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Regional Innovation System Policy: a Knowledge-based Approach

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Abstract

A focus on constructing regional advantage requires an 'unpacking' of what makes territorial agglomerations important for innovation and growth by disclosing and revealing the contingencies, particularities and specificities of the various contexts and environments where knowledge creation, innovation and entrepreneurship take place. In order to achieve more effective regional innovation policy, the paper presents and discusses five dimensions along which such unpacking can take place. These dimensions refer to different perspectives that originate in different industrial knowledge bases, different territorial competence bases, the distributed knowledge base, the importance of creative knowledge environments and different institutional frameworks.

Constructing knowledge-based regional advantage:

Implications for regional innovation policy

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Abstract: A focus on constructing regional advantage requires an 'unpacking' of what makes territorial agglomerations important for innovation and growth by disclosing and revealing the contingencies, particularities and specificities of the various contexts and environments where knowledge creation, innovation and entrepreneurship take place. In order to achieve more effective regional innovation policy, the paper presents and discusses five dimensions along which such unpacking can take place. These dimensions refer to different perspectives that originate in different industrial knowledge bases, different territorial competence bases, the distributed knowledge base, the importance of creative knowledge environments and different institutional frameworks.

Introduction

Recent work on innovation systems indicates that the region is a key level at which innovative capacity is shaped and economic processes coordinated and governed (Carlsson, 2004; Cooke et al., 2004; Doloreux and Parto, 2005; Fritsch and Stephan, 2005;) This has among other things led to governments and agencies at various geographical levels looking at *Regional Innovation Systems (RIS)* as key elements of their innovation policy of promoting the innovativeness and competitiveness of firms and regions. RIS are defined as interacting knowledge generation subsystems, which consist of public and private research laboratories, universities and colleges, technology transfer agencies, vocational training organizations, and exploitation subsystems, understood as the regional production structure (Cooke, 2004a, p. 3). An important inspiration in this work has been Porter's work on how clusters, a geographically proximate group of interconnected firms in the same or adjacent industrial sectors, can produce competitive advantage based on the exploitation of unique resources and competencies, which have to be reproduced and developed through continuous innovation (Porter, 1990; 2000)[1]. This underlines the dynamic character of competitive advantage as a result of innovation, which represents the high road to economic development and the strong way of competing, in contrast to the weak way or the low road based on cost competition.

This approach has lately been strengthened by attention being directed towards the need - perceived by policy makers both at EU and regional levels - of *constructing* such regional advantages, not the least in the perspective of the increasing global competition from rapidly growing developing countries with China and India as star examples. What this means is a more systemic approach to developing the endogenous capacity of firms and regions to innovate, focusing especially on the role of knowledge creation, absorption and diffusion generally and R&D more specifically in an increasingly more knowledge intensive,

[1] Despite substantial overlap, it is important to acknowledge two key differences between these concepts. The boundaries of a cluster are primarily defined on the basis of an industrial sector while a regional innovation system is limited by the jurisdictional borders of the region. This also means that a regional innovation system, in principle, is larger in size and can support several clusters.

globalising learning economy. This implies that the view that ‘local buzz’ in a cluster, referring to processes of localized learning, generated by just ‘being there’ in an agglomerated environment, is not any longer fully shared (Bathelt et al., 2004; Giuliani and Bell, 2005). On the contrary, it is argued that the promotion of ‘local buzz’, understood as the development of endogenous capacity ‘from within’, requires as much proactive planning as the construction of ‘global pipelines’. This approach, thus, puts stronger focus on the actors, agencies and governance forms relevant for constructing regional advantage in a triple-helix as well as a multi-level perspective.

A focus on constructing regional advantage requires an ‘unpacking’ of what makes territorial agglomerations important for innovation and growth by disclosing and revealing the contingencies, particularities and specificities of the various contexts and environments where knowledge creation, innovation and entrepreneurship take place. In order to achieve more appropriate regional innovation policies, this paper presents and discusses five dimensions along which such unpacking can take place. These dimensions refer to different perspectives that originate in different industrial knowledge bases, different territorial competence bases, the introduction of a distributed knowledge base perspective, the importance of creative knowledge environments and different institutional frameworks.

Differentiating between industrial knowledge bases – as presented and developed in the following sections of this paper – represents one attempt of such an ‘unpacking’ strategy in order to obtain a better understanding of factors enabling and impeding these processes (Asheim and Gertler, 2005). In addition there is a need to take a closer look the importance of territorial competence bases both with respect to the presence of human capital or talents and the industrial structure of the regions. Giuliani and Bell (2005) have shown that the absorptive capacity with respect to the acquisition of exogenous or extra-cluster knowledge as well as the diffusion of this knowledge within a cluster is strongly dependent on the level of knowledge of the firms, and, thus, represents important determinants for their - and consequently the cluster's - capacity of technological learning. Thirdly, it is important to shed light on how knowledge bases of different sectors are changing as a consequence of globalization. In order to fully grasp the dynamics of these changes a globalization perspective must be introduced to modify the endogenous perspective, which has dominated the research on clusters and RIS so far, by introducing a *distributed knowledge base* perspective, which more and more are manifested in global value chains organized by TNCs. Fourthly, differentiating between sectoral knowledge and territorial competence bases moreover points to the void in the majority of innovation studies - primarily focusing on how knowledge are exploited through innovations and entrepreneurship – of understanding how creation of new knowledge actually occurs as well as what characterize the environments in which creative knowledge-producing activities are carried out. Creative knowledge environments are 'environments in which new knowledge is produced by people, especially in their work settings' (Hemlin et al., 2004, 2). Such creative knowledge environments can be found at macro- (e.g. national or regional innovation systems), meso- (e.g. research institutions and corporations) as well as micro-levels (i.e. research groups or work-teams), and contain physical, social and cognitive characteristics. Finally, in order to have an improved understanding of how different regions and sectors are coping with globalization the institutional framework of regions and nations also needs to be taken into consideration. Lam (2000; 2002) underlines that learning and innovation cannot be separated from broader supporting regional and national institutional and regulatory frameworks. In our previous work (Asheim and Coenen, 2006; Asheim and Gertler, 2005) the linking of RIS with the broader societal frameworks has been achieved by contextualizing the dominant form and character of regional innovation systems using a 'variety of capitalism' (Hall and Soskice, 2001) and national business systems perspective (Whitley, 1999).

All these 'unpacking' efforts will provide a far better basis for - and, thus, improve the capacity of - policy makers on different geographical levels to formulate dedicated and specific innovation support customized to different regions and sectors, which will be in increasing demand if regions in high-cost countries shall be able to compete and survive in a globalising learning economy. A threefold differentiation between analytical, synthetic and symbolic knowledge is of primary importance for unpacking regional innovation systems according to the five aforementioned dimensions. Therefore this differentiation is first presented in the following section after which the actual implications for regional innovation policy are presented.

The Synthetic-Analytic-Symbolic knowledge base classification

The knowledge creation and innovation processes in recent years has become increasingly complex: there is a larger variety of knowledge sources and inputs to be used by organisations and firms and there is more interdependence and division of labour among actors (individuals, companies, and other organisations). Nonaka and Takeuchi (1995) as well as Lundvall and Borrás (1998) have pointed out that the process of knowledge generation and exploitation requires a dynamic interplay and transformation of tacit and codified forms of knowledge as well as a strong interaction of people within organisations and among them. Thus, the knowledge creative process becomes increasingly inserted into various forms of networks and innovation systems (at regional, national and international levels). Gibbons et al. (1994) have been arguing that the process of knowledge production is moving from the traditional disciplinary and Newtonian model (Mode 1) towards a new mode (Mode 2) which is described as knowledge production in the context of application, marked by transdisciplinarity and heterogeneity. As a consequence, knowledge production becomes diffused throughout society, and we can speak of socially distributed knowledge (Gibbons et al. 1994, p. 5).

Despite the generic trend towards increased diversity and interdependence in the knowledge process, we argue that the innovation process of firms and industries is also strongly shaped by their *specific* knowledge base. In this study, we distinguish between three types of knowledge base: ‘analytical’, ‘synthetic’ and ‘symbolic’. These types indicate different mixes of tacit and codified knowledge, codification possibilities and limits, qualifications and skills required by organisations and institutions involved, as well as specific innovation challenges and pressures. We adopt this new typology, instead of the more narrowly defined traditional categories such as ‘scientific’, ‘engineering’ and ‘artistic’ knowledge base, in order to capture the character of knowledge as output. More critically, our broader conceptual typology is intended to encompass the diversity of professional and occupational groups and competences involved in the production of various types of knowledge. As an ideal-type, synthetic knowledge can be defined as knowledge to design something that work as a solution to a practical problem. Analytical knowledge can be defined as knowledge to understand and explain features of the universe. Symbolic knowledge is knowledge to create cultural meaning through transmission in an affecting senseous medium.

Analytical knowledge base

This refers to industrial settings where scientific knowledge is highly important, and where knowledge creation is often based on cognitive and rational processes, or on formal models. Examples are biotechnology and information technology. Both basic and applied research as well as systematic development of products and processes is relevant activities. Companies typically have their own R&D departments but they also rely on the research results of universities and other research organisations in their innovation process. University-industry links and respective networks, thus, are important and more frequent than in the other types of knowledge base.

Knowledge inputs and outputs are in this type of knowledge base more often codified than in the other types. This does not imply that tacit knowledge is irrelevant, since there are always both kinds of knowledge involved and needed in the process of knowledge creation and innovation (Nonaka et al. 2000, Johnson & Lundvall 2001). The fact that codification is more frequent is due to several reasons: knowledge inputs are often based on reviews of existing studies, knowledge generation is based on the application of scientific principles and methods, knowledge processes are more formally organised (e.g. in R&D departments) and outcomes tend to be documented in reports, electronic files or patent descriptions. These activities require specific qualifications and capabilities of the people involved. In particular analytical skills, abstraction, theory building and testing are more often needed than in the other knowledge types. The work-force, as a consequence, needs more often some research experience or university training. Knowledge creation in the form of scientific discoveries and technological inventions is more important than in the other knowledge types. Partly these inventions lead to patents and licensing activities. Knowledge application is in the form of new products or processes, and there are more radical innovations than in the other knowledge types. An important route of knowledge application is new firms and spin-off companies which are occasionally formed on the basis of radically new inventions or products.

Synthetic knowledge base

This refers to industrial settings, where the innovation takes place mainly through the application of existing knowledge or through the new combination of knowledge. Often this occurs in response to the need to solve specific problems coming up in the interaction with clients and suppliers. Industry examples include plant engineering, specialized advanced industrial machinery and production systems, and shipbuilding. Products are often ‘one-off’ or produced in small series. R&D is in general less important than in the first type. If so, it takes the form of applied research, but more often it is in the form of product or process development. University-industry links are relevant, but they are clearly more in the field of applied research and development than in basic research. Knowledge is created less in a deductive process or through abstraction, but more often in an inductive process of testing, experimentation, computer-based simulation or through practical work. Knowledge embodied in the respective technical solution or engineering work is at least partially codified. However, tacit knowledge seems to be more important than in the first type, in particular due to the fact that knowledge often results from experience gained at the workplace, and through learning by doing, using and interacting. Compared to the first knowledge type, there is more concrete know-how, craft and practical skill required in the knowledge production and circulation process. These are often provided by professional and polytechnic schools, or by on-the-job training.

The innovation process is often oriented towards the efficiency and reliability of new solutions, or the practical utility and user-friendliness of products from the perspective of the customers. Overall, this leads to a rather incremental way of innovation, dominated by the modification of existing products and processes. Since these types of innovation are less disruptive to existing routines and organisations, most of them take place in existing firms, whereas spin-offs are relatively less frequent.

Symbolic knowledge base

This knowledge is related to the aesthetic attributes of products, to the creation of designs and images and the economic use of various forms of cultural artifacts. The increasing significance of this type of knowledge is indicated by the dynamic development of cultural industries such as media (film making, publishing, music), advertising, design or fashion (Scott 1997, 1998). These industries are innovation- and design-intensive since a crucial share of work is dedicated to the 'creation' of new ideas and images and less to the actual physical production process. Competition thus increasingly shifts from the 'use-value' of products to the 'sign-value' of brands (Lash and Urry 1994: 122). In the cultural industries in particular the input is aesthetic rather than cognitive in quality. This demands rather specialized abilities in symbol interpretation than mere information processing. Symptomatically, the knowledge involved is incorporated and transmitted in aesthetic symbols, images, (de)signs, artifacts, sounds and narratives. This type of knowledge is strongly tied to a deep understanding of the habits and norms and 'everyday culture' of specific social groupings. Due to the cultural embeddedness of interpretations this type of knowledge base is characterised by a strong tacit component. The acquisition of essential creative, imaginative and interpretive skills is less tied to formal qualifications and university degrees than to practice in various stages of the creative process. The process of socialisation (rather than formal education) in the trade is not only important with regard to training ‘know how’, but also for acquiring ‘know who’, that is knowledge of potential collaborators with complementary specialisation (Christopherson 2002).

The latter is essential since production quite typically is organised in temporary projects (Grabher, 2002). In fact, cultural industries, like film production, are emblematic project settings (see, for example, DeFillippi and Arthur 1998; Starkey, Barnatt and Tempest 2000; Sydow & Staber 2002). More generally, the project provides an organisational arena in which a diverse spectrum of professional cultures that ranges from the artistic world to the commercial world of business services is brought together for a limited period of time. Projects in the symbolic knowledge base, however, are not necessarily aimed at bridging or minimising such diversity in a straightforward fashion. They also are seen as arenas of productive tensions and creative conflicts that trigger innovation.

Figure 1 provides a summary of the main differences between the knowledge bases. But as this threefold distinction refers to ideal-types, most industries are in practice comprised of all three types of knowledge creating activities. The degree to which certain activities dominate, is however different and contingent on the characteristics of the industry (see figure 2 for an illustration).

Analytical	**Synthetic**	**Symbolic**
Innovation by creation of new knowledge	Innovation by application or novel combination of existing knowledge	Innovation by recombination of existing knowledge in new ways.

Importance of scientific knowledge often based on deductive processes and formal models	Importance of applied, problem related knowledge (engineering) often through inductive processes	Importance of reusing or challenging existing conventions
Research collaboration between firms (R&D department) and research organisations	Interactive learning with clients and suppliers	Learning through interaction in the professional community, learning from youth/street culture or 'fine' culture and interaction with 'border' professional communities.
Dominance of codified knowledge due to documentation in	Dominance of tacit knowledge due to more concrete know-how, craft	Reliance on tacit knowledge, craft and practical skills and search skills
More radical innovation	Mainly incremental innovation	Occasional radical product innovations, mainly smaller re-combinations of existing

Figure 1: The three knowledge bases

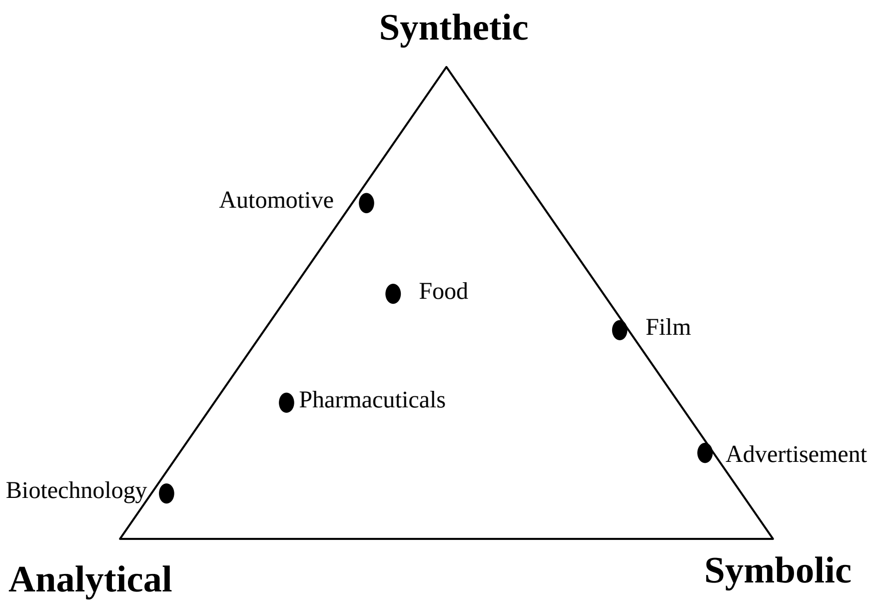

Figure 2: Knowledge bases and industries: empirical examples

Implications for regional innovation policy

In the introduction we emphasized the need for 'unpacking' the role of territorial agglomerations in promoting innovativeness and competitiveness by 'digging' into the contingencies, particularities and specificities that characterize real world contexts where cluster and RIS policies are introduced and used. In the following sections we especially elaborate and further develop the Synthetic-Analytical-Symbolic (SAS) knowledge base classification. In this final discussion we will primarily draw on this elaboration, however, we shall also include some of the other aspects touched upon in the introduction, e.g. the knowledge creation as well as the governance aspects.

Industrial knowledge bases

In previous work (Asheim and Coenen, 2005; Asheim and Coenen, 2006) we have used the knowledge base perspective to analyse the different ways clusters relate to regional innovation systems depending on the respective knowledge bases of the clusters' industries. We found that an explicit conceptual clarification of the linkage between clusters and regional innovation systems has so far received relatively little attention in the literature. Notwithstanding Porter's (2000) extension of the cluster concept which more or less eliminates the differences between clusters and regional innovation systems, by distinguishing between the cluster's knowledge base and the extent of loose/tight linkages with the regional innovation system, the different industrial development paths and their cluster-RIS relationships could be explained in a more systematic way. In traditional cluster-regional innovation system relations, based on industries with a synthetic knowledge base, the logic behind building regional innovation system is to support and strengthen localised learning of an existing industrial specialisation, i.e. to promote historical technological trajectories based on 'sticky' knowledge. In contexts of the formation of a regional innovation system as a necessary part of the cluster development, it is a question of the commercialization of newly created knowledge as a basis for new economic activity in industries with an analytical knowledge base, requiring close and systemic industry-university cooperation and interaction in the context of e.g. science parks, located in proximity of knowledge creative environments (e.g. (technical) universities).

In urban agglomerations characterised by a diversified industrial knowledge base in contrast to the specialised knowledge base of typical regional clusters (e.g. industrial districts), different historical and emerging technological trajectories co-exist. Thus, the existence of relations between clusters and regional innovation systems as a necessary condition for cluster development as well as traditional clusters which established links with regional innovation systems at a later stage in their life cycle can be identified. It could, however, be argued that the diversity of urbanisation economies is especially important in the promotion of radical innovations, and, consequently, of great significance for industries based on an analytical knowledge base.

Newly undertaken research on industries based on a symbolic knowledge base has shown that it is particularly difficult to generalise insights on the importance of clusters and RIS and their ways of co-existing drawn from research on industries based on analytical and symbolic knowledge bases (Asheim and Vang, 2005). Looking at the role of face-to-face (F2F) and 'buzz' we found that - in contrast to the bold claims and generalised arguments made by Storper and Venables (2004) - industries with different knowledge bases benefited in varying degree from F2F and 'buzz', and thus from an urban location, resulting in a general exaggeration of the importance of cities as dominant sites for innovative activities. Industries with an analytical knowledge base tend to locate in close proximity to universities, industries based on a synthetic knowledge base locate in proximity to lead users or in non-urban, specialised clusters (e.g. industrial districts), while industries drawing on a symbolic knowledge base (i.e. creative industries) despite modifications are overwhelmingly an urban phenomena. The 'classical' F2F situation is the 'user-producer' relationships found in clusters with manufacturing industries based on a synthetic knowledge base, exploiting localisation economies, where tacit knowledge is of significant importance (e.g. industrial districts). The typical ‘buzz’ situation is an informal meeting place (e.g. a bar, pub, hotel lobby in connection with conferences and fairs) where networking is carried out on a temporary basis, and exchange of information – not knowledge – is taking place. People working in high-tech industries with an analytical knowledge base, however, do not exchange knowledge in informal ‘buzz’ situations. They enjoy F2F when taking advantage of proximity to the diversity of formal, codified knowledge and expertise found in leading universities in large cities or city-regions, thus, exploiting urbanisation economies. The only group which may exchange knowledge in ‘buzz’ situations is people employed in creative industries (e.g. media, advertisement etc.), which are based on a symbolic knowledge base, where knowledge is highly individualised.

These examples clearly illustrate that the different industrial knowledge bases have obvious implications with respect to the role, type and relative importance of clusters, RIS and (temporary/virtual) networks for the innovativeness and competitiveness of the various sectors, and, thus, provide arguments for pursuing dedicated and specific innovation support policies.

Distributed knowledge base

Another policy challenge is represented by the way the relative importance of sectoral knowledge bases of specific industries change as a result of increased global competition generally and specifically by the transition from an internal knowledge base of firms to a (more and more) global distributed knowledge base often as part of global value chains organised by TNC. In a distributed knowledge base much of the knowledge intensity enters as embodied knowledge incorporated into machinery and equipment, or as intermediate inputs (components and materials) into production processes. More importantly, knowledge flows within a distributed knowledge base can take place between industries with very different degrees of R&D-intensity, e.g. when food and beverages firms (synthetic knowledge base) produce functional food based on inputs from biotech firms (analytical knowledge base). This also weakens the importance of the distinction between high-tech and low-tech industries, which may have strong implications for constructing regional advantage and, thus, for regional innovation policies, and demonstrates that 'the relevant knowledge base for many industries is not internal to the industry, but is distributed across a range of technologies, actors and industries' (Smith, 2000, 19).

Generally, increased competition from the globalising learning economy will have gradually larger impacts on regional economies in high-cost countries. One way to illustrate this process is to once again use industrial districts in the Third Italy as an example of challenges for regional innovation policies. Traditionally, the whole value and commodity chains were located inside the district, involving cooperation between hundreds of SMEs as subcontractors, suppliers and client firms. During the last 10-15 years an outsourcing process has started, which has lead to a fragmentation of the local value chain. The first to go was the labour intensive and polluting work to regions in the previous Eastern Europe as well as in the third world. SMEs in Veneto and Emilie-Romagna have set up new firms and even whole industrial districts in e.g. Romania to produce the most labour intensive parts of textile and shoe production. Lately, partly due to FDIs in the most successful districts producing fashionable products with high value-added, the design divisions started moving to Milan, followed by the marketing divisions. If then only the managing department was left, there would be much sense in also moving this to Milan to be closer to the strategic important design and marketing divisions. Thus, if these processes unfolded in large scale, nothing much was left in the traditional industrial districts. However, this is clearly to jump to conclusions. The example used here was taken from fashion industries (textile and shoe), where the importance of being located in leading centres of design and fashion, such as Milan, is important both for the innovativeness and competitiveness of the firms and for the fulfilment of the preferences of the designers (talents or creative people) working in these industries. This emphasises what was earlier said about creative industries drawing on a symbolic knowledge base being overwhelmingly an urban phenomena, thus confirming the hypothesis of Florida (2002).

Territorial competence base

When the creative class, as defined by Florida, in most developed OECD countries contains between 30-40% of the employment, these talents are employed in industries drawing on all the three knowledge bases. These various groups of talents will clearly have different preferences and trade-offs between firms, occupations, life-cycle and place. A civil engineer working in an industry making packaging machines or automotives based on a synthetic knowledge base will normally have different preferences than an art director in an advertisement agency (based on a symbolic knowledge base) or a researcher in biotech (based on an analytical knowledge base). Innovation policies for constructing regional advantage must, thus, reflect the particularities of requirements of industries based on different knowledge bases for talents, institutional support, and so forth when promoting the business climate of regions, as well as recognising the varying preferences of the creative class or talents depending on the knowledge bases of the industries they are employed in when improving the people climate (Kalsø Hansen, Vang and Asheim, 2005).

Creative knowledge environments

Earlier research carried out in the SMEPOL project (SME policy and the regional dimension of innovation) (Asheim et al. 2003a) has emphasized the need for a more system-oriented as well as a more pro-active innovation based regional policy. A re-orientation of what was called *the target level of support*, changing innovation policies towards SMEs from being firm-oriented to *a (regional) system-oriented* perspective has already gained a growing attention among researchers and policy makers (Asheim et al., 2003b). However, the second part of the recommendation concerning the *form and focus of support* implying a change of focus from allocation of resources for innovation to focusing on *learning aiming for behavioural value-added* has not been implemented to the same degree.

This problematic can be approached by applying a triple-helix perspective, which has been given an increased attention among policy makers as well as researchers within innovation research. However, so far this perspective has been applied in a rather static way, more like a heuristic device than as a basis for actual policy formulations. This is also the weakness of the approach, as it does not give much guidance concerning how a triple-helix based collaboration could be functional, operational and implemented in concrete policy settings in order to contribute to constructing regional advantage. In order to achieve this, theoretical and practical advice must be developed partly with respect to how collaboration between the three actors of the triple-helix, i.e. the industry, university and government, should be externally organized, and partly with respect to how knowledge creation and innovation oriented work should be organized internally among the different actors, thus turning the macro-, meso-, and micro-levels of the triple-helix into knowledge creative environments. Independent of the specific triple-helix context policies have been formulated and implemented promoting SME's contacts with R&D institutes and a more frequent use of R&D, while universities at least in Finland and Sweden for some years have been given a so called 'third role', i.e. to cooperate externally with the surrounding society generally and commercialize new knowledge specifically in addition to doing research and teaching. However, so far little or nothing has been done concerning changing behaviour of the third actor of the triple-helix, i.e. the government, as well as with the triple-helix system as a whole. And as the triple-helix perspective as already emphasized is extensively used in the construction of regional advantages an improved knowledge of how to make the system functional would be an efficient strategy of optimizing private-public interaction. An important part of this is to develop a more innovation oriented public sector, which means focusing on learning aiming for behavioural value-added at both universities and government at different geographical levels (national, regional and local), in addition to doing the same with the private sector.

Institutional frameworks

The co-existence of various industries with different knowledge bases and relations to – and need of – clusters, networks and regional innovation system will require more developed governance structures in order to secure a planned and systematic co-ordination between industry and knowledge creating and diffusing organisations, which, consequently, may imply an innovation system of a 'triple-helix' character. In addition, the tendencies towards an increased regionalisation of the responsibility of regional policy seen in many European countries – and partly supported by EU – may result in a regional differentiation of innovation policies depending on which industries (with different knowledge bases) to be supported as well as on policy directions and governance forms preferred by the regional governments or authorities in charge of formulating and implementing the policy. This may lead to a break up of the strong linkages normally found within nation states between the larger institutional frameworks of the national innovation and business systems (in a 'variety of capitalism'-perspective), and the character of regional innovation systems. This could be illustrated by using Cooke's (2004b) distinction between the traditional regional innovation system (which he refers to as the institutional regional innovation system – IRIS) and the new economy system (referring to a UK-US context), which he calls an entrepreneurial regional innovation system (ERIS). The traditional IRIS (typical of German and Nordic regions), characterised by systemic 'triple-helix' relationships on the regional level and a supporting regulatory framework on the national level, supports industries with primarily a synthetic knowledge base, while ERIS (found in the US, UK and other Anglo-American economies) gets its dynamism from local venture capital, entrepreneurs, market demand and incubators to support innovation that draws primarily from an analytical knowledge base. Thus, we argue that as an outcome of the regionalisation of innovation policy we might find that within a country with a dominant type of capitalism (either a coordinated or a liberal market economy) it will be more common to find a 'US/European blend' when it comes to types of innovation support pursued. This could on the one hand be the result of the specific industry to be supported, i.e. if the aim is to upgrade an existing, traditional industry based on a synthetic knowledge base an IRIS-type of policy would be most relevant, in contrast to stimulating the commercialisation of new knowledge drawing on an analytical knowledge base, which might be more efficient if pursuing an ERIS-type of policy. On the other hand, in cases with industries drawing on the same knowledge base, the innovation support policy might be an outcome of the ideological and political platform of the regional government, i.e. regional authorities in Veneto would tend to prefer an ERIS-strategy, while in Emilie-Romagna an IRIS-strategy would tend to be supported.

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