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5 September 2012

Regional Innovation Monitor

Governance, policies, and perspectives in European regions

2011 Annual Report

Project No. 0932

To the European Commission
Enterprise and Industry Directorate-General
Directorate D – Industrial Innovation and Mobility Industries

Regional Innovation Monitor

Governance, policies, and perspectives in world-class performers, industrial, and service-oriented regions

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September 2012

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This project has been commissioned by DG Enterprise and Industry of the European Commission.

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Executive summary

This report analyses trends in innovation systems across different types of EU regions. It is a central deliverable of the RIM project (http://www.rim-europa.eu) aiming at disseminating most up-to-date information about trends in regional innovation policy and lessons learned from the practical implementation of support measures. The analysis will contribute to establishing a better understanding about both common and region-specific challenges as well as the strategies and policies planned and adopted in response to them.

Last year's RIM Annual report (2010) underlined that the processes of innovation governance could not be assessed as fairly effective and that administrative capacity building had to catch-up with the process of devolution. Moreover, the focus of regional innovation policies raised some issues of concern, in particular because policies were to a large extent focused on a supply-side approach and there was evidence of a too generic imitation of cluster policies across Europe. Finally, it highlighted that in the upcoming era of budgetary restraint, generic and all-inclusive approaches would most likely not be sustainable.

Since then, the economic downturn has undoubtedly had negative effects on many economies making the future of many policy fields more uncertain. Nonetheless, it has also created a unique opportunity to concentrate funding on few, well-selected priority areas and develop smart partnerships connecting different EU regions with the view of achieving a common goal of sustainable development and jobs.

Against this background, this report builds upon the findings of last year's report, draws upon the 50 regional reports[1] prepared by the network of RIM regional correspondents, and is complemented by further analysis of the RIM repository's information about some 1,050 regional innovation policy support measures.

To account for the broad diversity found among European regions, the report will be structured in three sections addressing specific challenges and policy responses in differentiation for three main groups of regions:

- World-class performers (Section 1);
- Regions with a strong focus on industrial employment (Section 2); and
- Regions with a focus on the service sector and public R&D (Section 3).

The classification has been developed specifically for this report based on the regional distribution of employment and R&D expenditure. More details about the selection criteria will be given in the introductions of the respective sections.

To reflect all of the issues to be addressed by the Regional Innovation Monitor, each of the specific sections will be structured as follows:

- Main trends in the regional innovation systems;
- Major challenges for developing regional innovation capacity;
- Innovation policy governance,
- Key challenges and opportunities in terms of innovation policy governance;
- The regional innovation policy mix;
- Appraisal of regional innovation policies;

[1] http://www.rim-europa.eu/index.cfm?q=p.report&section=innovation

- Good practice cases; and
- Smart Specialisation.

Main findings

The main conclusions of the analysis can be summarised as follows:

- One of the main challenges for the 'world-class performing regions' is to maintain their international competitiveness and economic growth. In this respect key challenge is to leverage private investment, by ensuring that a relevant share of the regions' public research capacity matches with that of the local industry and helps to make the region more attractive for additional investment. Beyond investment in R&D capacities, main challenges are seen in the fields of human resources, knowledge-intensive services, regional disparities, and knowledge-transfer. In a globalised economy with increasing international competition, these challenges are likely to intensify rather than to subside.
- Regions with a strong focus on industrial employment tend to face the challenge of having to support the creation and growth of innovative companies on a broad basis, while at the same time they need to develop specific and unique strengths – not necessarily in line with their traditional ones. Other than in the case of 'world-class performers', the 'regions with a strong focus on industrial employment, business or public R&D' are challenged to improve their current position rather than to maintain it, as in a global perspective they are in an acute danger of falling behind non-European competitors. Particularly, strengthening the role of clusters are the main specific challenges for this group of regions. Since the boundaries between the manufacturing and service sector are getting blurred, the challenge lying ahead for this group of regions is to restructure the economy which should help their industries in the future to compete successfully on new niche markets.
- The 'science and services regions' may be globally well positioned with a view to the capacities of their public R&D sector, they perform below their capacities with a view to translating these activities into industrial dynamics. Consequently, the major challenges are to enhance business R&D, to better exploit existing public research, and to improve the linkages between public R&D and industry. Furthermore, attention should be paid to innovation in services, which offers immense opportunities for growth and jobs in this group of regions.
- With a view to governance, the group of 'world-class performing regions' is rather heterogeneous as they are located in member states with different constitutional arrangements. While in some regions, developing sound policy coordination mechanisms is required, in other regions the issue is more about continuing the intra- and inter regional coordination.
- Likewise, the governance set-up is highly diverse in regions with a strong focus on industrial employment. Other than in the first group, a common challenge remains to put in place simple systems of coordination or to develop the necessary capacity to ensure successful design and delivery of innovation support. In some regions, the challenge of adequate funding from national governments is a specific issue concerning the innovation policy governance.
- As many of the public R&D intensive service regions are national capitals, the coordination between national and regional policies is an issue that remains particularly common among this type of regions. Additionally, there appears to be a need for an improvement of the governance processes and structures.
- In the group of 'world-class performing regions', policy interventions are strategically thought through, follow a clear political mission, and are in general positively assessed. Due to the already high level of development, policy makers focus on strengths rather than on promoting innovation as such. In many cases, these strategies have developed on informal trajectories across several decades. The underlying characteristic of policy mix in this group of regions is that most

programmes focus on cooperation projects and not on the supply of support to a single company. Cluster policies, for instance, play a crucial role. Alternatively, they are aimed at building on a region's existing industrial strengths or at developing strategic fields for the future.

- In regions with a strong focus on industrial employment, the regional policy mix tends to be more broadly focused on stimulating the creation and growth of innovative firms and supporting research and technologies. In the majority of cases, less importance is assigned to measures regarding human resources, markets and innovation culture. Overall, regional innovation policies are assessed as being too early to evaluate or not providing substantial evidence of outcomes.
- In the group of public R&D intensive service regions, the dominant focus is on supporting research and technologies. In terms of the available budgets, direct business innovation support is the second most important priority. In general, moreover, regions in this group seem less successful in developing strategic, regional specific and prioritised sector approaches to innovation and technology. The last point concerning the appraisal of regional policies is that there is no substantial evidence of outcomes similar to that as in regions with strong focus on industrial employment.

Identified policy messages

- There are already many successful strategies of regional specialisation that should be continued wherever they exist. Arguably, they could be made more explicit so that they can serve as a better basis for policy learning. As currently, many of them tend to be implemented in well-developed regions, the preconditions for success should be a major element of the related documentation.
- A large number of industrially-oriented regions have not yet developed a strategy in co-operation with local firms identifying a field in which these can position themselves successfully in the global competition. While there may be absolute limits to this in truly peripheral regions, the success or failure of many somewhat developed regions may indeed depend on the presence or absence of exactly this policy process.
- Arguably, the biggest challenge in developing smart specialisation strategies will be in regions with strong public R&D sector and focus on industrial employment because in those regions industrial strengths tend to be fragmented across a number of areas – in part besides one dominant, but declining sector. In any case, this is problematic as each of these fragmented areas may seem too small to support, while strengthening the old industries does not seem commendable either. In these cases, thinking in terms of "joint regional challenges", e.g. the cross-sectoral application of generic technologies appears particularly important.
- In general, policy measures should put the commitment of not only the regional government but also of the potential beneficiaries as a stipulation. Against this background, achieving a critical mass of private co-financing is an essential precondition for sustainable policies safeguarding growth and jobs.
- With the view to innovation governance, some regions will need to reduce the complexity resulting from their current actions within the existing multi-level governance framework as well as to consolidate the activities performed by the various organisations under their direct responsibility. It should not be overlooked that a number of regions still need to continue building the basic institutional preconditions to implement regional innovation policy support measures. It should not be overlooked that a number of regions still need to continue building the basic institutional preconditions to implement regional innovation policy support measures and control their outcomes.

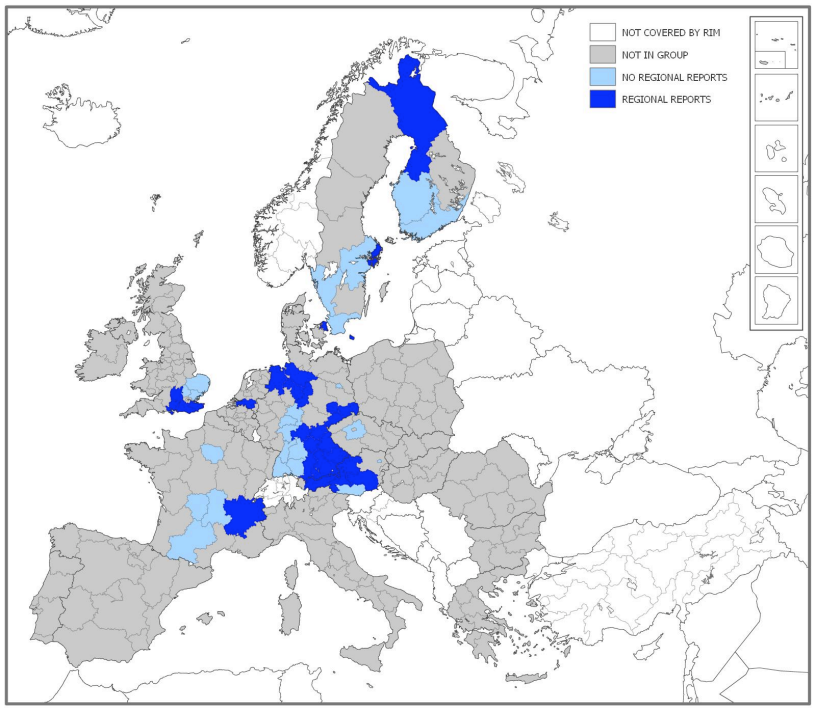
- Finally, while it is challenging to appraise regional innovation policy measures due to the nature and complexity of such instruments, there is a need for continuous monitoring of policy trends taking place for an informed and place-specific policy learning purposes. In this regard, the availability of robust evidence-based documentation of results and impacts leaves room for improvement.

1. World-class performers

This section of the report analyses regions with regional GERD that exceed 2.3% and, regional BERD that is above 1.3% of local GDP. For the purpose of this report, this group of regions has been classified as 'world-class performers'. Altogether, somewhat more than 10% of the regions covered in the RIM repository fall into this category.

Detailed information was compiled from 13 regional RIM reports, including Bavaria (DE), Berlin (DE), the Capital Region of Denmark (DK), Lower Saxony (DE), North-Brabant (NL), Northern Finland (FI), Rhône-Alpes (FR), Saxony (DE), the South East of England (UK), Stockholm (SE), Styria (AT), Tyrol (AT), and Upper Austria (AT). Beyond summarising and interpreting the information collected in the detailed regional reports, this section will provide an overview of the situation in all regions categorised as 'world-class performers' that are covered in the RIM repository.

Figure 1-1: Regions in the RIM repository classified as 'world-class performers'



Source: UNU-MERIT.

1.1 Main trends in the Regional Innovation Systems

In line with the 13 regions' classification as 'world-class performers', all of them rank among the economically strongest and most innovative regions in both their respective national and international contexts. On many different accounts, almost all of the 'world-class performers' significantly contribute to growth, employment and competitiveness in their countries and the EU as a whole. Economic indicators like GDP per capita, GDP growth, gross value added, productivity and employment clearly point to extraordinary economic performances. GDP per capita for instance was in all of the 13 regions above the EU27 average in 2009. Compared to a GDP per capita of €23,500 of the EU27, the Stockholm region (SE) €45,200, North-Brabant (NL) €34,700€, Tyrol (AT) €34,600 and Bavaria (DE) €33,600 are clearly above the European average. The average GDP per capita of the 13 'world-class performing regions' in 2009 amounted to €31,946. Moreover, concerning the growth of GDP per

capita a few of the regions had a higher growth than the EU27 average. While the EU27 as a whole grew by 13.5% in the period 2003-2009, regions like Noord-Brabant (NL) 19.2% growth,, Capital Region of Denmark (DK) 17.7%, Saxony (DE) 15.8% and Berlin (DE) 15.7% showed the highest growth rates – even from an already above-average per capita income. Merely one of the 'world-class performers' (South-East) showed a decrease of its GDP per capita of 9.2% in 2009.

With a view to the unemployment rate, most of the 13 regions significantly perform better than the EU as a whole, with Bavaria, North Brabant, Styria, Upper Austria and Tyrol having particularly low unemployment rates. On average for the 13 regions the unemployment rate amounts to 6.7%, whereas the EU27 shows a rate of 9.6%. However, not all of the 'world-class performers' naturally show perfect conditions on their labour markets: Berlin, Saxony and Northern Finland show particularly unemployment rates, ranging from 10.1% in Northern-Finland to 13.2% in Berlin.

The change in unemployment for the 13 regions has on average been more positive than for the EU27 as a whole. During the period 2003-2009, the 'world-class performers' could decrease their unemployment rate from 8.0% to 6.7%, whereas the rate in the EU27 increased in the same period from 9.1% to 9.6%.

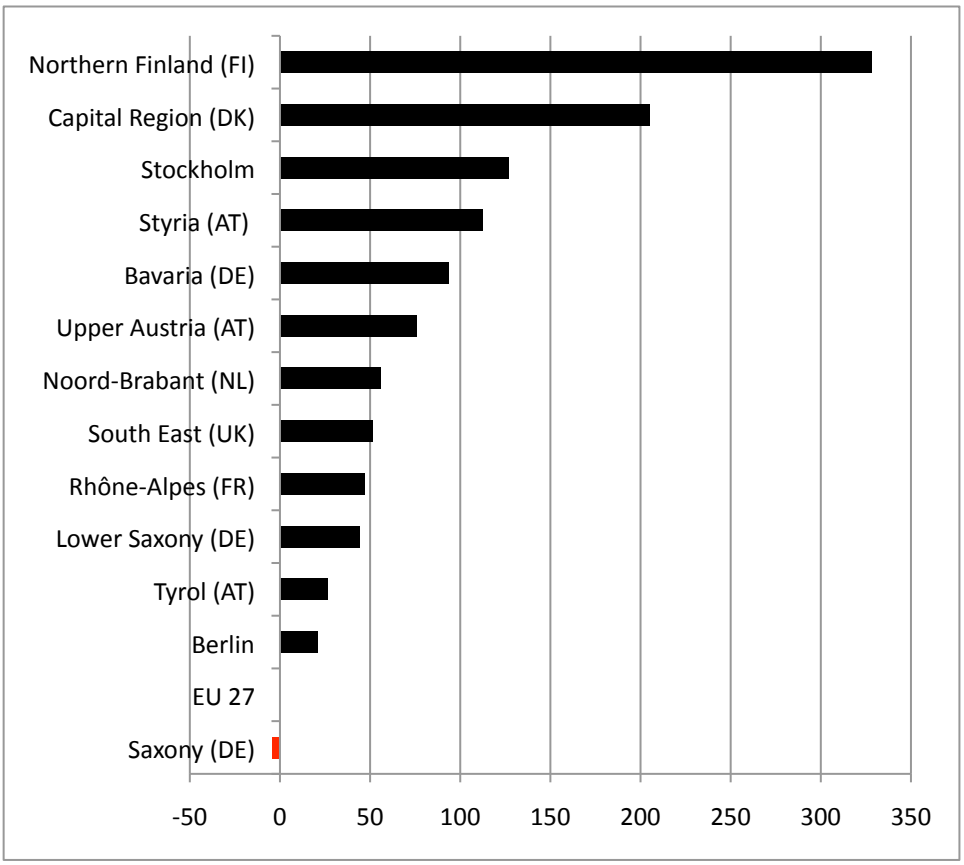
In addition to the economic/labour market performance, the regions in this particular group are furthermore characterised by a comparatively large and in most of the cases growing number of inhabitants. In part this growth is due to immigration of students and work force. In line with their economic leadership role, these regions are obviously attracting (qualified) labour force and well educated young people at the same time. In this regard, a particularly high attractiveness can be observed in regions with strong, internationally renowned universities as well as in capital regions with a developed "creative class" (e.g. Capital Region of Denmark (DK), Stockholm (SE), the South East of England (UK), or Berlin (DE)).

Regarding the overall innovation performance, the European Innovation Scoreboard or the data from the Community Innovation Survey (CIS) confirm a leading role for most of the regions from group 1. Stockholm (SE), for instance was the top region of Europe in innovation performance in 2006; the South East of England (UK) is one of the UK's leading innovative regions, with higher than average numbers of innovators and innovations; North-Brabant (NL) shows a very high innovation performance with nearly 26% of the firms being innovative (compared to 24.6% at the national level) just as other regions like Bavaria (DE), Northern Finland (FI), Upper Austria (AT) are among the most innovative regions in Europe.

Looking at the "input-side" of innovation, the amount of R&D expenditure (GERD), the number of R&D personnel and particularly the R&D expenditure of the business sector (BERD) and patent activities are crucial in terms of a precondition for innovation. In line with this, all of the 'world-class performers' are spending significant budgets on R&D, both in the private and the public sector. In next to all of the regions, R&D intensity (GERD as a ratio of GDP) is higher than the EU27 average – and often above national average as well. The R&D intensity in Northern Finland (FI) for instance accounts for 5.38%, in Styria (AT) it accounts for 4.3%, in Stockholm (SE) for 4.3%, in the South East of England (UK) for 2.9%, in Bavaria (DE) for 2.81%, in Upper Austria (AT) for 2.33%, and in Rhône-Alpes (FR) for 2.5%. Hence, not even all of the top-performing regions reach the EU-wide target of 3.0%. Tyrol, for instance, remains quite significantly below the EU-target and the Austrian national level (2.78%) with an R&D intensity of 1.62%. Nonetheless, almost all regions within the group of the 'world-class performers' are characterised by high business R&D intensities and technological capabilities in the business sector (Figure 1-1). Together, they account for a good portion of the EU's total business R&D expenditures. Due to the above average strength of the business sector, the relative share of public R&D expenditures in 'world-class regions' is often rather small. In the regions covered by regional reports it varies between below 50% in Saxony (DE) and Berlin (DE) (regions with a strong public research base) and more than 80% in Northern Finland (FI), North-Brabant (NL) and Upper Austria (AT) (cf. Figure 1-3). Nonetheless, it has to be

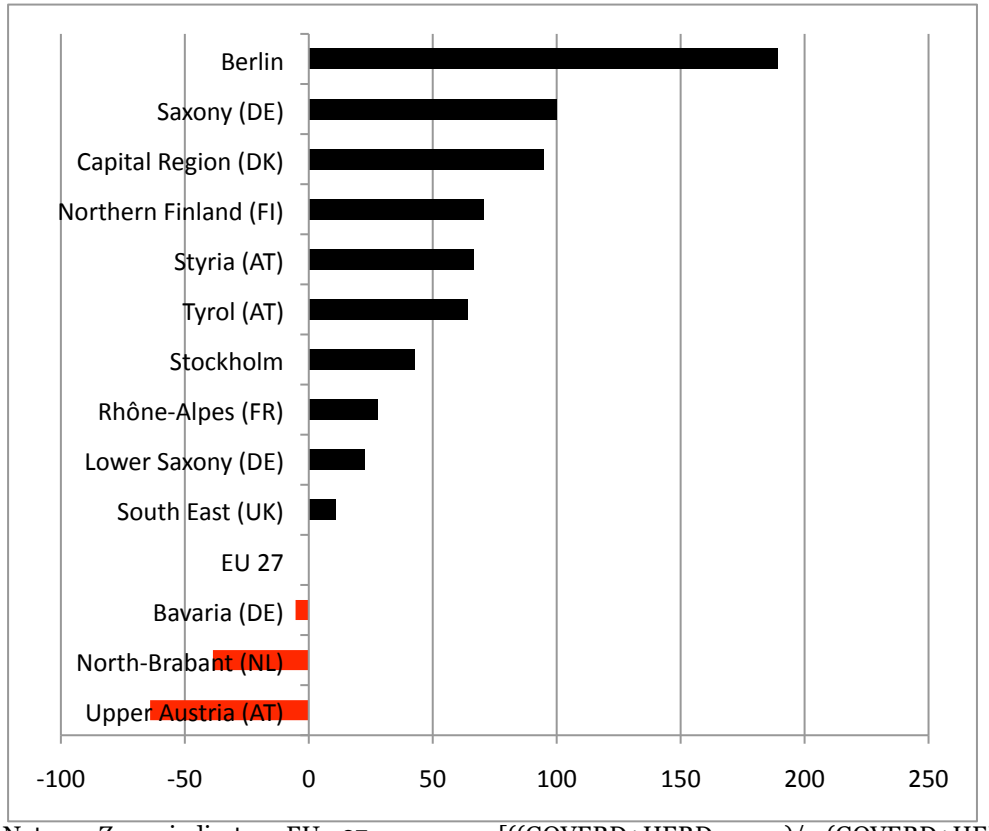
borne in mind that even this small *share* of public in total R&D can in absolute terms be quite large. In the majority of regions, therefore, public R&D intensity is above the EU27 average although not quite as starkly (cf. Northern Finland, Figure 1-3).

Figure 1-2 Business Expenditure on R&D per GDP in Selected Regions (Group 1)



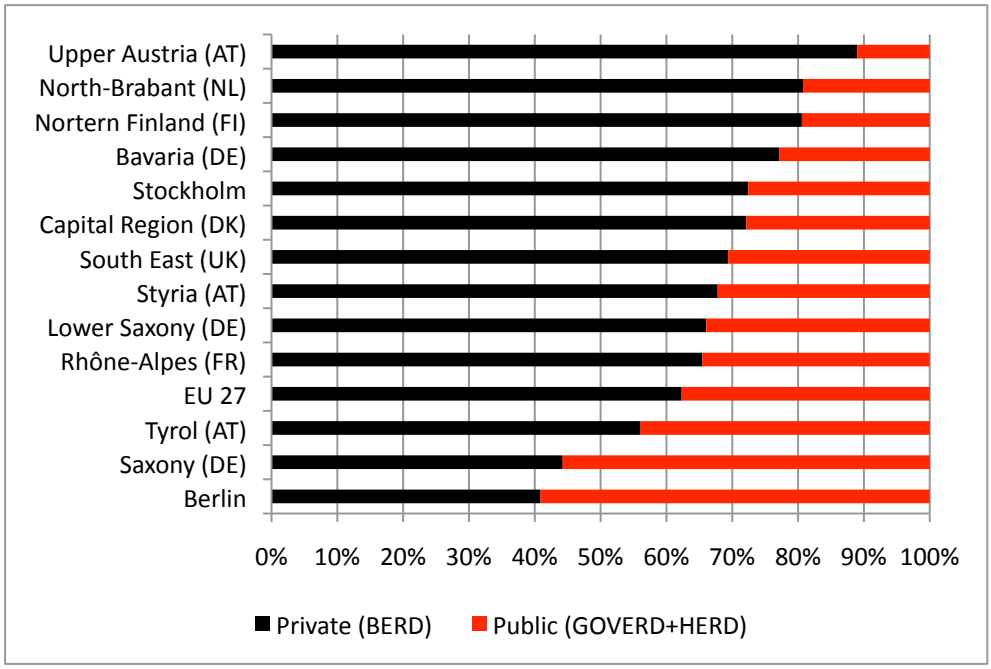
Note: Zero indicates EU 27 average, [($BERD_{Region}$/$BERD_{EU27}$)*100-100]
Source: Eurostat, own calculations

Figure 1-3 Public Expenditure on R&D per GDP in Selected Regions (Group 1)



Note: Zero indicates EU 27 average, [((GOVERD+HERD $_{Region}$)/ (GOVERD+HERD $_{EU27}$))*100-100]
Source: Eurostat, own calculations

Figure 1-4 Structure of R&D Expenditure in Selected Regions (Group 1)



Source: Eurostat, own calculations

In terms of patenting, the regions are among the most successful in their countries as well as in Europe. Most of the regions are a location for a few large (multinational) high-tech companies which account for the better part of the total patent applications. Parts of Nokia in the Oulu region or of Siemens in Bavaria (DE) are typical examples. In those regions where very few large companies account for most of the patents, the activities of SMEs cannot be reflected in a valid way – partly due to statistical reasons, partly due to the factual interdependencies between the large companies and their SME suppliers. In line with the patent activities, however, it can also be observed that most of the regions can rely on a strong manufacturing sector with a focus on high-technology branches. With only a few exceptions the existence of "manufacturing cores" and/or headquarters of large companies can be regarded as a common feature of all the regions. With a view to the sectoral composition of the business sector, the exact technological specialisation varies, whereas leading-edge technologies (ICT, biotechnology, aeronautics) and mature technologies (e.g. automotive, transport, metal products, machine tools etc.) are equally relevant in all cases.

In addition to an innovative and technology oriented business sector, all of the regions can rely on a public research infrastructure, be it universities, non-university research institutes or both. Although they do not dominate those of the business sector, R&D expenditures of the regional public research institutes are important and reach a certain level in all regions. The South East of England (UK) for instance is home to 16 universities and colleges. Several of these are large, research intensive institutions with international reputation in science, technology and engineering disciplines – such as the University of Oxford. The Stockholm (SE) region is home the Karolinska Institute, the Stockholm (SE) University, the Royal Institute of Technology as well as a number of specialized university colleges, especially the university hospital of Karolinska is internationally renowned. Saxony (DE) in Germany is also characterized by a quite broad public research infrastructure, with five state universities, and 12 universities of applied sciences. In addition there is a strong concentration of six institutes of the Max-Planck-Society and 14 institutes of the Fraunhofer Society (financed jointly from the federal and regional level). Bavaria (DE) is another example of a region with a broad public research landscape: 55 higher education institutes are located in Bavaria (DE) and several non-university research institutes of the Max-Planck-Society, the Fraunhofer Society or the Helmholtz Association. Moreover, the two largest universities in Munich were nominated as "elite universities" in the official excellence or 'elite' competition of the federal government.

Given the importance of public research in the regions, the scientific output in terms of publications also reaches a certain level. With respect to scientific publications, for example, Rhône-Alpes (FR) ranks eighth among all European regions. International renowned universities like University of Oxford, the Karolinska Institute, the University of Stockholm (SE), the Technical University of Munich, but also smaller universities like the University of Innsbruck are important actors within their regional and national research and innovation systems. In addition to their education function or the provision of graduates for the regional (or national) labour market, most of the research institutes in the different regions are furthermore increasing their role as partners in the innovation process via the establishment of specific organisations or functional units like technology transfer offices, industrial liaison offices, patent exploitation agencies, etc.

Further to the above average research and innovation potential of this group of regions - measured by quantitative R&DI indicators -, a common reason for their performance certainly lies in the systemic competitive advantages or what can be described as the main characteristic of an innovation system. Most of the regions are not only endowed with (public) research institutes and partly renowned universities, but also with a highly competitive private technology- and innovative companies as the main drivers of growth and employment. Rather than observing separated "pillars" in terms of coexisting, but not integrated groups of actors, most of the 'world-class performers' can rely on quite well established and efficient innovation networks with common

innovation "cultures" and institutionally stabilised routines which constitute the most important systemic features that are difficult to duplicate by competitors (embedded knowledge, regionally coupled networks).

1.2 Major challenges for developing regional innovation capacity

The following subsection is based on a summary of the three main challenges which were highlighted as most important in each regional report. These three main challenges were selected from a potentially larger number based on the assessment of the regional experts. If certain challenges will in the following not be mentioned, this does therefore not necessarily imply that they are completely absent.

In general, the 'world-class performing regions' analysed for the elaboration of the regional reports show similarly positive characteristics regarding both input and output from scientific, technological and innovation activities. Nonetheless, the regions are facing different innovation challenges in order to maintain their economic and innovative level. In nearly all of the regions these challenges have already been picked up by innovation policy – be it based on the elaboration of an innovation strategy or by means of the concrete implementation of specific measures.

Even though not necessarily named explicitly in the regional reports, one of the main challenges of the 'world-class performers' is clearly the maintenance of international competitiveness and economic growth. In all of the regions, research, technology and innovation is perceived as fundamental for economic development and the generation of wealth. Given the fact that the level of GDP per capita is in most of the regions above the respective national and international level, it will be challenging to maintain the position as economic and innovation leaders as significant growth rates from an already high level are more difficult to achieve than from a lower standard.

The concrete innovation challenges highlighted in the reports can be grouped into six main categories: 1) strengthening public and private research, 2) support innovations and technologies (with a focus on specific branches), 3) human capital/human resources, 4) support knowledge-intensive services, 5) focus on regional disparities, 6) support knowledge-transfer and knowledge-exchange.

Among all the different challenges listed, the strengthening of public and private research as well as the leveraging of public R&D investment for the private sector appear to be among the most crucial since they are considered an integral element of the innovation strategies in many regions. Upper Austria, for instance, has a relatively weak public research base which forms a bottleneck both in terms of a possible transfer of technologies and research results into the business sector. Therefore, the leveraging of public R&D will be crucial in the coming years in order to further strengthen the private sector which already performs quite good. Saxony (DE) is another example of a region where enormous efforts have been directed at leveraging public R&D investment for the private sector. Even though private R&D activities have developed dynamically in the past decade, the local industry cannot yet fully match the level of the region's outstanding endowment with public research capacities. In the meantime, Lower Saxony (DE) concentrates its research competencies on medium-high-technology sectors (especially automotive and shipbuilding technologies), while there is a lack of capacities in those frontier high-tech sectors which are often said to develop the strongest growth potential on a global scale. North-Brabant (NL) is another example of a region that did not really mind the low public R&D expenditures even though (or because) the business sector performed quite well in terms of R&D activities. Finally, Berlin (DE) faces the challenge to in a first step increase the share of private sector R&D that, among the leaders, remains quite low.

In addition to an increase of R&D expenditures in the regions, the support of innovation and technologies or the increase of innovating firms is a key challenge in many of the 'world-class performing regions'. Berlin (DE), for instance, is focussing on the identification of those start-ups and spin-offs that possess high potential for economic success and growth. Factors that limit the growth of new firms and the

diffusion of new technologies into the markets are regarded as a key challenge. Furthermore, the establishment of a seamless innovation support environment with the neighbouring region of Brandenburg is a key challenge in the coming years. In Capital Region of Denmark (DK), the development of more high-growth start-ups with a global potential is seen as a key challenge for the regional innovation system. Within this context, the task of building a strong ecosystem for growth entrepreneurs calls for the introduction of new policy measures. In the region Rhône-Alpes (FR) in France, the strengthening of non-technological innovation is considered as a major challenge in the next years. A particular focus is put on new designs and innovations related to the needs of society. In Tyrol (AT), the increase of innovation awareness is regarded as a key challenge which is addressed by different measures (e.g. business innovation support, cooperation activities, applied research, support of the intermediary system).

A third trend regarding innovation challenges can be observed in the area of human capital/human resources and the attraction of talents. In most of the regions, policy makers are quite aware of the fact that human capital and qualified labour force are key aspects for maintaining their current competitiveness. A typical example is Capital Region of Denmark (DK) where a strong focus is put on the attraction of talent from abroad. In parallel, it is regarded as a major challenge to ensure that more people get tertiary education. Lower Saxony (DE) is another example where the need for technical and scientific expertise (especially in the region's less developed areas) will be crucial in the coming years. In Bavaria (DE), the decreasing number of students, brain drain from rural areas and an ageing population will pose new challenges to regional RTDI policy making, particularly within the context of demographic change. Finally, the Austrian region of Styria (AT) experienced substantial labour market shortages in the last couple of years; researchers and also qualified workers for key technological areas will be in high-demand, also taking into consideration the demographic change.

In a few regions the support of knowledge-intensive services is seen as another main challenge, especially with regard to the modernisation of mature industries, but in part also with regard to new-technology-oriented firms. Upper Austria, for instance, faces the challenge of linking mature, but still highly competitive industries with knowledge-intensive service industries which are currently underrepresented in the regions. Therefore, Upper Austria (AT) and ultimately the regional innovation policy will have to find ways on how to support knowledge-intensive service firms and link them with established manufacturing firms. Another Austrian region where the fostering of services constitutes a major challenge is Styria: efforts to increase activity in the service sector would counter-balance the dominance of the manufacturing sector and would offer services complementary to manufacturing products. A final example with regard to challenges within the context of a service-based structural change is North-Brabant (NL) where the segment of high quality knowledge-intensive service firms, that constitutes an important growth factor, appears underdeveloped.

The presence of strong, persisting regional disparities poses a challenge for balanced innovation policy in particular in Northern Finland, Lower Saxony (DE) and Bavaria (DE). In the North of Finland, policy makers will have to focus on spreading development more equally across a large area. In a different way, the same applies to Bavaria (DE) where intra-regional disparities, although on a high level, continue to persist so that a set of policies has been designed to close the gap between the metropolitan and rural parts of Bavaria (DE). In Lower Saxony (DE) with its few centres and its large rural periphery, the establishment of a broad foundation on which future economic development could be based is regarded as difficult.

The support of knowledge-transfer and knowledge-exchange plays a main role in the South-East of England and Rhône-Alpes (FR) in France. Enhancing knowledge-exchange between businesses and between businesses and the (public) knowledge-base to develop internationally competitive, scalable businesses whether these are start-ups or existing companies is regarded as a main challenge. In Rhône-Alpes, the strengthening of the science-business interface constitutes an important element within the cluster measures (poles de compétitivité). In that context, the further

development of the regional clusters, especially with a view on "cross-fertilisation" between the different clusters and orient them towards frontier research will be challenging in the next years.

The various dimensions described above reflect that depending on the respective techno-economic and institutional paths as well as the current status of a region, different challenges can be observed. Beyond the joint ambition to maintain and strengthen there leading positions, it would be simplifying to state that Europe's 'world-class performing regions' face a similar set of challenges with a view to (further) developing their innovation capacity. Arguably, however, this finding may to a certain extent be due to some of them stating their main priorities quite differently, although, in fact, they might be more alike.

1.3 Innovation policy governance

The degree of institutional autonomy varies from region to region, often depending on national framework conditions and the role that the respective national constitution assigns to regions and sub-national authorities. In this respect, the group of 'world-class performing regions' in Europe can thus be considered as rather heterogeneous. In principle, it is possible to observe three groups with a view to the set-up of governance. The majority of the group of 'world-class performers' consists of regions with a rather high degree of regional autonomy, while there are a number of regions with a lesser degree of institutional independence as well as a few that do not dispose of any significant decision making authority at all. Where this is the case, regions are often characterised by a limited budgetary autonomy and a decision-making process that is subject to the guidelines and stipulations defined by a strong nation state.

RTDI policy making remains the responsibility of both national and regional authorities in most of the regions of this group. The relationship between the responsibilities of both is in general defined by the national constitutions, although changes over time might occur. The concrete division of responsibilities, however, differs drastically from country to country and to a limited degree even from region to region within a nation state. The institutional set-up is often rather complex and involves governing authorities from different levels and with different responsibilities and interests. Additionally, the role of regional authorities in such a complex multi-level governance structure depends to a large degree on the way that regional government perceive themselves as well as on their factual budgetary autonomy for financing R&D as well as for setting up advisory or support agencies in the RTDI field. In general, however, many of the 'world-class regions' are to a certain degree responsible for the content of their regional RTDI support programmes and strategies.

Moreover, 'world-class performers' tend to constitute important players in their nations' innovation systems so that their opinion tends to be heard and considered in national policy making – be it directly or indirectly. The degree to which this can be the case, however, does in turn depend on the degree of institutionalisation of the regional governments or at least regional interest groups.

As the process of RTDI policy making is often rather complex, the same holds for its coordination mechanisms. Horizontal and vertical policy coordination are similarly challenging and involve the coordination between different ministries and innovation agencies (even from different levels) as well as between governing authorities and implementation organisations. Most of the 'world-class performing regions' have a main co-ordinating actor as regards the implementation of RTDI policy. Prominent examples are the Multipolis network in Northern Finland, to an extent BayFor in Bavaria (DE), the Innovation Holding of Upper Austria, the Capital Region Growth Forum in Copenhagen, as well as the (former) lead agency for regional innovation SEEDA in South-East (UK) or the Lower Saxony (DE) L-Bank. Only a minority of regions from the group of 'world-class regions' do not have such a central actor for coordination. However, it is important to note that responsibilities and co-ordinative tasks vary from agency to agency, depending on the actor-setting in the region and its

self-understanding. Hence, the degree of exclusiveness with which a certain, even if central, agency takes responsibility for RTDI policies varies substantially.

As regards the availability and use of policy intelligence tools among the group of 'world-class performing regions' it can be stated that most regions have implemented numerous policy intelligence tools in parallel – in order to monitor the efficiency and effectiveness of policy measures as well as regional economic and innovation performance. The most widely spread instruments are evaluations, impact assessment studies, implementation external advisory committees, negotiation and participation processes, policy studies, and foresight instruments. In general the implementation of such a set of tools requires a good knowledge and sound understanding of the regional business structure and its specific strengths and weaknesses which needs to be reflected vis-à-vis the goals of the innovation and regional development strategy. Consequently, some of the regions have set up regional "think tanks" to conduct evaluations and policy studies at the regional level (NIW, Lower Saxony). Additionally, most regions make at least occasional use of neutral and external expertise that contributes to the neutrality, validity and credibility of the policy intelligence process being implemented. Only few, mostly less autonomous regions, from the group of 'world-class performers' make but limited use of policy intelligence tools.

1.4 Key challenges and opportunities in terms of innovation policy governance

Regarding the key challenges in terms of innovation policy governance in the group of 'world-class performing regions', three broad types of challenges can be identified.

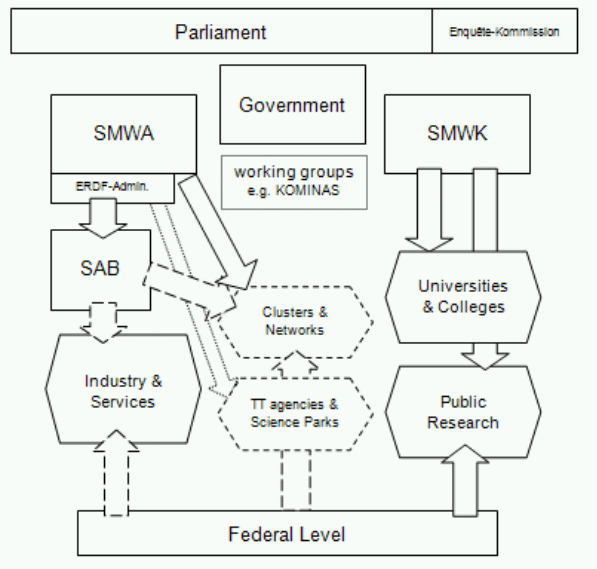
Firstly, the regions are facing challenges due to national idiosyncrasies that result either from a division of tasks between different policy levels as foreseen in the national constitution or from dominant policy coordination mechanisms that are perceived as suboptimal from the point of view from the regions. Examples for such challenges are a strong dependency upon national policies that can be found even in otherwise quite autonomous regions (e.g. energy transition in Germany, or redundancies between different institutions in Austria).

Secondly, many of the regions are facing challenges that can be strictly limited to certain regional specificities, for example the inter-regional policy coordination between the German federal states of Berlin (DE) and Brandenburg or the intra-regional coordination between the neighbouring cities of Lyon and Grenoble in the French regions of Rhône-Alpes. These types of challenges may just as well occur in other European regions and are not necessarily a unique feature for the group of 'world-class performing regions' in Europe.

The opposite holds for the third type of challenges, which might be typical for the regions belonging to the group of 'world-class performers', regions with an outstanding economic or innovation profile. The main differentiating characteristic of these challenges is that they occur in many of the regions simultaneously and can thus do not be explained by particularities of single cases. In short, these common challenges are the following. The regions in the group of 'world-class performers' are faced with the challenge to avoid a lack of R&D related skills and human resources in their region (e.g. due to demographic or structural change) since it might hamper economic development and innovation activities in the enterprise sector (e.g. Northern Finland (FI), Bavaria (DE), Copenhagen, Stockholm (SE), Styria (AT), to develop an adequate, modern innovation support system able to meet the most advanced standards (e.g. Saxony (DE), Upper Austria (AT), Copenhagen (DK), Rhône-Alpes (FR), to create the necessary knowledge dynamics that allow enterprises and entrepreneurs to acquire necessary competences in an increasingly global market and to sustain competition (e.g. Copenhagen (DK), Stockholm (SE), Styria (AT), and to implement better intra- and inter-regional cooperation and coordination mechanisms (e.g. Berlin (DE), Stockholm (SE), Styria (AT)). Certainly, this list of challenges is not exhaustive but summarises such aspects that seem to driving forces behind the success of the 'world-class performing regions'.

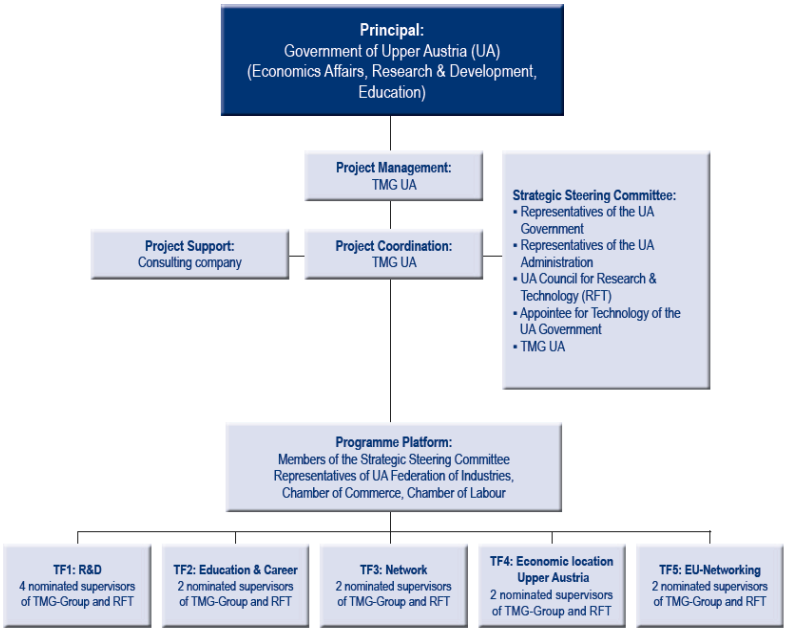
The identification of the opportunities for the group of 'world-class performing regions' in Europe is much more coherent than the identification of challenges. Many of the opportunities in terms of innovation policy governance stem from the regions' wealth of experience in the design and implementation of (modern) innovation policy measures and the existence of a sound system of evaluation (e.g. Saxony (DE), Upper Austria (AT)) as well as from a well developed tradition of participation of regional stakeholders in shaping the regional innovation system and the existence of bottom-up initiatives (e.g. Saxony (DE), Upper Austria (AT), North-Brabant (NL), Northern Finland (FI)).

Figure 1-5 RTDI Governance System - Saxony



Source: http://www.rim-europa.eu/saxony_regional report

Figure 1-6 RTDI Governance System - Upper Austria



Source: http://www.ooe2010plus.at/Programm_Englisch(1).pdf

Other opportunities lie in the development of regional strategies vis-à-vis the future development of regional economic and innovation potential with special attention on certain key areas of regional strength (e.g. Copenhagen). Additionally, the development of sound coordination mechanisms with a view to triple helix partnerships, enterprise partnerships and the development of new intra- and inter-regional collaboration structures bear opportunities for the group of 'world-class performing regions' (e.g. Northern Finland (FI), North-Brabant (NL), the South East of England (UK), or Stockholm (SE)). Finally, the continuing expansion of the different regions' innovation base for example by assigning universities a more prominent role in regional development or induce changes in the regional business and enterprise structure (particularly, the development of the knowledge intensive service sector) seem to provide additional opportunities to involve new fields of policy making (e.g. Stockholm (SE), Styria (AT)).

1.5 The regional innovation policy mix

In general, the 'world-class performers' among the regions covered by the regional innovation monitor display a substantial techno-economic potential that regional policy makers can build on. Unsurprisingly, this broad scope of options is reflected in the breadth and nature of typical policy measures. Moreover, most regions display clear strategies with the aim to thematically focus policy interventions and successfully translate them into implementation. Depending on the degree of regional autonomy, individual approaches differ substantially from case to case.

One constitutive characteristic of policy intervention in this leading group of regions is that, in the majority of cases, it is strategically thought through and follows a clear political mission. In many of the regions with substantial autonomy, this mission developed organically on a long trajectory of several decades and had only in part been officially documented. Comprehensive overviews were, if at all expressed through the OP ERDF and ESF. Currently, this continues to hold for some of the German regions. In some others such as the Austrian Länder or Rhône-Alpes (FR), implicit mission statements have been complemented by official strategy documents from the mid 2000s onwards, a trend that some German regions aspire to follow in the nearer future. At the same time, several regions with lesser autonomy have witnessed an increase in cooperation between different public stakeholders from the local, the regional as well as the national level with the aim to pool those administrative competences necessary to address issues of relevance for the region. In different but similar ways, such developments can be observed in Capital Region of Denmark (DK), North-Brabant (NL) and Stockholm (SE). Thus, it has become possible to turn even those regions into a policy related space of reference which initially used to mere statistical delineations. Unfortunately, however, the latter remains the case in Northern Finland (FI) and the South East of England (UK), the two regions for which no overarching strategy can be reported. In the English case, the impending demise of the RDA is likely to contribute to a worsening of the situation.

As a result of their unusually clear strategy orientation, cluster policies aimed at focusing regional policy intervention play a central role for most of the regions. Alternatively, they can be aimed at building on a region's existing industrial strengths or at developing strategic fields for the future. Examples for the former are found in Austria (e.g. Styria (AT), Upper Austria (AT)), where cluster policy is openly referred to as a 'modern form of sectoral policies'. Examples of the latter can be found in Lower Saxony (DE) and Berlin (DE) where regional cluster initiatives aimed to chart new ground besides the more established areas of strength. In other cases, an even clearer focus on a limited number of topics can be observed (e.g. Saxony (DE) and Tyrol (AT)) so that in some cases cluster policy has a very strong component of "specialisation policy". Interestingly, such foci of attention and investment have been developed even in some regions without substantial autonomy (e.g. Capital Region of Denmark (DK), Stockholm (SE), Northern Finland (FI)). Finally, some larger regions support a fairly broad array of clusters between which a substantial degree of differentiation can be observed in terms of both political relevance and factual investment (e.g. Bavaria

(DE), Rhône-Alpes (FR)). Irrespective of the specific region's approach, however, most of these cluster policies share the objective of strengthening pre-defined fields in a process of smart specialisation while safeguarding a necessary level of regional economic variety. So far, the only regions without such a clearly defined strategy seem to be the South East of England (UK) and North-Brabant (NL), which, while running a cluster programme, does not aim to define certain focal areas of intervention.

As already outlined in the governance section, many of the leading regions have established one-stop business support agencies that are put in charge of policy implementation, i.e. of helping local stakeholders to access public funding schemes. Some regions concentrate such activities on one or few organisations such as the former British RDAs, the Danish Growth Fora, Rhône-Alpes' ARDI or Germany's regional public support banks (cf. the South East of England (UK), Capital Region of Denmark (DK), Saxony (DE), Lower Saxony (DE), and Rhône-Alpes). In a different approach, others have set up networks of 'impulse centres', 'competence centres', 'centres of expertise', or tend to distribute these responsibilities across several sector-specific cluster organisations (Tyrol (AT), Upper Austria (AT), Styria (AT), Northern Finland (FI), Bavaria (DE), and Berlin (DE)).

With a view to policy measures as such, higher education, vocational training and other human capital related measures all play a role in the strategies of most of the regions, in particular with a focus on learning on the job, life-long-learning and further education. In part, this may be due to the fact that there are many options to co-finance such activities through the ESF under a RCE framework, an opportunity that is often taken advantage of. An additional, noteworthy particularity of the autonomous German federal states is that they are uniquely responsible for all activities related to teaching and research at higher education institutions within their constituency. In Germany, therefore, regional innovation policy overlaps with general education policy to a stronger extent that this is the case in many other countries.

Moreover, most regions provide different support models to raise (qualified) entrepreneurship and to facilitate the set-up of start-ups. Again, many such activities – from education to venture capital – fit well with common approaches to RCE programming for both ERDF and ESF. While business incubators and science parks are mentioned as a relevant element in some regions (e.g. Berlin (DE)) they seem to play a subordinate role in most others. Instead, many of the surveyed regions display an above average focus on the support for academic entrepreneurship.

Additionally, many regions support innovation in SME, either directly by means of traditional subsidies or indirectly through measures like 'innovation vouchers', 'knowledge transfer partnerships' or 'innovation assistant schemes'. In next to all cases, however, regional networking has been put high on the strategy-level agenda. Consequently, most SME support programmes tend to focus on co-operative projects or public-private-partnerships among science and industry, at times referred to as 'triple-helix actions'. Even if this is not always put as a stipulation for SME funding in the first place, co-operative R&D projects are often more likely to receive public support than independent efforts of single firms – and eligible for a higher share of funding in the case of success. Furthermore, some regions are entitled to set up regional research institutions and/or have a say in the process of the set-up of national level public research institutions that they are obliged to co-fund. More than others, these regional governments are thus able to actively shape their regional innovation system on the level of basic funding allocations.

Finally, it has to be acknowledged that even among the 'world-class performers', very few regions explicitly flag out policies as 'demand side oriented', 'public procurement oriented', or 'related to public sector innovation'. By no means, however, does this imply that policies with such effects do not exist. In fact, anecdotal evidence suggests that relevant actions may be most common in this group of regions. Consequently, all future studies with a view to these topics should bear in mind that policies of a similar nature may run under very different labels.

With a view to the allocation of budgets, (Table 1-1) illustrates that the majority of budgetary allocations in those 'world-class regions' that have provided information is concentrated on the priority fields of 'governance and horizontal measures' and 'research and technologies'. Measures which put the main priority on the support of R&D in 'enterprises' and on the build-up of 'human capital', to the contrary, receive a much smaller share of funding.

At second sight, however, these findings have to be put in perspective. The high share of 'governance and horizontal measures', for example, can be explained by the fact that centralised budgets for innovation policy in the context of e.g. ERDF operational programmes or the Danish Growth Fora have in general been labelled "Priority 1". As a result, all regions with centralised budgets hold a (next to) 100% share in "Priority 1". Likewise the support of R&D in 'enterprises' and on the build-up of 'human capital' tend to be listed as second or third priority so that the actual lack of allocations to "Priority 3" and "Priority 4" may in fact be less pronounced than the figures in Table 1-1 suggest at first sight.

Table 1-1 Budget Allocations by Main Priorities of Expenditure (Group 1)

RIM	Focus Group	Budget Contribution per Priority in Group TOTAL	
1- Governance & horizontal research and innovation policies	focus group of 13 regions covered in regional reports* (some data available for 9 out of 13 regions)	18.7%	(9 of 79 measures)
2- Research and Technologies		25.5%	(39 of 79 measures)
3- Human Resources (education and skills)		0.1%	(1 of 79 measures)
4- Enterprises		1.7%	(29 of 79 measures)
5- Markets and innovation culture		0.0%	(1 of 79 measures)
n/a		-	no measures
1- Governance & horizontal research and innovation policies	other regions classified as world-class performers (some data available for 10 out of 14 regions)	45.5%	(14 of 88 measures)
2- Research and Technologies		7.8%	(40 of 88 measures)
3- Human Resources (education and skills)		0.2%	(7 of 88 measures)
4- Enterprises		0.5%	(21 of 88 measures)
5- Markets and innovation culture		0.0%	(2 of 88 measures)
n/a		0.1%	(4 of 88 measures)

Note: Focus group of 13 world-class performing regions covered by regional reports: Capital Region of Denmark (DK), Stockholm (SE), Northern Finland (FI), Styria (AT), Bavaria (DE), North-Brabant (NL), the South East of England (UK), Lower Saxony (DE), Rhône-Alpes (FR), Saxony (DE), Berlin (DE), Upper Austria (AT), and Tyrol (AT); Measures and their budgets have been assigned to support categories according to the highest priority stated by the RIM correspondents, although measures have multiple priorities.
Source: Regional Innovation Monitor Repository, Analysis based on Technopolis Methodology.

It is also important to note that no reliable data was available for Styria, Tyrol, Upper Austria, Berlin (DE), and the South East of England (UK) as much as for many of the non-covered regions – so that all interpretations have to read with care and interpreted as robust, general trends rather than as precise figures that can be analysed in great detail.

When the covered 'world-class regions' are analysed in detail, three main groups can be distinguished:

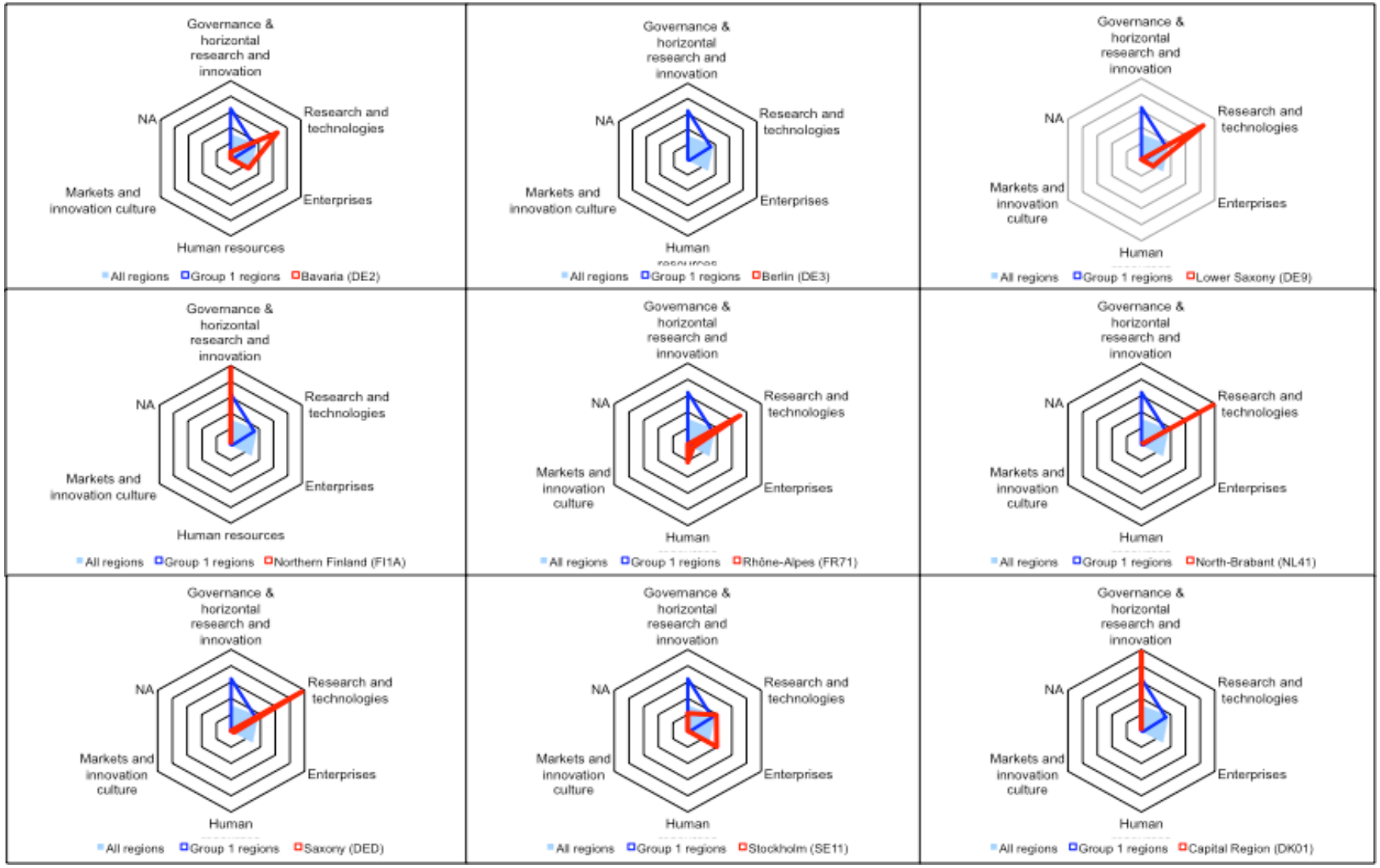
Firstly, Scandinavian Regions (the Capital Region of Denmark (DK) and Northern Finland (FI)) with 100% of their funds allocated to centralised budgets (Growth Forum Initiatives Capital Region, ERDF operational programmes). While a differentiation of objectives may indeed exist in those regions, it cannot be identified by means of the RIM methodology. In a sense, the Dutch region of North-Brabant can be assigned to this group as well, as its 100% focus on "Priority 2" is just as well based on the attribution of "Priority 2" to the regional ERDF operational programme.

Secondly, German regions with a strong focus on 'research and technologies' accompanied by an above average focus on enterprises. In these regions, funding measures are designed by regional ministries and implemented by local promotional banks in a support agency-beneficiary relationship. Other than in Scandinavia, there are no centralised initiatives in charge of the administration. Hence, it is easier to assign 'priorities' to individual measures.

Finally, there are regions with different focus of policy mix. In the region of Stockholm, direct support for the enterprise sector constitutes the main focus of the regional support effort. To an extent, this can be explained with the bottom-up nature of the local policy framework that strongly rely on a grid of business-driven initiatives. The French region Rhône-Alpes, in contrast, displays profile similar to that of the German regions but with a more visible focus on "human resources". Due to the different national framework conditions and priorities, the policy mix in French regions seems to differ from those in German regions.

In summary, it can be observed that the allocation of budgets in 'world-class performing regions' reflects their effort and endeavour to remain at the forefront of economic and innovative performance. Taking into account that the need to innovate is broadly recognised and a large share of firms is well positioned to finance their immediate needs with respect to product development the region's policy makers focus their efforts on extending and reinforcing existing potentials in the field of research and development. As these tend to go along with conditionalities regarding cooperation and science-industry interaction, few of them have been assigned "enterprise" as a top priority. Furthermore, the strong role of centralised budgets – and the fact that regional correspondents tended to see them as horizontal activities – underlines that the processes of strategy development are well developed in most 'world-class performers'.

Figure 1-7 Share of Budget Allocations by Field of Expenditure in Selected Regions (Group 1)



Source: Regional Innovation Monitor Repository, Analysis based on Technopolis Methodology; no information for 5 regions from AT, DE and UK.

1.6 Appraisal of regional innovation policies

In general, the regional reports present a next to unanimously positive assessment of innovation policy in those regions that have been subsumed under the heading of 'world-class performers'. While certain deficiencies with respect to strategy formulation tended to prevail well into the 2000s, most regions' policy makers have by now either developed a regional strategy on paper (e.g. Germany and Austria) or agreed a set-up of lead initiatives that in an obvious way demonstrates the strategic orientation of regional innovation policy (e.g. Stockholm (SE)). Accordingly, the regional set of policies is usually appraised as coherent, consistent and co-ordinated – even if not always communicated in a transparent and easy to grasp way. While policy may not always have been strategically planned, many reports document continuous efforts to achieve a match between 'policy needs and policy practice'. In other words, suitable focal areas of intervention have been determined in cooperation with regional stakeholders in an 'entrepreneurial process of discovery'. Exceptions from this rule may be found in Finland where the regional level remains virtually inexistent from an institutional perspective and in England where the recent demise of the RDAs called into question all so far known bases of regional strategy formulation.

Due to their substantial basis with respect both public research and business sector R&D, policy makers in 'world-class performers' do not need to promote the term 'innovation' among regional stakeholders. The search for novelty is on many firm-owners' minds as an everyday necessity to build and maintain the competitive edge of their businesses. Accordingly, most projects addressed by these regions' innovation policy relate to the creation of generic, 'new to the world' innovations. Consequently, most interventions have to focus on the facilitation of networks that enable the sourcing of leading-edge knowledge from the public science sector rather than about basic capacity building or awareness-raising. In these leading regions, policy makers can, and do, rely on bottom-up initiatives and a broad pool of ideas in both the business and the science sector that can tapped and moderated. As it can be assumed that R&D is within the financial capabilities and the own best interest of local firms, they have in most regions stopped to maintain support programmes that provide plain, unconditional subsidies to individual companies. Instead, they have a tendency to focus on support for co-operative R&D projects or public-private-partnerships among science and industry. Complementarily, they strive to build and extend the regional human capital basis as well as to induce high-quality entrepreneurial activities.

In general, 'world-class performers' are well positioned to benefit from national-level, excellence based funding and to make use of their, admittedly limited, RCE funding base to the fullest extent possible. In most cases, regional policy makers have thus been able to leverage the opportunities and complementarities provided by multi-level funding systems rather than merely suffering from its complexity. To handle this complexity, most of the surveyed regions have succeeded at establishing one-stop agencies which provide local firms and researchers with access to funding from multiple sources.

Figure 1-8 SEKES - Association of Regional Development Agencies in Finland

- Business Oulu
- CONCORDIA Oy, Pietarsaaren seudun Elinkeinokeskus
- Cursor Oy, Kotkan Haminan seudun kehittämisyhtiö
- Elinkeinoyhtiö InLike Oy
- Finnvera Oyj
- Forssan Seudun Kehittämiskeskus Oy
- Imatran Seudun Kehitysyhtiö Oy
- Joensuun Seudun Kehittämisyhtiö JOSEK Oy
- Jyväskylän seudun kehittämisyhtiö JYKES Oy
- Jämsek Oy
- Järvi-Pohjanmaan Yrityspalvelu Oy
- Kainuun Etu Oy
- Kaustisen seutukunta
- Kehittämiskeskus Oy Häme
- Kehittämisyhtiö Karstulanseutu Oy
- Kehittämisyhtiö Keulink Oy
- Kehittämisyhtiö Witas Oy
- Keski-Karjalan Kehitysyhtiö Oy KETI
- Kokkolanseudun Kehitys Oy KOSEK
- Kouvola Innovation Oy Kinno
- Lahden Alueen Kehittämisyhtiö Oy - LAKES
- Mikkelin Seudun Elinkeinoyhtiö Miset Oy
- MW-Kehitys Oy
- Koillis-Suomen kehittämisyhtiö Naturpolis Oy
- Nivala-Haapajärven seutu NIHAK ry
- NOVAGO Yrityskehitys Oy
- Pielisen Karjalan Kehittämiskeskus Oy (PIKES)
- Pohjois-Satakunnan Kehittämiskeskus Oy
- Porin Seudun Kehittämiskeskus Oy POSEK
- Raahen seudun yrityspalvelut
- Rovaniemen Kehitys Oy
- Savonlinnan seudun kuntayhtymä / Yrityspalvelut
- Seinäjoen seudun elinkeinokeskus
- Sisä-Savon seutuyhtymä
- SSYP Kehitys Oy
- Suomen Kuntaliitto
- Suupohjan Elinkeinotoimen kuntayhtymä
- Vaasanseudun Kehitys Oy VASEK
- Valkeakosken Seudun Kehitys Oy
- Wirma Lappeenranta Oy
- Ylä-Savon Kehitys Oy
- Yrityskolmio
- Yrityssalo Oy
- Ääneseudun Kehitys Oy

Source: http://www.sekes.fi

Arguably, however, this set-up of one-stop agencies is a best-possible reaction to a structurally unresolved challenge. In many regions, the design and allocation systems for public support have evolved over years and decades and tended to become over-complex. As a result, responsibilities within them are fragmented and distributed across different ministries and agencies and many programmes have become so difficult to access that the state has to support potential beneficiaries in doing so. Additionally, many one-stop agencies are mainly tasked to administrate projects and funding but have little say in the design of the programmes according to which funding is allocated. As it is, 'world-class performers' have a strong tendency to display a process of strategy building and implementation that involves a large number of actors. Where established regional ministries have been in charge of certain issues for decades, this challenge is likely to last – despite visible attempts to improve coordination.

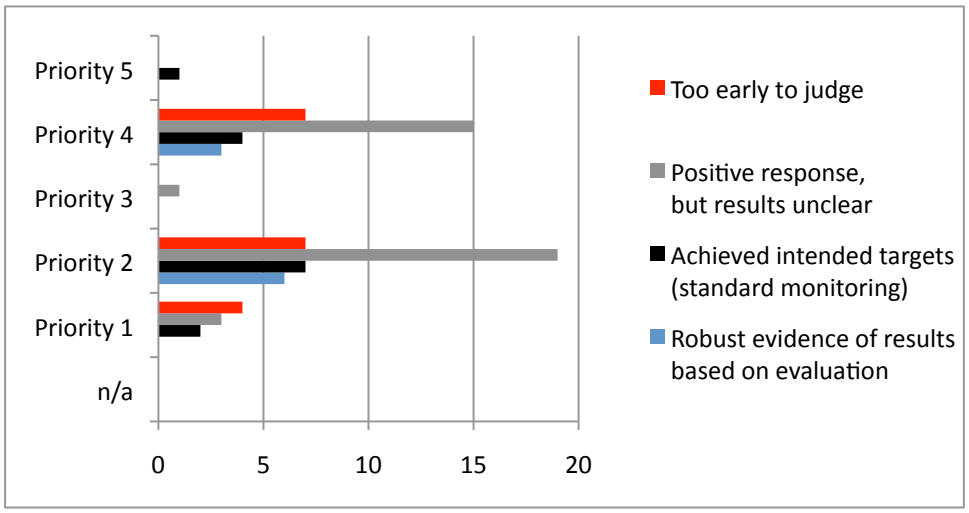
Finally, all surveyed regions display a lesser-than-desirable coverage by comprehensive evaluations with the possible exception of Berlin (DE) where a full-scale evaluation of programmes was conducted in 2005. In many other regions, the fairly standardised evaluations of the 2000-06 SF support period as well as certain programme-specific studies remain the so far only point of reference. Beyond those, evidence-based policy making tends to remain based on limited internal systems of reporting and monitoring that are not in all cases fully operational and in few broadly published. Inevitably, this situation will improve with the ex-post evaluations following the 2007-13 SF support period and even more so when the stipulations for the 2014-20 SF support period will come to play.

Generally, however, the case of the 'world-class performers' and their policies oriented towards facilitation and mediation provides a strong argument why all monitoring based evaluation needs to be read with care. While it would undoubtedly be helpful to increase the degree of coverage and the transparency with respect to the programmes'

stage of implementation, it seems questionable whether e.g. strategies of specialisation will cause any measureable short term monetary effects. Much more importantly, they are designed to reduce vulnerability and future growth potential, effects that can only be documented in a long-term perspective.

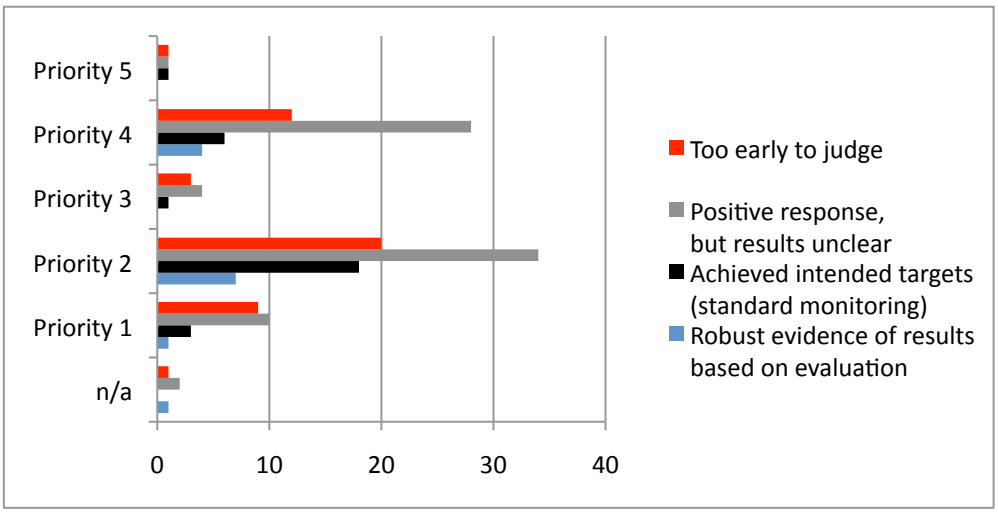
With a view to intervention under the headings of 'demand side-oriented policies', 'public procurement', or 'policies related to public sector innovation' it has to be accepted that at least the tendency to use these labels is less than broadly developed. Apparently, the only novel headings that are explicitly referred to as such are 'policies in the field of energy efficiency and renewable energies' for which some regions have launched programmes. With respect to the others, it should be acknowledged that all programmes aimed at facilitating science and industry cooperation as much as many cluster initiatives that initiate joint activities between industrial partners are in fact quite demand-oriented. In a similar way, many regions have substantial leverage with a view to regional procurement which, however, scarcely takes the form of programmes. Instead, it comes to play through individual actions and/or acquisitions. The public sector, finally, is not an adequate place for innovation in the context provided by 'world-class performers' with strong, innovative regional industry. It is thus conclusive that no such policy action has been taken.

Figure 1-9 Available Assessment of Measures in the 13 Regions Covered by the Regional Reports (by priority field)



Source: Regional Innovation Monitor Repository, Own analysis.

Figure 1-10 Available Assessments of Measures in World-class Performing Regions Covered by the RIM (by priority field)



Source: Regional Innovation Monitor Repository, Own analysis.

In the RIM repository, we find documentation that a majority of the measures implemented in 'world-class performing regions' is assessed positively in the sense that the regional correspondents state that 'there has been a positive response by beneficiaries' while the exact results may not yet by known. In particular, this has been the case in the fields of measures for the support of 'research and technology' (Priority 2) and the 'enterprise' (Priority 4) sector. With a view to 'horizontal, governance' oriented measures (Priority 1), to the contrary, there is an about equal share of cases in which it seems 'too early to judge' the effects of the intervention.

In general, moreover, the number of measures of which regional correspondents can, based on verifiable indicators from monitoring, say with certainty that they have 'achieved their intended targets' remains fairly limited – between 7-18 even in the best covered fields of 'research and technology'. In the field of support for 'enterprises', the figures are even lower with 4-6. Even less common are measures which can be assessed based on actual evaluations. In the area of 'research and technology' this is reported for no more than 6-7 measures, in the areas of support for 'enterprises' for 4-6 measures. With a view to a total of 167 measures, these are very small figures.

In summary, the results of regional innovation policy have been assessed as satisfactory, as it is natural that a number of measures will always be too recent or in general difficult to assess – e.g. for lack of a clearly specified target. Nonetheless, it is equally obvious that the documentation of results and impacts leaves room for improvement. As it is, a share of about one quarter of the measures that can be legitimised by robust evidence cannot be considered satisfactory.

1.7 Good practice cases

Growth Forum for the Capital Region – Capital Region of Denmark (DK)

The Growth Forum for the Capital Region functions as a platform for regional development. It brings together municipalities, companies, organisations and research institutions in a strong partnership with the goal of identifying and improving the framework conditions for innovation and business development in the region. The Growth Forum drafts a long term development plan for the region which results in a number of actions taken by the regional authorities such as new policy priorities and new policy projects. Furthermore, the Growth Forum decides on which projects should be supported with funding from the ERDF and the ESF. Hence, the Growth Forum is the most important regional body with a view to innovation policy and business development.

A number of different projects are initiated by the Growth Forum for the Capital Region each year. Recent flagship projects include:

The CIBIT Accelator: A project that focuses on international, fast and action-oriented business development course for Danish start-up and small businesses that provide insight into customers, competitors and markets.

The Healthcare Innovation Centre: A strategic initiative that seeks to help improve quality and efficiency in the healthcare service. The measure supports several units across the region's hospitals, and exists to help expand and disseminate the innovation work in progress in the region's 14 hospital units comprising 40,000 employees.

The **Copenhagen Cleantech Cluster:** A cluster organisation that provides access to cleantech sector networks, cooperation between members, investment opportunities, workshops, seminars, R&D projects, test & demonstration, partners and business opportunities.

The Capital Region of Denmark (DK) has all opportunities to create a top-European innovation system, and the Growth Forum model is a successful strategy as such, recent evaluations suggested that future strategies for developing the innovation performance in the region should focus on larger project within fewer key areas, as is the intention with the next five year strategy from the Capital Region Growth Forum.

Source: http://www.cphcleantech.com

The case is good practice due to the comprehensiveness of its coverage, the clarity of its focus, its responsiveness to evaluation and its effective process of internal coordination.

Strengthening Stockholm's ICT-cluster – Stockholm (SE)

kista SCIENCE CITY

The objective of the project is to develop and strengthen Kista Science City as a world-leading cluster in ICT by stimulating co-operation between information and communications technologies (ICT) companies. The project is run by Kista Science City AB, a subsidiary of Electrum Foundation, and involves about 60 companies and nine business networks.

Source: http://en.kista.com

The target group is primarily smaller ICT companies in Kista Science Park, but larger companies are also involved in the project. Within the project, three types of networks will be established:

- executive networks, including dialogue, problem solving, knowledge development through regular meetings, coaching and support,
- expertise networks in different thematic fields, in order to develop and exchange interdisciplinary knowledge,
- network between ICT industry and the audiovisual industry, to initiate business development and growth in the multi media sector.

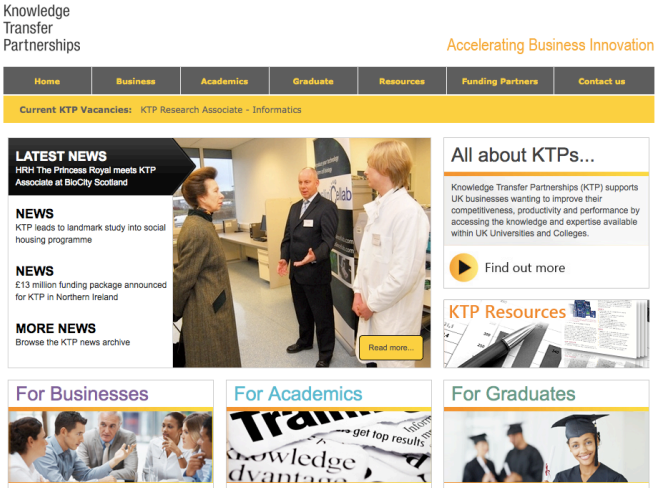
The project ran between 2009-2011 and has a budget around €1.4m, provided by the ERDF (€0.57m), Kista Science City (€0.79m) and the Interactive Institute (€0.06m). A mid-term evaluation indicated that approximately 40 CEOs are involved in the network and in total there are as well approximately 60 people involved in the specialist and experts network.

This project is good practice as it builds on an existing initiative and in an informed manner aims to deepen the interactions between its key drivers –business executives. Also, it takes a cross-sectoral approach to join knowledge bases and spur creativity.

Knowledge Partnerships - East of England (UK)

The 'Knowledge Partners – East of England' project (KEEP) is a collaborative project (led by the University of Luton) between 7 HEI's in the Eastern region sponsored by the Association of Universities in the East of England (AUEE). It supports three-way partnerships between a regional firm, a regional university and a recent graduate.

It aims to help businesses achieve something different; a project where the expertise and skills of the university and a high-calibre graduate would be beneficial in the planning and implementation of the project.



Source: http://www.ktponline.org.uk

The programme is based on the recognition that knowledge developed in academic institutions may need to be extensively or intensively adapted to particular business applications.

Consequently, it is argued that a basis for concrete cooperations can best be established through the employment of a graduate, which is considered a more credible and sustainable incentive for interaction than a one-time grant.

The programme support flexible HEI-employer partnerships for all employer types, of all sizes, in any sector, public or private, where a benefit from knowledge transfer will arise. It funds projects of a range of durations, subject only to a minimum for cost-effectiveness (e.g. 3-months) and a maxi-mum (e.g. 18-months) to spread resources and to ensure it complements other schemes. Thus, the programme complements the national Knowledge Transfer Programme (KTP) that is run by the UK Technology Strategy Board and may set up projects lasting up to two years.

Examples of how this scheme can benefit companies include:

- the development and implementation of a marketing plan for a new product,
- the set-up and launch of a website or integrated databases,

- the improvement of manufacturing processes.

In practice, projects are mostly short-term, usually up to six months, and requested mostly by SMEs. They require the involved business to make a contribution of 60% of the total cost of the project. Since 2004, more than 30 projects have been realised.

Additionally, the approach aims at complementary support activities with a view to:

- referrals of SMEs to HEIs using the infrastructure of the East of England Innovation Exchange,
- the active encouragement of follow-on schemes with employers with a good track record,
- the active search for match funding from EEDA and succeeding agencies.

This project is good practice as takes a direct approach to supporting cooperation on a broad basis and can thus effectively contribute to develop sustainable science-industry links.

Innovation Vouchers - Bavaria (DE)

Although only introduced in 2009, this support measure can already be regarded as a great success. It addresses small- and medium-sized enterprises and can be interpreted as a complementary measure to other policy initiatives in the region, especially vis-à-vis the Bavarian Cluster Initiative. The initiative addresses explicitly that sub-group of SMEs that wish to engage in R&D but do not have the necessary in-house resources to do so – either financially or with a view to human-capital. Such SMEs can apply for a complementary funding in a rather non-bureaucratic manner to finance R&D projects with external partners.

Source: http://www.innovationsgutschein-bayern.de

The financial support covers up to 50% of the planned R&D investment or up to €7,500 (maximum). To obtain the maximal sum, SMEs have to prove that they had at least €15,000 of eligible investments.

In detail, the following investments fall into this category:

1. Implementation oriented research and development activities in terms of technical assistance and technology transfer services, targeting the development of innovative products, processes and services and bring them to market or to the design or the production stage.
2. Research activities prior to the development of an innovative product, an innovative ser-vice or a process innovation, including market research activities such as technology and market research, feasibility studies, material studies, design studies, studies on the production technology, but also studies concerning the market access.

Within the first two years, more than 600 Bavarian enterprises have successfully applied for such innovation vouchers and received funding for their projects. An

additional goal of the support measure is to initiate additional R&D cooperation between SMEs and public research institutes and R&D business service enterprises.

This project can be considered good practice as it has already supported numerous SMEs in their R&D activities. This success can be partly explained by a non-bureaucratic application procedure, which is coherent with organisational structures in SMEs and corresponds with the amount of funding per application.

1.8 Smart specialisation

Smart Specialisation Strategies in Upper Austria

Smart specialisation is much more than placing greater emphasis on innovation and focusing scarce human and financial RTDI resources in a few globally competitive areas in order to boost economic growth and prosperity. It demands for an assessment of the (regional) innovation system in order to appreciate and understand the evolutionary nature of regional economies, and also for the design of appropriate policy-making. Given the different policy strategies as well as the innovation policy portfolio implemented during the last 15 years, the policy mix carried out by the Upper Austrian state government qualifies as smart specialisation strategy.

Since as early as 1998, the development of economic and technological strengths through the inter-linking of companies and R&D institutions in clusters, competence centres and networks has been an important pillar of the regional innovation policy of the Upper Austrian government. Different cluster and networking policies developed and implemented by the regional government set a focus on those key fields of economic specialisation in which a certain regional potential was already present. In summary, so-called "strategic anchoring" policies which aim at the development of regional connections are carried out in eight regionally important sectors: automotive, plastics, furnitures & timer construction, food, eco-energy, health technologies, mechatronics and environmental technologies. Furthermore, four inter-sectoral thematic networks are supported in the fields of human resources, logistics, design & media and energy-efficiency.

Source:http://www.ooe2010plus.at/Programm_Englisch(1).pdf

Additionally, there are policy measures complementary to the shaping of optimal cluster framework conditions in the narrow sense (i.e. networking and cluster promotion activities, consultancy, qualification), among them measures related to R&D cooperation and technology transfer. Another important part of the strategy is the fund for innovative co-operating projects that supports selected projects in line with the overall regional strategy. As the export quota of the region is very high, the support of links between local and global relations is another main field of intervention, both within the framework of the regions cluster policy as well as in the context of a specific support measure focusing on eco-innovations in the manufacturing sector ("Export- and Internationalisation Offensive in Eco-Energy and

Eco-Technology"). Thus, the global-local paradox underlining the need to think globally and acting locally is a concern which is taken seriously by the Upper Austrian government.

Smart Specialisation Strategies in Berlin (DE)/Brandenburg

The metropolitan region Berlin (DE)/Brandenburg is characterised by a strong public research infra-structure including international visible strengths in science and technology. However the regional business sector can only partially match the R&D potentials in the public institutions, which as a result remain unexploited. While in the federal state of Berlin (DE) the technological and innovative capability of the business sector shows certain strengths and a quite dynamic development over the last couple of years, Brandenburg meanwhile displays a somewhat below average R&D intensity (compared to the level) with quite fragmented R&D and innovation capacities.

der Länder Berlin und Brandenburg (innoBB)

Against this background, the governments of Berlin (DE) and Brandenburg adopted a common innovation strategy called "innoBB" in June 2011 which is considered as a specific contribution to the Eu-rope 2020 strategy and features elements of a smart specialisation strategy. innoBB goes back to 2007 when both federal states first integrated or adapted the two innovation strategies ("Berlin (DE) er Kohärente Innovationsstrategie", "Landesinnovationskonzept Brandenburg (LIK)"). Furthermore, innoBB was tied in with the results of the innovation summits in 2008, 2009 and 2010 and with the current agreement on innovation financing and transfer.

THE GERMAN CAPITAL REGION
EXCELLENCE IN INNOVATION

Source: http://www.berlin.de/imperia/md/content/sen-wirtschaft/inno/strategie.pdf?start&ts=1316166027&file=strategie.pdf

The core of innoBB or the smart specialisation strategy is represented by the further development of the competence fields towards growth- and competition-oriented clusters. The identified competence fields constitute the innovative and growth oriented cores of the future cluster structures.

The main objective is to strengthen the existing structures, competencies, and networks on the basis of "strengthening the strengths".

The competence fields have been defined according to R&D and technological strengths in the region and under the assumption of business opportunities in international markets. By focusing on five competence fields or clusters and four cross-cutting themes which are represented by major public and private institutions as well as already existing networks and value chains, innoBB clearly shows elements of a regionally adapted strategy. The five competence fields are 1) biotechnology, medicine technology, pharmaceuticals, 2) energy technologies, 3) transport, mobility, logistics, 4) ICT/media/creative industries, and 5) optics. These five fields are supplemented by the four cross-cutting themes 1) new materials, 2) production and automation technologies, 3) clean technologies, and 4) safety/security.

Importantly, the selection of these fields implies that the funding of R&D and innovation projects is directed towards them while at the same time the promotion of

the funding schemes (e.g. start-up-support, project-based R&D funding, network management support, infrastructure measures) focus on these priority fields. Accordingly, the majority of the current applications for funding can be assigned to the nine fields.

1.9 Future actions and opportunities for innovation policy

As the preceding sections have demonstrated, regional innovation policy is well advanced and clearly elaborated in many of the 'world-class performing regions'.

Firstly, this is due to the substantial autonomy and the long trajectories of policy learning on which many of these regions can build. In many cases, strategies of "reflected specialisation" have grown over years if not decades. Consequently, many of the 'world-class performing regions' do not have to create strategies of smart specialisation from the very beginning but can adapt and strengthen existing strategies.

Secondly, the high degree of policy elaboration corresponds to an equally high level of techno-economic development. Instead of having to channel public investment into the foundations of a regional innovation system, policy makers can concentrate on leveraging private investment and on improving the regional system of cooperation. Moreover, the high level of capabilities and dynamism in the local industry increases the responsiveness to a diverse set of support measures.

In principle, however, none of the two aspects is in itself sufficient to sustain a well advanced and adequately adapted regional innovation policy. This is an issue as we find that some regions display a stronger basis with respect to the former than to the latter – or vice versa.

Even though techno-economic development was a criterion for selection, some regions display a broader profile of strengths (Bavaria (DE), Capital Region of Denmark (DK)) than others (Berlin (DE), Tyrol (AT)). Likewise, some regions are to a stronger degree dominated by established large-scale industries than others (Lower Saxony (DE), Noord-Brabant vs. Saxony (DE), Upper Austria (AT)). As a result, the needed type of specialisation (or re-specialisation) efforts will differ, as will the likelihood that a certain type of support measures that can successfully be implemented.

From the perspective of governance and strategy, the 'world-class performing regions' display an even stronger heterogeneity. Depending on the overall constitutional framework of the nation that they are part of, they have developed their regional autonomy in very different ways, if at all. While German and Austrian regions may at times be facing the challenge of integrating new strategies into a regional governance framework with substantial path dependency, regions in Sweden and Denmark can be much more flexible and work through goal-oriented initiatives instead of ministries. Finnish regions, in contrast, stand at the very beginning of constituting a regional reference framework. The United Kingdom, finally, has seen the demise of an established regional framework constituted through the former RDAs – and it remains to be seen what will follow.

In summary, innovation policy makers in 'world-class performing regions' need not worry about the level of basic capabilities on neither the factual nor, in most cases, the governance side. In the large majority of these regions, decision makers are capable to absorb and process policy intelligence, to design multi-dimensional strategies and to technically implement complex measures. Likewise, there is no shortage of interested beneficiaries and even of scientific and industrial stakeholders willing to take an active role in the regional strategy process.

Nonetheless, these latent capabilities need to be translated into practical action. Even in many leading regions, the explicit process of strategy building is a fairly new phenomenon and many of the current strategies are the first ones of their kind. Inevitably, many questions with regard to the relevance and responsiveness of these strategies have thus remained unanswered and it will be up to the policy makers in

charge of them to follow up on their work. For instance, they will soon have to adapt their strategies to a format compatible with the framework regulations of the next Structural Funds support period and to agree on realistic short-term targets to be evaluated in the mid-term evaluations.

Additionally, these leading regions have an above average need for policy intelligence as a basis for evidence based policy making. As their innovation systems are in most cases already well developed, the profiles of local strengths and weaknesses are more complex than in other places. As a consequence, suitable solutions to the process of political priority-setting are less obvious. Moreover, these regions' advanced innovation policy tends to put a particular focus on guidance and mediation instead of plain capacity building. While the financial risk of such soft measures may be lower than that of others, there is an even higher likelihood that they remain useless or reduced to crowding out if regional specificities are not taken into account.

Finally, the 'world-class performing regions' have a substantial potential to leverage through public-private partnerships. In contrast to other places, they need not have to worry that the private partners do not have the capabilities or financial resources to take their share in such endeavours. In particular, the cases of Capital Region of Denmark (DK) and Stockholm (SE) illustrate that even the regional reference framework itself can be constituted based on such joint undertakings. However, the busy, internationally operating corporations have to be convinced that a regional engagement is in their own interest and has an at least mid-term potential to yield a tangible outcome. As a consequence, regional policy has to be professional, business-oriented and convincing and take the regional stakeholders on board in a credible manner. In brief, it has to go beyond making policy for the target groups to making policy with the target groups.

In summary, the main opportunities for regional innovation policy in 'world-class performing regions' are to make full use of the existing potentials on the governance as well as on the performance side. Regions with weaknesses on the governance side should leverage their performing stakeholders initiative to improve. While some of the analysed regions have done so quite successfully (e.g. Stockholm (SE)), there is much room left to achieve even better results.

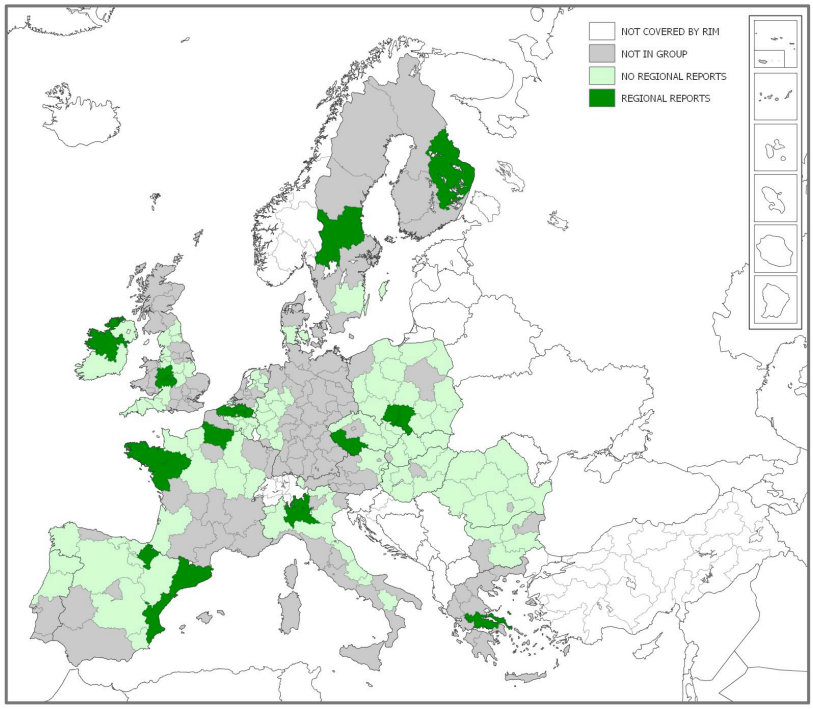
With respect to current EU-level discussions on "demand-side policies", "public sector innovation", or "public procurement" it is important to acknowledge that merely because few support measures are running under exactly these labels, it is not the case that there were none with these objectives. With a view to the prior sections' findings, it is obvious that policy makers in leading regions work in multiple ways to account for and involve the demand-side and that not only the more autonomous regions have taken steps to set up innovative public initiatives and institutions to foster regional innovation – of which not least regional procurement is a part.

2. Regions with strong focus on industrial employment, business and, or public R&D

This section of the report analyses regions in which the industrial employments share in total employment is higher than 45%. In detail, it subsumes the two sub-groups of innovative-business-oriented regions in which the share of business R&D expenditure in GERD is above 65% and that of manufacturing-, yet public-research-oriented regions in which it remains below 55%. For the purpose of this report, both groups of regions have been grouped under the heading of 'regions with strong focus on industrial employment, business and, or public R&D' as they share a distinct, joint characteristic. Altogether, next to one half of all regions covered in the RIM repository fall into this category.

Detailed information was compiled from 15 regional RIM reports, including the Border, Midland and Western Region of Ireland (IE), Brittany (FR), Eastern Finland (FI), Flanders (BE), Lombardy (IT), Navarra (ES), Northern Central Sweden (SE), Opole Voivodeship (PL), Picardy (FR), Silesia (PL), Southwest (CZ), Central Greece (EL), the West Midlands (UK) and Valencia (ES). Beyond summarising and interpreting the information collected in the detailed regional reports, this section will provide a summary overview of the situation in all regions categorised as 'regions with strong focus on industrial employment, business and, or public R&D' that are covered in the RIM repository.

Figure 2-1: Regions in the RIM repository classified as 'regions with strong focus on industrial employment, business and, or public R&D'



Source: UNU-MERIT.

2.1 Main trends in the Regional Innovation Systems

The period 2000-2008 can be considered as a time of relative prosperity. A general positive trend (+35.8%) can be noted except the region of West Midlands (UK), where GDP per capita increased only by 1.2 pp. The three regions from the most recent EU Member States namely Southwest Region (CZ), Silesia, and Opolskie (PL) doubled their GDP per capita. Despite such positive development, these regions would still need to double their efforts in order to reach the EU27 average estimated by the end of 2008 at €25,100 (Eurostat 2012).

The available statistics confirm that overall economic performance measured by GDP per capita varies to a large extent in the group of regions for which regional innovation reports were prepared in the framework of the RIM project. For example, in eight out of 15 regions the score is better than the EU average[2]. The four richest regions exceeding a €30,000 mark are Lombardy (IT), Flanders (BE), Northern Central Sweden (SE), and Navarra (ES). In the case of five[3] regions GDP per capita is higher than the country average, which means that our analysis will not be exclusively focused on the leading regions from national perspective.

Until 2008, the EU regions were on the path of economic growth and recorded a relatively good level of employment. However, in many regions the economy reached a turning point in 2008 followed by the economic crisis. Consequently, it has given rise to a recession, a delocalisation and an increase in unemployment. The available unemployment data (2000-2010) confirm substantial differences among the regions. In total, seven out of 15 regions[4] have managed to keep the unemployment rate below the EU27 average (9.6%).

According to the latest data for 2010, the three regions with the highest level of unemployment are Valencia, Catalonia (ES), and Border, Midland and Western (IE). Since 2000, the increase of unemployment rate was the most significant in Valencia (from 11.6% to 23.3%). On the other hand, the two Polish regions namely Silesia and Opolskie have successfully managed to bring down the unemployment to below a 10% rate, in addition to Eastern Finland that recorded a 4 pp improvement in comparison with its performance back in 2000 (Eurostat 2012).

One of the key underlying questions of this section is why some regions like Flanders (BE), Lombardy (IT), or Brittany (FR) prosper, when Valencia, Catalonia (ES), and West Midlands (UK) are experiencing difficulties? While it is not easy to give a straightforward answer as there are multiple factors explaining the prosperity or decline of regional economies, we try to put a spotlight on the main factors that determine regional development and creation of jobs.

As pointed out in a recent report (van Til 2012) the economic recession hit the region of Flanders (BE) hard because of its economic structure, which relies heavily on industrial production and manufacturing. Apart from that the region is highly dependent on exports and international trade which due to international economic crisis has had a negative influence on the economic development. Despite the fact that the Flemish economy is vulnerable to external shocks, a range of leading companies are still based in the region and are specialised in high-end products.

Lombardy (IT) is characterised by the prevalence of low-tech, small companies; however, at the same time the business density is remarkable and the manufacturing sector particularly strong. Also, the size of the market and openness of economy

[2] Lombardy, Flanders, Northern Central Sweden, Navarra, Border, Midland and Western, Catalonia, Brittany, and Eastern Finland.

[3] Lombardy, Navarra, Catalonia, Central Greece, and Silesia.

[4] Flanders, Lombardy, Southwest Region, Brittany, Northern Central Sweden, West Midlands, and Silesia.

which is attractive to FDI - especially thanks to the infrastructures' endowment and Milan's international role as a financial centre – is viewed as a key regional asset (Ciffolilli 2012).

The report on Brittany (FR) puts a spotlight on the role of ICT sector, which is among the four major sectors besides agrofood, automotive, and shipbuilding (Lacave 2012). It is also noted that the employment in agriculture has fallen in the last decade, while the service sector has been the main provider of new jobs. The powerful agrofood sector, which has undergone important modernisation, recent developments in the tourism sector and the fact that Brittany is among the most attractive regions (migratory flows) are viewed to be the main success factors.

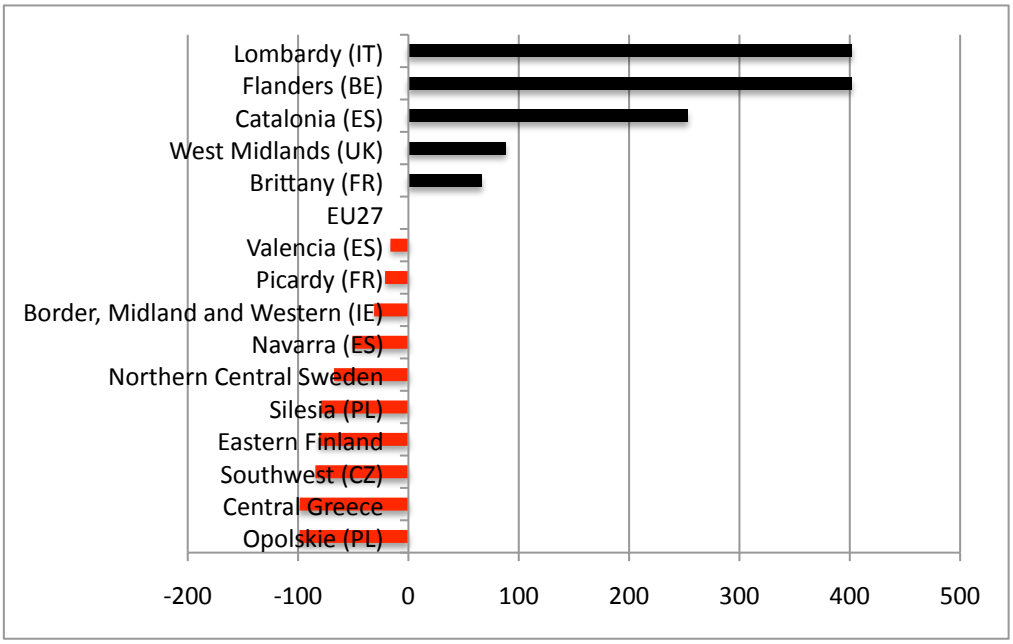
On the other hand, the financial crisis and loss of international competitiveness are the key factors which have led to a deep crisis in Spanish manufacture-oriented regions. Besides that, the weight in the economy of construction and tourism sectors in Valencia (ES) has also contributed to make even harder to recovery of economy (Etxaleku and Girbés 2011). According to a recent analysis (Parker-Rhodes 2012), West Midlands (UK) suffered worse than any other region in the UK during the 2008-2009 financial crisis, enduring the highest rates in unemployment and the sharpest drop in output. Particularly, the structural weaknesses in the economy come from a declining mining and manufacturing sector, in addition to over reliance on newer low value-added sectors. The West Midlands located closely to London faces also direct competition from this largest metropolitan area in the United Kingdom.

The second key question is about the main drivers and barriers of business R&D investments as well as extent to which they have led to socio-economic gains.

Figure 2-2 presents business R&D expenditure in 2009. In five out of 15 regions, this type of investment is higher than the EU27 average. Lombardy (IT), Flanders (BE), Catalonia (ES), West Midlands (UK), and Brittany (FR) are in this group. There is only one region in our sample, namely Northern Central Sweden, which recorded a double-digit decline in business R&D expenditure since 2000. What explains this negative trend can be explained by the structure of regional economy. The recent regional report put a spotlight on the fact that many of the larger companies are part of multinational groups with headquarters and R&D facilities. Consequently, this makes the region vulnerable to external decisions concerning innovation and investments (Linqdqvist 2012).

Most recently (during the period 2009-2008) the West Midlands (UK) recorded the most substantial downward trend in business R&D investment (-12%), whereas in the rest of regions the change was not significant and can be explained by the cyclicality of RDI investments. The lack of a strong technological or high-tech sector conducting R&D and the economic crisis are the two key factors, which explain the overall decline in business R&D investment (Parker-Rhodes 2012). In contrast, Opolskie (PL) boosted this kind of investment more than three-fold during the same period from a low level of slightly more than €2m. Among the main drivers of business R&D investment in Flanders (BE) are multinationals, and hotspots in the chemical sector, ICT, Telecom, machinery and transport (van Til 2012). In contrast, in Lombardy (IT) an increased R&D propensity among regional SMEs, e.g. biotech sector, and a growing number of medium enterprises (<500 employees) in mechanics, house and personal goods, chemicals and pharmaceuticals has an influence on business R&D investment (Ciffolilli 2012).

Figure 2-2 Business R&D Expenditure in Millions of Euro (Group 2)



Note: Zero indicates EU 27 average, [($BERD_{Region}$/$BERD_{EU27}$)*100-100]
Source: Eurostat, own calculations.

The analysis of regions exhibiting similar characteristics shows that despite a positive change (more than five-fold increase since 2000) in Norte region (PT), there were no substantial positive socio-economic gains. Since 2000, the level of unemployment has substantially increased by 8.4 pp reaching 12.6% in 2010. The regional GDP per capita increased only by €2,900 from €10,000 back in 2000. The Norte region (PT) is currently suffering from certain productivity stagnation and slowing down of international competitiveness[5]. On the other hand, Lower Austria has successfully managed to prosper despite relatively less dynamic business R&D intensity (two-fold increase since 2000). During the 2000-2009 period Lower Austria increased its GDP per capital by €6,900 reaching the level of €28,000. It has also successfully managed to keep the level of unemployment under control (3.6%). This is not always a rule as it is illustrated below.

The region of Marche (IT) has recorded much more important growth in business R&D investment (more than three-fold increase since 2000) than Castilla-la Mancha (ES) and scores better on the main socio-economic indicators. Comparatively, Marche has managed to keep the level of unemployment at 5.7%, which is only 0.7 pp higher than back in 2000, while in Castilla-la Mancha the rate of unemployment soared to 21% in 2010. As it is put in the RIM regional profile, the major problem in Castilla-la Mancha is that it lacks a relevant industrial network and despite the fact that some important companies have lately established in the area, the regions still faces some disadvantages like firms being scattered along a large geographical zone and belonging to very different sectors or the business network consisting mainly of SMEs and traditional enterprises.[6]

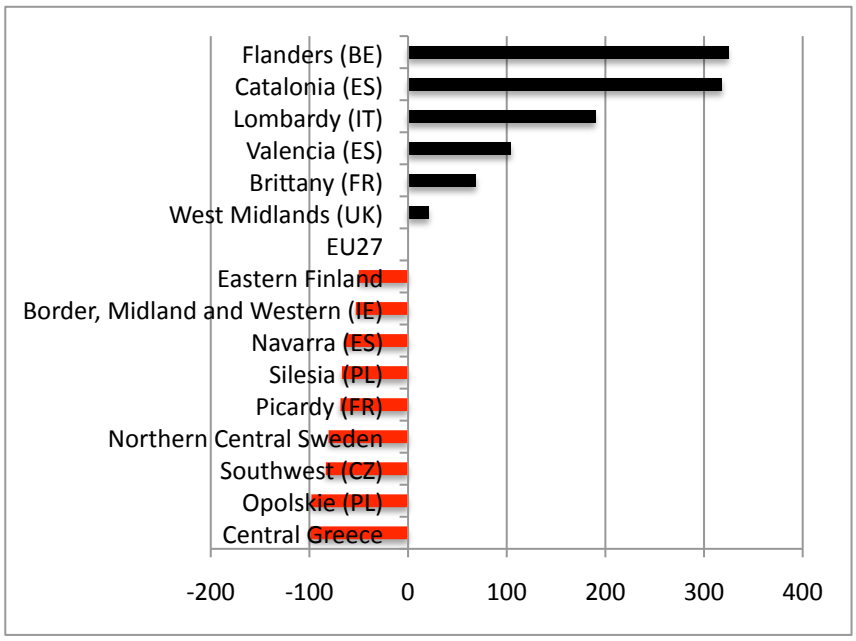
The Northwest (UK) which illustrates a region strongly focused on business R&D has managed to keep high level of business R&D investment since 2000, although the

[5] http://www.rim-europa.eu/index.cfm?q=p.regionalProfile&r=PT11 - economy
[6] http://www.rim-europa.eu/index.cfm?q=p.regionalProfile&r=ES42 - economy

economic growth has not been so significant. The increase of unemployment is estimated at 2.3 pp reaching 7.9% of unemployment in 2010. As noted in the RIM regional profile the region is home to major global manufacturing companies such as BAE Systems, Unilever and Astra-Zeneca. Manufacturing has remained at the forefront of the Northwest economy despite increasing pressures from globalisation and the region retains its position (in GVA terms) as lead UK manufacturing region; however, the service sector makes up the majority share of output.[7]

The top 5 regions with the highest business R&D expenditure also invest substantially above the EU average in R&D activities through public funding (Figure 2-3). Only with the exception of Catalonia (ES), the share of business R&D investment in total investment is above 70% in Lombardy (IT) and West Midland (UK) and in Flanders (BE) and above 60% in Brittany (FR) (Figure 2-4). Comparatively to regions with lower investments they have more favourable starting positions due to existing potential and critical mass.

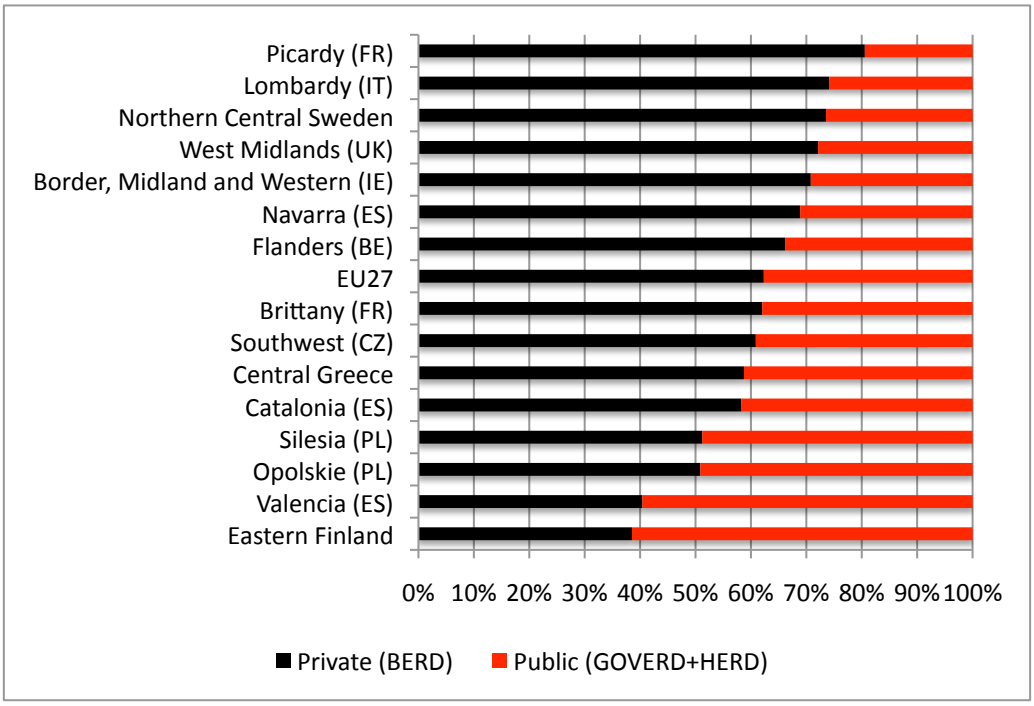
Figure 2-3 Public R&D Expenditure in Millions of Euro (Group 2)



Note: Zero indicates EU 27 average, [((GOVERD+HERD $_{Region}$)/ (GOVERD+HERD $_{EU27}$))*100-100]
Source: Eurostat, own calculations.

[7] http://www.rim-europa.eu/index.cfm?q=p.regionalProfile&r=UKD - economy

Figure 2-4 Structure of R&D Expenditure in Selected Regions (Group 2)



Source: Eurostat, own calculations.

In conclusion, the socio-economic trends in other regions that belong to this group are broadly similar as well as the factors contributing to the growth and jobs. Achieving a critical mass of investment is essential for sustainable economic growth and jobs. There are evidences suggesting that the peaks of investment might not be enough. This lesson is particularly important for the regions from the most EU Member States. Based on the experience from other regions, the ability to anchor FDI into the regional economy will determine the international competitiveness of manufacturing sector in these regions.

2.2 Major challenges for developing regional innovation capacity,

The challenges to innovation faced by regions in this group are as diverse as their socio-economic contexts. Nevertheless, a number of observations can be made with respect to common innovation challenges encountered.

Regions with strong focus on industrial employment are frequently challenged by structurally low private and public R&D investments, in comparison with other advanced areas in Europe. This is particularly pronounced in regions with prevailing low-tech specialisations such as Lombardy (IT), which are under pressure to counter the delocalisation of large enterprises that make up the bulk of regional R&D expenditure. A critical challenge for these regions is to put in place adequate instruments and policy structures to support the creation and growth of innovative, knowledge-based enterprises.

Sustaining and developing the research and innovation base is another key challenge faced by some regions within our focus group. There is clearly a need for greater investment in research and innovation and for region-specific support measures. Linked to the above is the challenge to move to a next-generation and beyond the old economic model of attracting FDI based on cost competitiveness and grant incentives.

Strengthening connections between the research and innovation system actors is also a continued challenge for a number of regions in this group. This refers both to connections between the research and business communities, and within the business

community. There is an apparent disjuncture in several regions (e.g. Lombardy (IT), and Border, Midland and Western region (IE) between science and industry, as well as a low cooperation propensity among firms. A challenge therefore consists in stimulating cooperation and synergies on the following three fronts: between science and industry, among firms, and between regional RDI actors and international networks.

Finally, human capital development is becoming a central obstacle to regions' smart specialisation efforts, as the education system is often not able to supply the required level of highly educated personnel. In the case of North Western Sweden, for example, companies in the ICT sectors are experiencing problems in finding sufficiently skilled staff. Due to the demographic trend, with a limited population growth and an aging population in the majority of European regions, this problem is likely increase in the future. Raising the level of higher education is therefore a key challenge for a number of regions as the shortage of skilled workers is bound to prevent regions from achieving their full innovation potential.

In the regions, namely those with a strong focus on industrial employment as well as public R&D, the predominant challenge is arguably the sectoral diversification of industry and a greater effort to achieve smart specialisation. Moreover, business cooperation and promotion of collaboration among companies is another weak link in the innovation systems of some of these regions. In this sense, it is very important to strengthen the role of industrial clusters and the technology centres around them in order to get all actors in the innovation system involved. Fostering strategic cooperation with other regions is also considered a crucial factor in boosting the innovative potential of these regions. Finally, continuous efforts are needed to support innovation in SMEs using a broad based approach supporting innovation in organisational, market and process innovation as well as technological R&D.

2.3 Innovation policy governance

The policy governance set-up within 'regional with strong focus on industrial employment, business and, or public R&D' focus group is highly diverse due to variations in their historical role and their place in the national governance structures. Consequently, there are few common trends discernable as regards policy government arrangements. On the one hand, the Border, Midland and Western (IE) is concerned about the possible adverse consequences of a re-nationalised regional policy arising from the weak territorial dimension of various national policies and the limited acknowledgement of a regional dimension in national competitiveness.

On the other hand, Lombardy (IT) has full autonomy in RDI policy since the 2001 constitutional reform which established shared competences between the Italian regions and the central government. In most regions within this group, there are mechanisms in place to ensure varying degrees of horizontal and vertical coordination of regional RDI policy. These mainly consist of formal agreements with the central governments, with other regions or with other regional stakeholders. In addition, in the case of Lombardy there are informal consultative arrangements which allow to gather stakeholders to identify emerging issues, discuss and shape initiatives and help guiding policy.

In the case of Northern Central Sweden, the design and implementation of the European Regional Development Funds (ERDF) 2007-2013 have played a key role in constructing regional government arrangements and boosting collaboration at the sub-regional level. However, the level of collaboration at NUTS 2 level is still at a moderate level and there is need to further increase this collaboration if the region is to develop into a functional region. Further, there is an ongoing discussion in Sweden on future regions and the role of Northern Central Sweden as an administrative region in the long run is still unclear. The Southwest (CZ) was similarly created to absorb ERDF funds and the regional innovation system is therefore still fragmented and innovation policies are rather underdeveloped.

Among the other regions Brittany (FR) is an example of a highly structured and semi-centralised innovation governance system. As in all French regions, the innovation policy governance is characterised by a joint designing of the innovation strategy and a joint steering, implementation and co-funding by the regional authorities and the State administration in the region, reflected in the 'Contrat de Projet Etat-Région' (CPER) and the ERDF Operational Programme. This is contrasted by the case of Flanders (BE) which, given the federal structure of Belgium, is a highly autonomous region. Consequently, policy for science, technology and innovation is primarily developed at regional level.

Until recently, the West Midlands (UK) enjoyed a similar degree of autonomy in regard to innovation policy governance. However, in March 2012, following a change in national government, the decision was taken to dismantle the system of Regional Development Authorities (RDAs) and replace them by Local Enterprise Partnerships (LEPs). These LEPS have mostly not written their regional strategies yet as they are still under formation. However, they are under no obligation to include innovation as part of their strategy, so it is unclear to what extent they will – especially considering they will have much lower budgets than the previous RDAs.[8]

Innovation policy governance in the Central Greece is characterised by a lack of autonomy which is in turn reflected in the absence of dedicated regional innovation governance mechanisms. Until the reform of Kallikratis, effective from January 2011, regions in Greece had limited administrative and budgetary autonomy. However, the main problem with the region's innovation policy making was not the lack of authority and financial resources, but the lack of capacity and capability in policy making. Research and innovation was never a priority in the regional policy agenda. More importantly, there is no specific governance system in place for RDI policies. All decisions, i.e. policy design and implementation, are channeled through the general governance structures of the region.

The picture is similarly mixed in other regions. The degree of legal autonomy of the regional authorities vis-à-vis the central government varies significantly. In the case of Silesia, the regional powers are important as regards the management of assets and finances on the basis of regional budgets as well as the preparation and implementation of regional development strategies. On the other hand, the region does not have tax raising powers. As a result, most of the funding is channelled via the national level by the means of tax redistribution.

In the case of Valencia (ES), the regional government enjoys a high degree of autonomy in the design of innovation policies and strategies. It has created a set of own entities and policies in order to address specific issues concerning R&D&I in Valencia. However, the Valencian R&D system is also influenced by the Spanish R&D system and, to a lesser degree, by the European Union.

An even more de-centralised system of regional innovation policy governance can be observed in the Eastern Finland. There are no formal regional organisations covering the whole of Eastern Finland related to innovation policy. At the regional (NUTS 3) level, regional councils are responsible for regional development, which incorporates innovation policy.

To conclude, it can be noted that despite the existing coordination mechanisms and due to the complexity of the system and the wide variety of the innovation policy initiatives, there is still room for improving governance and hence the policy effectiveness and efficiency.

[8] Most of the nationally funded innovation policies will now be managed by the Technology Strategy Board (TSB) and responsibility for the management of the European Regional Development Fund (ERDF) will be moved to the Department for Communities and Local Government (DCLG).

2.4 Key challenges and opportunities in terms of innovation policy governance

The regions under review have a number of challenges and opportunities in common in terms of innovation policy governance. First, national policies still suffer from a relatively weak territorial dimension and a limited acknowledgement of a regional dimension in national competitiveness in a number of regions in this group. The limited recognition of the regional dimension in national competitiveness poses a particular challenge in the Border, Midland and Western (IE), where recently introduced changes in the country's governance structure have led to a re-nationalisation of regional policy.

The West Midlands (UK) is facing a dismantlement of the very structure of regional innovation policy governance. The principle challenge facing the region in the coming year will be the complete closure of the Regional Development Agencies (RDA) system, and the creation of an entirely new system based on Local Enterprise Partnerships (LEPs). These partnerships are intended to cover a smaller geographical area than the RDAs, in order to capitalise on the benefits of further devolution.

On the other hand, Northern Central Sweden is still developing its regional innovation policy governance structures, given that it is a fairly new region that was created as a vehicle to absorb ERDF funds. Collaboration between the relatively independent regional development councils in Dalarna, Gävleborg and Värmland is still at a moderate level and there is need to increase collaboration further. Nevertheless, similar to the case of Border, Midland and Western in the UK, there is also an ongoing discussion in Sweden on the future role of regions in the national governance system. Their administrative status in the longer term therefore remains unclear.

The case of the Southwest region (CZ) is another example of a relatively fragmented and underdeveloped regional innovation policy governance system. The key challenge here lies in initiating a discussion on the importance and benefits of regional innovation support and the coordination of a knowledge based economy at regional and local levels.

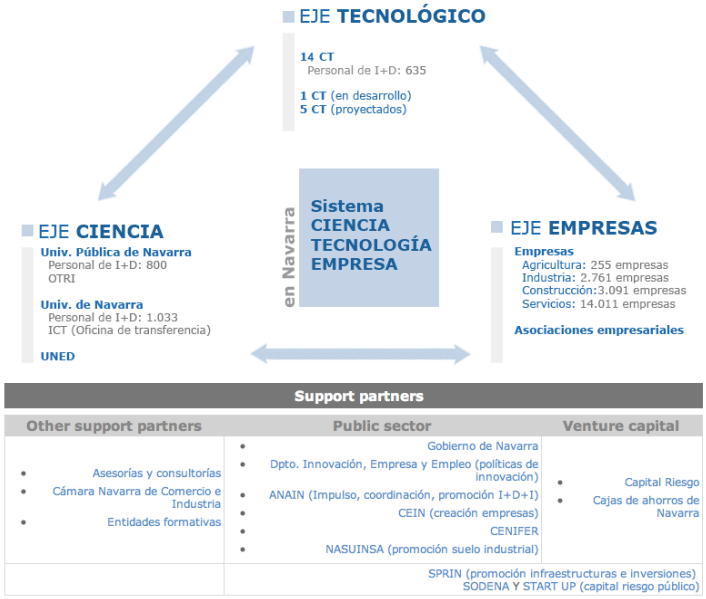
In the two Polish regions, namely Silesia and Opolskie one big issue of concern is the limited power to influence the design of national programmes in support of innovation, which have higher financial allocations than those available at the regional level.

On the other end of the spectrum is the example of Lombardy (IT), which has well-developed mechanisms in place to ensure horizontal and vertical coordination of regional RDI policy. These consist of formal agreements with the central government and with other regions, as well as informal consultative arrangements that allow stakeholders to work together in identifying emerging issues and help inform and shape policy. Nevertheless, there remains room for further enhancing the region's innovation policy governance through a more systemic integration of policy design and implementation.

A better integration of RDI policy between the various actors and stakeholders and greater cooperation between public and private actors would arguably allow the region to exploit its innovation governance potential more fully. The region of Navarra (ES) seems to be taking steps in this direction through the recent reorganisation of the public enterprises of the Government of Navarra and the merger of two key intermediate agents, the regional innovation agency ANAIN and the regional business and innovation centre CEIN (Figure 2-5 RTDI Governance System – Navarra).

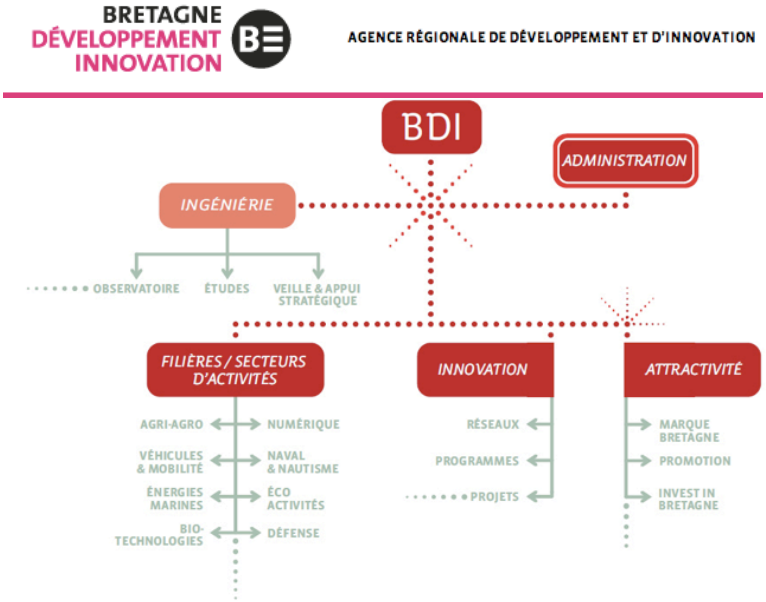
In a number of regions, innovation policy governance appears to be undergoing important transformations. For example, Brittany (FR) has been engaged recently in a process of reorganisation of its regional innovation system. This is illustrated in particular by the merger between the regional development agency and the regional innovation agency, which resulted in the creation of the BDI (Figure 2.8). As a consequence, the situation is evolving and there will be opportunities for improving the system.

Figure 2-5 RTDI Governance System - Navarra



Source: http://www.navarrainnova.com

Figure 2-6 Regional Development and Innovation Agency (BDI) - Brittany



Source: http://www.bdi.fr

A key challenge for every French Region is to increase the coordination among the different actors that are responsible for supporting enterprises in their innovative projects. This is particularly the case for Picardy (FR), which would benefit from an improved coherence among the various schemes and the actors involved in

implementing those schemes.[9] In order to reinforce the coherence among the actors and the different measures, the Regional Agency for Innovation has been assigned the mission to set up a "House of Innovation and Entrepreneurship", with the purpose of bringing together the different actors that support innovation and the creation of enterprises. This can be seen as a step in the right direction provided that the stakeholders involved agree on common objectives and that sufficient resources are allocated.

The Flemish innovation governance system faces a similar challenge given that it can be considered complete but at the same time overly complex. Over the past five years, Flanders has made efforts to optimise its innovation policy governance system. Coordination and alignment between the different STI governance actors, streamlining of policies and policy measures as well as improving the ease of use and transparency for users were high on the Flemish government's agenda.

Catalonia (ES) is another region where the innovation policy governance structure is undergoing change. In 2009 the Government of Catalonia launched the 2010-2013 Plan, which is ACC1Ó's road map for its commitment to business. It also aims to contribute to the development of a new organisational model, laying down initiatives to drive Catalonia towards a more competitive, developed and leading-edge economy.

A common opportunity for all regions in this group relates to the potential of evaluation of innovation policy to strengthen evidence based policy making. In this respect, there remains significant scope to leverage foresight and evaluation studies as tools to enhance the impact of policy making at regional level. It should be also noted that the starting position is different across regions. While certain regions are introducing changes to deal with the complexity of multi-level governance, others are undergoing the initial process of developing their innovation policy governance capacity.

2.5 The regional innovation policy mix

The regional policy mix provides us with information on the range of existing policy instruments at the regional level. The impact of innovation policy support measures however can vary significantly per type of measure and per region. The main objective of this section is to analyse the innovation policy mix by sketching the profiles of the regions of our focus group consisting of 15 regions and comparing them to other regions with strong focus on industrial employment, public and private R&D.

Our analysis is based on the review of the innovation policy mix presented in the RIM regional reports. What we observe is that the core focus of regional innovation policies is on enterprises and in particular SMEs. The majority of policy measures aim at stimulating the creation and growth of innovative enterprises and supporting research and technology. The emphasis is also put on promoting cooperation and collaboration between public bodies and enterprises often coupled with references to the creation of knowledge intensive clusters. In the majority of cases, measures regarding human resources, markets and innovation culture are secondary with typically lower budgets.

The highlights of ongoing different types of regional policy measures in support of innovation are presented below.

Supporting enterprises explicitly include the following examples:

[9] France in general is characterised by an enormous number of support schemes dedicated to enterprises either at a national or at a sub-national level for a whole range of topics. For instance, a dedicated website for the support measures for enterprises, notably funded by the Ministry in charge of industry (http://www.aides-entreprises.fr), shows that in January 2011, there are 66 measures for the SMEs in *Picardy* regarding the topic called 'innovation, research and technological transfer'. Eleven of these measures are sub-national measures while 55 are national measures.

- Support to sectoral innovation in manufacturing: see Polish region Slaskie (2007-2013) Micro-enterprises and SMEs programme[10];
- Support to innovation in services: see North Central Sweden (2011-2013) NYSTA I-II Smart City Innovation Playground (Smart CIP)[11];
- Support to innovation management and advisory services: see French region Brittany (2007-2013) Support to creation and development of young technology-based enterprises (regional incubator Emergys and CrEInnov)[12].

Supporting research and technologies include the following examples:

- Knowledge Transfer: see Spanish region Catalonia (2007-2013) Innovative Enterprise[13];
- R&D cooperation: see Central Greece region (2009-2013) Support newly established firms in their research and development activities[14];
- Direct support of business R&D (grants and loans): See Belgian region Flanders (2006-2013) MIP 3, Environmental and Energy Technology Innovation Platform[15].

Supporting governance & horizontal research and innovation policies include the following examples:

- Innovation strategies: see Polish region Opolskie (2007-2013) Transfer of knowledge[16];
- Cluster framework policies: see Spanish region Catalonia (2007-2013) Innovative Cooperation[17];
- Horizontal measures in support of financing: see Eastern Finland (2007-2013) ERDF operational programme for Eastern Finland[18].

It is worth noting that several regions implement measures with defined priority sectors, key areas or a specific technological focus. An example of such focus is the UK's region West Midlands that defines specific key areas according to anticipated impact. Given the economic situation in the West Midlands, the regional Council has recognised the importance of and opportunities to focus the interventions on five thematic themes to achieve the maximum effectiveness and greater impact of innovation policy measures. In particular an interesting range of criteria in identifying areas is defined which emphasises on the aspects of internationalisation through global reach and access to large markets combined, key regional competences, and rate of technological change in the region (Table 2-1 West Midlands: Thematic focus). In contrast, the lack and therefore the need to introduce specific sectoral or technological focus is highlighted in the report of Central Greece (Nioras 2012).

10 http://www.rim-europa.eu/index.cfm?q=p.support&n=13051&r=PL22
11 http://www.rimeuropa.eu/index.cfm?q=p.support&n=15311&r=SE31
12 http://www.bretagne.fr/internet/jcms/preprod_46875/soutien-a-la-creation-d-entreprises-innovantes
13 http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp
14 http://www.gsrt.gr
15 http://www.mipvlaanderen.be/en/webpage/123/homepage.aspx
16 http://www.rim-europa.eu/index.cfm?q=p.support&n=14415&r=PL52
17 http://www.acc10.cat/ACC1O/cat/ajuts-financament/ajuts2011/innovacio/empresa.jsp
18 http://www.esavo.fi/region

Table 2-1 West Midlands: Thematic focus

West Midlands: Thematic focus	
Criteria	**Key Area**
Global reach & large market	Healthcare technology; Energy
Key competencies	Advanced materials; Transportation technology
Fastest technological change and innovation in the region	Digital media.

Source: Based on the RIM West Midlands report (Parker-Rhodes, 2012).

Concerning implications from the European debt crisis a well-illustrated example is the case of Border, Midland and Western region (IE). As in most regions, the main categories of support measures are research and technologies and sustaining growth of innovative enterprises. As noted by Kilcommons (2012) the core focus is on getting a return from investment in research and innovation given the government cutbacks in R&D funding. As a result commercialisation, close-to-market and overall enterprise development initiatives are now the focus of innovation policy mix.

In the case of the Central Greece despite the sluggish response to the crisis, major changes introduced in the current (2007-2013) programming period are the increased funding and number of new proposed initiatives such as the establishment of a Regional Innovation Pole and the promotion of collaborative knowledge intensive clusters. Hence, the lack of financial resources did not constitute the main problem and the main challenge is to develop the competences in all stages of innovation policy cycle (Nioras 2012).

To complement our findings based on the regional reports, we extend the analysis by investigating the RIM repository.[19]

The RIM repository results for our focus group confirm the qualitative assessment drawn from the regional reports.

Table 2-2 shows that focus on 'research and technologies' and 'enterprises' is reflected in their budgets contribution to the total expenditure. The same observation can be made for the entire group of regions with strong focus on industrial employment and public/private R&D.

[19] http://www.rim-europa.eu

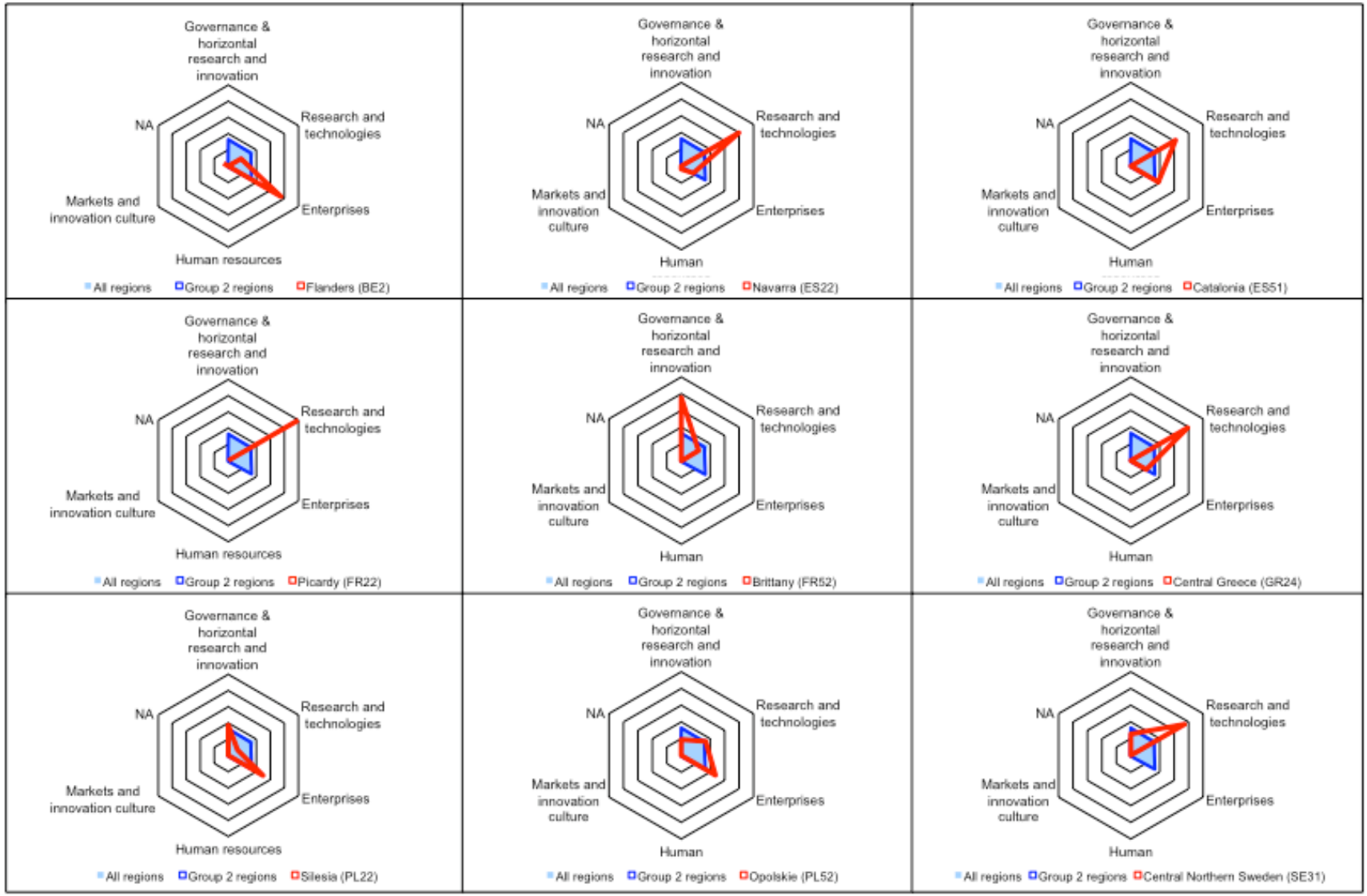
Table 2-2 Overview of RIM Repository of Support Measures (Group 2)

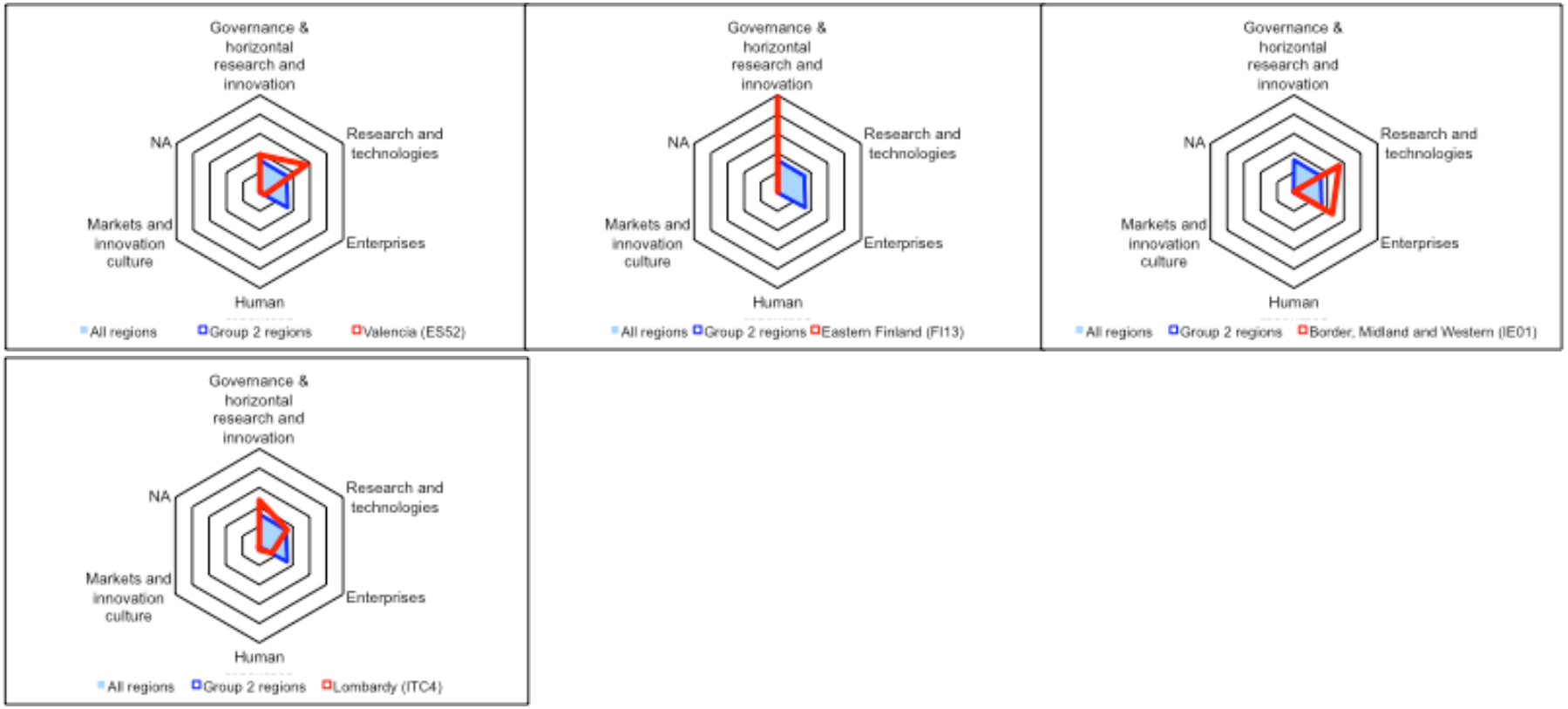
RIM	Focus Group	Budget Contribution per Priority in Group TOTAL	
1- Governance & horizontal research and innovation policies	focus group of 15 regions covered in regional reports* (some data available for 13 out of 15 regions)	4.8%	(14 of 86 measures)
2- Research and Technologies		5.3%	(47 of 86 measures)
3- Human Resources (education and skills)		0.1%	(3 of 86 measures)
4- Enterprises		7.5%	(20 of 86 measures)
5- Markets and innovation culture		0.0%	(1 of 86 measures)
n/a		0.4%	(1 of 86 measures)
1- Governance & horizontal research and innovation policies	other regions classified as world-class performers (some data available for 63 out of 83 regions)	28.1%	(65 of 385 measures)
2- Research and Technologies		26.8%	(158 of 385 measures)
3- Human Resources (education and skills)		1.0%	(20 of 385 measures)
4- Enterprises		25.8%	(111 of 385 measures)
5- Markets and innovation culture		0.1%	(22 of 385 measures)
n/a		0.1%	(9 of 385 measures)

Note: Focus group 15: Lombardy (IT); Border, Midland and Western (IE); Northern Central Sweden; Navarra (ES); Southwest (CZ); Flanders (BE); West Midlands (UK); Central Greece; Catalonia (ES); Brittany (FR); Picardy (FR); Valencia (ES); Eastern Finland; Silesia (PL); and Opolskie (PL). The database used is subject to revisions as regional correspondents update the budget figures. Insufficient valued in the RIM repository were found in the case of Southwest (CZ), and West Midlands (UK).
Source: Regional Innovation Monitor Repository, Analysis based on Technopolis Methodology.

Particularly, the support measures falling under the category 'Research and Technologies' account for almost 27% of total budget for this priority. An additional element is the equivalent to 'enterprises' presence of 'governance & horizontal research and innovation policies', which can be explained by the presence of cluster framework policies. More detailed information on the budgetary data measured as the mean can be found on the next page (Figure 2-7).

Figure 2-7 Share of Budget Allocations by Field of Expenditure in Selected Regions (Group 2)





Source: Regional Innovation Monitor Repository, Analysis based on Technopolis Methodology; no information for 2 regions from CZ and UK.

2.6 Appraisal of regional innovation policies

Concerning the appraisal of regional innovation policies, what is evident from the policy support measures included into the RIM repository within our focus group is that a significant number of policy measure do not provide substantial evidence of outcomes. In most occasions the appraisal is not available because it has not been commissioned by the regional authorities or is still in the process of preparation.

Such shortcoming is reflected in the recommendations made by the RIM network of regional correspondents pointing out that stakeholders interested in launching measures in support of innovation should avoid creating significant delays in evaluating the proposals and ensure that regional authorities are closely involved during the design stage.

The limited actual evaluation-based evidence is recognised by for example the region of Lombardy in Italy. Appraising the extent to which the current policy mix is adequate given the challenges identified and assessing to what extent trends in indicators can be attributed to the support measures is not straightforward. While typically if at all indirect evidence of performance is used no attempts to assess the added value of an intervention by applying counterfactual approaches or a mix of tools appropriate to deal with the complexity of RDI effects are made. Within academia such studies are typically dealt with on the national level.

A step towards the right direction is taken by the region of Flanders. In particular the Flemish innovation policy is increasingly evidence-based: evaluations and monitoring systems are in place. Evaluations took place at system level and at the level of individual programmes or even sub-programmes. However, most of the evaluations are not publicly available and remain disclosed (Ciffolilli 2012; and Van Til 2012).

Despite that limitation in the appraisal of innovation policies, it is possible draw a list of elements that have provided a positive outcome within our focus group. Among the main success factors of effective regional innovation policy support measures are the following:

- Actions are targeted to private enterprises;
- Proximity of supporting organisation to enterprises is provided;
- Cooperative research tradition pre-exists;
- Financial and counselling assistance co-exists under a single mechanism;
- Coordinated and centralised public intervention is present;
- Careful and shared diagnosis of regional needs is made;
- Personalised advice in setting up a business is provided;
- Emphasis on good and innovative ideas is made and less high technical standards;
- Long-term approach and involvement is followed.

A few factors that have had a positive impact on the results of the Navarre innovation policy include the fact that the successive regional Technological Plans have always been designed using a bottom-up approach. This approach involved the potential beneficiaries of the policies discussing SWOT analyses about the regional innovation system and the potential advantages/drawbacks of possible new regional innovation support measures by means of numerous specific sector and cross-sector workshops (Bergera et al. 2011).

Figure 2-8 Technological Plans – Navarra

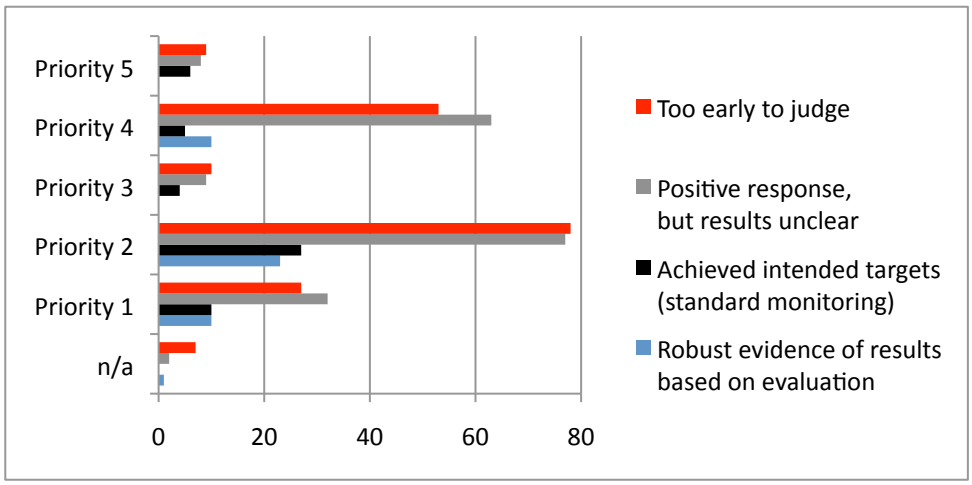
Source: http://www.navarrainnova.com

This bottom-up approach has allowed successive regional Technological Plans to build upon real technology and innovation needs of regional agents and in line with innovation and technology trends detected at an international level. A second factor is the continuity of innovation policies (i.e. through the successive regional technology plans since year 2000). This has had a positive impact in promoting an innovation culture, not only among the regional industry, but also among public and private RTD centres, universities and the regional administration. This growing innovation culture has propitiated a positive reaction and involvement of innovation agents in the regional innovation policy measures.

On the other hand negative appraisals are granted to support measures which are characterised by complex and slow financing procedures. Furthermore, support directed to basic company activities with low added value is viewed as a limiting factor to achieving economy wide impact through innovation support measures. Short calls are also said to pose problems on companies which have difficulties in adapting their activities during the period of the call for proposals. Finally, the lack of partnership in the region is another factor quoted also on the entire group level (regions with strong focus on industrial employment & strong focus on public/private R&D) as a barrier to successful regional innovation support measures.

Based on the analysis of RIM repository results (Figure 2-9) the majority of support measures was assessed as 'too early too judge' or 'positive response but results unclear'. The most successful measures (sum of achieved intended targets and robust evidence of results) are namely 'markets and innovation culture' (Priority 5), 'governance & horizontal research and innovation policies' (Priority 1), and 'research and technologies' (Priority 2).

Figure 2-9 Available Assessments of Measures in Regions with a Strong Focus on Industrial Employment Covered by the RIM (by priority field)



Source: RIM repository.

2.7 Good practice cases

Good practises according to the RIM repository with our focus group occur in more than half of the cases. Compared to the entire group a similar performance is observed. In particular the following percentages are recorded:

- 59% => Focus Group (15 regions)
- 57% => Group 'regions with a focus on business R&D and/or the industrial sector' (excluding focus group)

Among policy priorities 'Science - industry cooperation' and policies targeting SMEs are strongly represented among the good practices within the focus group. Other regions highlight the significance of monitoring and evaluation like the case of Brittany that successfully set up an instrument which allows for re-orienting the regional innovation policy and its governance system to the extent needed.

SLIM project - Northern Central Sweden (SE)


Steel industry in Dalarna


Close-up of optic fibres

The **SLIM project** 'System Management for Innovative Platforms and Cluster Organisations' of Northern Central Sweden is one of the examples on 'Cluster framework policies'. It has taken an active part in Innovation for Growth, an initiative in cooperation between the Royal Swedish Academy of Engineering Services (IVA), VINNOVA and Tillväxtverket, to provide the Ministry of Enterprise, Energy and Communication with input for developing a national innovation strategy.

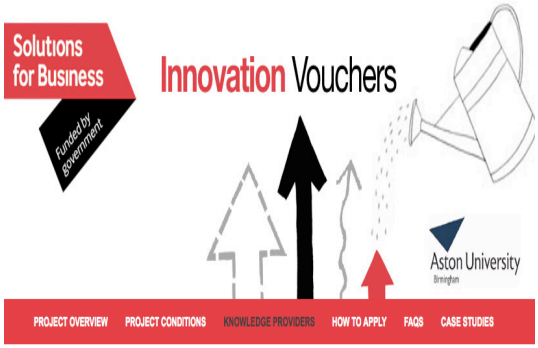
Source: Cluster cooperation in Northern Central Sweden Assessments 2010.

According to regional policy makers and cluster managers, the SLIM project has contributed to an increased collaboration and transfer of knowledge between cluster

organisations as well as between the counties within Northern Central Sweden. The project has had a learning focus, as evaluations of previous phases have impacted on subsequent phases (Lindqvist 2012)

West Midlands Innovation Voucher Scheme (UK)

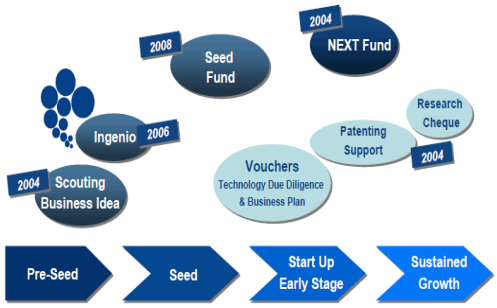
The West Midlands Innovation Voucher Scheme (formerly know as INDEX) is an example of good practice policy designed to stimulate innovation. The main objective of the measure is to increase the interaction between the 13 universities in the West Midlands and SMEs in the region in order to boost their innovation capability. The scheme offers SMEs the chance to apply for a voucher that can be used to purchase an academic's expertise, which must help deliver a knowledge solution to an innovation project brought by the SME (Parker-Rhodes 2012).



Source: http://www.innovationvouchers-wm.com

The programme '**Ensuring access to finance entrepreneurship'** of Opolskie is one of the examples on 'investment on innovation in enterprises'. The main objective of this measure is to improve the competitiveness of enterprises by providing support for investments. The target group of this instrument is the SMEs sector. The reasons why this specific support measure can be considered as a good practice is because 1) it is directed towards the development of innovation potential of enterprises from certain sectors which had been identified in the region diagnosis of as the most innovative branches, 2) the existence of synergies with other instruments and 3) the extent of science-industry cooperation (Walendowski 2012).

Lombardy Seed Fund (IT)



Launched in 2008, the Lombardy SEED Fund facilitates the creation and growth of innovative enterprises in the region by providing favourable loans to support internal business-development projects. The potential beneficiaries of SEED are micro enterprises and SMEs. The measure has been launched in 2008, with a €10m of public investment from the Region.

Source: http://www.finlombarda.it

In particular beneficiaries can be: (1) any entrepreneur who is willing to commit to establishing a legal enterprise within 3 months of a loan offer; (2) any spinoff part owned by a university and less than 2 years old; (3) any other enterprise, so long as it is 6 months old or less. The eligibility criteria, the rules for granting and repaying the loan, and the price are amongst the innovative features of the SEED Fund (Ciffolilli, 2012).

2.8 Smart specialisation

The analysis of in-depth RIM regional innovation reports reveals a number of similarities and differences. One of the emerging findings is that the development of smart specialisation strategies has similar origins in the majority of regions under review. Particularly, a growing interest in developing smart specialisation strategies

stems especially from an increased international competition, a concentration of growth in activities that could be imitated by other regions, over reliance on a limited number of key sectors, and more recently the present economic situation.

Another similarity worth pointing out is that a number of regions have recently prepared new regional innovation strategies. In particular, Flanders in Action (also known as ViA)[20], Fourth Navarra Technology Plan 2012-2015[21], and Valencia Strategy of Industrial Policy 2010-2015 are concrete examples.

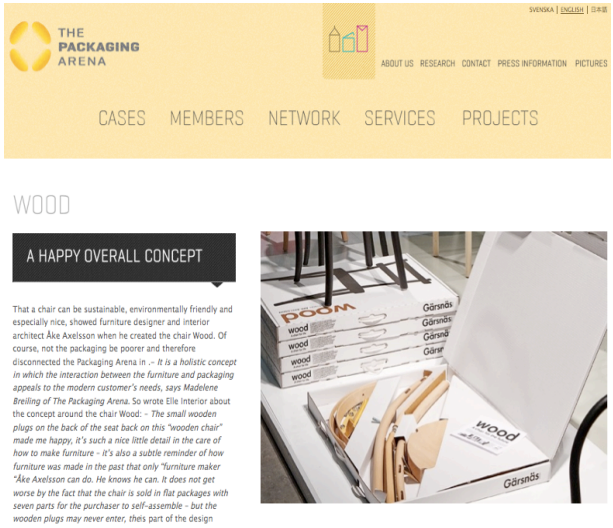
It is also important to mention the framework agreement between the region of Lombardy (IT) and the Ministry of Research and Education approved in June 2011, which set out new strategic RDI priorities and key sectors[22], and the Regional Innovation Strategy 2013-2020 of Silesia (PL). This strategy is at a final stage of preparation and it is planned the process of public consultation will be launched in July 2012.[23]

In terms of policy responses, the existing evidences suggest that cluster policy frameworks occupy a central position in regional innovation strategies in the majority of regions.

Smart Specialisation Strategies in Northern Central Sweden

One of the most interesting examples of smart specialisation in Northern Central Sweden is the cluster organisation TPP[24], established in 1999 in collaboration between companies and the municipality of Karlstad to support the pulp and paper sector in the region. TPP is responsible for implementation of a broad portfolio of innovation and entrepreneurship support measures, including networking, marketing events, competence development at various levels, the establishment of the Packaging Greenhouse (TPG) as a facility for research, testing or demonstration, and coordination of various development projects.

TPP also supported the initial development of the **Packaging Arena (TPA)**. TPA was established as a spin-off project from TPP in 2005, but developed into an independent cluster organisation focusing on the development of intelligent consumer packaging. Instead of using a traditional sector or value chain approach, TPA launched the idea of value stars – cross sector collaboration between for example the pulp and paper industry, process technology, printed materials, digitalization, graphics and design[25].



Source: http://www.packagingarena.com

[20] http://ikdoe.vlaandereninactie.be/?lang=en

[21] http://www.navarrainnova.com/es/navarra-i+d+i/iv-plan-tecnologico/

[22] http://www.regione.lombardia.it/cs/Satellite?c=News&childpagename=Regione%2FDetail&cid=1213437336105&pagename=RGNWrapper

[23] http://ris.slaskie.pl/pl/artykul/prace_badawcze/1296579214/0/0

[24] http://www.paperprovince.com/?tl=1&l=en - googtrans%28sv|en%29

[25] http://www.packagingarena.com

Establishing international strategic partnerships is recognised as particularly important in two regions, notably Lombardy (IT) and Southwest (CZ). In the former it is especially worthwhile mentioning the agreement with the U.S. National Institute of Health – NIH and the strategic partnerships on scientific and technological issues that have been launched with many regions around the world. According to Ciffolilli et al. (2012), these are important for the regional actors that can agree with leading partners on robust research roadmaps, and benefit from economies of scale and scope in carrying out joint initiatives.

Čadil et al. (2012) points that the Southwest has traditionally strong relations with neighbouring cities in Germany and Austria. It notes that the regional universities have pacts with universities in neighbouring foreign regions including mobility of students and researchers.

One of the most interesting examples of close mutual relations is a project called **"MSB technet"** creating a cross boarder network of actors in the field of technology competence. The main goal of the project is to activate cooperation through the creation of crossborder networks of actors in the field of technology competence.

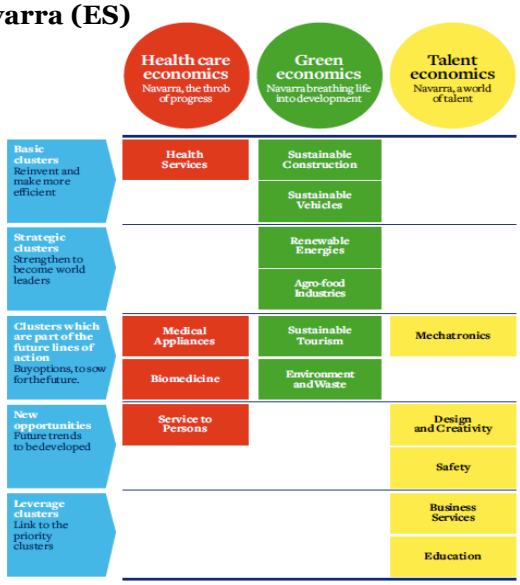
Source: http://www.msb-technet.eu

Comparatively, the analysis of regional reports indicates that the origins of smart specialisation strategies in three regions of the most recent EU Member States including Southwest (CZ), Silesia (PL) and Opolskie (PL) are different from other regions under review. Due to a relatively short experience in designing and implementing regional innovation policies, the preparation of the programming of EU Structural Fund interventions has only recently triggered the process of developing smart specialisation strategies in these regions.

In the majority of regions, the smart specialisation strategy is yet to be prepared. The process of developing such strategies is one of the key success factors. For example, in Lombardy (IT) the working groups and the public-private partnership working tables were organised at the regional level, while in Ireland the national institutions lead the process. Concerning the division of responsibilities between the national and regional level, an interesting point was made in the RIM report on Eastern Finland. It was stated that: "It may more sense to pursue smart specialisation strategies at the national level and complement this with nationally networked but more local development strategies at the level of sub-regions or city regions" (Viljamaa et al. 2012). All in all, it shows the importance of engaging the regional stakeholders and country specific institutional set-up and governance that has a bearing on the coordination of smart specialisation strategies.

Smart Specialisation Strategies in Navarra (ES)

Not surprisingly, it is found that cluster policies are at an early stage of development in regions of the most recent EU Member States. A more detailed analysis shows also some differences in approaches in regions with longer traditions in cluster policies. For example, Navarra (ES) has placed the emphasis on the consolidation of clusters which was led by the Regional Development Agency – ANAIN (Bergera et al. 2012).



Source:
http://www.modernanavarra.com

In contrast, Northern Central Sweden is more focused on the promotion of international outlook and cross-sector cooperation through policies geared to support knowledge re-combinations and avoid lock-in effects due to long term path dependency in the regional innovation systems (Maria Lindqvist 2012). In Flanders, similar trends are evident with clusters being redefined into so called spear-heads and efforts concentrated on the development of the trans-sectoral networks.

The report on Valencia (ES) makes an important point, which is that clusters perform internal reflection processes aimed at establishing the best strategies to improve their competitiveness. To this end, it is proposed to establish a network of clusters to be able to share best practices coming from each of them (Etxaleku et al. 2012).

Smart Specialisation Strategies in West Midlands (UK)

Similar trends can be observed in West Midlands where there is significant activity at the level of individual clusters (Parker-Rhodes 2012). The **Niche Vehicle programme** provides support and grant funding to groups of companies active in the niche vehicle sector in the UK. It promotes development and application of new technology to take advantage of market opportunities for lower carbon vehicles.

Source: http://www.nichevehiclenetwork.co.uk

The programme brings together vehicle manufacturers, system suppliers, technology companies and universities, in order to collaborate in the innovative use of technology in low-volume vehicle production. The Niche Vehicle Network is an independent association of niche vehicle manufacturers, specialist technology companies and supply chain, based in or near to, the West Midlands (UK).

All in all, we can draw similar findings for other regions that have similar characteristics and confirm that the origins of smart specialisation strategies are broadly similar. Establishing international strategic partnerships differs between the regions due to a number of factors, such as the stage of cluster development, the critical mass, the need to tap into international networks but also the degree of political support. Many new regional innovation strategies are yet to be developed. How the regions will revisit their clusters policies together with the other forms of support in the nearest future will determine the future growth and jobs at least during the next two decades.

2.9 Future actions and opportunities for innovation policy

The need for bolder public actions in support of innovation is stated in reports of focus group regions. In the time of fiscal constraints the imperative is to focus on achieving more effectiveness, restructuring and better prioritisation.

Regions under review embrace both strong regional economies as Flanders (BE), Lombardy (IT), Northern Central Sweden and developed innovation systems that went through rapid growth recently in terms of economic performance such as Brittany (FR), or regions from the most EU recent Member States. Yet, the regions largely differ in their autonomy in designing and implementing innovation policies. In spite of the diversity common elements can be identified with regard to future actions and priorities.

Primarily, opportunities include refocusing on specific themes, modernising innovation policy governance and adjusting policy delivery mechanisms.

A key challenge of future regional innovation policies will be to *reinvent traditional and foster emerging sectors*. Several regions point out that while significant investments have been made to support RDI, these have been still modest. Restructuring the economy moving towards innovative sectors and better utilising enabling technologies is most likely to be the future orientation of innovation policy measures. Most of the regions recognise also the importance of promoting *innovation in the service sector*. Knowledge intensive services are seen as a key accelerator to the regional economy but are not yet sufficiently incentivised. Besides that, opportunities are expected to arise specifically from *activities driven by the public sector* in the areas of health, eco-innovation or transport. For example, opportunities in 'green' development are highlighted in the RIM reports on Border, Midland and Western region (IE), and Central Greece.

Orientation towards future sectors comprises a range of sectors. For instance, Border, Midland and Western Region (IE) aims to orient itself towards agriculture, food and marine sectors, renewables, ICT, pharmaceuticals, medical technology, the creative industries and nanotechnology. In Brittany (FR), new materials (coming from agro-resources in particular) and 'niches' of the mechanical industry appear as the most promising. Flanders (BE) aims at connecting mature industries such as chemicals with new knowledge intensive routes. This support is given to high-tech development particularly in ICT and biotech. In Valencia (ES), there is a clear orientation towards biotechnology and nanotechnology enabled sectors.

Smart specialisation although not new in the sense of focusing on related diversity (*cluster initiatives* that helped the regions to concentrate on selected themes and group of related sectors have been there for long) is seen as important and will represent the basis for many of the regional innovation policies in the future. They will certainly help in bringing all the actors together in the development of a common vision.

In terms of innovation support instruments, actions that *help bridge science and business* will keep on constituting a cornerstone of policy measures across all regions analysed. *Entrepreneurship* will be a key word in future innovation strategies, especially the financial support to the growth of enterprises is expected to emerge as a priority. Cluster support measures will continue playing an important role; however, a new orientation is to exploit the potential for innovation and entrepreneurship in the *intersection between different clusters* and across sectors (e.g. Northern Central Sweden, Brittany (FR), and Border, Midland and Western Region (IE)).

The need for *building up a critical mass* and connecting dispersed technology parks, clusters and other innovation partnerships both interregional, intranational and international is emphasised across regions. Not least is this seen as critical in order to respond to global competition. For instance, the Network of Technological Centres in the Valencian Community strives to become the reference network at national and international level in industrial R&D aspects, technology transfer and support to

business innovation. Connecting to *international partnerships* is becoming more and more a priority. Regions see it as imperative to increase efforts in exporting and linking regional firms into international value chains.

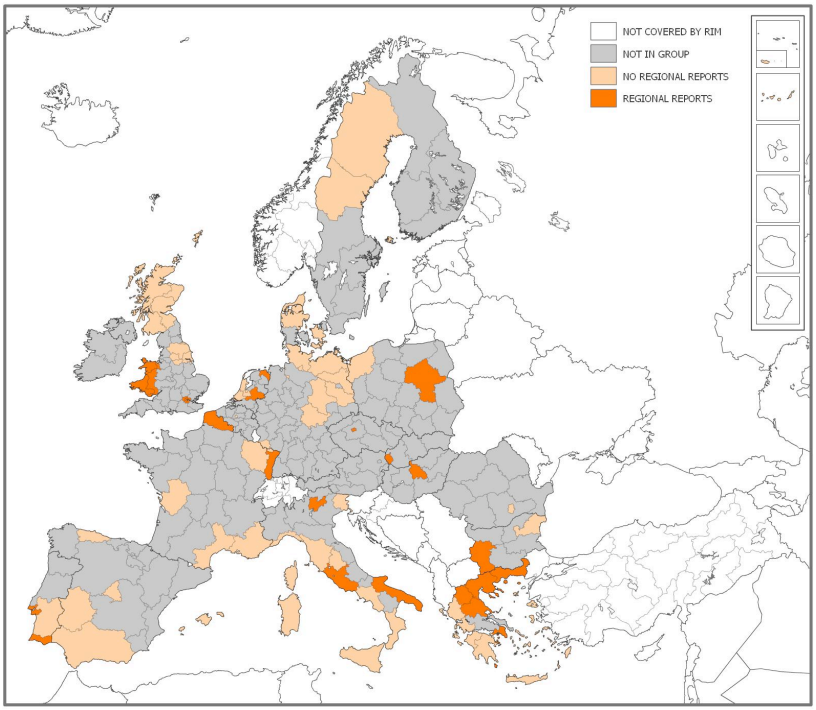
Future innovation policies are expected under much more scrutiny in terms of maximising the return on public investment. Evidence-based policy making will be a must. Several regions (e.g. Silesia (PL), Brittany (FR), Flanders (BE), and Southwest (CZ)) point out a special interest in conducting foresight exercises in order to better prioritise investments and to take more thorough and though-over decisions. Evaluation practices of innovation support actions will be another area that is expected to be strengthened in the future. The actual design and implementation of regional innovation policy measures depend of course on their autonomy and budgetary powers. Many point to the importance of a better share of labour between regional and national programmes that will need a more aligned coordination. The development of *new multi-level governance mechanisms will be a future important issue.*

3. Regions with a focus on the service sector and public R&D

This section of the report analyses regions where the share of public R&D investments in total R&D is higher than 45%, or a large share of employment in the service sector is higher than 75%. For the purpose of this annual report, this group of regions has been classified as 'regions with a focus on the service sector and public R&D'. Since both these characteristics are related, we will also refer to this group as 'science & services' regions. More than half of this group of regions involve capital regions. Altogether, about one third of the regions covered in the RIM repository fall into this category.

Detailed information was compiled from 18 regional RIM reports, including the South West of Bulgaria/Sofia (BG), Prague (CZ), Central Macedonia (EL), Attica/Athens (EL), Nord-Pas-de-Calais (FR), Alsace (FR), Trentino (IT), Lazio/Rome (IT), Apulia (IT), Central Hungary/Budapest (HU), Groningen (NL), Gelderland (NL), Mazovia/Warsaw (PL), Algarve (PT), Lisbon (PT), Bratislava (SK), London (UK) and Wales (UK). Beyond summarising and interpreting the information collected in the detailed regional reports, this section will provide a summary overview of the situation in all regions categorised as 'regions with a focus on the service sector and public R&D' that are covered in the RIM repository.

Figure 3-1: Regions in the RIM repository classified as 'regions with a focus on the service sector and public R&D'.



Source: UNU-MERIT.

3.1 Main trends in the Regional Innovation Systems

In 2008 the average GDP per capita (corrected for purchasing power) for the 18 regions was 20% higher than the EU27 average. The regions of this group of 18 with the highest income (purchasing power) level include: Prague, Attica/Athens, Central Hungary/Budapest, Groningen (NL) and Nord-Pas-de-Calais (FR). Eight regions had a below average per capita income, including Mazovia/Warsaw, Algarve (PT), South

West Bulgaria/Sofia, Lisbon and Apulia (IT). Apulia and Lisbon both had a low level as well as a low growth of per capita income.

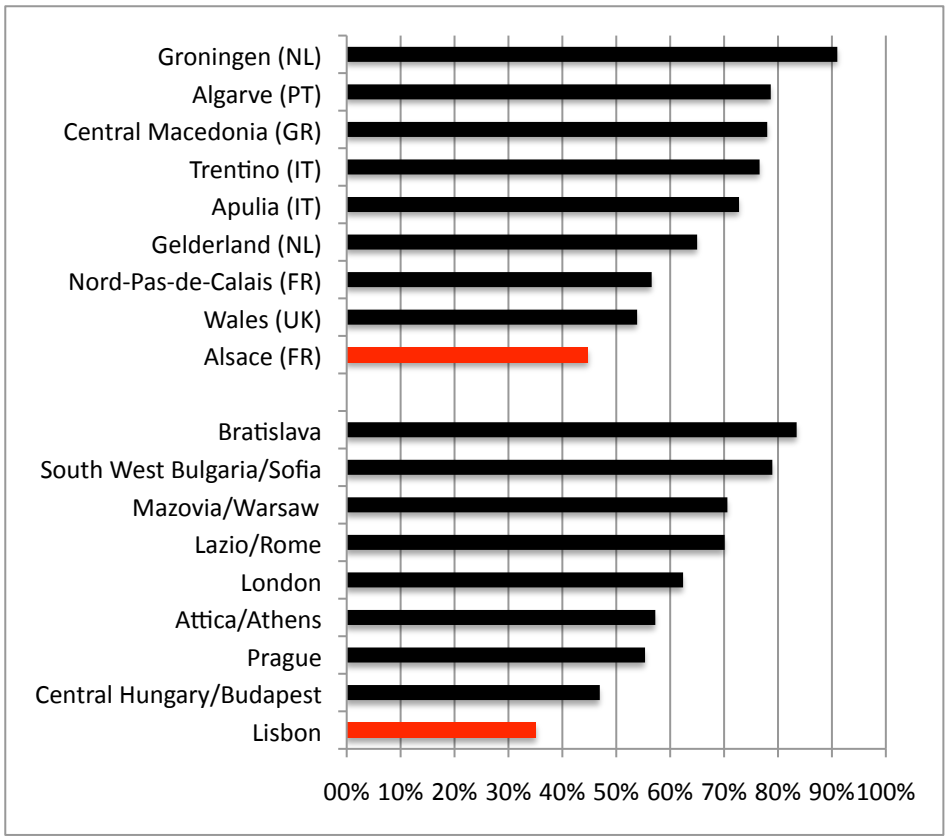
Concerning the growth of GDP per capita we refer to the 2003-2008 period. On average the 18 regions had a (20%) higher growth than the EU27 average. Highest growth was recorded for the capital regions in catching-up countries, especially in South West Bulgaria/Sofia, Bratislava, Mazovia/Warsaw and Prague. Particularly low has been the growth in Alsace (FR), Trentino (IT), London, Apulia (IT) and Lazio/Rome.

On average for the 18 regions the unemployment situation has been (40%) better than for the EU27 as a whole. Relatively good performing regions are Prague, Wales, Gelderland (NL), Trentino (IT) and Groningen (NL). The unemployment situation in 2008 in Nord-Pas-de-Calais (FR), Apulia (IT), Bratislava and Algarve (PT) was less positive.

The change in unemployment for the 18 regions has on average been less positive than for the EU as a whole. The situation in South West Bulgaria/Sofia, Bratislava and Mazovia/Warsaw improved considerably, but the trend for Algarve (PT), Lisbon, London and Central Hungary/Budapest was below the performance at EU level.

On average for the 18 regions the share of public R&D in total R&D expenditure is 65%. Groningen (NL) has the highest share with 91% (see Figure 3-1). Bratislava has the highest share of the capital regions of this group. In Lisbon and Alsace (FR) the public R&D sector is less dominant and as a result there the balance with the business R&D sector is better.

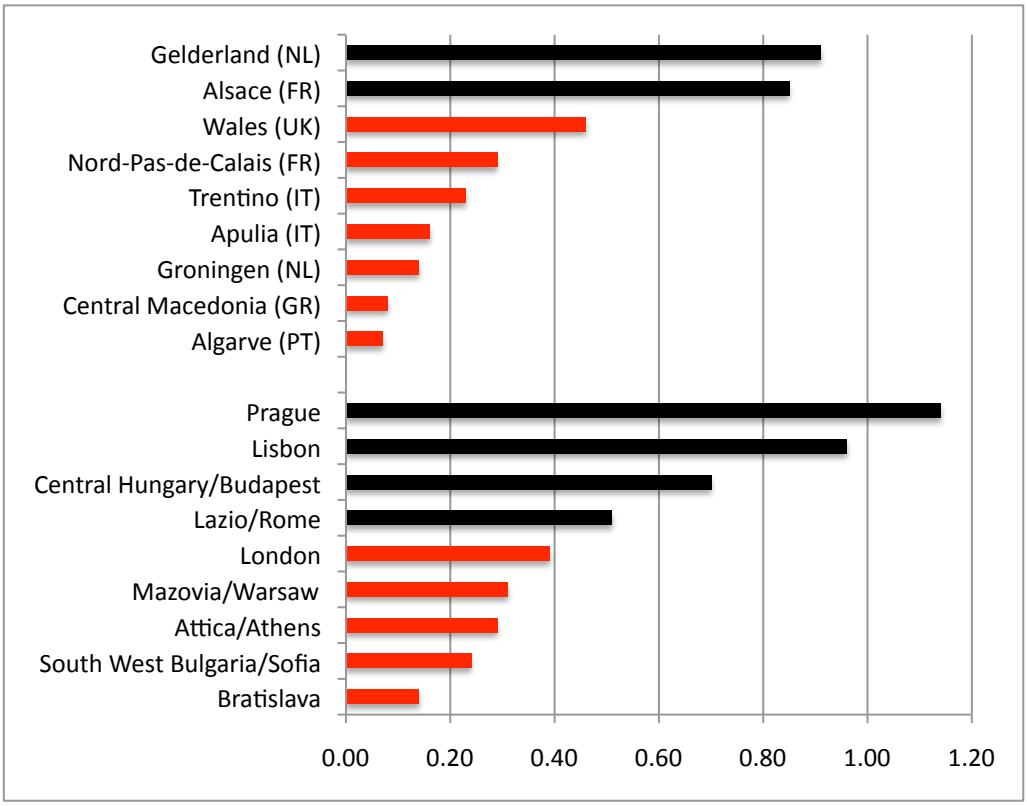
Figure 3-2 Public R&D expenditures as % in GERD (Group 3)



Source: Eurostat, own calculations.

Although capital regions are often seen as concentrations of any kind of innovation activities, concerning business R&D expenditures as a share in GDP, only Prague and Lisbon are among the capital regions in this group which are close to 1% of GDP.

Figure 3-3 Business R&D expenditures as % of GDP (Group 3)



Source: Eurostat, own calculations.

3.2 Major challenges for developing regional innovation capacity

From analysing the three mentioned major challenges in the regional reports for this group of regions the in-balance between the public and private R&D sector is often mentioned. Surprising is also that the challenges often particularly refer to SMEs. Another category of challenges relate to internationalisation, and a last category of challenges refer to prioritised sectors, clusters, and poles. Since a characteristic of this group of regions is the importance of the service sector in the economic structure, it is surprising that innovation in services is hardly mentioned as a major challenge.

The dominance of public R&D and the low share of private R&D is often reflected in at least one of the mentioned challenges, but different (causes and) solutions are given. The arguments can be grouped in three types which logically relate to the relative importance of the public R&D sector within the regional innovation system:

- enhance business R&D;
- better exploit/commercialise public research; and
- improve the linkages and match between public R&D and industry.

Increasing business R&D is among the main challenges for instance in Trentino (IT), Gelderland (NL), London, Groningen (NL), Apulia (IT), and Lazio/Rome. This challenge is phrased in terms like: 'Increasing the relatively low share of private R&D', 'Strengthening the role of the private sector in RTDI', 'Increasing investment in innovation in the private sector'. London for example has the lowest level of business investment in R&D in the UK. This underperformance can partially be explained by the high share of high value services in the economic structure, but the awareness of

the benefits of research also seems to have decreased. For non-capital regions such as Trentino (IT) and Apulia (IT) the prevalence of micro-firms and a very limited number of medium and large enterprises, as well as a lacking RTDI culture in the business sector are important constraints concerning the challenge to increase business R&D. Also for Groningen (NL) and Gelderland (NL) the limited presence of large innovative firms is a barrier. The concerning challenges are seen as deficits on the demand-side.

The second category of challenges refers to the need to better exploit or commercialise results of public R&D. This is the case in for instance Alsace (FR), and it is based on three issues: the insufficient awareness of researchers regarding exploitation of research results; insufficient number of staff dealing with exploitation and a low level of research contracts with regional enterprises, particularly with SMEs. Here the in-balance is seen as a supply-side problem.

The third category of challenges refers to the lack of linkages and a miss-match between the two. Here the in-balance is seen as a systemic problem. For Sofia and Bratislava this challenge calls for actions that make public R&D more useful to the regional SME business sector. In Algarve (PT), Prague and London this challenge calls for an improvement of cooperation and linkages between academia and business, between science and industry. In Prague there are many reasons for the lack of cooperation between academia and businesses. One of the reasons relate to underdeveloped innovation infrastructure like business incubators and science parks, since there are only four very small business incubators and no science park in Prague (Čadil & Vanžura 2011).

Besides the high share of public R&D, there also several regions, like Nord-Pas-de-Calais (FR), Wales and Groningen (NL) that suffer from an additional in-balance, since the public R&D in these non-capital regions is mainly based on higher education institutes, which makes the knowledge base more fragmented, and more difficult to exploit. The lack of government research institutions means that Wales misses out on spin-offs and knowledge based cluster developments that typically arise as a result of government R&D activity.

In many cases the above mentioned challenges particularly involve SMEs. In Lazio/Rome, for instance, a major challenge is to widening the base of innovative SMEs and promoting their growth. Also in London improving growth and innovation of existing SMEs in general is important. For several regions SMEs are also mentioned regarding the gap (lack of linkages and relevance of public R&D) between public R&D and SMEs in the region. In London for instance a major challenge is to strengthen the engagement of local SMEs with the world class research base of the region.

Other, less frequently mentioned challenges concern the question how to benefit from Foreign Direct Investments, for instance by enhancing relations between Foreign Direct Investments and local SME suppliers. In Bratislava (as in Slovakia in general) a dual economy emerged in the late 1990s and early 2000s. Branches of multinationals form one part characterised by world-class technology and high productivity levels. Thousands of Slovak SMEs form the other part of the regional economy, which has low productivity levels and low R&D intensity. Average labour productivity is 2.3 times higher in foreign-owned companies than in domestic (Baláž 2012). Also in Mazovia/Warsaw the inflow of foreign direct investments is seen as opportunity for existing SMEs to become more actively involved in international business and innovation activities.

Another set of challenges relate to the need for internationalisation (e.g. in Lazio/Rome, Lisbon, and Algarve (PT)). For Lazio/Rome the challenge is phrased as: 'reinforcing interregional and international RTDI cooperation'. For the Algarve (PT) region the internationalisation challenge specifically refers to 'Support business internationalisation'. For Lisbon it is identified that R&D institutes and firms need to expand internationally. The reduction of ERDF funding in Lisbon (compared to the previous period: 2000-2006) forces R&D entities and innovation support

intermediaries to look abroad for alternative sources to finance their activities. Also firms need to overcome barriers to internationalisation.

A last group of challenges revolves around clusters, poles and prioritised sectors. For Lisbon, for instance a challenge is to: 'Develop world-class specialisation poles'. The three main challenges for Central Macedonia (EL) are phrased in terms of sectors with innovation and growth potential: agro-biotechnology, ICT and the health sector. Bratislava region has a challenging opportunity for linking automotive and IT industries and specialising in production of smart car parts and car systems. Two of the three main challenges for Prague are: 'Development of a strong, world-competitive biotechnology and ICT sector', since currently the majority of R&D results in these fields in Prague is commercialised abroad (Čadil & Vanžura 2011), which means that also the generated (manufacturing) production and employment is located abroad. The report on Attica/Athens (Nioras 2011) mentions: 'Expand cluster policies to cover new dynamic sectors and technologies', and 'Strengthen knowledge intensive services'. Surprisingly, this last challenge is hardly mentioned for this group of regions, although the share of services in the economy is one of the selection criteria. The third challenge for Attica/Athens is actually a more common perceived challenge for this group of 18 regions: 'Balance regional development by supporting the manufacturing base', since a further decreasing manufacturing sector is seen as a threat regarding the research and innovation potential of the regions. So, also in terms of sectors (manufacturing versus services) many 'science & services' regions regard the sectoral in-balance (the dominance of service industries or the lack of manufacturing industries) as a challenge.

3.3 Innovation policy governance

From the RIM Annual report 2010 we learned that the degree of institutional autonomy is not directly related to innovation performance. Such formal aspects of policy governance are often determined by differences between countries. Also for the 18 public R&D intensive service regions we do not expect a direct, causal relation with the degree of institutional autonomy. On the one hand, German and Austrian regions (which have a considerable degree of autonomy) are lacking among the group of 18, but on the other hand also Scandinavian regions which typically have a modest degree of regional autonomy, are lacking in this group. The degree of institutional autonomy among the group of 18 public R&D intensive service regions indeed varies. The regional autonomy is high in the Italian regions Apulia (IT) and Lazio/Rome, due to the constitutional reform of 2001, which had a strong positive impact (both strategically and financially) on the RTDI component of regional policy. This also applies to Italian 'science & services' regions for which no RIM regional report exists. The Province of Trento (IT) already had a special regional status before the constitutional reform. It has an elected parliament (Council) and a government headed by the President of the province who is chosen by the Council and nominates the councillors (or ministries) responsible for the various policy areas. The province has full autonomy in RTDI policy. The Department of Innovation and ICT and the Department of Education, University and Research are the main technical units designing and implementing RTDI initiatives in the provincial administration (Ciffolilli 2011). However, a high degree of autonomy does not guaranty good coordination, e.g. in Lazio/Rome the horizontal coordination between the different DGs and the coordination within the DGs is rather weak.

The situation concerning autonomy in Italian regions contrasts with for instance the situation in Bulgaria as reported for South West Bulgaria/Sofia. The regional governors and the Regional Development Councils in Bulgaria lack both the autonomy and administrative and financial capacity to develop and implement regional innovation policies. All national innovation support measures, as well as EU funded programmes, are coordinated centrally. According to the report for South West Bulgaria/Sofia, this centralised institutional setup for delivering innovation policy in Bulgaria results in ineffectively linked policies at various levels (Stefanov & Mineva 2011).

In some respect the historically grown strength in public R&D and the service sector of capital-cities is related to many years of centralised national governance and these regions still receive relatively large shares of national funding for public R&D and host relatively large shares of the (national) government services sector. One might claim that the degree of regional autonomy is less relevant for a capital region than for other regions, but on the other hand (as many regional reports show), a poor coordination between central and regional level concerning RTDI may have a large negative impact for capital regions since it makes it difficult to improve the regional economic impact of hosting concentrations of scientific public R&D excellence.

Some capital regions have a special status, like London and Prague. In London the LDA is a functional body of the Greater London Authority (GLA), which is the political administration of the elected Mayor of London. In this respect, the LDA is the only English economic development agency that is in any way accountable to the regional electorate. However, innovation policy has not been a focus for the Capital's political parties. Again we see that a higher degree of autonomy does not necessarily lead to improved innovation policy or performance.

Despite some differences, in most regions RTDI policy making and implementing is at least to some extent the responsibility of both national and regional authorities or agencies. More important than the formal degree of autonomy seems the existence and functioning of regional agencies, structures and coordination mechanisms between different levels (vertical) and horizontal within the regional level of governance. The Bratislava region has underdeveloped innovation governance structures, since it has no innovation council or other high-level forum for innovation policies. Limited governance structures often go hand in hand with limited use of policy intelligence tools aimed at regional benchmarking and evaluation of policy impacts. Besides mechanisms, structures and agencies also the importance of policy making capabilities is important as shown in the case of Central Macedonia (EL) where this seems to be a barrier.

Sometimes the mechanisms exist, but this does not guaranty that they work in practice. In Attica/Athens for instance the coordination between central and regional authorities has been weak. According to the report (Nioras 2011), the coexistence of the central government and regional authorities in Attica/Athens has resulted in administrative fragmentation and overlap of responsibilities between different administrative levels.

In Apulia (IT) the regional administration recently took important steps in changing the regional innovation governance system in order to rationalise policy development and implementation. Regional authorities develop policy initiatives with the support of the recently created Regional Agency for Technology and Innovation (ARTI) and the two public organisations InnovaApulia (IT) and Apulia (IT)Sviluppo. ARTI monitors the regional innovation system, and supports the regional administration in preparing the Regional Strategy for Research and Innovation, which sets long-term priorities for innovation development (Muscio 2012). Also in the Italian 'science & services'regions for which we not have RIM regional reports, institutional changes in the governance have taken place.

In Wales the devolved administration of the National Assembly has made it possible to develop a distinctive approach to innovation and technology. Following the March 2011 Referendum, the National Assembly will also have the opportunity to make its own legislation in these areas of responsibility. However, the challenge of adequate funding to implement the policies involved will remain (as it does in UK 'science & services' regions for which there is no RIM regional report).

This last point of limited funding from the national government in combination with limited opportunities for own (tax) income is also made in several other regions, e.g. in Dutch regions, as is shown in the regional reports of Groningen (NL) and Gelderland (NL). Concerning governance in Groningen (NL) the main challenge by far for regional innovation policymakers concerned the termination of large national funding support

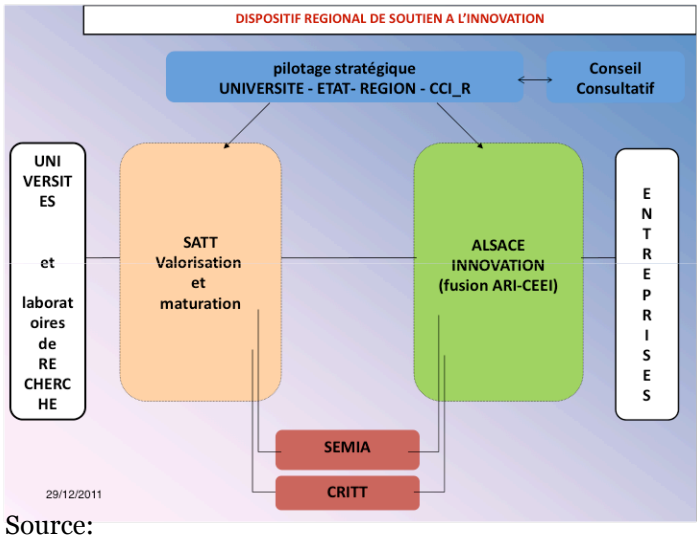
for regional development in the North. Without national funding for programmes such as 'Compass North' and the 'PiD Bearing North' the region is faced with a reduction of about half its current budget for regional development (Wintjes, Es-Sadki & Hollanders 2011).

Another issue concerning the innovation policy governance in the Netherlands is the increased multi-level coordination, because increasingly the strategies, policy instruments and institutions at the NUTS-I level has increased and induced more cooperation between the concerning NUTS-II level provinces.

3.4 Key challenges and opportunities in terms of innovation policy governance

The 18 public 'Science & Services' regions have a number of challenges and opportunities in common in terms of innovation policy governance. Overall, we notice from analysing the regional reports of this group of public R&D intensive service regions that in many regions new governance agencies, mechanisms and structures have emerged. For instance the ARI Alsace (FR) (the Regional Innovation Agency) which was created in 2006. In Alsace (FR) there are about 40 different organisations supporting research, enterprises, technological transfer, and technological development, which have recently been organised as a network, called the Regional Innovation Network (RRI) and is managed by the ARI.

Figure 3-4 RDI System - Alsace



L'AGENCE RÉGIONALE DE L'INNOVATION ALSACE
LE PARTENAIRE DES ENTREPRISES INNOVANTES

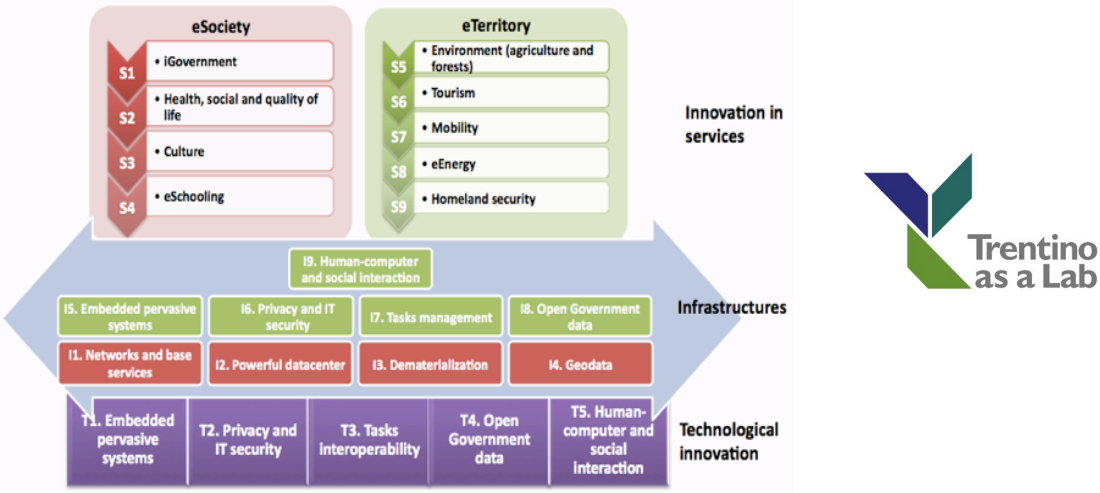
Source: http://www.ari-alsace.eu/wp-content/uploads/2012/02/annexes_schema_dispositif.pdf

In regions where the relation and coordination between the national and regional innovation policy are working properly, the main challenges and opportunities relate to improvement of the governance processes and structures within the region. Besides Alsace (FR), this is for instance also the case for the Italian regions and Prague. A common challenge is to develop regional specific strategies and the main opportunity is in developing strategic networks or platforms by mobilising and organising regional stakeholders. Special attention for the 'science & service' regions is needed concerning the involvement of innovative firms in the region, because the dominant RTDI actors and stakeholders often consist of large public R&D institutes.

Due to the large autonomy and the fact that a variety of regional institutions are in place, Trentino (IT) can now focus on improving the coordination among the regional stakeholders. The Multiannual Research Programme and the Innovation Strategy on ICT Enabled Services (which aims at pursuing the model of "Trentino (IT) as a Lab" - TasLab) respond appropriately to local needs, due to the direct and continuous

interaction between the provincial administration, the main RTDI actors and the local stakeholders, including the business community. Furthermore, these strategies take into account global technological trends with a view to increase local competitiveness. A challenge for governance is to further streamline and strengthen the relations between the provincial research institutions, the university and the business RTDI departments. This will facilitate creating critical mass and overcoming the fragmentation of the business sector. A further challenge in terms of governance is to enhance the use of policy intelligence tools (e.g.: foresight studies, sectoral road mapping and trend analyses) and carry out policy evaluation exercises more systematically (Ciffolilli 2011).

Figure 3-5 TasLab innovation areas - Trentino



Source: http://www.taslab.eu

In Lazio/Rome the key challenge for governance within the region is the need for strengthening the systemic integration of RTDI policy design and implementation. In Apulia (IT) the regional strategy for innovation has for the first time set clear objectives that stakeholders have to meet. The institutional changes offer new opportunities to the regional administration to reshape the innovation system. Remaining challenges include the need to promote to the community the roles of the new regional stakeholders. Also the partnerships and interaction between stakeholders can be improved, and also the evaluation of policy initiatives in Apulia is still very poor. At the moment, there is no real feedback on the added value of regional initiatives, on how they effectively respond to business needs and on how future initiatives should leverage private innovation effort.

The Prague City Hall is in charge of policy design in general and its implementation (Čadil & Vanžura 2011). The City Development Authority of Prague is a specific body in the process of policy-making. The Authority is also responsible for the preparation and monitoring of the Strategic Plan of the City of Prague. Innovation policy in Prague is mainly realised through two operational programmes co-financed by the EU Structural Funds. Compared to the former period, the number of institutions involved in implementation has been reduced, and the responsibilities have been transferred to the regional level, which has proved to be the most effective level for definition of calls, assessment and selection of project proposals as well as for monitoring, evaluation and communication with beneficiaries and the European Commission. The driving factor has been the effort of the City of Prague representatives to gain more responsibilities.

In Lisbon synergies between the national and regional level is being achieved through coordination between the COMPETE national thematic programme and the regional

operational programme (Ferreira 2012). Opportunities to strengthen interactive governance processes in the Lisbon region include:

- Enhanced regional coordination through new mechanisms such as innovation councils, networks, task-forces, innovation steering/advisory groups, forums, communication plans, new executive bodies etc.;
- Increased empowerment of the regional stakeholders through task sharing, engaging regional champions, creating consensus, and ensuring more permanent communication and networking;
- Promotion of more client-oriented policy-making, to cater for firms' innovation support needs in a more systematic way with prompt and appropriate actions and resources.

In many other regions the coordination between the national and regional policy level still leaves room for improvement (e.g. Central Macedonia (EL), Central Hungary/Budapest, London, South West Bulgaria/Sofia and Bratislava).

In Central Macedonia (EL) the problem is primarily the lack of capacity and capability in policy making, rather than a lack of authority or of financial resources (Avranas & Nioras 2011). Efforts made by the central government to decentralise planning and decision making in the past failed due to the lack of human resources, skills and expertise in the region's administration.

The main challenge faced by regional innovation policy-makers in Central Hungary/Budapest is the centralisation of coordination to the national level and the shift towards OPs as the only funding mechanism.

Also for London the key governance issue relates to the vertical coordination between the Central and regional government. There is a need to balance the policy requirements of the London Mayor, and the GLA, with those of the LDA's principal funding department in central Government. The extremely strong steer from central Government, not only on innovation policy itself, but also in terms of what innovation support measures may be implemented should be addressed (Knee 2012).

In South West Bulgaria/Sofia there is a lack of involvement of regional authorities in the innovation policy process. Regional authorities do not analyse the innovation needs of the companies, let alone define and target specific challenges or bottlenecks (Stefanov and Mineva 2011). A main recommendation is to improve the policy making capacity at regional level.

For Bratislava it is very important to improve organisational support structures and policy coordination. Regional governance structures (e.g. a regional innovation council) have to be created and the involvement of the regional government in innovation policy-making has to be increased (Baláž 2011).

3.5 The regional innovation policy mix

The regional policy mix provides information on the priorities and the range of interventions, and ideally it would allow to assess what could be a good mix of policy interventions, e.g. in relation to the identified challenges. One of the complicating issues in analysing the policy mix at regional level is the exact definition of what constitutes 'regional' policy, because due to multi-level governance, in most regions (but to a different degree) part of the innovation policy instruments which are effective in a certain region are in fact 'national' in terms of funding, design and/or implementation. In regions which have relatively large autonomy and responsibilities regarding public R&D policy in the region, it is expected that a larger part of the regional policy mix is oriented to public R&D, than for regions that have no responsibilities or autonomy for this kind of interventions. However, it remains informative to identify what kind of policy instruments constitutes the regional policy mix. Given the challenges related to the in-balance concerning the public and private

R&D performing sectors, one might expect that this is reflected in the regional policy mix.

In several regions among the group of 18 'science & services' regions the role of regional specific innovation policy is indeed limited, and the profile of the mix of policy support which is available in the region is to a high degree equal to that of the country because of the relatively large role of the national policy level (e.g. in South West Bulgaria/Sofia and Central Hungary/Budapest). Also for the Portuguese regions Lisbon and Algarve, and the Greek regions Attica/Athens and Central Macedonia the regional policy mix is highly influenced by the national policy mix. As phrased in the RIM regional report for South West Bulgaria/Sofia: "It is hardly possible to talk of a regional innovation policy mix in Bulgaria" (Stefanov & Mineva 2011). The country does not have a regional dimension to its innovation policy, and regional administrations lack the capacity for innovation policy formulation and implementation. Also the innovation policy mix in Central Hungary/Budapest hardly has regional specific elements. The indicative analysis for Central Hungary/Budapest shows that science-industry cooperation and technology transfer is one of the main elements within the programmes that constitute the mix of policy support available in the region.

The main focus in most 'science & service' regions is on direct business innovation support. In many regions stimulation of the creation and growth of innovating enterprises is a major element in the policy mix, which has also been identified for the group of 15 industrial-oriented regions in section 2. In line with the challenges of the 'science & services' regions supporting public R&D is a less important component in our group of 18, but promoting business R&D and cooperation and collaboration between public R&D institutes and enterprises is an important component. Also cluster policies remain an important category of policy interventions for many regions.

For some regions the focus of the policy mix has shifted from supply-oriented support for public R&D towards business innovation support, e.g. in Lisbon. The Regional Operational Programme for Lisbon contains the regional innovation policy. Compared to the previous ERDF programme, the current one for the first time includes innovation support dedicated to businesses, rather than the traditional investments in public infrastructures. This shift is related to the approximately nine-fold reduction in receipts of EU ERDF funding compared to the previous period, which required a shift towards investments in business innovation and competitiveness (Ferreira 2012). In the Mazovia/Warsaw region there has been no major shift in the direction of the policies, but overall, €496m or slightly more than three-fifths of the total regional budget in support of innovation activities is channelled directly to companies, and the remaining €292m (roughly about 37%) goes to other stakeholders of the regional innovation system, notably scientific research institutions, science and technology parks, loans and guarantee funds, and other business intermediary organisations (See Walendowski 2011). This policy mix is rather similar to many other regions in Poland.

In several 'science & services' regions the emphasis within the regional innovation policy mix is on promoting science-industry collaborations (E.g.: Central Macedonia (EL), Central Hungary/Budapest, Prague). In Central Macedonia (EL) for instance there has been some gradual changes towards the creation of spin-offs. However, the bulk of the available funds (approximately 67%) are directed towards public-private RTDI collaborations, and the remainder towards public research infrastructures (Avranas & Nioras 2011). In Prague the two operational programmes can be classified as horizontal measurers, a large part of it involves infrastructures for technology transfer and science-industry linkages, including science parks, incubators, innovation centres and excellence centres (Čadil & Vanžura).

Several regions in the group of 18 regions have a policy mix with a remaining emphasis on public R&D. In Bratislava for instance, public research centres and universities are still the main beneficiaries of the support measures and receive €371.7m in period 2007-2013, which is about 70% of the total budget. Technology-oriented SMEs is the second most important group of beneficiaries and receive about 30% of total

assistance. Also for the Dutch regions of Groningen (NL) and Gelderland (NL) public R&D still represents a large share (more than 50%) of the regional budgets for RTDI.

Besides the overall trend towards more business innovation support, also with this category there is a trend towards a broader, and more demand-side oriented conception of business innovation support, as can be witnessed in for instance London and Alsace (FR), but also in the Italian regions. The focus on SMEs in particular, as for instance in London, has also increased, which is in line with the challenges for this group of regions.

Overall, cluster policies seem less well represented in the 'science & service' regions, which may be due to the fact that service industries often dominate the structure of the economy and cluster development is still more common in manufacturing industries than in services. However, in a few regions of this group, cluster policy is even the dominant type of support. E.g., in Nord-Pas-de-Calais (FR) where 29% of the RTDI budget of the Regional Council in 2009 was distributed to 6 competitiveness clusters. The concerning measure for competitiveness clusters is by far the largest measure in Nord-Pas-de-Calais (FR) with a budget of €158m. In addition to these 6 supported competitiveness clusters, there are also 12 excellence clusters supported at a regional level in Nord-Pas-de-Calais (FR). Also in Attica/Athens, Gelderland (NL), and Apulia (IT) cluster policy is an important part in the regional innovation policy mix.

The information on programme budgets in the RIM repository of Support Measures is used to indicate the policy mix for 'science & services' regions (Table 3-1). The measures with the priority objective to support innovation in enterprises are indeed the main type of support (in terms of budget) for the group of 18 'science & services' regions. However, for the 'science & services' regions for which no RIM report exists, the information from the repository indicates that the sum of the reported budgets for the measures with priority 'research and technologies' is considerably larger than for the other priorities.

Table 3-1 Overview of RIM Repository of Support Measures (Group 3)

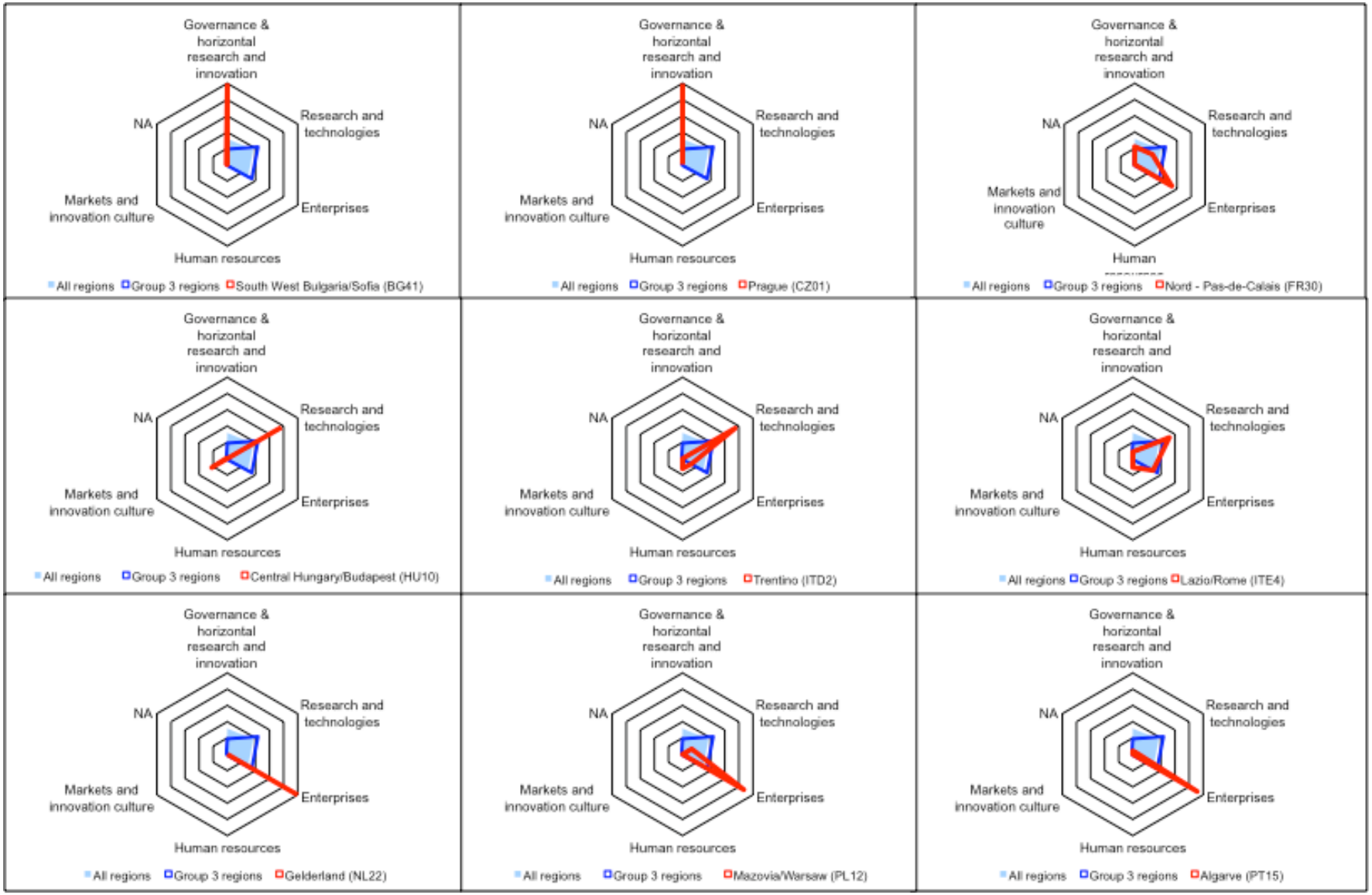
RIM measure priorities	Focus Group	Budget Contribution per Priority in Group TOTAL	
1- Governance & horizontal research and innovation policies	focus group of 18 regions covered in regional reports* (some data available for 17 out of 18 regions)	11.0%	(26 of 102 measures)
2- Research and Technologies		9.8%	(40 of 102 measures)
3- Human Resources (education and skills)		0.4%	(7 of 102 measures)
4- Enterprises		13.2%	(23 of 102 measures)
5- Markets and innovation culture		0.3%	(4 of 102 measures)
n/a		0.0%	(2 of 102 measures)
1- Governance & horizontal research and innovation policies	other regions classified as 'science & services' regions (some data available for 41 out of 54 regions)	8.0%	(32 of 250 measures)
2- Research and Technologies		33.8%	(104 of 250 measures)
3- Human Resources (education and skills)		0.7%	(22 of 250 measures)
4- Enterprises		21.6%	(79 of 250 measures)
5- Markets and innovation culture		0.0%	(6 of 250 measures)
n/a		1.2%	(7 of 250 measures)
		100%	

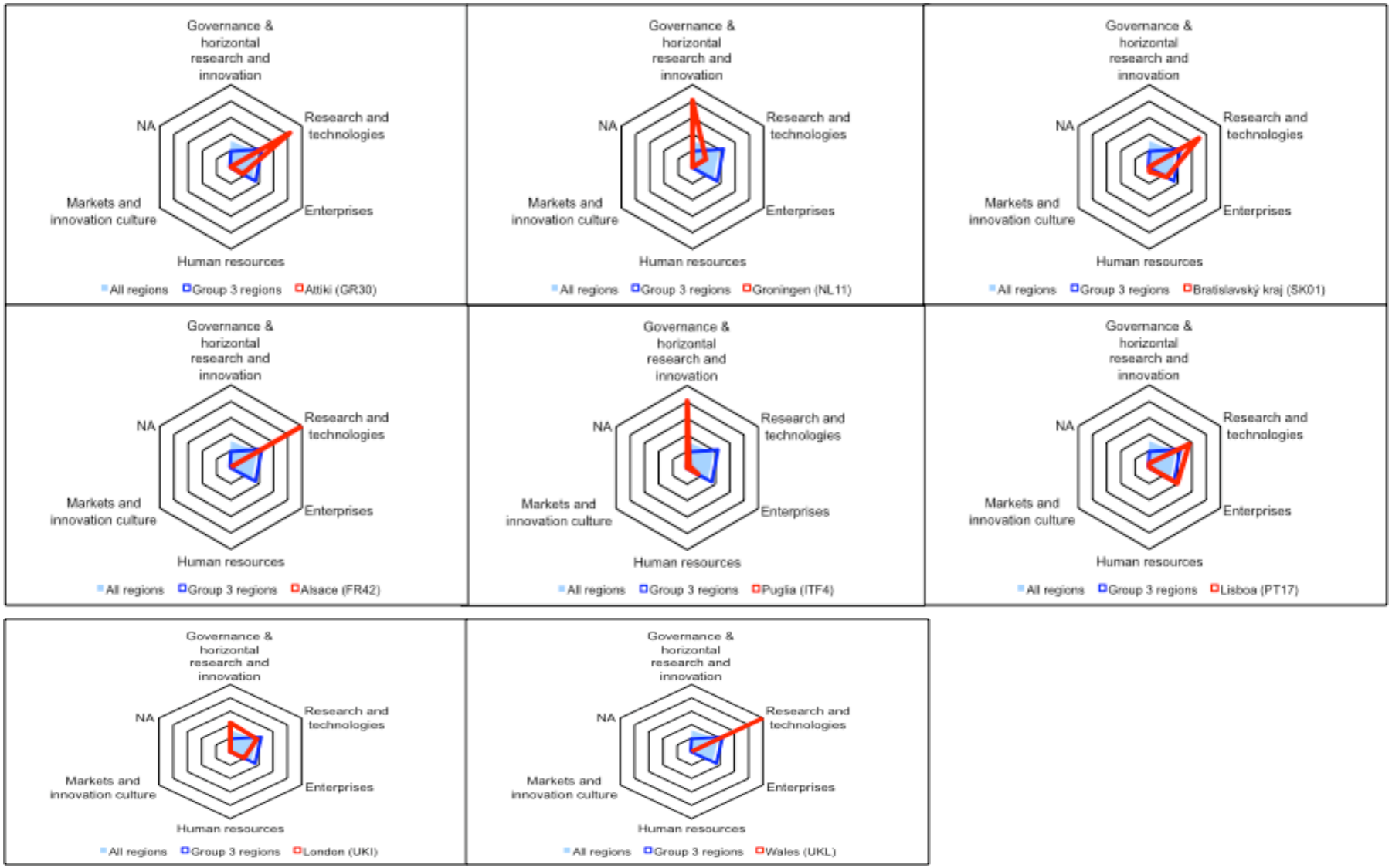
Note: Focus group of 18 covered by regional reports: South West Bulgaria/Sofia, Prague, Central Macedonia (EL), Attica/Athens, Nord-Pas-de-Calais (FR), Alsace (FR), Trentino (IT), Lazio/Rome, Apulia (IT), Central Hungary/Budapest, Groningen (NL) (NL), Gelderland (NL) (NL), Mazovia/Warsaw, Algarve (PT), Lisbon, Bratislava, London and Wales

Source: Regional Innovation Monitor Repository, Analysis based on Technopolis Methodology.

From analysing the RIM repository information we can confirm that for 'science & services' regions, measures with the priority objective of 'enterprises' and 'research and technologies' are quite important within the regional innovation policy mix. Although the information in the RIM reports provide more in-depth information we can see that this is also true for those for which no RIM regional report exists. The indications from the RIM repository analysis also confirms some regional specificity, e.g. in Mazovia/Warsaw the 'enterprise' category of measures are very important, while in Trentino (IT) it is the category of 'Research and technologies', and in Groningen (NL) the category of 'Governance & horizontal research and innovation' stand out.

Figure 3-6 Share of Budget Allocations by Field of Expenditure in Selected Regions (Group 3)





Source: Regional Innovation Monitor Repository, Analysis based on Technopolis Methodology; no information for 1 region from EL.

3.6 Appraisal of regional innovation policies

The authors of the RIM regional reports for 'science & services' regions found it difficult to provide an evidence based appraisal of regional innovation policies, because for most policy measures there is no substantial evidence of outcomes, let alone impact. Also in the RIM repository we see that for most measures there is no evaluation, and in most cases the reason is that it is too early to judge the results. Sometimes the appraisal is not publically available (e.g. in London and Nord-Pas-de-Calais), or it has not been commissioned by the regional authorities or is still in preparation, or planned for the future. And when there are evaluations, they are often self-evaluations. Even more complicated is to assess the effectiveness of the policy mix, which for instance would involve comparing the various measures and the appropriateness of the mix.

In the RIM repository there are some regions which stand out in terms of programme evaluations and appraisal within the group in focus, like Wales and London, where almost all programmes either achieved its intended targets, had a positive response from beneficiaries, or there is even evidence on impact based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.). Two programmes in London stood out as having created significant positive effects: the 'Secondment into Knowledge' programme that enabled SMEs to make use of the skills and facilities in universities to develop innovative ideas and products had a high GVA (Gross Value Added) to cost ratio of 29 (but with a fairly high cost per net job); and the 'JumpStart' programme that enabled SMEs to work with universities to develop innovative concepts had a GVA to cost ratio of 5.54 and a low cost per net job of £13,000 (Table 3-2). It should be noted that all of these programmes except BioLondon are no longer operational (Knee 2012).

Table 3-2 Impact Assessment of LDA programmes on RTDI in London

	Expenditure covered by evaluations (£m)	GVA to cost ratio	Benefit-cost ratio	Cost per net job (£)
Science, innovation and R&D				
BioLondon	24.4	-	1.9 - 2.3	-
JumpStart	3.4	5.54	-	13,000
Pre-Commercial Fund	5.6	0.45 - 0.55	2.2 - 3.5	217,000
Secondment Into Knowledge	0.3	29	-	71,100
SME Innovation Support	1.3	0.44	1.1 - 7.2	106,200

Source: Knee (2012); BERR (2009).

Most evaluations are self-reported collections of monitoring data, counts of beneficiaries, description of activities or provision of the indicator data requested at programme level. For Gelderland (NL) the Mid Term Evaluation of all regional Operational Programmes for 2007-2013 in the Netherlands is done external and shows that beneficiaries in the East are quite positive about the programme (Wintjes & Hollanders 2011). They were asked to rated the extent to which the objectives of the regional measure in general are being met: 83% of the beneficiaries had answered 'good' or 'very good', while for the country as a whole this share was lower with 73%.

The so-called 'output' indicators for the Operational Programme which addresses Groningen (NL) are positive in the sense that the ex-ante set targets are estimated to be more than fully reached at the end of the period (Wintjes, Es-Sadki & Hollanders, 2011). In terms of additional induced private investments the programme shows a large additionality. Another result reported is that it will have supported more than 4,000 SMEs and almost 400 start-ups. Also the estimated number of created jobs as a result of the innovation oriented priority of OP North is above expectations with 6,000 jobs for the 2007-2010 period. The methods used for the estimations and expectations are however not transparent, so they can not be checked or repeated by others.

Another (more qualitative) reporting is based on case-studies, showing in full-colour reports what has been done and achieved for a small selection of successful beneficiaries. These reports are more intended to inform and attract potential participants than to build-up policy intelligence based on proper evaluations and impact assessments.

Some policies are hard to evaluate, like clusters or networks, as mentioned in Nord-Pas-de-Calais (FR) and in Trentino (IT). Overall the appraisal for the programmes in Trentino (IT) is positive, although the evaluations are done internally and could benefit from better methods. Positive features are that the administration is very close to the needs in the region and the interaction among the stakeholders is continuous and direct. Moreover, there are no obvious gaps in the mix, since the regional administration is able to fund measures across the policy spectrum. The challenges in relation to the appraisal of innovation policy in Trentino (IT) (as well as in the other Italian regions) are: strengthening evaluation culture and practice; perform evaluation of innovation poles, technological districts, knowledge transfer schemes, horizontal policies, human capital development initiatives etc. which receive significant resources, but whose effects are not systematically assessed.

In Prague the main positive appraisal factors are the high demand of applicants for support; sufficient absorptive capacity; and the wide range of the eligible activities. The main negative factors are the low financial allocation for support to R&D&I activities and the complicated implementation system.

In Nord-Pas-de-Calais (FR) there has been a positive response by beneficiaries to the measures (e.g. over-subscribed) but it is too early to judge the results or impact. Main factors of success mentioned are: the fact that there is a single organisation responsible for its implementation and management. This has made policy intervention much more coordinated across the region and among actors. For another measure the main advantages is that it is flexible, with regards to the forms (loan/grant) under which funding is provided.

For Alsace (FR) a positive aspect mentioned is the capacity to adapt to the regional context and to experiment and answer the needs of local businesses. A negative appraisal mentioned for a measure was that it had become less flexible (no choice for the firm in the recruitment of the technician, preference for technological innovations, etc.).

For Central Macedonia (EL) the RIM repository mentions that out of 6 measures there is 1 for which a positive response by beneficiaries to the measure could be reported, but for the other programmes it was either too early or no information was available. For one programme the reason why no evaluation was done is that out of the eight proposals submitted, none received funding. Also for all 5 measures in Attica/Athens it is too early to judge the success of the measure (e.g., results of first call for proposals still not known).

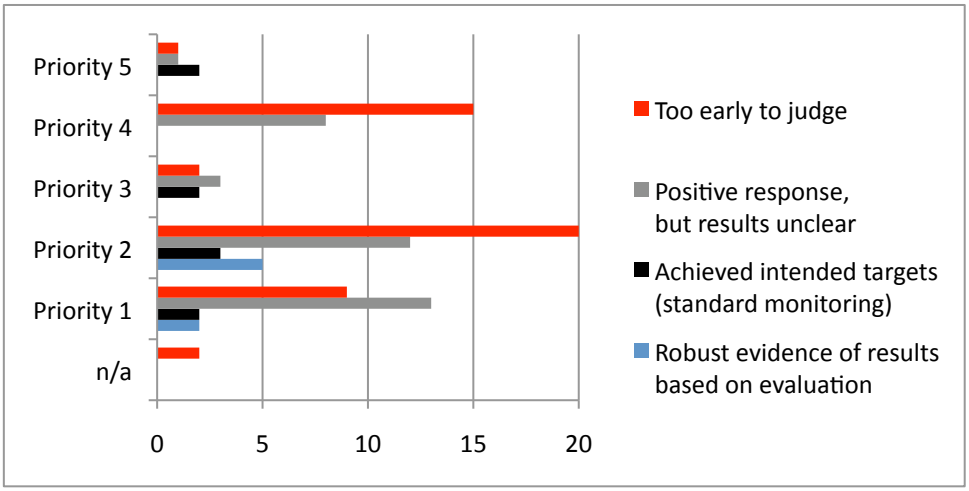
For the seven programmes of Lisbon it was too early to tell for two programmes and for the other 5 a positive response from beneficiaries could be reported. A negative factor impacting on the success of measure are the constraints induced by the global financial and economic crisis, which may have slowed down businesses' participation.

In Mazovia/Warsaw for one out of five measures it could be reported that the measure has achieved its intended targets in terms of results (e.g. number of enterprises investing in innovative projects, people trained). For the other four it was too early to tell. Some problems mentioned in the RIM regional report was for instance that for one measure 87% of submitted proposals did not pass the formal selection phase, due to complex application and selection procedures (Walendowski 2011).

For Central Hungary/Budapest a positive factor mentioned in the RIM repository was the support to broadening and strengthening science-industry linkages with an active role for companies as well. Another important element was the requirement of sustainability after the support expired. From the 16 projects selected, most were

proposed by universities, and only 2 projects submitted by companies (Szalavetz, 2011). This lack of interest from private companies is a weakness and especially in 'science & service' regions involving firms in projects on science-industry linkages remains a challenge which calls for additional efforts.

Figure 3-7 Available Assessments of Measures in the 18 'Science & Services' Regions Covered by the RIM (by priority field)



Source: RIM repository.

3.7 Good practice cases

In the RIM repository correspondents have indicated for each policy measure whether it is a case of good practice. Based on these indications the rate of good practice (number of good practices/total number of measures) can be identified. For the 108 measures documented 61 can be seen as cases of good practice, which brings the rate to 56%, which is slightly below the rate for the group of 15 regions addressed in the former chapter.

Besides this overall rate, we observe that this good practice rate differs between the measures along the 5 different priority objectives. Of the 27 measures in the category of Governance & horizontal research and innovation policies more than 80% can be considered to be a good practice according to the information in the RIM repository.

In the regional reports more in-depth information is provided on a selected case of good practice. Four examples of good practice measures from regional reports of 'science & services' regions are presented below. The reasons to select good practices vary, but the most often mentioned appraisal is that the measure fits with the regional specific needs.

The good practice measure from Bratislava and Nord-Pas-de-Calais (FR) for instance are designed to support a relatively large number of SMEs with a package of tools and aim to increase the relatively low share of innovative companies in the regions, and in particular among the manufacturing SMEs. Since in 'science & services' regions public R&D and service industries are dominant, these policies improve the balance and strengthen the SMEs at the base of the 'innovation pyramid'.

This notion of 'innovation pyramid' is mentioned as a good practice approach from Alsace (FR) (Eparvier & Mollard 2011). Many regional reports address the same issue (either at the level of the regional economy or at the level of a regional sector or cluster) but without mentioning this concept: A major regional challenge is that the number and share of innovative firms is too small; the group is too narrow. This challenge is addressed in Alsace (FR) by the pyramid-shaped conception of businesses and their (policy) needs. The idea is to support and up-grade the firms at the base of the pyramid, and to extend, broaden the base by increasing the share of innovators within the total population of firms. At the top, there are a small number of very

innovative companies, which are for instance likely to get involved in collaborative research projects (e.g. national or FP7 funded). Below this top, different schemes address the specific needs of the concerning level of innovation. At the very bottom of the pyramid the less or non-innovative firms are supported with awareness raising campaigns, and demonstration, detection and diagnosing actions.

In some regions the gap between the top and the base of the pyramid can be related to the gap between units of foreign multinationals and the local SME supplier-base, and the challenge is to link the top with this base. In other regions it relates to a lack of critical mass on the business side of certain innovative clusters.

In Bratislava the measure: **'Support for Purchases of Innovative Technologies and Creation of Quality Management Systems'** (SPIT & CQMS) meets the needs of the region very well because it was designed to support a large number of manufacturing SME's in up-grading and catching-up by promoting the purchase of innovative technologies (costs of machinery, tools and equipment) and improving management. Each firm could participate only once, since it is not meant as a structural subsidy. The SPIT part of the scheme supported some 54 SMEs with €1.45m in total, and there was a maximum of €110,000 per company. The CQMS part of the scheme probably was more important than the SPIT part. Some 418 SMEs projects were supported with €1.295m. CQMS grants are relatively small, but, easy to access, flexible, simple administrative procedures and popular among users. Organisational innovations are becoming at least as important for increasing competitiveness levels as technological ones. The ISO certificates, for example, were a necessary tool for tapping export markets and/or becoming suppliers of the multinational companies (Baláž, 2012).

The '2000 SME Plan' - Nord-Pas de Calais (FR)

The '2000 SME Plan' in Nord-Pas de Calais is considered to be a good practice case because it directly addresses one of the strategic objectives of the regional innovation policy-makers: changing the way companies view innovation, and carrying them through the entire process of innovation. Because of the weak presence of innovative SMEs the objective of the plan is to increase the number of R&D projects and support 2,000 SMEs from 2010 to 2012. The region, through NFID, has thus developed an SME support mechanism that identifies high-potential SMEs, helps them to design and implement strategic development plans; offer assistance by means of a team of trained and certified advisors; and answers all business development needs through a single mechanism Eparvier & Mallet (2011).

Source: http://www/objectifpme.fr

TreC - Trentino (IT)

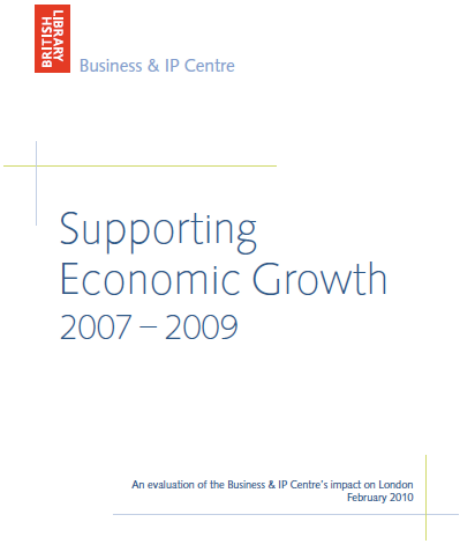
The good practice case selected for Trentino (IT) is **TreC**, a demand-side innovation policy. The province and in particular the Department of Innovation and ICT have been strongly supporting ICT enabled innovation in services for end-users and local communities.

Source: https://trec.trentinosalute.net

TreC provides Trentino (IT) citizens with a multi-channel access point (through computer, smartphone and TV) to health services and a series of tools for effectively managing the health needs of their families. Moreover it facilitates the work of the health professionals (doctors, nurses, public institutions officials) in organising and managing innovative care services. The system allows users to consult relevant information, book services/treatments and receive diagnoses and certificates electronically

The British Library Business and IP Innovation Centre - Lodon(UK)

The British Library Business and IP Innovation Centre was funded in part by £1m from the LDA. The centre offers a range of services of relevance to businesses and those seeking to start a business: Free access to intellectual property resources and databases of business information; A location to network; One-to-one advice and workshops, e.g. on start-up, IP, finance, marketing, researching product and market competition. The centre has supported 200,000 entrepreneurs and SMEs since its launch. Between 2007 and 2009 the centre helped to create 829 new businesses for London. The users are satisfied, e.g. 97% will continue to use it Knee (2012).



Source: http://www.bl.uk/bipc/pdfs/evaluation.pdf

3.8 Smart specialisation

Overall, the group of 18 'science & services' regions seem less successful in developing strategic, regional specific and prioritised sector approaches to innovation and technology, and this may be due to the dominance of public R&D, which represents a more general, less targeted, and less applied knowledge-base than private R&D. Moreover, also the knowledge used in service industries is often more general and less specific in technological terms and often not linked to strong business R&D performing manufacturing sectors.

The concept of smart specialisation has broadened fast over the last two years, and the reports often emphasise different aspects. Some emphasise the importance of international linkages, others the bottom up discussions on a regional strategy involving different types of stakeholders, other refer to the importance of leading research activities, but mostly the issue of smart specialisation is addressed in the reports in relation to clusters and priorities sectors. In many reports the past or

current prioritised areas include ICT and 'bio-something' and often such broad priorities also relate or are even defined by the national policy level.

In the Province of Groningen (NL) (and the North of the Netherlands as a whole) the priority setting part of developing a smart specialisation strategy is at the centre of regional innovation policy discussions for many years already. Although the region doesn't have a long tradition in cluster policy, it has adopted the approach of the 'Peaks in the Delta' framework to develop Key Areas ('Sleutelgebieden') and emphasise "focus and critical mass" (Wintjes et al. 2011). This is an ongoing, challenging process in which many levels of governance are involved. The selection of the fields of Smart Specialisation is influenced by the national priorities, those at the local level, provincial level, and the level of the North. Because it was important for the three Northern Dutch Provinces to negotiate with the national government on the additional national funds for regional development, the Province was forced to agree on a common strategy for the North and it was clear that not every province of the North (as a sub-region) could come with a list of own topics. The most promising prioritised themes in the Province of Groningen (NL) are: Energy, Healthy Ageing, and Biobased Economy. The themes of Creative industries and a generic theme of Trans-sectoral innovation are less well developed.

Linking and building on existing regional clusters or poles, which are often more narrowly defined, is in many reports seen as the most promising way forward to promote smart specialisation. Sometimes these clusters or poles are not covering the whole region but at sub-regional level. The number of clusters can however be quite large, e.g. the 17 clusters mentioned for Alsace (FR) (Eparvier & Mollard 2011). An easy critique would then be to state that 17 fields of smart specialisation is too much, however it could also be seen as a quite natural step in a bottom-up, entrepreneurial process, in order to deviate from the obvious ones and from a few too broad national priorities. In a next step the number of fields could be reduced. Another approach is to define more narrowly defined fields of specialisation within the broad fields of priority that in many cases already exist.

Selected clusters in Alsace (FR)

Source: http://www.innover-en-alsace.eu/Alsace/Poles-et-Grappes-d-Activites

Also the level of autonomy plays a role here since quite some number of 'science & services' regions can not afford to drop the national priorities, because they would lose the opportunity for national (co-) funding related to those national fields of priority.

Many regions report on the improved strategy development at regional level, involving relevant stakeholders, but they also mention that still a lot is to be improved. Some reports for instance mention that companies (and especially SMEs) have relatively low influence on the strategy development, and that the public R&D stakeholders are over-represented in the concerning platforms.

Sometimes an opportunity for smart specialisation in services is mentioned, but since half of the 18 'science & services' regions is a capital region, one would have expected more opportunities in this direction. Some demand-side oriented themes such as health can be found but overall, in case only a few priorities are mentioned, the fields do not sound original enough to deserve to be called specialisation.

Especially regions where the public R&D mainly related to the higher education sector, may find it hard to comply with the demanded formulation of smart specialisation strategies, since universities normally host expertise in a broad range of disciplines, and are not specialised in only a few fields. The existence of government research labs are in this respect the more helpful type of public R&D in developing fields of focus.

3.9 Future actions and opportunities for innovation policy

As future actions and opportunities for innovation policy in the concerning regions, many reports describe how the relations between the region and national level of governance has changed and what could be further improved. E.g., for Wales (UK), and Central Macedonia (EL) the reports describe a situation that formally has improved in terms of the devolution, but in terms of funding (own income or from national sources) the situation for many regions has not improved.

For Mazovia/Warsaw possible future orientations and opportunities for regional innovation policy includes (Walendowski 2011):

- Developing a strong partnership by bringing together all key stakeholders of the regional innovation system;
- Improving strategic intelligence and drawing lessons from the implementation of ongoing innovation programmes;
- Establishing a greater prioritisation concentrating on key areas of strategic importance for regional development.

These three opportunities for improvements can also be found in many other regions of this group in focus. Concerning the involvement of stakeholders in 'science & services' regions it is challenging to involve firms, and especially manufacturing SMEs. In this respect the public R&D stakeholders do not only dominate the R&D statistics of these regions, but they are also well represented in policy platforms and steering-groups.

The first two of the three possible future opportunities for Gelderland (NL) are also more widely reported (Wintjes & Hollanders 2012):

- Exploiting the developed strengths in focussed and demand-oriented public R&D, by intensifying the support for business development and innovative companies;
- Develop bottom-up processes and partnerships involving SMEs for the identification, development and implementation of Smart Specialisation Strategies in Food and Health;
- The €100m from the Province of Gelderland (NL) for the 2012-2016 period, which is to be invested in revolving funds.

This last promising future action is also widely applicable, but phrased in more detail. This once available regional budget provides good opportunities to improve the policy

and impact on innovative business development. Setting up revolving funds has become a very important trend at regional level in the Netherlands, also in the 'science & services' regions. Also other measures to promote business R&D and innovation projects are very important for the future prospect of 'science & services' regions. Both in capital city regions as well as more peripheral regions.

Relevant for the future innovation policy of 'science & services' regions are demand-side policies, service innovation policies and innovation in the public sector. Currently such policies are not very well developed, at least not as well as one would expect based on the characteristics of 'science & services' regions, but several reports mention it as good opportunities for future action.

All reports have emphasised the importance of developing a regional specific strategy, which addresses the needs of the region. The main need in this group of regions is to enhance the business R&D performing capacity. No report mentioned the lack of certain scientific expertise or the quality or quantity of public R&D, except that the link or the match with the regional business sector, especially SMEs, should be improved.

4. Conclusions

World-class Performing Regions (group 1)

Starting Point

All regions in group 1 rank among the economically strongest and most innovative regions in their respective national and international contexts. In line with their leadership role, these regions attract well-educated students and (qualified) labour force at the same time. Furthermore, all regions in group 1 spend significant budgets on R&D, both in the private and the public sector while almost all of them are characterised by an above average contribution of the business sector to total R&D expenditure. With few exceptions, group 1 regions are home of "manufacturing cores" and/or headquarters of large companies, applying for a large number of patents. Finally, group 1 regions host a strong public research base of universities and other institutes, as a result, most are leading publication hubs in the EU27.

Main Challenges

The most central challenge of the world-class performing regions clearly is to maintain international competitiveness and economic growth. Beyond keeping up investment in RTDI activities, additional challenges are perceived in the fields of human resources, knowledge-intensive services, regional disparities, and knowledge-transfer. Among all challenges listed, the investment in R&D and the leveraging of public R&D investment for the private sector appear to be the most pressing. In parallel, the development of human resources seems to be a persistent, yet dynamic challenge, despite substantial immigration of qualified labour and student as is the reduction of frictions and obstacles in the field of knowledge and technology transfer. Importantly, challenges differ depending on the techno-economic and institutional path-dependencies as well as the current status of a region. Other challenges are found in a specific type of regions, e.g. regional disparities in large regions or a lack of knowledge intensive services in industrial regions.

Innovation Policy Governance

The degree of regional autonomy in group 1 regions depends on national framework conditions as the different Member State's constitutions assign different roles to sub-national authorities. With a view to governance, therefore, the group of world-class performing regions in Europe has to be rather heterogeneous. In some cases, however de facto regional autonomy has been successfully increased *by means of* strategic policy making, rather than having been available from the beginning.

With a view to governance, many regions are facing idiosyncratic challenges: firstly, on the national level where challenges may result from complex multi-level governance systems in specific Member States; secondly, on the regional level where challenges can be particular to one specific region and its relation to its neighbours (e.g. integration between Berlin and Brandenburg).

Nonetheless, there are a number of challenges that may be considered as characteristic for group 1 regions, notably: the challenge to make use of their options to improve R&D related skills and human resources; the challenge to ascertain the transparency and accessibility of the their R&D funding system; and, finally, the challenge to initiate moderation and cooperation mechanisms that help to create sustainable knowledge dynamics among different stakeholders.

On the other hand, many group 1 regions are facing joint opportunities. Most of them dispose of a wealth of experience regarding the strategic design and implementation of (modern) innovation policy. Furthermore, most regions have developed a tradition for the participation of relevant regional stakeholders in the development of political strategies. Moreover, in most of these highly developed regions, there are in fact certain areas of both current and future economic and technological strength to which

regional innovation strategies can relate. Finally, their strong research infrastructure provides a good basis for high-quality, high-volume triple-helix partnerships between e.g. leading universities and the headquarters of large corporations.

The Regional Innovation Policy Mix

In the majority of cases, policy interventions in group 1 regions are strategically thought through and follow a clear political mission. In many of them, this strategic approach has developed as an informal trajectory across several decades and was, until quite recently, not very explicitly documented. In some cases, comprehensive strategic planning was, if at all, expressed indirectly through the OP, ERDF and ESF.

As a result of their above average strategy orientation, most of the leading regions have launched cluster policies to focus their regional policy intervention. While some regions prefer to focus on their current, existing strengths, others tend to focus on developing fields that are perceived as strategic for the regions' future development. Additionally, most regions have set-up one-stop business support agencies, which offer a broad range of support measures – in general to firms from all technological fields. Consequently, most group 1 regions recipe for success can be seen as a mix of technological openness and selected large scale support initiatives. In any case, almost all group 1 regions provide a broad range of support measures often including direct subsidies for research and development in SME, innovation vouchers, support for projects at universities, entrepreneurship support, as well as start-up incubation. Even among the group 1 regions, however, few explicitly flag out policies as 'demand-side oriented', 'public procurement oriented', or 'related to public sector innovation'.

Appraisal of Regional Innovation Policies

Most regional reports present a fairly positive assessment of regional innovation policy in group 1 regions. In those highly developed environments, policy makers do not need to promote 'innovation culture' in a basic manner – as most of the regional firms success depends on some sort of innovative capabilities already. Hence, it seems appropriate that many focus on strengthening existing or perceived future strengths. Moreover, they are well positioned to benefit from targeted, excellence based funding from the national level whereas their more general RCE funding base is more limited. As a result, many broad-based, technologically open policies in group 1 tend to rightfully focus on facilitation and moderation. On the other hand, many group 1 regions have for years negotiated the focused elements of their strategies in an 'entrepreneurial process of discovery' developing leading-edge clusters or pôles de compétitivité. Seen from that perspective, many of them have already pursued smart approaches to regional specialisation for a number of decades. While deficiencies with respect to strategy formulation tended to prevail in the 2000s, most regions have by now developed a more or less explicit regional strategy. Exceptions can be found in Finland with its persistently weak regional level and in England where the demise of the RDAs has left many open questions. In general, the set-up of one stop agencies that are able to provide consultation on multi-level funding sources is regarded as a useful and necessary step. While the labels of 'demand side-oriented policies', 'public procurement', or 'public sector innovation' are rarely used as such, there is a prevalent awareness of the issues as such and they are regularly discussed in policy circles.

Regions with strong focus on industrial employment, business and, or public R&D (Group 2)

Starting Point

The overall economic performance of industrially-oriented regions varies to a large extent. Within this group, the are regions with GDP significantly above EU average, those experiencing economic decline as well as structurally lagging regions from most recent EU Member States. As a result, some industrially-oriented regions display unemployment rates above 20%, while others have managed to keep them below 10%. Moreover, it should be noted that group 2 regions is constitute of two subgroups:

Those in which R&D is mainly performed by the firms themselves and those in which it is mainly performed by the public sector.

In general , there are multiple factors that explain the prosperity of regions. To account for the diversity of industrially-oriented regions, this report puts a spotlight on a number of factors that have a positive influence on the regional development and creation of jobs. Among the main success factors are the presence of leading companies specialised in high-end products, business density, well performing manufacturing sector, size of the market, openness of economy, and emergence of new sectors. Particularly, the prospects of development are limited by the recent financial crisis, loss of international competitiveness, and reliance on low value-added sectors.

Achieving critical mass of investment is essential for sustainable economic growth and jobs. One of the main lessons that can be learned from the experience across regions is that peaks of investments do not automatically lead to growth and jobs.

Main Challenges

The need to support the creation and growth of innovative companies by putting in place more effective policies beyond the old economic model, and ensuring the supply of highly educated personnel are concrete examples of existing common innovation challenges. In the regions with substantial public R&D expenditure the predominant challenge is the sectoral diversification and focusing research efforts to respond to today's most pressing needs of manufacturing sector. In summary, the regions need to reorganise their regional innovation system in such a way that local firms can achieve international competitiveness in at least some fields.

Innovation Policy Governance

The present report confirms that the policy governance set-up is highly diverse. In more advanced regions the challenge is mainly to reduce the complexity in their dealings with the existing multi-level governance framework as well as to eliminate redundancies in the governance system under the direct authority of the regions themselves – e.g. through merging regional innovation agencies together with other business intermediary organisations. Other regions, to the contrary, have to continue building basic administrative and institutional capacities to implement and monitor regional innovation policy in the first place.

The Regional Innovation Policy Mix

The regional policy mix is focused on stimulating the creation and growth of innovative enterprises and supporting research and technology. An additional priority is put on fostering cooperation and collaboration between the science sector and enterprises, in addition to the creation and development of knowledge intensive clusters. These measures, however, do not always follow a clearly developed regional strategy. Many regions therefore, remain unable to focus their policy mix in such a way that would allow them to focus on areas in which a competitive advantage can potentially be gained. As a result, many of them support e.g. too many clusters but each of those in an insufficient way. Moreover, regional stakeholders tend to be insufficiently consulted when it comes to regional priority setting. Furthermore, measures regarding human resources, markets and innovation culture are considered of secondary importance in the majority of cases.

Appraisal of Regional Innovation Policies

The growing interest in developing smart specialisation strategies stems from a number of common challenges, such as an increased international competition, a concentration of growth in activities that could be imitated by other regions, an overt reliance on a limited number of key sectors as well as, more recently, the need for resilience in the present economic situation. In the regions of most recent EU Member States the preparation of next programming period has only recently triggered the process of developing such strategies. While cluster policies occupy a central position in regional innovation strategies, only some regions actively pursue

establishing international partnerships. In the time of fiscal constraints the imperative is to focus on better prioritisation, it remains nonetheless important to focus on the 'smart' element of specialisation by safeguarding diversity and resilience.

Regions with a focus on the service sector and public R&D (group 3)

Starting Point

Although regions in group 3 can be quite different from each other, they have a common characteristic in the sense that the share of public R&D investments in total R&D is higher than 45%, or a large share of employment is in the service sector. More than half of this group of regions is made up by capital regions, the other half refers to more peripheral regions where manufacturing and business R&D is less well developed than most other regions in Europe.

The average share of public R&D in total R&D expenditures for the 18 regions is 65% while business R&D expenditures are rather low. Groningen (NL) has the highest share with 91% while Bratislava has the highest share of the capital regions of this group. In Lisbon (PT) and Alsace (FR), to the contrary, the public R&D sector is less dominant. Concerning business R&D expenditures as a share in GDP among the capital regions in this group only Prague and Lisbon come close to 1% of GDP.

Main Challenges

In 'science & services' regions the need to improve the balance between the public and private R&D sector tends to be mentioned more often then elsewhere. While the dominance of public R&D and the low share of private R&D is often reflected in at least one of the three main challenges, however, different causes are given and different solutions are proposed. The arguments can be grouped in three types which logically relate to the relative importance of the public R&D sector within the regional innovation system, i.e. to enhance business R&D; to better exploit/commercialise public research, and to improve the linkages and match between public R&D and industry.

Another category of challenges relate to internationalisation, including the question of how to (better) benefit from FDI, and a last category of challenges refer to prioritised sectors, clusters, and poles. Since a characteristic of this group of regions is the importance of the service sector in the economic structure, it is surprising that innovation in services is hardly mentioned as a major challenge.

Innovation Policy Governance

The degree of institutional autonomy among the group of 18 public R&D intensive service regions varies. While it is high in the Italian regions, it remains very low in for instance Bulgaria where the regional level was only very recently established and, with a view to Structural Funds administration, is not yet fully functional. Despite some differences, in most regions RTDI policy making and implementation is at least to some extent the responsibility of both national and regional authorities or agencies.

In many regions new governance agencies, mechanisms and structures have emerged. In regions where the relation and coordination between the national and regional innovation policy are working properly, the main challenges and opportunities relate to improvement of the governance processes and structures within the region (e.g., in Alsace and Trentino). In many other regions the coordination between the national and regional policy level still leaves room for improvement (e.g. Central Macedonia (EL), Central Hungary/Budapest, London, South West Bulgaria/Sofia and Bratislava).

Regional Innovation Policy Mix

In most regions, the main focus is on direct support for business innovation with the aim to build those capacities which are so far absent, as well as to connect them to the existing competencies in public research and higher education. As a result, the promotion of business R&D as well as cooperation and collaboration between public

R&D institutes and enterprises is the most important component of the regional policy mix. Against this background, cluster policies constitute an important category of policy interventions. In a few regions of this group, cluster policy is even the dominant type of support (e.g. in Nord-Pas-de-Calais (FR)).

Nonetheless, it should be noted that several regions which display the third group's above average focus on public R&D, continue to pursue a mix of policies with a strong emphasis on exactly this focus on public R&D. For example, this is the case in Bratislava and Groningen. Besides the overall trend towards more business innovation support, 'science & services' regions display a trend towards a broader, and more demand-side oriented conception of business innovation support.

According to the information from the repository the sum of the reported budgets for the measures with priority 'research and technologies' is the second most important priority among five policy priorities.

Appraisal of Regional Innovation Policies

Overall, the group of 'science & services' regions seems less successful in developing strategic, regional specific and prioritised sector approaches to innovation and technology than world-class performers, and the industrially-oriented regions. This seems to be related to the dominance of public R&D, which represents a more general, less targeted, and less applied knowledge-base than private R&D. Companies are for instance in many ways more specialised than universities. Concentration of public R&D in capital regions is quite important for the national science system, so they are likely to remain successful in attracting large shares of the available public funding. Also large parts of the service sector in capital regions fulfil a national role, e.g. government services, but linking such competencies to smart specialisation strategies is hardly addressed in this group of regions.

Nonetheless, the concept of smart specialisation has spread fast over the last two years, and the reports often emphasise different aspects. Some emphasise the importance of international linkages, others the bottom up discussions on a regional strategy involving different types of stakeholders, other refer to the importance of leading research activities. In most reports, however, the issue is addressed in terms of prioritising certain clusters and sectors. Linking and building on existing regional clusters or poles, which are often more narrowly defined, are in many reports seen as the most promising way forward to promote smart specialisation.

As pointed out above, however, the new trend may prove difficult to follow. Particularly, regions where the public R&D mainly relates to the higher education sector, may find it hard to comply with the demanded formulation of smart specialisation strategies, since universities normally host expertise in a broad range of disciplines, and are not specialised in only a few fields.

Demand-side policies, service innovation policies and policies for enhancing innovation in the public sector, finally, are currently not very well developed, at least not as well as one would expect based on the characteristics of 'science & services' regions. They are, however, mentioned as good opportunities for future action in several reports.

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