres is such that they are widely regarded as the 'jewel in the crown' of the STI network (Cooke and Morgan, 1998). Although this state-sponsored system enabled the Basque Country to negotiate the industrial restructuring challenge of the 1980s, when technology transfer was the name of the game, the big question now is whether it is fit for the future, when knowledge generation is assuming ever more importance for advanced manufacturing and the service economy. This was one of the main concerns of the OECD when it said 'the path dependency associated with previous policies and strategies may make it more difficult for the Basque Country to evolve in pace with changing conditions of competitiveness' (OECD, 2011: 104).

Although the Basque RIP repertoire has exhibited strong signs of policy path dependence over the past 35 years, the historical record also reveals that a whole series of novel features have been introduced as and when necessary. Two of the main sources of policy path dependence have been (i) the longevity of *one-party hegemony*, which meant that RIP was designed and delivered by a small group of politicians and officials who shared similar mental maps and (ii) the quasi-irreversibility of investments in *technological infrastructure*, which meant that huge sunk costs made it very difficult to jettison a repertoire that was predicated on technology centres and the like (Valdaliso et al., 2014).

However, these path-dependent forces were complemented by the institutional innovations of the STI Plan of 2001–2004, which introduced a radically new *science-based* dimension into the RIP repertoire. The most prominent examples of this new science-based departure were the following: *Cooperative Research Centres* were created by the Department of Industry with a mandate to develop priority sectors that were new or under-developed in the region, such as bio-science, nano-science and renewable energy; *Basic Excellence Research Centres* were created by the Department of Education to develop basic research in association with universities and these focused on bio-physics, 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; and a dedicated regional innovation agency, *Innobasque*, was also created in 2007 as a private–public partnership to promote innovation throughout Basque society in association with the business community and civil society organisations. Although these initiatives were designed to update the Basque RIP repertoire, by creating agencies and centres that were far more attuned to the goal of knowledge creation, they also exacerbated the problem of institutional complexity (Morgan, 2013a; Valdaliso et al., 2014).

The problem of institutional complexity reached a critical stage with the introduction of the new science-based infrastructure, precipitating a process of institutional cannibalism as the technology centres, in their quest for new revenue streams, began to seek a new science mandate, a move that threatens to duplicate the work of the CICs and the BERCs. The latter argue that the Basque system is now too dense, too complex and too expensive because each centre costs a small fortune and, with the 'age of austerity', the funds are no longer available to sustain a RIS that was crafted in an age of plenty (Morgan, 2013b). Growing institutional complexity has exacerbated the problem of institutional coherence at a number of different levels. Within the Basque Government, there has been growing rivalry between the Industry Department and the Education Department, which seeks to play a more prominent role in the RIP repertoire. Another form of rivalry was precipitated by the creation of Innobasque, the new innovation agency that has to co-exist with SPRI, the regional development agency that was responsible for industrial innovation in the narrow sense. Finally, there is the historic rivalry between the Basque Government and the three Provincial Governments of the Basque Country, a rivalry that undermines the coherence of the RIP repertoire and which does not 'serve the best interests of the region' (OECD, 2011: 214).

The Basque Government has sought to use the RIS3 exercise as an opportunity to address the problem of institutional complexity. The RIS3 strategy is the centrepiece of the new STI Plan and it aims to create more institutional coherence in two ways: (i) by introducing stronger and clearer leadership through the STI Council and (ii) by streamlining the STI network (Gobierno Vasco, 2014). The STI Council is the highest authority in the Basque Country and it was created in 2007 to introduce more leadership and more coherence into the STI network (RVCTI), which had acquired a staggering 153 members by 2013 (Valdaliso et al., 2014). To build more coherence and consensus around the new RIS3 strategy, the composition of the STI Council has now been extended to include some of the most powerful actors in the RVCTI network, so that it now includes all government tiers, the three Basque universities, the technology centres and the new agencies, Innobasque and Ikerbasque. Although this reform was predicated on the idea that a more inclusive STI Council would make for a stronger and more coherent body, it also runs the risk that it will institutionalise a weak consensus that proves unable or unwilling to take decisions that adversely affect its new membership. However, this problem seems to have been overcome for the moment because it has taken a series of bold decisions to streamline the RVCTI network to reduce duplication and rivalry and to create a new system of interdepartmental and inter-institutional mechanisms to monitor progress under the direction of a new STI Commissioner who reports directly to the President (Gobierno Vasco, 2014).

Although the Basque Country has not been short of novelty in the design of its RIS3 strategy, the latter is actually a judicious mix of *continuity-in-change* rather than novelty per se. The three strategic priorities at the heart of the RIS3 strategy – namely advanced manufacturing, energy and biosciences and health – are a perfect illustration of this point because they combine traditional sectoral strengths (in energy and manufacturing) with new technological ambitions (in bio-science and nano-technology). However, while the new RIS3 strategy talks about the need for a new and more open RIP repertoire, local experts detect enormous inertia and resistance to the new approaches, especially from 'incumbent actors and constituencies of these policies with vested interests' (Valdaliso et al., 2014: 403).

The RIP repertoire in Wales

Wales is much closer to the stereotype of an old industrial region than the Basque Country, not least because it never found a new economic vocation to replace the decline of its high

wage coal and steel industries (Cooke and Morgan, 1998). Of all the depressed industrial areas of inter-war Britain, the only one that retains this status today is West Wales and the Valleys, which is officially classified as a 'less developed region' in the EU taxonomy. Although the reasons for relative economic decline are always complex and multiple, the main reasons in Wales are twofold: (i) the fact that low wage/low skill foreign direct investment (FDI) replaced the high waged coal and steel industries and (ii) the fact that Wales failed to generate sufficient high-growth indigenous firms, a reflection of its low wage/low-skill occupational profile (Morgan, 2013a).

The advent of a directly elected Welsh Government in 1999 doubly confounded supporters of democratic devolution. Firstly, it was widely assumed that political devolution would yield an economic dividend and help stem the process of relative decline, but the opposite occurred as Wales continued to fall further and further behind the UK in terms of GDP per capita. Secondly, democratic devolution was expected to spawn a new era of political pluralism, but once again the opposite occurred when the Welsh Government surprisingly abolished the arm's length agencies in its intermediate governance tier, the most famous of which was the Welsh Development Agency (WDA), the first regional development agency of its kind when it was founded in 1976 and the template for SPRI, the Basque regional development agency. Abolishing the WDA and transferring its functions to the civil service was rationalised in terms of democratic accountability, but in reality it reflected a desire to exert more day-to-day political control over a development agency that had enjoyed a degree of relative autonomy from the risk-averse compliance culture of the civil service, a culture that extolled process over outcome, control over competence. The abolition of the arm's length agencies rendered Wales a much more state-centric system in which institutional diversity and intellectual pluralism were significantly reduced. Loss of diversity makes for group-think and this in turn makes it more difficult to challenge the conventional wisdom, especially the conventional *political* wisdom, always a difficult task in Wales because of the hegemony of the Labour Party, which has dominated Welsh politics for the best part of a century (Morgan, 2013c; Morgan and Upton, 2005).

Although Wales and the Basque Country are often bracketed together as 'old industrial regions', they are actually much less alike than is commonly supposed and this is why their RIP repertoires are so radically different. The fact that a hegemonic political party is common to both – Labour in Wales, PNV in the Basque Country – conceals more than it reveals because, while the Welsh Government is a recent creation, the Basque Government was founded in 1980, affording it that much longer to develop its competence and confidence as a public administration. A more significant political difference is the fact that single party hegemony did not deliver policy continuity in Wales as it did in the Basque Country, because the Welsh commitment to RIP has been fitful and driven by external factors, like the need to comply with EU Structural Funds.

Economic differences are even more important than the political differences because, while the Basque Country has a range of strong indigenous companies, as well as the world famous Mondragon group of cooperatives, Wales has historically had a very weak indigenous business class. This radical difference in *endogenous capacity* helps to explain why Wales has been so highly attuned to the attraction of FDI, a path that was less open to the Basques while ETA prosecuted a campaign of violence that claimed more than 1000 lives before a 'definitive cessation' of armed conflict was announced in 2011.

Taken together, these economic and political differences help us to understand why the repertoires have evolved along such different paths. Indeed, it is not too much of an exaggeration to say that the central elements of the Welsh repertoire – namely the

emphasis on technology transfer from foreign branch plants on the one hand and the knowledge generation role of universities on the other – were for many years conspicuous by their absence in the Basque repertoire because the FDI option was constrained and the scientific capacity of the university sector was poor. Although Wales was one of the first regions to pilot a regional innovation strategy in the EU, under the auspices of the Regional Technology Plans of the early 1990s, the subsequent political commitment to innovation has been episodic with the result that policy learning was stymied (Huggins and Pughs, 2015).

If innovation has been an occasional theme in the Welsh regional policy repertoire, the attraction of FDI and the knowledge-generating role of universities have been hardy perennials in the policy mix, even though the economic dividend of each can be questioned. On the FDI front, foreign branch plants that became 'embedded' are few and far between, while many of the Japanese consumer electronics plants either closed or migrated to lower cost locations in Eastern Europe and Asia. If the limits of conventional FDI policy are now clear for all to see, the knowledge-generating role of Welsh universities is still something of a sacred cow because of its presumed economic dividends, but this presumption needs to be scrutinised in Wales (Huggins and Kitagawa, 2012). The Welsh Government is aware of the problem because, when it launched its 'new direction' for economic renewal in 2010, it acknowledged that 'R&D in Wales is dominated by the Higher Education sector where there are fewer incentives to commercialise research' (Welsh Assembly Government, 2010: 30). Nevertheless, the 'new direction' strategy proceeded to select four priority R&D sectors – ICT, low carbon, health/biosciences and advanced engineering – largely on the basis of *university* research criteria (WAG, 2010: 31). Here lies the central problem of the Welsh RIP repertoire: it privileges the knowledge-generating role of universities on the one hand but, on the other, it concedes that the key barrier to innovation in Wales is the weak business demand for university-based knowledge (Welsh Government, 2013). If the demand-side remains weak, the regional innovation paradox will persist because the RIS3 strategy accords a higher priority than ever before to the role of universities and the latter are better equipped to excel in science than innovation.

The knowledge-generating role of universities is not the only part of the old regional repertoire that resurfaced in the Welsh RIS3 strategy, providing tangible evidence of policy path dependence. The priority sectors at the heart of the Welsh RIS3 are also the same as the priority sectors selected in 2010, a choice that was effectively set in aspic when the same sectors were endorsed by the newly appointed Chief Scientific Adviser for Wales and made the centrepiece of the first ever *Science for Wales* strategy (Welsh Government, 2012). The fact that so many traditional policy priorities have re-appeared in the Welsh RIS3 has led to the charge that

> The mart specialisation process is primarily being employed to rationalise and justify the Welsh Government's pre-existing sector-based approach to innovation and economic development. Certain important elements of smart secialisation have been sidelined in the process, in particular the process of entrepreneurial discovery. (Pughs, 2014: 152)

Where the Basques are creating new 'entrepreneurial discovery spaces' to foster public–private search processes, the Welsh Government continues to use old sector advisory groups in its priority sectors, all of which pre-date the RIS3 strategy.

The main concerns surrounding the Welsh RIS3 strategy are that it lacks novelty, with respect to both economic search and institutional innovation, and that it is too state-centric. The limits of a state-centric RIP repertoire in Wales were painfully exposed by the *Technium* experience, when a network of high technology incubation centres costing over £100 million

imploded because it was driven by the political priorities of the regional state rather than the commercial needs of the business community. The *Technium* experience also exposed the weakness of the universities as a source of spin-out companies, underlining the fact that they are better at generating knowledge than commercialising it (Morgan, 2013a).

If *Technium* exposed the limits of a state-centric repertoire, the *Specific* project illustrates the scope for an alternative repertoire in which the state's role is closer to that of a curator than a controller of innovation, prefiguring the *embedded state* that we discuss in the following section. *Specific* is a multi-actor, open innovation project driven by two key partners – Swansea University and Tata Steel – and it has developed smart coatings that generate, store and release solar energy, enabling buildings to become their own power stations in effect. The role of the regional state has been enabling, helping other actors to help themselves and problem-solving at critical junctures. Where the regional state was censured for its overweening role in *Technium*, it was deemed to be exemplary in the case of *Specific*, not least because it was more attuned to the learning-by-doing ethos of the RIS3 programme (Morgan, 2013a). Although this path-breaking role proves the regional state can embrace novel ways of working, local experts argue that the overall effect of the regional state has been to stifle innovation because of a misallocation of resources to pet projects and vested interests and 'rent-seeking undertaken by government itself', which helps to explain why the regional innovation paradox continues to exist in Wales even after 15 years of devolution (Huggins and Pughs, 2015).

Conclusions and implications: Towards the embedded state and institutional entrepreneurship?

The RIS3 programme offers a unique opportunity to explore the interplay of institutions, innovation and development. Although there is growing agreement that institutions matter, there is less agreement about exactly *how* they matter, *when* they matter and whether they are a *cause* or a *consequence* of development. While the vast corpus of this institutional literature is devoted to national level debates (Acemoglu and Robinson, 2012; North, 2005; Rodrik, 2003), there is growing interest in the *sub-national* level (Farole et al., 2011; Gertler, 2010; Mackinnon et al., 2009; Rodriguez-Pose, 2013; Tomaney, 2013). Even though RIP has been evolving for 25 years, the RIS3 programme is the most ambitious iteration with respect to the scale of resources involved and the demands placed on public sector institutions like the regional state, which is expected to orchestrate a more collaborative economic search process (the 'entrepreneurial discovery process') and craft more inclusive governance arrangements to enhance the diversity of 'voice' (European Commission, 2012; Foray, 2014). In old industrial regions where political power is monopolised by a single party, it is often the case that the nurturing of novelty is that much more challenging (Morgan, 2013c).

One of the great ironies of the RIS3 programme is that it expects the public sector to be more agile, creative and experimental when the 'age of austerity' is eviscerating public sector budgets and undermining the competence and confidence of public bodies, especially in the LDRs that are more dependent on the public sector (Morgan, 2016). The 'age of austerity' has compounded the long-standing developmental problems associated with the regional innovation paradox, which reflects the fact that the regional economy and the regional polity are unable to absorb and deploy the funds that are earmarked to promote innovation (Oughton et al., 2002). In this final section, the aim is twofold: to synthesise the comparative analysis and to suggest how we might enhance the field of RIP studies.

As 'stateless nations', the Basque Country and Wales are instructive prisms through which to explore the interplay of institutions and development for a number of reasons: they have

enjoyed a high degree of democratic devolution on account of strong national identities; their regional states have been actively involved in economic renewal for decades; and one-party hegemony is present in both cases. Even so, to bracket them together as 'old industrial regions' conceals as much as it reveals because the more granular the focus, the more different they appear, particularly in terms of endogenous economic capacity and political commitment to RIP, and these differences are reflected in their RIP repertoires. The idea of a RIP *repertoire* was used to signal a set of regularly employed cognitive maps, policies and practices that are routinely used to frame and fashion a particular model of regional development, an idea somewhat akin to 'the combination of beliefs, institutions, and artifactual structure that have been inherited from the past' (North, 2005: 80). A repertoire implies that a 'policy mix' is a more embedded and path-dependent assemblage than conventional policy studies would have us believe.

The Basque repertoire is predicated on three widely held ideas: (i) that manufacturing matters (ii) that endogenous capacity is key and (iii) that the regional state has a major role to play in animating innovation and development in partnership with industry-led associations (Morgan, 2013b). These ideas informed the political commitment to sustained R&D spending on the part of successive Basque governments, a commitment that was honoured by nationalists and socialists despite their other ideological differences. The sustained R&D spending was largely invested in a network of technology centres designed to keep mature sectors on an innovative footing. As the accent of innovation policy evolved from technology transfer to knowledge generation, the Basque government has sought to build up a scientific capacity in targeted sectors (like bio-science and nano-technology for example) and it has created new centres in which to nurture this novel capacity. To compensate for the lack of indigenous scientific talent, Ikerbasque was created to manage a global talent attraction programme to recruit and retain star scientists, a programme that has exceeded its original expectations (Morgan, 2013b).

This RIP repertoire forms the basis for the Basque RIS3 strategy, which builds on the past but which also breaks with the past in three critical ways. First, the RIS3 strategy was fashioned in a more open and iterative way than any previous STI plan because it involved departments other than the Department of Industry, the dominant department in the Basque Government, as well as the partners in the wider STI network. Second, the RIS3 exercise is being used as the occasion to radically simplify the complexity of the Basque regional innovation system, a reform that is also a response to the financial pressures of austerity. Third, the Basque Government is creating new 'entrepreneurial discovery spaces' where public and private partners can explore projects of mutual interest and these spaces will involve the cluster associations that have been painstakingly built up over the past decade. In other words, the Basque RIS3 strategy aims to introduce novel institutional arrangements for economic search and inclusive governance into a repertoire than has been evolving for the past 30 years, highlighting a degree of regional policy continuity that may be without parallel in Europe.

The Welsh repertoire has been much more state-centric and this is partly due to the ideological disposition of the Welsh (Labour) Government and partly because the latter does not have the strong economic interlocutors that are available to its Basque counterpart. While the regional state in the Basque Country has been pervasive, it has not been invasive: that is to say, it has respected the principle of subsidiarity and refrained from micro-managing the industry associations it has funded so generously. Reflecting a very different economic context, the Welsh repertoire is predicated on a number of deeply held beliefs within the regional state: (i) that FDI is a necessity because of weak endogenous capacity (ii) that universities are drivers of the knowledge economy and (iii) that the regional

state needs to play a pro-active role in innovation to animate a private sector that tends to be weak and risk-averse. Although this repertoire is not without its critics, especially as regards the emphasis on FDI, the overall policy mix has been sustained by two powerful political forces, namely the Welsh (Labour) Government's commitment to a pro-active regional state and a university lobby that presents itself as the driver of the knowledge economy even though its expertise lies in science not innovation. The contrast between science and innovation was all too apparent in the weighting and resourcing of the two strategies: the former was delivered by the Chief Scientific Adviser, a newly created post, and launched with great public fanfare; while the latter was very much a poor relation, with no Chief Innovation Adviser and no public launch. Furthermore, to promote the scientific cachet of Welsh universities, a radically new scheme (Ser Cymru) has been launched to attract global 'stars' to Wales (Welsh Government, 2012).

To a large extent, the strengths and weaknesses of the two regional economies are the polar opposites of each other: while the Basques have a strong indigenous business capacity and a weak university sector, Wales has a weak indigenous business capacity and a relatively strong university sector. In both cases, the regional state has designed a RIS3 strategy that incorporates large elements of their traditional RIP repertoires, underlining the power of *policy* path dependence. Of the two repertoires, the Basques have made more effort to experiment with novel institutional arrangements for economic search and inclusive governance. This partly corroborates the early results from other regions, where it appears that the main effect of the RIS3 programme to date has been to induce more participatory forms of regional governance (Kroll, 2015).

The field of regional innovation studies in and beyond the case study regions can learn a great deal from the insights of the NIP literature, where the state has been rehabilitated as an economic actor and enjoined to work in and through networks to catalyse innovation and development (Foray, 2014; McCann and Ortega-Argiles, 2013; Rodrik, 2004). One of the core ideas of the NIP perspective is that industrial policy is essentially a process of *economic self-discovery*, a process less about omniscient planners and more about an interactive process of strategic cooperation between public and private sectors, where the aims are to elicit information about opportunities and constraints and generate better informed policy initiatives (Rodrik, 2004). In this perspective, the key challenge is to get the *process* of engagement right rather than obsessing about particular policy instruments. The role of the state is to be an intrinsic part of the interactive learning-by-doing process; that is to say an *embedded state* rather than the arm's length state that is enshrined in neoliberal narratives of development. The idea of industrial policy as an iterative process of economic self-discovery is compelling but challenging: *compelling* because it resonates with the realist conception of innovation as a collective social endeavour; but *challenging* too because the public sector is generally ill-equipped to deal with novelty and experimentation as they necessarily entail failure. In other words, while the conception of the embedded state seems highly attuned to the exacting demands of the RIS3 programme, it faces a number of barriers, the most important of which is the disconnect between the *rhetoric* of innovation discourse, which calls for a more experimental public sector, and the *reality* of a public sector compliance culture that is intolerant of mistakes and failure (Morgan, 2016).

Regional innovation studies would also benefit from more engagement with the institutional entrepreneurship literature, which aims to restore the themes of agency, interests and power to the centre of organisational analysis (Garud et al., 2007). Regional scholars have begun to draw on this literature to overcome the static and apolitical nature of much regional innovation studies, where actors are treated as components of a system rather

than purposive agents that strive to change the institutions in which they are embedded. The value of the institutional entrepreneurship perspective is that it 'provides an analytical framework of how various agents behave – how they interact, relate and evolve with wider institutional constellations' (Sotarauta and Pulkkinen, 2011:100; see also Uyarra, 2010). In other words, a more dynamic and politically sensitive perspective, in which agency is afforded greater prominence, would help regional innovation scholars to better understand (and explain) the tensions and trade-offs in all institutions between the competing logics of exploration versus exploitation and adaptation versus adaptability (Boschma, 2015; Grabher, 1993).

One of the central questions in RIP studies is the extent to which sub-national institutions can or should shoulder the burden for innovation and development in their jurisdictions. With respect to the RIS3 programme, it should never be forgotten that the programme was originally conceived as a *multi-scalar* endeavour in which supra-national, national and sub-national institutions were required to collaborate for mutually beneficial ends. Realising that original design may ultimately prove to be the greatest challenge of all.

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