Best Practices in Universities' Regional Engagement. Towards Smart Specialisation

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Abstract

The aim of this paper is to highlight universities' contribution to the success of innovation systems in Europe's most innovative regions, as determined by the recently published European Regional Innovation Scoreboard (RIS). To this end, the study relies on two indicators used by the RIS, namely the percent of innovative enterprises collaborating with others and the number of public – private co-publications. Furthermore, the study looks for qualitative evidence in secondary sources and highlights some important drivers behind the success of Europe's top regions for cooperative research and networks. The results show that most of the innovation programmes in these regions focus on cooperation and on triple helix partnerships and involve frequent interactions between universities, businesses, policy-makers and innovation intermediaries. With a view to the future, universities are expected to bring their contribution to regional smart specialisation and act as intermediary bodies for the implementation of several delivery instruments, thus drawing from the best practice cases presented within this paper.

Keywords: universities' regional engagement, EU Regional Innovation Scoreboard, best practices, smart specialisation

JEL Classification: I23, O38

1. Introduction

According to *the EU Agenda for the modernization of Europe's higher education institutions*, linking universities, research and business for excellence and regional development is a key issue for Member States and higher education institutions. In this respect, as centres of knowledge, expertise and learning, universities are expected to drive economic development in the territories where they are located: they should bring talented people into the region, harness regional strengths on a global scale and foster an open exchange of knowledge, staff and expertise. At the same time, universities should *act as the centre of a knowledge network or cluster serving the local economy and society, if local and regional authorities implement smart specialisation strategies to concentrate resources on key priorities and maximise impact* (EC COM 2011).

In practice, there are numberless environmental determinants that influence universities' ability to engage at the regional level. According to OECD (2007), first of all, the higher education policy should have an explicit regional dimension, such as in the Nordic countries, where universities' engagement with the business and the community has been recognised and laid upon as a duty. Similarly, all the areas of national policy that may impact universities' role in their territories – Labour market and employment policies, Science, technology and innovation policies, Competition policy and Regional and urban planning policies (Goddard and Puukka 2008) - should have public funding streams associated with them. Additionally, public agencies or local governments could launch specific initiatives ranging from training opportunities, small loans and direct services to

physical infrastructure, such as public incubators and science parks (Fini et al. 2011), that create a supportive environment and thus facilitate university – industry interactions. Third, universities, business and governments should meet together within regional bodies and foster the dialogue with regional governance institutions, such as regional agencies, regional development organizations, city and municipal development offices, planning commissions and local science councils (OECD 2007). As concluded by Goddard and Puukka (2008), to succeed, regional collaboration needs a national framework consistent between the domains of higher education and territorial development, which facilitates con-joint actions at the sub-national level.

Up to now, universities' impacts on regional territories have been assessed from a number of perspectives and Benneworth (2010) identified three waves of research: in the first wave, efforts were placed into calculating universities' economic impacts resulting mainly from direct purchasing of supplies by the university, the jobs emerging from the staff salary and student living expenditure in the region and universities' economic activity induced by additional expenditure in the regional supply chain. The second wave surveyed other kinds of impacts, including technology transfer and continuing education. Finally, the third wave focused on universities' involvement in various regional economic development processes and in their role in supporting regional innovation systems.

Regional innovation systems are just one of the so-called territorial innovation models – a generic name for models of regional innovation in which local institutional dynamics play a significant role (Moulaert and Sekia 2003). According to Cooke (2001), a region is considered to have a RIS in place when its *knowledge generation subsystem* - universities, research institutes, research associations, industry associations, training agencies, technology transfer organisations, specialist consultancies, government development programmes, etc. - and its *knowledge exploitation subsystem* - the regional industrial structure and its clusters in particular, - are systematically engaged in interactive learning through knowledge networks (Cooke 2001).

Universities are assumed to accomplish a number of different functions in a regional innovation system and their contribution has been studied with respect to their roles as economic entities, commoditised knowledge producers, shapers of human capital and institutional actors in networks. The first two functions focus on universities' direct economic contribution to their region's development and the latter two include non-economic socio-cultural factors (Boucher G. et al. 2003). According to Todtling (2006), at the regional level, universities can serve as „antennas" for adopting external knowledge and mediator for local knowledge circulation, source of highly skilled labour, knowledge providers in university – industry linkages and incubators for academic spin-offs, a relatively new route for commercialisation of academic inventions. Therefore, regional innovation systems provide a means for universities to engage with their local environments on activities which benefit both regional partners whilst strengthening universities' own core activities (Benneworth, 2010). The present study can be placed within this wave of research, as it is envisaged to emphasize universities' roles in regional innovation systems, while looking at some best practices put forward by Europe's most innovative regions.

2. Research Method

This study is aimed at highlighting universities' contribution to the success of regional innovation systems in Europe's most innovative regions, as determined by the recently published European Regional Innovation Scoreboard (Hollanders, 2012). To this end, we analyse both quantitative and qualitative indicators describing the drivers of success, using secondary sources form OECD, Erawatch and the European Regional Monitor database.

The **European Regional Innovation Scoreboard (2012)** provides a comparative assessment of innovation performance across 190 NUTS 1 and NUTS 2 regions of the European Union, Croatia, Norway and Switzerland, using 12 indicators that describe the enablers, firm activities and innovation outputs. Given the fact that the data available at regional level remains considerably scarce, the 2012 RIS does not provide an absolute ranking of individual regions, but ranks four groups of regions at broadly similar levels of performance: innovation leaders, innovation followers, moderate innovators and modest innovators, each group identifying other three sub-levels of performance: high, medium and low.

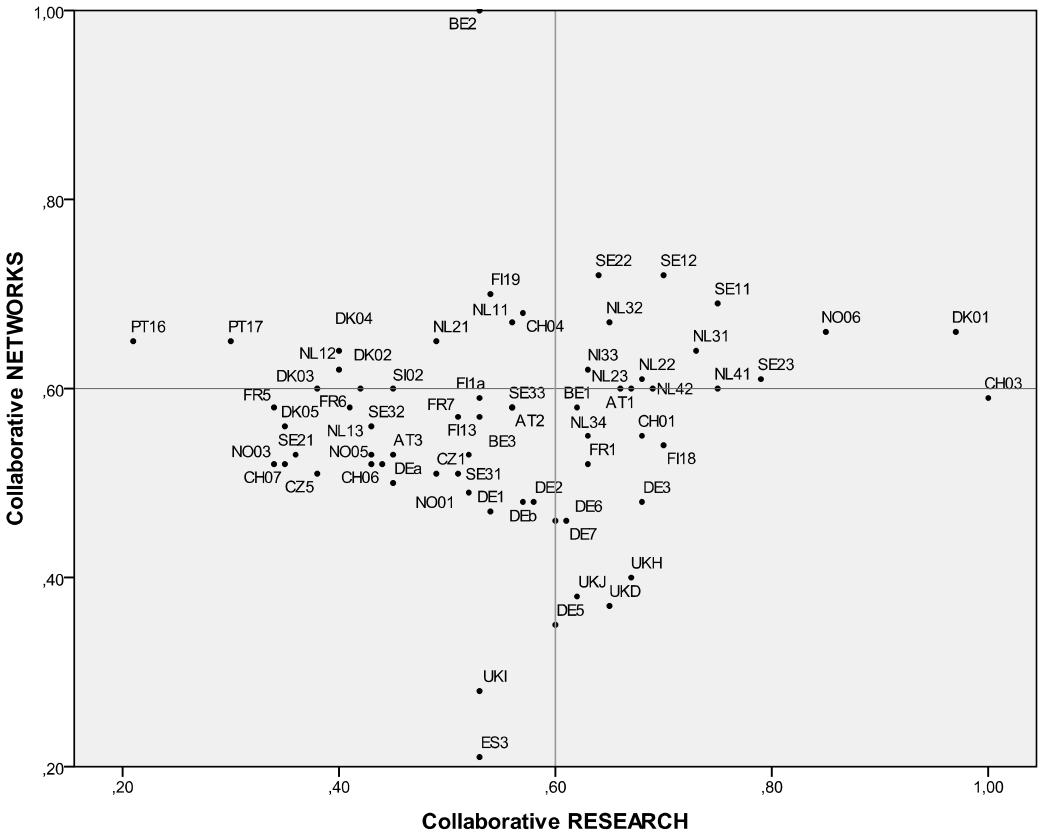
In line with the results, the most innovative regions are typically situated in the most innovative countries, identified as such by the Innovation Union Scoreboard: Sweden, Denmark, Germany and Finland, plus Switzerland – outside the EU27 area, while most of the moderate and modest innovators are found in Eastern and Southern Europe. In particular, Europe's top innovative regions are the following: Hovedstaden in Denmark, Etela-Suomi in Finland, Stockholm, Ostra Mellansverige and Sydsverige in Sweden, Region Iemanique, Nordwestchweiz and Zurich in Switzerland and Baden-Wurttemberg, Bayern, Hamburg and Hessen in Germany (Regional Innovation Scoreboard 2012)

Two of the 12 indicators backing the Regional Innovation Scoreboard are usually used as proxies for assessing the level of co-operation for innovation between regional actors, including universities: *the percent of innovative enterprises collaborating with others for innovation* measures the flow of knowledge between public research institutions and firms and between firms and other firms (i.e. **COLLABORATIVE NETWORKS**), while *the number of public – private co-publications* measures the active collaboration activities between business sector researchers and public sector researchers resulting in academic publications (i.e. **COLLABORATIVE RESEARCH**). The data have been normalized using the min-max procedure, the maximum normalised score being thus equal to 1 and the minimum normalised score being equal to 0. **Figure 1** presents those regions that have scored above the average (>0.5) for at least one of the two indicators in discussion (two regions that have scored above 0.5 for collaborative networks have been excluded from the list as they scored 0 for collaborative research).

The 2x2 matrix in Figure 1 allows the classification of Europe's top regions for collaborative research and networks into four groups. The first one (in the bottom-right quadrant) is the group exhibiting high collaborative research patterns, being populated with regions predominantly from the UK and Germany, but also with the capital regions from Belgium and France. The second group (in the bottom – left part of the Figure 1) is the most heterogeneous one, as it integrates regions with comparably lower intensity collaborations. It should be mentioned here the fact that three out of four French regions belong to this group, together with other regions from Germany, Sweden, Austria, Norway and Switzerland. The third quadrant (up – left) is the one that groups the regions

with the highest scores for the percent of innovative enterprises engaged in collaboration. The Vlaams Gewst (BE2) region in Belgium is the absolute leader in this group, being followed by the Lansi-Suomi (FI19) region in Finland. The group also integrates three regions from the UK and three from the Netherlands, but also some regions from Portugal and Slovenia, whose performances in collaborative networks are notable. Finally, the forth group (up - right) is the Leaders' group and is formed by four regions from the Netherlands, four regions from Sweden, one region from Norway and one from Denmark.

Figure 1. Europe's top regions for collaborative research and networks*



Source: *Regional Innovation Scoreboard 2012*
*See *Appendix 1* for Acronyms' list

Regions in the fourth group (DK1, SE11, SE12, SE22, SE23, NL22, NL31, NL32, NL33, NL42, AT1) are further subjected to an in-depth analysis based on extensive innovation – related policy documents available from Erawatch countries' profiles, Regional Innovation Monitor's baseline profiles, and OECD regional profiles. The main purpose of the analysis is to identify those drivers behind the success of these regions, while looking for universities' contribution to that success. As Norway is not a EU27 member and does not share the same framework conditions with the other countries in this group, it won't be subjected to analysis.

3. Research Results

Denmark is represented in the fourth group by its capital region - DK1 – Hovedstaden, which is a Leader high region (Regional Innovation Monitor: *Denmark* 2012). Much of the success in regional cooperation was due to the Danish University Act that has designated a third task for universities (OECD 2007), but also to the new Government's 2007 reform - "A structural reform of local and regional governance" - that adopted the principle of public-private partnerships through the establishment of Regional Growth Forums (Erawatch country profile: *Denmark,* 2012). At present, there are six regional forums in Denmark that focus on innovation, human resources, attracting talent to the region and developing stronger clusters. The **Capital Region Growth Forum** in Hovedstaden (2007 - 2020) is the most important regional body for innovation and business development: on the one hand, it drafts the long term development strategy for the region and decides on which projects should be supported with funding; on the other hand, it develops business strategy for the region and facilitates regional innovation programmes, such as The Copenhagen Cleantech Cluster, Copenhagen Finance, Green Construction, CIBIT Accelerator etc. (Regional Innovation Monitor: *Denmark*, 2012).

A lot of literature has also been devoted to highlighting the merits of a very successful cross-border initiative: **Øresund Science Region,** a research-based collaboration between Denmark and Sweden, centred on the cities of Copenhagen and Malmo and including 14 universities from both sides of the border, regional authorities and business. The ambition behind this initiative was to make Øresund a leading world science region building on its status as third after London and Paris in biotechnical medical research (OECD 2007). Formed in 1997, the Øresund Science Region is now functional through nine triple helix platforms providing a coordinating link between the universities and the community, e.g. Øresund Food Network, Medicon Valley Academy, Øresund Environment Academy, Øresund Design, Öresund IT academy etc. Each platform is organized around core competencies in the region and the main activities are linked to networking, strategic information and communication, commercialization of research and innovation.

As for Sweden, there are four regions under review, three of them being Leader – high regions: SE11 – Stockholm, SE12 - Ostra Mellansverige, SE22 – Sydsverige and one being Leader – medium: SE23 – Vastsverige (Regional Innovation Scoreboard 2012). In Sweden, the regional policy was first introduced in 2001 by the government bill "A policy for growth and prosperity in the whole country", whose focus is on each region's capacity in terms of economic growth and renewal. Many of the new policies are concentrated on so called strategic action plans – **Regional Growth Programmes - VINNVAXT** - aiming at creating economic, ecologic and social sustainable growth (Erawatch country profile: *Sweden*). Similar to the Danish Regional Growth Forums, the Swedish VINNAXT is built on a triple helix rationale, with the aim to create bridges between academia and industry. According to the last evaluation, VINNVAXT programme is the leading in the world of this kind: 1000 for – profit companies were involved, 55 new products were developed, 25 start-ups companies were set up and all these have resulted in improved cooperation mechanisms (Melin et al., 2012).

Collaborative platforms focusing on strengthening clusters in existing competitive areas (e.g. life science and ICT in Stockholm, cleantech, media and food networks in Sydsverigem, automotive, transport, health or maritime sector in Vastsverige etc.) stay at

the heart of Swedish regional innovation programs. Additionally, a number of regional initiatives aim at developing the planning capability together with the most important regional stakeholders. For example, Innovation Power STHLM (2011 - 2012) is a project whose aim is to make a functional analysis of the innovative structure of Stockholm and presenting strategic competence areas for innovation, thus involving a large number of regional actors into the dialogue (Regional Innovation Monitor: *Sweden*, 2012). Similarly, the PRIM project (2008 - 2011) in Ostra Mellansverige (Process and Relations in Innovative Environments) is aimed at prioritizing regional development initiatives for existing innovation systems, with a focus on cooperation between incubators and the region's universities (Regional Innovation Monitor: *Sweden*, 2012). Finally, the Knowledge Navigator programme in Stockholm (2008 – 2011/ 2012) involves different universities and regional institutions to create a working model for knowledge transfer between academia and business, with a focus on SMEs.

Austria's regional research and innovation policy is mainly linked to three types of activities: innovation infrastructures (incubators), cluster initiatives and co-financing of federal programmes. Currently, there are more than 100 incubators ("Impulszentren") and 20 technology parks throughout the country, more than 40 cluster initiatives linking companies and research institutions around thematic priorities (e.g. automotive suppliers, wood and wood products, plastics, environmental technologies, biotechnologies etc.) and numerous competence centre programmes performed by industry-academia partnerships. The Universities of Applied Sciences focus on applied research and technology transfer, mainly addressing regional companies, playing a straightforward role in driving innovation at the regional level. Universities' cooperative activities are strongly encouraged by the federal supported programme **COIN (Cooperation and Innovation)**, whose goal is to promote firms' interaction and cooperation with universities and research institutes, but also with other innovative companies (Erawatch country profile: *Austria* 2012).

Regarding the Ostosterreich (AT1) region in Austria, it integrates three Federal States: Burgenland (AT11), Lower Austria (AT12) and Vienna (AT13). As pointed out in their regional profiles, the EU Structural Funds have given a major impetus for research and innovation activities: e.g., in Lower Austria, much of the overall regional strategy has been jointly developed with the Structural Funds Operational Programme, tailored to its requirements and oriented towards enhancing regional competitiveness and strengthening the region through mobilising endogenous potentials, competitive tourism, better environment, energy use and risk prevention. Similarly, the regional action plan drafted by the state government of Burgenland - **Innovation Offensive Burgenland** - comprises three major fields of action related to intensifying the awareness of the importance of innovation within the region, establishing and supporting qualification measures, initializing funding measures for firms' R&D activities, fostering advisory services and establishing agency infrastructures (eg. the **Business & Innovation Centre**) and cooperation structures. Regarding Vienna, its main regional policy document „Strengthening regional competitiveness and integrative urban development in Vienna 2007-2013 (ERDF Operational Programme)" defines three priority axes: Innovation and the knowledge based economy, Integrative city development and Technical support. It should be noted here that The City of Vienna encourages application-oriented research through the *Innovation and technology centre* (ZIT) that serves as the technology promotion agency of the region and the *Vienna Science and Technology Fund* (WWTF) that promotes different initiatives, such as **Vienna Research Groups for Young Investigators** addressing universities and research institutions that want to attract

excellent young researchers to Vienna for founding their own research group (Regional Innovation Monitor: *Austria* 2012).

Finally, in the Netherlands, there is a legal requirement for higher education institutions to engage regionally. In this respect, the Ministry of Economic Affairs, Agriculture and Innovation is shaping the regional policy for universities, particularly around research application and innovation (OECD 2007). Although the national level is responsible for the research policy in the Netherlands, there still is a specific policy programme that focuses on regional development: the **Regional Attention and Action for Knowledge circulation** programme (RAAK) that aims to improve knowledge exchange between SME's and Universities of Applied sciences and to inform about new and existing forms of collaboration and activities in the field of knowledge exchange between universities of applied sciences and SME's (Erawatch country profile: *the Netherlands,* 2012). "**The Peaks in the Delta**" (PiD) is the Dutch strategy aimed at supporting existing regional strengths and higher education institutions are seen as nodes in the regions. For example, in the PiD East (NL22 - Gelderland), the 'peaks' are formed by innovative clusters around three universities, while priorities are related to strong research topics such as food, nutrition, health and technology. Similarly, the 'peaks' in the Delta North Wing (NL31 - Utrecht and NL32 - Noord Holland) are focusing on creative industries, ICT, new media, life science, but also on finding solutions for ageing population or on optimizing the space use of business areas. The South Wing (NL33 – Zuid Hooland) and the South East Wing (NL41 – Noord Brabant, NL42 - Limburg) are among the most industrialized regions in the world and the focus here is on logistics, horticulture, life & health (around University of Maastricht), international law, peace and safety (The Hague Academy for local governance), but also IT solutions – given the presence here of Philips company. In 2010, the PiD evaluation showed that the programme, in general, seemed to be effective or at least would be effective in the future and that it resulted in significantly improved cooperation and knowledge sharing between governments, institutions and companies (Regional Innovation Monitor: *the Netherlands,* 2012). There are also some very successful initiatives in the Netherlands aimed at fostering the cooperation between regional actors – including universities, such as the **Knowledge Vouchers** programme that offers incentives to enterprises to purchase services from knowledge institutes to improve innovation processes, the **Business to Science Portal** initiative through which entrepreneurs are connected to academic experts or the **Lectors and knowledge circles** policy of appointing a growing number of lectures and knowledge circles at the institutions of higher professional education, with the aim to improve their external orientation, especially with regard to SMEs (Regional Innovation Monitor: *the Netherlands*, 2012).

4. Conclusions. Towards Smart Specialisation

So far, the case studies have pointed to a number of best practices related to different policies, governance structures and dedicated programmes aimed at stimulating regional growth through structured interactions between innovation's actors. It is noteworthy to remind here the existence of laws and regulations that designate a clear third task for universities, but also the high support for cluster-formation, networks and collaborative platforms through different funding programmes such as Regional Growth Forums in Denmark, Regional Growth Programmes in Sweden or the Dutch "Peaks in the Delta"

Programme – all of them being built on the Triple Helix logic, with frequent interactions between universities, business and government. For all the countries and regions under review there are, however, some challenges for the future: in Denmark, there is still some evidence that the knowledge diffusion from universities to enterprises isn't functioning optimally yet (Erawatch country profile: *Denmark* 2012), so efforts should continue. In Sweden, the evaluation of VINNVAXT programme revealed a modest participation of SME's (Regional Innovation Monitor 2011 Annual Report, 2012), but also a further need for regional coordination. As regards the Netherlands, the PiD evaluation concludes that more collaboration between the actors is still needed. Despite these difficulties, it is important to mention the fact that for all the countries – but especially for Austria - the EU's Cohesion policy has acted as one of the strongest drivers for increased attention paid to the regional policy, but also for a focus on cooperation for innovation.

According to the Regional Innovation Monitor conclusions, „the underlying characteristics for world-class performing regions is that most programmes focus on cooperation; they had sound coordinating mechanisms with a view to triple helix partnerships and the development of new collaboration structures' (Regional Innovation Monitor 2011 Annual Report, 2012, p. iv-v). This approach is also integrated in the "smart specialisation" concept that represents the new paradigm at the EU level. The new concept encourages the concentration of human, financial and innovative resources in a few globally competitive areas, thus being suitable for both leader regions that might invest in the invention of a generic technology and for less advanced regions, that are better advised to invest in the development of the applications of a generic technology or service innovation in one or several important areas of the regional economy or in developing cross-sectoral approaches (EC COM 2010/ 553).

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Appendix 1

Europe's Top Regions for Innovation Linkages

Acronym	Country	Region	Position in RIS
AT1	Austria	Ostosterreich	Leader low
AT2	Austria	Sudosterreich	Follower high
AT3	Austria	Westosterreich	Follower medium
BE1	Belgium	Region de Bruxelles-Capitale	Leader low
BE2	Belgium	Vlaams Gewest	Leader medium
BE3	Belgium	Region Wallonne	Follower high
CZ1	Czech Republic	Praha	Leader medium
CZ5	Czech Republic	Severovychod	Follower medium
CH01	Switzerland	Region lemanique	Leader – high
CH03	Switzerland	Nordwestschweiz	Leader – high
CH06	Switzerland	Zentralschweiz	Leader – medium
CH07	Switzerland	Ticino	Leader – medium
DE1	Germany	Baden-Wurttemberg	Leader high
DE2	Germany	Bayern	Leader high
DE3	Germany	Berlin	Leader high
DE5	Germany	Bremen	Leader medium
DE6	Germany	Hamburg	Leader – high
DEa	Germany	Nordrhein-Westfalen	Leader – low
Deb	Germany	Rheinland-Pfalz	Leader – medium
DE7	Germany	Hessen	Leader – high
DK01	Denmark	Hovedstaden	Leader high
DK02	Denmark	Sjalland	Follower high
DK03	Denmark	Syddanmark	Follower high
DK04	Denmark	Midtjylland	Leader low
DK05	Denmark	Nordjylland	Follower high
ES3	Spain	Comunidad de Madrid	Follower high
FI13	Finland	Ita-Suomi	Follower – medium
FI18	Finland	Etela-Suomi	Leader high
FI19	Finland	Lansi-Suomi	Leader high
FI1a	Finland	Pohjois-Suomi	Leader medium
FR1	France	Ile de France	Leader – medium
FR5	France	Ouest (FR)	Follower – low
FR6	France	Sud-Ouest (FR)	Follower – high
FR7	France	Centre-Est (FR)	Leader low
NL11	Netherlands	Groningen	Follower – high
NL12	Netherlands	Friesland (NL)	Moderate – low
NL13	Netherlands	Drenthe	Moderate – medium
NL21	Netherlands	Overijssel	Follower – low
NL22	Netherlands	Gelderland	Follower – high
NL23	Netherlands	Flevoland	Follower – high
NL31	Netherlands	Utrecht	Leader – medium
NL32	Netherlands	Noord-Holland	Leader – medium
NL33	Netherlands	Zuid-Holland	Leader – low
NL34	Netherlands	Zeeland	Moderate – high
NL41	Netherlands	Noord-Brabant	Leader – medium
NL42	Netherlands	Limburg (NL)	Follower – high
NO01	Norway	Oslo og Akershus	Follower – high
NO03	Norway	Sor-Ostlandet	Follower – low
NO05	Norway	Vestlandet	Follower – low
NO06	Norway	Trondelag	Follower – medium
PT16	Portugal	Centro (PT)	Follower – low

PT17	Portugal	Lisboa	Leader low
SE11	Sweden	Stockholm	Leader – high
SE12	Sweden	Ostra Mellansverige	Leader – high
SE21	Sweden	Smaland med oarna	Follower – medium
SE22	Sweden	Sydsverige	Leader – high
SE23	Sweden	Vastsverige	Leader – medium
SE31	Sweden	Norra Mellansverige	Moderate – high
SE32	Sweden	Mellersta Norrland	Follower – low
SE33	Sweden	Ovre Norrland	Leader – high
SI02	Slovenia	Zahodna Slovenija	Follower high
UKd	United Kingdom	North West (UK)	Follower high
UKh	United Kingdom	East of England	Leader medium
UKi	United Kingdom	London	Follower high
UKj	United Kingdom	South East (UK)	Leader medium

Source: *Regional Innovation Scoreboard 2012*