20 April 2011

Regional Innovation Monitor

Innovation Patterns and Innovation Policy in European Regions - Trends, Challenges and Perspectives

2010 Annual Report

Project No. 0932

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

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Preface

The research for this report was undertaken by Technopolis Group, Fraunhofer Institute for Systems and Innovation Research ISI, and UNU-MERIT, Maastricht University in the framework of the Directorate-General for Enterprise and Industry project 'Regional Innovation Monitor' (Contract No. ENTR/09/32).

This report is the product of extensive desk research conducted during Winter 2010 and further work carried out at the beginning of 2011. It takes account of the Regional governance and policy survey results (hereinafter referred to as RIM survey) collected in the framework of this project by a network of experts as well as the discussions at the first RIM policy workshop held in Brussels on 26 October 2010.

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The authors wish to thank all those who have provided their comments on the first draft of report, especially Peter Droell, Alberto Licciardello from Enterprise and Industry Directorate-General of the European Commission, Claire Nauwelaers from Directorate for Public Governance and Territorial Development of OECD, and Prof. Lena Tsipouri from the University of Athens.

RIM provides detail information on regional innovation policies for 20 EU Member States: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden and the United Kingdom. The core of the RIM service is a knowledge base of information on some 200 regions.

For further information about the project and access to the full range of information on regional innovation policies, please visit the RIM website at: http://www.rim-europa.eu

Disclaimer

It should be noted that the content and conclusions of this report do not necessarily represent the views of the European Commission. The report is the responsibility of the authors alone.

Executive summary

This first annual report of the Regional Innovation Monitor pursued three main objectives. The first objective is a systematic analysis of the existing wealth of information on the topic of *regional innovation policies* with the aim to carry out comparative analysis and drawing policy recommendations. Within this context, the *governance aspects* are analysed especially in terms of general long-term and specific trends. Furthermore, the establishment of governance capacities to participate in *multi-level governance* is analysed as well as the capacities to design and implement RTDI policies influenced by the process of devolution.

The second objective of this report was to assess how innovation performance across EU regions relates to governance and policy aspects. The results of this analysis were primarily used in order to better understand specific *innovation challenges* and policy options in different groups of EU regions. In particular, the use of novel approaches to currently existing benchmarking exercises has been put into practice by going beyond the use of available quantitative indicators.

Finally, the third objective was to prepare a thematic section in order to analyse strategic use of the *Structural Fund interventions* in support of regional innovation policies. Overall, strategic deployment of the SF remains so important because they provide many regions with substantial leverage to introduce targeted activities. In detail, this part of the report describes policy options for a strategically desirable use of the SF interventions and presents concrete examples of good practices across different types of EU regions.

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

- The assessment of existing regional *innovation policies* reveals both similarities, but also some distinct differences in policies adopted by regions in support of innovation activities. Firstly, almost all regions efforts are concentrated on defining key areas of strategic importance for regional development, in addition to high popularity of cluster policies. Secondly, policies remain heavily focused on supply-side despite efforts to support knowledge transfer and collaboration activities between the research base and industry. Thirdly, policies are predominantly concentrated on the manufacturing sector, while there has been so far limited implementation of policies for innovation in services and public sector innovation. Differences primarily relate to a limited implementation of new models of innovation policies, particularly in regions of Central and Eastern Europe. An example is the 'Doing-Using-Interacting' approach, in contrast with the Science Technology Innovation (STI) approach. It refers to learning which is tacit and often highly localised and covers non-R&D innovations
- The last decade has witnessed two main trends in regional governance, notably building up the basic capacities required for regional governance of RTDI policy, as well as establishing new organisations and institutions to assume new approaches to regional innovation policies. The main triggers for policy makers in regional innovation policies were the increasing competition in a globalised economy, shortcomings of traditional policies and emergence of cluster initiatives.
- The *devolution process* has been by no means homogenous across Europe which resulted in different types of regionalisation with regard not only to the degree of decentralisation but also with regard to the functions and competences that are devolved to the sub-national level. With regard to the principles of governance approaches, the RIM survey finds that the involvement of bottom-up and top-down elements in the process of policy development is the most common approach. In terms of institutional set-up, centralised approaches involving a regional innovation agency are the most common which can be considered as an

evidence of co-ordination to build up structures and competences in RTDI policy making.

- The survey provides strong evidence of *multi-level governance* suggesting that even in countries where regional autonomy is high, the national level can rarely be disregarded in the process of regional governance. Although the dynamic landscape of multi-level governance is shaped by multiple strategies developed by regions, governance capacities in a broader sense have not yet been sufficiently attained. Other specific trends include the establishment of regional innovation councils, formulation of bottom-up networks and cluster policies, strengthening existing strengths, as well as more widespread use of evidence-based approaches and evaluations.
- Regarding *innovation performance*, one of the main conclusions is that only a few of the governance and policy factors show a significant relationship with one of the performance factors. The outcome depends on a number of framework conditions, such as different degrees of bottom-up pressures, the flexibility of the multi-governance model, as well as the regional governance capacity. Regions with higher governance capacities consider regional process of RTDI governance a more efficient and yielding a greater impact.
- With regard to the relevance of the *Structural Funds for strategy development*, the results of RIM survey show that for slightly less than a half of regions the relevance was evaluated as high and very high and for another third as very low and low. The analysis of survey responses also indicates a positive relationship between the significance of funding and degree of relevance of the Structural Funds for strategy development. It is important to remember that any deployment of the Structural Funds that is suitably adapted to the regional specificities and makes sensible contribution to a broader political framework should be considered as strategically adequate. As a result, there are different implications for the usefulness of certain policy actions under certain conditions. Based on the analysis of current situation, it is evident that there is a need to further improve strategic use of the Structural Funds.

Identified policy challenges

With a view to the overall governance framework:

Capacity building must catch up with the processes of devolution. Even though a formal process of devolution has been initiated in many countries, governance capacities have not yet been sufficiently attained in many regions surveyed by the Regional Innovation Monitor.

Two thirds of the regions surveyed report that process of regional RTDI governance cannot yet be assessed as "fairly effective". Further analysis is needed to determine if this lack of effectiveness of regional governance systems is merely due to the fact that they have only recently been established or if other, more fundamental challenges exist.

With a view to regional innovation strategies and policies:

The current focus of regional innovation policies raises some issues of concern. Many strategies and measures remain unduly focused on a supply side approach. Moreover, most support to enterprises is provided to the manufacturing sector, while other parts of the business sector are neglected.

There is evidence of a too generic imitation of cluster policies across Europe. While devised as a measure to build on a region's strengths, they are also deployed in regional frameworks where the utility of such an approach is not evident. Moreover, some regions are supporting so many clusters that no clear focus can be identified.

Evidence suggests, that this process may repeat itself in other policy fields. While "novel approaches" to regional innovation policy are currently mostly piloted in regions with governance capacities adequate for these efforts, many other regions with less developed governance capacities aim to follow suit.

In the era of budgetary restraint following the financial crisis, generic and all-inclusive approaches will most likely not be sustainable. While the regional process of strategy development will have to remain inclusive, regional innovation policy will no longer be able to avoid a clearer definition of priorities in the allocation of funding. To mitigate the impact for regional stakeholders, it will be necessary to increase synergies between public funding from the regional, national and the European level as well as to increasingly leverage the potential of PPPs (Private Public Partnerships).

With a View to Structural Funding:

More needs to be done in order to increase the impact of Structural Funding. While financial allocations to support RTDI activities and business innovation have increased substantially, the actual interventions need to be better adapted to regional requirements. In many cases, a more strategic approach to programming is needed to successfully identify those assets relevant for regional competitiveness and to build on them by means of targeted measures.

Well positioned regions need to continue to pilot novel approaches to build on existing competitive strengths. Moreover, they need to **integrate structural fund programming with existing regional strategies** (Regional Competitiveness and Employment).

Catching-up regions need to focus their overly broad policy portfolios in need in favour of smart capacity building strategies. Due to its central relevance for regional innovation policy in those regions, structural funding is constitutive for the development of smart specialisation throughout Europe.

1. Patterns of regional innovation performance

Summary of Key Messages

- The results of RIM typology confirm that there is a **large diversity regarding patterns of innovation performance across EU regions.** Consequently, the typology defines seven major groups of regions with distinctive innovation performance patterns.
- The typology of innovation patterns is different from the Regional Innovation Scoreboard typology. **The main purpose of the RIM typology is to capture innovation performance patterns**, in order to establish a link between the key regional distinctive patterns regarding innovation performance, governance and policy.

Innovation is a complex and dynamic concept which can be defined in many ways and at many levels of activity. There is therefore no single, best way to measure innovation and innovation processes which take place in a certain region. In most studies a broad set of indicators are used, to incorporate different aspects of innovation. For many years patents were the most commonly used indicators for R&D, next to data on sector-structure. With the increased availability of data from the Community Innovation Survey (CIS) more indicators for innovation-input and output at firm-level have become available for Member States, however, not in each country these CIS data are available at the regional level.

Comparing many different regions becomes even more complex, precisely because the chosen set of indicators has to be relevant for a large diversity of regions (especially in Europe), but also comparable. Additional difficulty for comparisons across EU regions stems from the fact that the number of indicators for which recent data is available for almost all EU regions is limited.

In order to measure regional innovation performance patterns, the following indicators are used:

- BERD % GDP (Business R&D expenditures as % of GDP), 2007;
- GOVERD % GDP (R&D expenditures in the government sector as a percentage of GDP), 2007;
- HERD % GDP (R&D expenditures in the higher education sector as a percentage of GDP), 2007;
- Share tertiary educated (% of population with tertiary education), 2007;
- EPO patent applications per million population, 2007;
- Non-R&D innovation expenditure (% of turnover), 2006;
- Share of technological innovators (% of SME's introducing product and/or process innovations), 2006; and
- Share of non-technological innovators (% of SME's introducing marketing and/or organisational innovations), 2006.

In terms of the European Innovation Scoreboard the three dimensions of 'Enablers', 'Firm activities' and 'Outputs' are included with this set of indicators. Government R&D and Higher education R&D and tertiary educated are 'Enablers' that capture important drivers of innovation external to the firm. Business R&D, non-R&D innovation expenditures and patenting capture innovation efforts of firms. Output of firm activities are captured by measuring the share of SMEs that have introduced technological (product or process) and non-technological (marketing or organisational) innovations.

The indicators listed above are also included in the list of 16 indicator used in the 2009 Regional Innovation Scoreboard (RIS), except Government R&D expenditures and Higher education R&D expenditures which are combined into one indicator in the 2009 RIS. In the 2009 RIS eight additional indicators are used to calculate a composite indicator measuring innovation performance (the RIS distinguishes the European regions into five performance group from low to high innovation regions), but for the purpose of this report where we are more interested in differences in performance patterns and taking into account the above-mentioned considerations we have used eight core and latest available indicators. As background information, the data for the other indicators are downloaded from Eurostat in 2010. The latest available year is often 2007, but otherwise data from 2006 is used. Any remaining missing values for the non-CIS indicators have been imputed using available data at higher level of aggregation (e.g. NUTS 1 if NUTS 2 missing). The regional CIS data have been extracted from the RIS database. Not for all regions regional CIS data are available and missing data have been imputed using linear regression techniques. We refer to the 2009 RIS Methodology report for full details.

After having normalised all indicators to a common range of 0 to 1, a factor analysis has been used to identify the main patterns of performance, reducing the eight indicators into three main factors or components (*cf.* ***Appendix B***).

Factor 1 can be labelled as **'Innovative entrepreneurship'.** It is mostly based on a high score on the share of both non-technological innovators (those introducing marketing or organisational innovations) as well as technological innovators (product or process innovations) among SMEs in the region. This factor therefore identifies those regions where a large share of SMEs are innovators. Regions where both these 'output' indicators are high, also have a relatively high score on R&D expenditures at higher education institutes.

Factor 2 is labelled **'Technological innovation'** because it mostly refers to patent generating business R&D with a relatively low score on non-R&D innovation expenditures as share of business turnover. In regions where this factor shows a high score, technology generating firms are well represented. This factor is mainly about 'firm activities', but to a lesser extent also the enabling dimension of higher education contributes to this factor.

Factor 3 is labelled **'Public knowledge'.** This component of innovation performance patterns is based on the co-location of R&D expenditures at government research institutes and to a lesser extent on a high share of population with completed tertiary education.

Every region in Europe is unique, but discussing the factor scores of each individual regions would be beyond the scope of this report. We therefore distinguish different groups of regions with similar patterns of innovation performance among the group-members. Based on the score on the three identified factors of innovation performance, groups of regions with similar innovation performance patterns are distinguished statistically with the use of hierarchical clustering. This results in seven different groups of EU regions (*cf.* ***Appendix C***).

The first group of regions is labelled **'Balanced innovating regions'** (green). The mean score for each innovation performance factor is above the average of all 203 regions. In particular, 'innovative entrepreneurship' is above average, but this is mainly due to the relatively high R&D expenditures at institutes of higher education. This group of 42 regions includes regions in the Netherlands, Belgium, Denmark, North Germany, South UK, and some regions in Austria and Italy.

Group 2 consists of 49 **Knowledge-absorbing regions'** (orange). Most regions of this group are located in Eastern Europe and southern Italy. On average all three factors of innovation performance patterns are below the average of all EU regions, but especially for 'Innovative entrepreneurship', which is lower than in any of the other groups. The share of innovators, both technological and non-technological, is

small and the high score on non-R&D innovation expenditure signals that innovation is mostly the result of absorbing already existing knowledge.

Group 3 is labelled: **'Public knowledge regions'** (blue). They are characterised by a very high score on the factor 'public knowledge'. The average R&D expenditures in government research organisations (as % of GDP) are higher than for any of the other groups and the average share of tertiary educated is equally high as for the group of 'high-tech business innovating regions' (Group 6). The average score on the other two factors are slightly below average, but on none of the eight indicators this group shows a major weakness. The 21 regions in this group are scattered across Europe, including many capital regions such as Madrid, Rome, London, Berlin, Prague, and Bucharest, but also regions in Eastern Germany, Scotland and Southern France.

Group 4 is named: **'Knowledge-absorbing innovating regions'** (red) because they have the highest average score on 'innovative entrepreneurship'. In particular, the share of both technological and non-technological innovators is high. This group has on average the lowest score on 'technological innovation': business R&D and patenting is very low, while the non-R&D innovation expenditures (as % in turnover) are higher than in any other group. Similar as for the second group, innovation is mostly the result of absorbing already existing knowledge. These 19 regions are mostly located in Portugal and Greece.

Group 5 has been labelled **'Industrialised innovating regions'** (yellow). The score on 'technological innovation' for this group is above average, but 'innovative entrepreneurship' is below average. Overall there are no really weak or strong scores on any of the eight indicators. Many regions of this group are located in France and Spain; also included are Irish regions, some in Sweden and early industrialised regions in Germany and the UK.

Group 6 is named **'High-tech business innovating regions'** (pink). This is the most innovative group of regions (cf. the discussion below comparing the typology with the performance typology of the Regional Innovation Scoreboard). Particularly high is the factor 'technological innovation', and all its major components: patents and business R&D are much higher than in any other group and this group has on average the lowest share of non-R&D innovation expenditures. On average 'innovative entrepreneurship' is also high, but not as high as for the group of 'knowledge-absorbing innovation regions'. The score on 'public knowledge' is above average, but government R&D expenditures are clearly below the average of the group of 'public knowledge regions'. The 12 'high-tech business innovators' are located in South of Germany, most of Finland, some regions in Sweden, East of England (UK) and North Brabant (NL).

Group 7 is labelled **'Business innovating regions'** (purple) because on average these 11 regions score well on both 'innovative entrepreneurship' and 'technological innovation' but they have the lowest score on the factor 'public knowledge'. Both the low performance regarding government R&D expenditures and tertiary educated contribute to the low score on this 'enabling' aspect. The score on 'innovative entrepreneurship' is high; the share of SMEs introducing technological innovations is on average even higher than in any other group. The performance on the factor 'technological innovation' is above average. The regions of this group are located in Northern Italy and in Austria.

The typology on innovation patterns is different from the typology on innovation performance from the Regional Innovation Scoreboard. Although there are overlaps (*cf. **Appendix D**)* there are also clear differences as the objectives of both typologies are different. The RIS typology classifies regions into five performance groups (low, medium-low, average, medium-high, high) based on each region's average performance score as derives from a composite index summarizing performance over 16 indicators whereas the RIM typology identifies different patterns of performance by focusing on the relative strengths reflected in three key determinants of regional

innovation systems: innovative entrepreneurship, technological innovation and public knowledge.

We can conclude that at regional level there is a large diversity regarding patterns of innovation performance. Innovation performance of a region is based on a combination of three different components. The first distinctive characteristic is 'Innovative entrepreneurship', which is based on the share of SMEs that have introduced innovations. The second component refers to innovation based on technology generating business R&D. The third component refers to innovation based on 'public knowledge'.

The regional diversity in the configurations of these three components of innovation performance is shown with the identification of seven different groups of regions. The purpose of the typology here is not to find explanations for the differences in the innovation trajectories or innovation models, nor to explain the different development stages of identified groups of regional innovation systems. Such explanations would require more contextual information (e.g. on sector structure, socio-economic and institutional aspects) and more in-depth and long-term (retro-) perspective. Regarding Italy, for instance, several decades of literature have devoted attention to explain the differences of regional development (ranging from Myrdal, 1957 to the literature on 'flexible specialisation', Piore 1984 and 'industrial districts, Becattini, 1990).

We note that the typology still recognises the knowledge-absorbing regions in the South and East and the importance in the North of SMEs which innovate without much R&D efforts, but here we do not address the complex details of the historical backgrounds of such differences. We rather take such structural differences amongst groups of regions at a European level as a given fact for policy makers, as an ex-ante assessment for innovation policy.

Characteristics regarding governance are addressed to characterise a part of the institutional context in which policy makers operate (define preferences and implement certain type of regional innovation policies). In section 2.6 'Analysis of governance, policies and performance links' the relation between governance, policies and performance will be discussed in this perspective, as are the conclusions regarding challenges and options for regional innovation policy makers.

2. Regional innovation governance and policies: Major developments, focus and links to performance

Summary of Key Messages:

- **The recent years have witnessed the establishment of a regional governance level in most mid- to large-size EU countries.** Many regions remained busy with the creation of the governance structures to conduct a meaningful RTDI policy and will in the near future only become able to refine and differentiate their approaches.
- **The devolution processes are highly individual and lead to different results.** Within regional policy-making, there has been a change over recent years towards an empowerment of stakeholders resulting in a lower emphasis placed on centralised regional policy making. On the other hand, in many member states the process of devolution has not been homogenous, certain regions have higher autonomy than others.
- **The absence of regional strategies is more frequent in regions where the regional level does not play a central role for policy development.** Interestingly, no lack of such policies could be detected in countries for which RTDI policy constitutes a new endeavour.
- **There is strong evidence of multi-level governance.** Even in countries where regional autonomy is high and increasing, the national level retains a number of key decision-making powers. The national level remains an important factor for regional RTDI policy. For about half of the regions surveyed, national policies remain the most important.
- **Capacity building must catch up with the processes of devolution.** Even though a formal process of devolution has been initiated in many countries, governance capacities have not yet been sufficiently attained in many regions surveyed by the Regional Innovation Monitor.
- **The most common approach is a combination of bottom-up and top-down elements.** This serves as evidence that the regional RTDI policy making can thus neither be characterised as a technocratic nor as a fragmented process.
- **Two thirds of the regions surveyed report that process of regional RTDI governance cannot yet be assessed as "fairly effective".** Further analysis is needed to determine if this lack of effectiveness of regional governance systems is merely due to the fact that they have only recently been established or if other, more fundamental challenges exist.
- **Regional innovation strategies are evolving at a rapid pace, yet more evidence is needed.** The RIM survey finds that four in five regions with regional innovation strategies designed them during the last five years (since 2005).
- **New approaches to regional innovation policies take different forms.** The recent years have witnessed the emergence of different decision-making and delivery mechanisms ranging from those based exclusively on market failures to the establishment of regional development and innovation platforms with a comprehensive mandate.
- **The current focus of regional innovation policies raises some issues of concern.** Many strategies and measures remain unduly focused on a supply side approach. Moreover, most support to enterprises is provided to the manufacturing sector, while other parts of the business sector are neglected.
- **There is evidence of a too generic imitation of cluster policies across Europe.** While devised as a measure to build on a region's strengths, they are also deployed in regional frameworks where the utility of such an approach is not evident. Moreover, some regions are supporting so many clusters that no clear focus can be identified.
- **Evidence suggests, that this process may repeat itself in other policy fields.** While "novel approaches" to regional innovation policy are currently mostly piloted in regions with governance capacities adequate for these efforts, many other regions with less developed governance capacities aim to follow suit.
- **In an era of budgetary restraint following the financial crisis, generic and all-inclusive approaches will most likely not be sustainable.** While the regional process of strategy development will have to remain inclusive, regional innovation policy will no longer be able to avoid a clearer definition of priorities in the allocation of funding. To mitigate the impact for regional stakeholders, it will be necessary to increase synergies between public funding from the regional, national and the European level as well as to increasingly leverage the potential of PPPs (Private Public Partnerships).

2.1 Analysis of trends in regional governance

2.1.1 General long-term trends in European governance

Until the late 1980s, the European world of RTDI governance used to be dominated by national level decisions. For the larger part of the late 20th century, most European countries, with the exception of Austria, Belgium and Germany, were characterised by centralist rather than federal or otherwise regionalised approaches to policy making. With the increasing relevance of European regional policy and the ensuing empowerment of regions, as well as strong moves towards devolution in countries such as Spain and the UK, this situation changed substantially in the course of the 1990s. Later on, regions were heralded as central players in the European Research Area, both as implementers of policy measures and as 'bridges' between the EU and the local level.

In more and more Member States of the European Union can the governance system no longer be defined by a central, point of leverage on the national level, i.e. a central, unitary legislature and government. Instead, an increasing number of European and regional policy circles have to be taken into consideration (Benz, 1992). In recent years, moreover, approaches to decision making have become more problem oriented, i.e. policy makers have become more open to thinking outside of the box of the traditional ministerial spheres of influence (Marks et al, 1998; Benz, 2004). Against this background, an increasingly complex network of interactions emerges, that enables and shapes the governance of RTDI policy in European regions (Scharpf, 1997; Kohler-Koch, 1999).

In this situation, where competencies tend to overlap and most policy makers are in some way or the other dependent on resources beyond their control (Hooghe, 1996; Benz, 2004) the need for coalition building and co-ordination has risen to the same degree as it is has become more challenging (Uyarra et al., 2007). In any case, the mutual path dependency of many processes of policy development has grown (Peters/Pierre, 2004). As a result, the governance system has arguably become less stable (Sutcliffe, 2000) or, phrased positively, more flexible.

In that sense, processes of multi-level governance do not only involve interfering and complementary decision making on the institutionalised European, national and regional government levels. Instead, with the empowerment of a larger number of stakeholders, flexible coalitions of joint interest can and have been formed depending on the purpose at hand – spanning and transcending the traded spheres of influence. As a consequence, regional policy makers can influence the economic development of a region by activities on the regional level alone to an increasingly lower degree (Marks, 1993).

On the other hand, they have gained new opportunities and new freedoms for action. For example, they can match up with regions from neighbouring states without having to consult their national governments. Moreover, they can in many cases now participate in EU policy making directly with a far lower degree of interventions from the national level than before. Increasingly, regional policy makers want to take these opportunities and increase their ability to influence the trend of economic development in the region as well as on the short term to acquire funding for RTDI support policies (Koschatzky/Lo, 2005; Uyarra et al., 2007).

In this context regional policy makers have developed multiple strategies to increase their visibility on the international stage (George, 2004; Hooghe, 1996; Hooghe/Marks, 2001; Charles et al., 2004; Héraud, 2003). One approach to this end is to develop activities on and to extend their representation at the European stage. Another is to increase co-operation with regions from other countries. A third one, finally, is to influence their own national states to adapt their RTDI policies in favour of particular regions. It is by means of these strategies that the dynamic landscape of multi-level governance in Europe is propelled and shaped. To successfully do so, however, a number of preconditions have to be met.

The concept of **governance capacity** reflects the ability to devise strategies and implement support measures.

- Regional governance capacities in a narrow sense:
  - Sufficient legislative/regulatory autonomy
  - Sufficient budgetary autonomy
- Regional governance capacities in a broader sense:
  - Sufficient human resources to design and implement policy
  - Sufficient competences and experience to do so effectively
- Good relations with policy makers at the other levels with which interaction is planned.
- A relevant basis of regional stakeholders as addressees of the envisaged policy support.

While as a tendency, many European regions have extended their capacities to participate in processes of multi-level governance to secure their share of national and European resources, this cannot be taken for granted across the board. Devolution has happened in an asymmetric fashion and many regions have only become autonomous quite recently. In a significant number of regions, therefore, governance capacities in a narrow sense may have been granted, but experiences with regional governance remain scarce. With decision makers still early on the policy learning curve, governance capacities in a broader sense have not yet been sufficiently attained (Koschatzky 2000, Kuhlmann 2001, Kuhlmann/Edler, 2003; Howells, 2006).

2.1.2 Specific trends in regional governance

In summary, the last decade has witnessed two main trends in regional governance:

Firstly, the build up of the basic capacities needed for regional governance of RTDI policy. Many EU-12 Member States used to have little administrative capacities at the regional level prior to their accession to the European Union. In many countries administrative structures at the regional level had to be established in a situation where regional policy as such had no substantial tradition and no precursor organisations existed. While certain pilot programmes such as the RIS and RITTS strategies aimed to pave the way for the development of regional capacities for strategy building in the late 1990s, the process of awareness creation in the political arena as well as the concrete set-up of policy agencies at the regional level and the clarification of their mandate inevitably took some time.

The administration structure of the SF bears witness to the fact that this process remains underway. The RIM survey found that, up to today, more than 10% of the surveyed regions did either not have a specific regional operational programme or did not administer it at the regional level. Against the background that the European Commission strongly encourages the local development and administration of Structural Funds (SF) operational programmes wherever possible it has to be assumed that the findings are evidence of a persisting lack of administrative capacities at the regional level in some countries.

Table 2-1 Evidence of administration of the SF operational programmes at the regional level

	Is the Structural Funds OP administered at the regional level?			
Is there a specific Structural Funds OP for the region?		yes	no	total
	yes	169	4	173
	no		18	18
Total		169	22	191
	no	-	SK, RO, BG	-

Source: RIM survey.

The second trend can be observed in regions in which basic capacities for regional strategy building have already been solidly established. In the course of the last decade, a non-negligible number of policy makers had tended to fall into the 'functionalist trap' to assume that a new approach in regional RTDI policy would require the establishment of new institutions (Uyarra, 2010). As a consequence we have seen the development of a large number of science parks, technology transfer offices, incubators and the like. While these activities are not as such misguided their mere replication disregards the fact that much more could in many cases be gained through the transformation of attitudes of and interaction between the existing actors in a region. Consequently, such measures should not be implemented in a stand-alone manner, but complemented by other activities. In many regions, with a longer tradition in regional innovation policy, this issue has been recognised in the course of the last decade and resulted in the participation and consultation of regional stakeholders and in more co-ordinated and refined approaches to regional governance. In this respect, three developments occupy centre stage:

Firstly, an increasing number of regions have set up more formalised bodies in the field of innovation policy making. This trend does not (only) refer to the standardised bodies for stakeholder involvement that have to be consulted in the context of the development of operational programmes. Even in many leading regions, where the basic requirements for governance are met otherwise, new 'regional councils for innovation' have been set up in recent years. The key role of these councils is to enable regional stakeholders to participate in the process of policy development with the aim to establish a focused and context specific approach to policy making. Typically, these councils bring together actors from regional industry, the regional public research sector as well as other non-public institutions to provide opinions based on which tailor made strategies can be developed.

As a consequence, in these regions, recent years have no longer witnessed a trend towards a stronger standardisation of governance approaches and policy measures but one towards the formulation of bottom-up network and cluster policies. A central element of these policies is to bring the existing actors in a region together, to articulate their needs, and to discuss which of them can be resolved by means of co-operation and which require activities to tap into external sources of competence.

Secondly, the objective of strengthening existing strengths and specialisations, i.e. to in a smart way build up capacities in those regional fields, where competences already exist has gained in importance. Competitive approaches to the allocation of funding have become widespread and extended from single project support programmes to broad based policy programmes such as cluster strategies. In many of those regions with a notable track record in the field of regional policy making an "entrepreneurial process of discovery to reveal what a region does best" has in recent become a constitutive element of regional policy and prerequisite for larger scale funding.

Thirdly, there has been a trend towards a more widespread use of evidence based approaches and evaluations – although the status quo remains far from satisfactory. One major reason for this is that when the former Objective 2 support under the SF was transformed into support under the 'Competitiveness and Employment Objective',

a minimum level of socio-economic assessments, SWOT analyses and monitoring had inevitably to be performed in all European regions.

Likewise, even by more developed regions, structural funding could to a higher degree be leveraged for RTDI support measures. When supported under the SF framework, however, regional governments have less leeway to implement policy measures at a totally ad hoc basis and stricter stipulations are imposed with respect to accountability. Moreover, regular inter-regional meetings in the context of structural funding have helped to facilitate inter-regional benchmarking activities as well as the exchange of experiences.

2.1.3 Summary assessment of trends

According to many observers, the **fast spread of multi-level governance** across Europe in areas which were institutionally quite unprepared has led to an overtly optimistic assessment of the potentials for learning from best practices (Kaiser/Prange, 2002; Uyarra et al., 2007). Likewise, the asymmetries in devolution and regional empowerment have been underestimated (Dolowitz/Marsh, 2000; Uyarra et al., 2007). As a consequence, the need for adaptive policy learning and the pro-active use of methods of strategic intelligence has been large underestimated (Metcalfe/Georghiou, 1997; Kuhlmann et al., 1999). At the current point in time, the reservoir of those standardised approaches that can easily be distributed by means of "good practice" learning to create basic capacities will soon be exhausted. While it was necessary and recommendable to take these first steps and to implement standardised practices like the development of regional RTDI strategies across Europe, the challenge ahead is to find ways how strategic plans can be implemented under different framework conditions.

In summary, many regions with an established history in RTDI governance have in recent years pioneered approaches that are now more broadly promoted as means to the end of **"smart specialisation"** on a Europe wide basis. In parallel, many other regions remained **busy with the creation of the very basic governance structures** needed to conduct a meaningful RTDI policy and will only in the near future become able to refine and differentiate their approaches. The coming years, therefore, will be a crucial time to spread good practice with regard to general approaches to regional governance rather than to repeat the mistake of the out-of-context imitation of perceived best practices with regard to individual policy actions.

Recently, under the headline of "smart specialisation", European policy makers have suggested that not only leading but also less developed regions need to avoid such imitation and instead take time to explore their own strengths, decide which competences should be build regionally and only then develop policies accordingly (cf. Foray et al., 2009). They propose that government intervention should start with an enabling stance and only later, when needs have been identified and articulated by regional stakeholders provide the means to make them a reality. In the future, therefore, regional governance will need to be based on **efficient bottom-up elements** to enable the participation of stakeholders but also on **formalised procedures and centralised capacities** to enable strategic planning and policy implementation.

With this challenge in mind, the RIM has set out to investigate which approaches to regional governance have been chosen under different framework conditions and what can be learnt about mutual influences of their different characteristics.

2.2 Devolution processes across Europe: Selected cases

As pointed out above, the availability of regional governance capacities is a key prerequisite for the ability of regions to participate in the process of multi-level governance as well as to design and implement their own RTDI policies. As already mentioned, the establishment of such capacities is a comparatively recent development based on the process of devolution which has occurred in parallel in a number of European States since the late 1980s.

Devolution processes, however, are by no means homogenous across Europe, but depend on national idiosyncrasies that have their roots in the constitutional and administrative history of the countries. Thus, European countries are on different trajectories determined by historical backgrounds and path-dependency, institutional transformation and consolidation of regional autonomy (Rodríguez-Pose/Bwire, 2003). As a result, different types of regionalisation continue to co-exist in Europe (Yoder, 2007) with regard not only to the degree of decentralisation as such but also with regard to the functions and competences that are devolved to the sub-national level. Likewise, there are asymmetries between the degree of devolution to different regions within one nation and the degree of interaction of the regions with the European level. Thus policy devolution has created complex and sometimes even conflicting arenas of policy making with overlapping competences.

In the following, the devolution process is described for a number of different EU Member States in the course of the past years, in order to understand driving forces behind the process, and to illustrate how these processes are highly individual and lead to different results.

2.2.1 Policy devolution in the UK: asymmetric and regionally differentiated devolution

Since 1998 the constitutional structure of the United Kingdom has undergone dramatic changes. Through the process of devolution certain powers formally vested in the U.K., Parliament have been transferred to new legislative bodies located in Scotland, Northern Ireland and Wales via three key pieces of legislation: *The Scotland Act 1998*, *The Government of Wales Act 1998*, and *The Northern Ireland Act 1998*.

The devolution process granted Scotland, Wales and Northern Ireland forms of self-government within the United Kingdom. The UK Parliament has ceded a number of legislative competences on the elected Scottish Parliament, National Assembly for Wales and Northern Ireland Assembly to do this. On all three cases, legislative devolution went along with executive devolution to the Scottish Government, the Welsh Assembly Government and the Northern Ireland Executive which are accountable to their respective Parliament or Assembly. Additionally, all three devolved areas of the UK remain represented in the UK Parliament at Westminster. The UK Parliament thus remains sovereign in law and can, de jure, still legislate for Scotland, Wales and Northern Ireland. By convention, however, it does not do so for devolved matters without the consent of the devolved legislature concerned.

The nature of devolved powers varies, however, between Scotland, Wales and Northern Ireland. Both Scotland and Northern Ireland have been ceded powers to legislate for any matter (more in Scotland than in Northern Ireland) with the exception of those that remain reserved to the UK national government. Wales, by contrast, exerts much more limited legislative autonomy limited to those areas where powers have been expressly conferred on the National Assembly. England, moreover, remains completely outside the devolution arrangements and the autonomy of the English regions with respect to the UK central government in Westminster remains marginal. Scotland, Wales and Northern Ireland now each have two governments and legislatures, but for England there is only one – the UK Parliament and UK Government. This complex situation gives rise to many of the asymmetric features of devolution reflected in UK politics (Johnson, 2007).

Even today, more than 10 years after the onset of devolution, the UK system remains characterised by a lack of interaction and co-ordination among institutions that continue to exhibit a number of characteristics that predate devolution. The operations of the public sector are still based on an essentially top-down, consultative rather than a participative management mode and an adherence to an old way of thinking about STI policy focused on the national science-base rather than integrated and inclusive regional innovation systems (Lyall, 2007).

With respect to the so far non-devolved areas, the overall process has not yet gained clear momentum and remains subject to continuous change. In 1998, a clear step towards decentralisation was taken with the Regional Development Agencies Act and the creation of the Regional Development Agencies (RDAs) which have had their scope and powers enhanced in the years since. At present, the statutory objectives of the RDAs are: to support economic development and regeneration, to promote business efficiency and competitiveness, to promote employment, to enhance the development and application of skills relevant to employment, and to contribute to sustainable development.

In June 2010, however, the newly elected conservative government announced plans to abolish the RDAs by 2012, to be replaced by Local Enterprise Partnerships. In October 2010 the decision was taken that 24 partnerships between local businesses and councils will replace the current RDAs. Additionally, for several years there is a movement that supports devolution in Cornwall, an issue which is currently debated.

2.2.2 The case of asymmetric decentralisation in Spain

Decentralisation is a relatively recent experience in Spain, since it dates only back to 1978. The Spanish model of decentralisation is neither a centralised nor a federal model (Giordano/Roller, 2004). The Constitution allows for a decentralised, although not federal, structure of the State.

Spain's process of devolution, initiated in the late 1980s, has led to an asymmetrical structure of devolution with certain regions, such as Catalonia and the Basque Country, acquiring more autonomy than others. Spain's system of asymmetrical devolution allows for variable competencies not only between different regions, but also within the same region over time.

In fact, the Constitution allows for a dynamic evolution of the transfer of competencies between the Central Government. In the so-called 'Autonomic Pacts' of 1992 and 1997 all seventeen regional governments received new powers, some of which required amendments to existing statutes of autonomy.

While regions have very limited primary authority, the Constitution permits the extension of this authority by subsequent delegation. In some cases, this has led to inconsistencies such as the fact that autonomous regions have substantial autonomy with regard to expenditure while almost all revenue authority remains with the central government. Arguably, this separation of responsibilities between expenditure and revenue raising authority has given rise to economic inefficiency (Fernández et al., 2006).

In general, the process of decentralisation in Spain has led to a growing sense of regional consciousness and to a greater interest in regional politics and institutions (Giordano/Roller, 2004). Autonomous communities which, in contrast to e.g. Catalunya, Galicia or the Basque Country, had no historically established regional identity have now developed one. Despite the fact that the autonomous communities were not involved in negotiations over decisions in the context of Spain's EU accession which they would be largely responsible for implementing there has always been a strong consensus amongst regional leaders in support of further European integration, particularly with regard to regional development, R&D, and inter-regional co-operation (Heywood, 2000).

2.2.3 Belgium: a special case of regionally differentiated devolution

Until the 1960s, Belgium was governed centrally. Over the past four decades, however, a series of constitutional reforms has resulted in a complex devolution arguably turning Belgium into the most decentralised state of the European Union. The successive changes arose from the fact that Belgium hosts different linguistic groups: Dutch/Flemish-, French-, and a very small group of German-speakers in two regions with distinct histories, Flanders and Wallonia.

Belgium and its constituent parts have six governments, each with its own parliament and cabinet ministers:

- a federal government, responsible for defence, foreign affairs, justice, health, and pension;
- a Flemish government, also serving as the government of the Dutch-speaking community;
- a Walloon regional government;
- a government for the French-speaking community;
- the Brussels-capital regional government; and
- a community government for German-speakers.

The Federal government is competent for scientific research; the federal scientific institutes; programmes such as national networks for basic research requiring homogenous execution at national or international level; introducing fiscal incentives to encourage recruitment of researchers by universities, research organisations and enterprises. The language-based communities are responsible for education, while regional governments are responsible for economic policy including applied industrial research. The federal government cannot overrule communities in educational matters, just as regions have no say in the field of defence policy. As a result, Belgian-style devolution is rather complex in its outcome, however, the regions have the main responsibility for economically oriented research, technological development and innovation policy (Belgian Science Policy Office, 2010).

2.2.4 Modernising a federal system with a long tradition: The German case

Germany has a long tradition of regional government and federalism. However, German federalism, established in its current form with the 1949 constitution (Basic Law), has gained momentum after the reunification. The Basic Law divides authority between the federal government and the federal states, with a subsidiarity principle, articulated in Article 30: *"Except as otherwise provided or permitted by this Basic Law, the exercise of state powers and the discharge of state functions is a matter for the Länder."* Thus, the federal government can exercise authority only in those areas specified in the Basic Law.

The federal government is assigned a greater legislative role and the Land governments a greater administrative role. The areas of shared responsibility for the *Länder* and the federal government were enlarged by an amendment to the Basic Law in 1969, with joint areas of action for instance in higher education, and regional economic development. The *Länder* also retains significant powers of taxation.

The federal system in Germany has undergone several changes during the last 10 years in order to make the system more effective with e.g. the following goals:

- strengthening federal and state legislation by dividing legislative powers more clearly and doing away with framework legislation;
- reducing barriers by redefining the requirements for *Bundesrat* (legislative body representing the sixteen *Länder* at the federal level) approval of federal legislation;

- reducing the use of mixed federal–state funding and restructuring the options for federal financial assistance while emphasizing the promises made in the second solidarity package for Eastern Germany.

The *German Federal Reform* was finally agreed upon by both *Bundesrat* and *Bundestag* (after strenuous discussions since 2003) in mid 2005 and entered into force on 1st September 2006. A central issue with regard to RTDI policy making was an adaptation of competences in the field of higher education which is one of the key competences at the Länder level. Additionally, amendments to Article 23 of the Basic Law specified the competences between different levels of policy making as regards decision-making at the level of the European Union and to strengthen the German position within the policy making processes at the European level. However, overlaps in competences could not be overcome completely.

2.2.5 Austria: co-operative and symmetric federalism

In Austria federalism is a basic constitutional principle since 1920, the division of competences between the federation and the *Länder* date back to 1925 but have experienced major revisions and adaptations since then. Today, the Federal Constitution provides for a distribution of competences between the federation and the nine *Länder*. The *Länder* enjoy some autonomy and are represented at the level of federal lawmaking (Federal Council –Second Chamber).

In comparison to e.g. Germany, the Austrian *Länder* exercise comparatively few legislative powers. At times, the Austrian system of federalism has thus been described as a "centralistic federation" (Erk, 2004). While the federal constitution initially granted all legislative powers to the states, many powers have subsequently been taken away to such an extent that relatively few matters remain under the exclusive control of regional policy makers.

In 2007, the Commission of Experts presented its first suggestions how to clear up the complex body of constitutional laws, reform the plethora of independent administrative bodies and regulatory agencies. Parts of the proposals as well as some additional ideas discussed in the constitutional convention were adopted in December 2007.

2.2.6 Two waves of regionalisation: the French way of decentralisation

Since March 2003 France is a decentralised country, granted by the French Constitution. During the first wave of decentralisation 1982-1983 decentralisation laws created fully-fledged territorial units called regions at NUTS 2 level. Regions became fully competent and autonomous territories with an elected regional council. The region has the power of raising taxes and the autonomy to manage its own budget freely. Regional, departmental and local self-governments no longer need the authorisation of prefects (i.e. representatives of the national governments) to act. Instead, action is taken and only controlled by the prefect afterwards. From 2003-2004 onwards the devolution of power initiated by the decentralisation of the 1980s was strengthened by a parallel process of deconcentration. Today, French sub-national governance rests upon a complex actor system, whereby policy is managed by plural actors with overlapping responsibilities at several levels (Cole 2006).

2.2.7 Devolution of powers in Italy: the ongoing attempt to establish a state of fiscal federalism

Since the mid-1990s, a devolution process has been initiated in Italy, since the political elites have taken concrete measures to decentralise decision-making to lower levels. By means of the *Bassanini Laws* and the *Bindi reform* (1997-2000) regions were given sufficient administrative capacity to carry out additional functions. In 2001, a major constitutional reform increased the competences of the Italian regions, and restricted the central state's rights to intervene into regional policy making. In spite of this, the changes have not led to granting sub-national level with powers to levy taxes.

In essence, it should be said that the recently adopted legislation (Law No. 42 of 5 May 2009 – "Delegation to the government in the matter of fiscal federalism further to article 119 of the Constitution") seeks to overcome the grant system of funding and endow sub-national level with greater independence in levying taxes. To conclude, the biggest challenge for the implementation of fiscal federalism in Italy will be to ensure the compatibility with the financial commitments undertaken within the stability and growth pact (Frosini, 2009).

2.2.8 Regionalisation in post-communist Europe: The example of Poland

In many post-communist countries, regionalisation was largely triggered in a two-fold way: either propelled by national policy makers or viewed as a necessary step to further the integration into the European Union. Poland was one of the first countries to establish elected regional councils in 1998, followed by the Czech Republic in 2000, and the Slovak Republic in 2002. The regional reform became effective on 1st January 1999 giving the newly elected councils three months to organise.

The regional-level, the *voivodeships* are responsible for the development and implementation of regional economic policies; their task is to stimulate business activities and improve competitiveness and innovation in the region. The Polish regions are mainly responsible for RTDI policy, however, due to limited own financial resources, the SF are the main source of funding for activities in support of innovation. With regard to taxation Polish regions have no direct tax raising powers and only receive low percentage of revenue from the corporate and personal taxes. Using a concrete example of Silesia, the share in personal income tax was estimated at 1.6% and 14.75% in the case of corporate income tax, altogether representing the total amount of roughly about €137.5m.

2.2.9 Summary assessment of regional devolution

The brief overview of processes of regional devolution in Europe has yielded a two-fold finding.

Firstly, while devolution can be regarded as a general trend, it is strongly contingent on the different histories of governance in each Member State that we considered. Even in cases where the overall political objective pursued with devolution at the national level is identical, the process itself as well as its **outcome will depend on a number of framework conditions**. These include different degrees of bottom-up pressure from different regions within a nation, the flexibility of the current model of multi-level governance already enshrined in legislation, as well as the administrative capacity of the current regional administrations to shoulder newly ceded functions on short notice. Evidently, it is important to understand the differences in the current status quo to be able to assess the options for future development.

Secondly, we found that the **objectives pursued with devolution on the national level are by no means identical**. Beyond the fact that framework conditions shape the available options, our case studies have illustrated that the functional comprehensiveness, the degree of sustainability and, ultimately, the effectiveness and efficiency of devolution will just as well depend on the reasons for which it has been sought in the first place. Our case studies involve cases where national governments have grudgingly ceded some rights as a reaction to political pressure as well as those cases where they have actively established regional governments to leverage new opportunities. Apparently, it is possible and instructive to distinguish between (the extreme cases) of reactive and proactive devolution.

It is this diversity in framework conditions and political motivations that has to be borne in mind when considering the results of the survey that will be illustrated in more detail below. While it remains useful to identify general trends in regional governance the preceding section has highlighted that policy conclusions should only be drawn after all relevant national idiosyncrasies have been taken into account.

2.3 Assessment of the governance framework

2.3.1 Methodology

In the framework of the Regional Innovation Monitor, regional experts were asked to fill out a questionnaire regarding the set-up of the governance framework in individual regions. Inevitably, the answers thus collected are assessments from an outside expert's perspective and may not in all cases reflect official positions. In total, 191 questionnaires (i.e. one questionnaire per region) were returned and analysed for this RIM annual report. Notwithstanding, they provide a wealth of findings in a breadth that no single, focused study could provide. Even though individual assessments may appear remarkable and will be highlighted as such in the text the overall findings appear plausible and suitable as a basis for identifying structures, trends and challenges in the European governance landscape.

The approach taken to do so is two-fold.

- Firstly, the overall frequency of certain characteristics will be reported both in absolute and in relative terms. Moreover, it will be outlined for which Member States these attributes are characteristic by highlighting in which category more than 50% of a country's regions (RIM coverage) can be found. It should be pointed out, however, that this constitutes but a rough categorisation as in many countries a large degree of differentiation prevails across regions. Where the extent of differentiation is such that no clear categorisation can be performed, a separate line is included in the table.
- Secondly, an attempt will be made to assess if any general conclusions can be drawn with respect to the fact how governance capacities at the regional level (degree of autonomy) relate to both the characteristics and the efficacy of the regional process of governance. To that end, a number of analytical juxtapositions will be performed by means of cross-tabulations.

2.3.2 General and country specific findings

As a starting point, the survey confirms that regional RTDI governance is a current and relevant topic. The findings illustrate that nearly **two thirds of all regions have developed a regional strategy and even more claim to have a structured approach** (see below under degree of formalisation). Likewise, it is reported for nearly three quarters of the surveyed regions that expenditure for RTDI policies has been growing in recent years (Table 2-2).

Remarkably, **the absence of regional strategies is not most common in countries for which RTDI policy constitutes a new endeavour** (with the exception of the Czech Republic), but in those where the regional level does not really play a central role for policy development (e.g. Ireland, Sweden and the Netherlands). In Greece **the absence of strategies may be considered as evidence of a general lack of policy efforts in the field.** These findings thus underline the conclusion that sometimes politics matter more than mere administrative capacities, a conclusion which could already been drawn based on the case studies.

Likewise, the cases in which regional expenditure has or has not grown provide evidence of national particularities. **As a general trend, expenditure has grown in both regions with and without tradition in the field of RTDI policy**. Again, the only exceptions can be traced back to political reasons like the recent discontinuities in the field of regional policy in the UK, a lack of political emphasis on the regional level in the Netherlands and the Czech Republic as well as the general lack of effort in Greece.

Table 2-2 Existence of regional strategy and trends in RTDI expenditure

Strategy	Frequency	Percent	Expenditure	Frequency	Percent
yes	125.0	65.4	declining or unchanged	52	27.2
no	66.0	34.6	growing	139	72.8
total	191.0	100.0	total	191	100.0
strategy			expenditure		
yes	AT, BE, BG, DE, DK, ES, FR, HU, IT, PL, SK, RO		declining or unchanged	CZ, GR, NL, UK	
no	CZ, FI, GR, IE, NL, SE		growing	AT, BE, BG, DE, DK, ES,FI, FR, HU, IE, IT, PL, PT, RO, SE, SK	
differentiated	PT, UK		differentiated	%	

Source: RIM survey.

2.3.3 Autonomy

With a view on the autonomy of regions in the field of RTDI policy, our findings suggest that **slightly more of a third of European regions report limited and high autonomy respectively**. For only about a quarter of the regions do the experts report that their current degree of autonomy is low or very low. As could be expected, **the assessment with respect to autonomy in RDTI policy tends to conform to the assessment with regard to general autonomy**. However, high or very high autonomy in the field of RDTI policy is claimed for a slightly higher share of regions than high or very high general autonomy (Table 2-3).

In terms of national differentiation, the survey finds that **regional autonomy remains low in Bulgaria, Greece, Ireland, Portugal and the UK (outside of the devolution areas).** With a view on RTDI policy such a situation is also claimed for the Czech Republic, Poland and Slovakia whereas Romania and the UK are assessed as a bit more autonomous. **The highest degrees of autonomy, in contrast, can be found in Austria, Belgium, Germany, Spain and Italy.** The generally quite autonomous Austrian regions have less competence in the area of RTDI policy which, in Austria, is not a decentralised issue (cf. case study), whereas the otherwise less autonomous Danish and Swedish regions have greater room for decision.

Table 2-3 Regional autonomy (general and in the field of RTDI policy)

General	Frequency	Percent	RTDI policy	Frequency	Percent
no autonomy	44	23.0	low or very low	46	24.1
limited autonomy	83	43.5	medium	75	39.3
high autonomy	64	33.5	high or very high	70	36.6
total	191	100.0	total	191	100.0
General			**RTDI policy**		
no autonomy	BG, GR, IE, PT, RO, UK (England)		(very) low	BG, CZ, GR, IE, PT, PL, SK	
limited autonomy	CZ, DK, FI, FR, HU, NL, PL, SE, SK		medium	AT, FI, FR, HU, NL, RO, UK	
high autonomy	AT, BE, DE, ES, IT		(very) high	BE, DE, DK, ES, IT, SE	

Source: RIM survey.

In line with the above findings, **about half of the regions report that national policies determine their RTDI policy making**, whereas the other half reports that regional decisions dominate (Table 2-4). Only in one country, Sweden, does the sub-regional (i.e. municipal) level play a dominant role. In general, the assessment follows that of the perceived regional autonomy in many cases. While German and Spanish regions claim a dominant relevance of the regional policy level the less

autonomous regions in Bulgaria and Romania claim that the actions on the national level are decisive. For French regions, the assessment differs from case to case.

Table 2-4 Importance of policy level in RTDI policy making

Most important policy level	Frequency	Percent
Regional Level	95	49.7
National Level	91	47.6
Sub-Regional Level	5	2.6
Total	191	100.0
Most important policy level		
National Level	BG, CZ, FI, GR, IE, NL, PL, PT, RO, SK; (FR)	
Regional Level	AT, BE, DE, DK, ES, HU, IT, UK; (FR)	
Sub-Regional Level	SE	

Source: RIM survey.

2.3.4 Governance principles

With regard to the principles of governance that are applied at the regional level the survey finds **that bottom-up and decentralised approaches are quite rare and followed by hardly a tenth of all European regions**. While next to a third of regions report top-down characteristics in regional policy making, set-ups that integrate element of a top-down nature as well as bottom-up approaches constitute a strong majority. With respect to the institutional set-up of regional policy delivery, this implies that **more than half of the surveyed regions have opted for a centralised system of policy delivery and strategy building even though it may involve participative approaches**. Nonetheless, a significant number of other regions is characterised by a mixed set-up in which several actors and institutions play a role (Table 2-5).

Top-down elements in policy making are found in Bulgaria, the Czech Republic, Greece, Ireland, Spain, Slovakia, and the UK. Bottom-up approaches are reported from Belgium, Poland and, interestingly, Romania, a case that would merit closer investigation. In line with this distribution, the institutional set-up for policy delivery is reported as centralised in Bulgaria, the Czech Republic, Greece, Ireland, Spain, Slovakia, and the UK but also in Belgium, Italy, and Portugal where the centralised set-up seems to involve bottom-up elements.

Table 2-5 Governance approaches

Process	Frequency	Percent	Institutional	Frequency	Percent
bottom-up	21	11.0	decentralised	13	6.8
both sides	110	57.6	mixed	79	41.4
top-down	60	31.4	centralised	99	51.8
total	191	100.0	total	191	100.0
process			institutional		
bottom-up	BE, PL, RO		decentralised	(DK, SE)	
both sides	AT, DE, DK, FI, FR, HU, IT, NL, PT, SE		mixed	AT, DE, FI, FR, HU, NL, RO; (DK, SE)	
top-down	BG, CZ, GR, IE, ES, SK, UK		centralised	BE, BG, CZ, ES, GR, IE, IT, PT, PL, SK, UK	

Source: RIM survey.

As a bottom line the survey finds that **the involvement of both bottom-up and top-down elements in the process of policy development is by far the most common approach.** Regional RTDI policy making in Europe can thus neither be characterised as a technocratic nor as a disorganised, fragmented process. In terms of its institutional set-up, centralised approaches involving a regional innovation agency are the most common approach, thus evidencing a co-ordinated endeavour to build up structures and competences for RTDI policy making at the regional level. Nonetheless, **stakeholder participation, i.e. involving more than one regional agency in RTDI policy making, seems to play a substantial role in regions of those**

countries with a longer history in regional RTDI policy. In those countries (e.g. Germany, France, Sweden) regional experts tended to describe the institutional set-up as neither decentralised nor centralised ('mixed').

2.3.5 Reference points in strategy development

To understand the involvement of different levels and processes of governance in more detail, the survey asked for the reference points used by regional policy makers when developing regional RTDI strategies and policy measures.

First of all, a **large majority of regions seems to follow guidelines of the national government**, which is in line with the above finding that even in countries in which regional autonomy is high the national level may be the dominant policy arena for RTDI policy. Interestingly, however, national policy documents developed in co-ordination with the European Union, such as the National Reform Programme (NRP), seem to play a less relevant role. In turn, **about two thirds of regional policy makers are reported to take into account either regional strategy documents or evidence specifically collected at the regional level**. Discussion among regional stakeholders, to the contrary, is reported to be relevant for a lesser share of regions. While purely ad hoc policy making thus seems to have become rare in the majority of regions, **there appears to remain room for improvement with regard to the consideration of European guidelines not related to structural funding on the one hand (NRP) and the involvement of stakeholders (regional discussions) on the other** (Table 2-6).

The impression that the national reform programme is not taken into account sufficiently is to a significant extent created by the fact that regions from large countries such as the UK, Poland, Spain and Italy next to unanimously report that this was the case. The lack of involvement of regional stakeholders, in contrast, is more common in newcomer countries such as Bulgaria, the Czech Republic, Ireland, Poland, but also in some others like Spain, Denmark and Finland.

Table 2-6 Reference points in strategy development

		Relevant	Not relevant	Total
General guidelines of the national government	Frequency	126	65	191
	Percent	66.0	34.0	100
National Reform Programme (NRP)	Frequency	81	110	191
	Percent	42.4	57.6	100
Evidence specifically collected at regional level	Frequency	125	66	191
	Percent	65.4	34.6	100
Strategic documents designed at regional level	Frequency	119	72	191
	Percent	62.3	37.7	100
Discussion among regional stakeholders	Frequency	80	111	191
	Percent	41.9	58.1	100
	relevant		not relevant	
General guidelines of the national government	AT, BG, DE, FI, FR, GR, HU, IT, NL, PL, PT, SE, SK, UK		BE, CZ, DK, ES, IE, RO	
National Reform Programme (NRP)	AT, CZ, DE, DK, GR, IE, PT		BE, BG, ES, FI, FR, HU, IT, NL, PL, SE, SK, RO, UK	
Evidence specifically collected at regional level	BE, FR, GR, HU, IE, PT, RO, UK		AT, BG, CZ, DE, DK, ES, FI, IT, NL, PL, SE, SK	
Strategic documents designed at regional level	AT, BE, DE, DK, ES, FI, FR, HU, IT, PT, RO, SK, SE, UK		BG, CZ, GR, IE, NL, PL	
Discussion among regional stakeholders	AT, BE, DE, FR, GR, HU, IT, PT, RO, SE, SK, UK; (BG, FI)		CZ, DK, ES, IE, NL, PL; (BG, FI)	

Source: RIM survey.

2.3.6 Efficiency and impact

With regard to the efficiency of the governance process and the impact of regional RTDI policy the survey yields differentiated results. While the governance process is deemed fairly effective in one third of regions a 'need for improvement' is reported for another third. Since in about 10% of cases experts could not come to a conclusion and there are a few cases where the governance process is deemed very effective this amounts to a dichotomous outcome. Apparently, the process is either efficient or not, with relatively little room in between. With regard to the impact of RTDI policy, in contrast, the opposite is the case. For nearly two thirds of the surveyed regions, experts suggest that some impact has resulted while few of them feel certain to either claim a substantial impact or rule out any impact entirely.

With a view on the distribution the governance process is typically assessed as more effective in countries with a longer tradition in RTDI policy. Regions for which RTDI policy is a relatively new field, in contrast, tend to see room for improvement or assess the process as moderately effective (e.g. Bulgaria, Poland, or Slovakia). **The negative assessment in UK regions is likely to result from recent uncertainties and challenges.** Finally, countries in which the nature of governance processes strongly differs come to differentiated assessments (e.g. Italy and Belgium). Why the expert for Romania came to the optimistic conclusion that the quite young process of governance was already 'very effective' would merit a closer investigation.

Table 2-7 Efficiency of governance process and impact of RTDI policy

Efficiency of governance process	Frequency	Percent	Impact of RTDI policy	Frequency	Percent
need for improvement	59	30.9	**performance has declined**	1	0.5
moderately effective	31	16.2	**no visible impact**	61	31.9
fairly effective	66	34.6	**impact on some targets**	109	57.1
very effective	15	7.9	**broad impact on all targets**	20	10.5
cannot say	20	10.5			
total	191	100.0			
efficiency of governance process			**impact of RTDI policy**		
need for improvement	BG, CZ, GR, IE, SK, UK		**performance has declined**	%	
moderately effective	PL		**no visible impact**	BG, CZ, GR, NL, SK	
fairly effective	AT, DE, DK, ES, FI, HU, NL, PT, SE		**impact on some targets**	AT, DE, DK, FI, FR, ES, HU, PL, RO, SE, UK; (IE)	
very effective	RO		**broad impact on all targets**	PT; (IE)	
differentiated assessment	BE, FR, IT		**differentiated assessment**	BE, IT	

Source: RIM survey.

In a similar manner, it is consistent that **general doubts about the impact of RTDI policy ('no visible impact') are typically most pronounced in regions where the implementation of policies as such does not have an established tradition** (e.g. Bulgaria, Greece, or Slovakia). Likewise, it seems logical that a pronounced differentiation with respect to the efficiency of governance in Italy and Belgium would as well result in a differentiated assessment of policy impacts. That regions from the Netherlands, too, harbour general doubts, in contrast, appears somewhat remarkable. Additionally, a more in-depth explanation is needed to understand the wholly positive assessment of the impact of RTDI policy given for some Portuguese and Irish regions.

2.3.7 Summary assessment of the governance framework

In summary, this brief survey based analytical overview has provided general insights into the status quo of innovation policy related governance in Europe. While it illustrates that **regional governance is and will remain a field of enormous heterogeneity**, which does not yield itself easily, a number of general conclusions can be drawn with certainty.

Firstly, we are witnessing a **process of policy learning** in which the governance of regions with a long history in RTDI policy differ from those found in regions for which RTDI policy is a comparatively new field. The effects of this process, however, are in many cases modified by national idiosyncrasies and political decisions.

Secondly, the **extent of competences available at the regional level** decides on the way that governance will be set up locally. While there is no clear cut relation between autonomy and every single aspect the governance regime, the prevalence of many aspects of the governance regime does indeed tend to reflect the leeway for individual decisions that regional actors in a certain Member State either have or not.

Thirdly, the survey provides **strong evidence of multi-level governance**. In Belgium, Italy, Spain, and the UK, all regions mention the regional level as the decisive level of RTDI policy design. Only in Spain and Belgium, however, do the majority of those regions deny the importance of national level guidelines as a central point of reference for policy makers. The findings thus illustrate that even in countries where regional autonomy, is high the national level can rarely be disregarded in the process of regional governance.

Fourthly, evidence is found of the strong differentiating role that regionally specific factors of influence play within nations. In many to most cases, the attribution of a certain characteristic to regions of one nation can only be given as a tendency or not at all. Even if the regions of a nation share one aspect of governance to a high extent – e.g. because the national governance has taken care that regional strategies are broadly developed – the **actual governance process developed and the degree of satisfaction reached tends to differ quite significantly**. This is in line with the case study finding that both the political desire for autonomy and the ability to implement the respective government functions differs strongly within states.

2.3.8 Analytical perspectives: Regional governance capacities

A minimum degree of governance capacities at the regional level appears as a prerequisite for the establishment of the elements generally required for any governance process such as the development of a clear-cut, binding strategy as well as a set of co-ordination efforts to anchor the process in its multi-level environment.

In regions which do not reach this level of decision making capacity, the governance process tends to remain informal and indistinct. It is therefore no surprise that regional processes of RTDI governance are generally considered as more efficient and as yielding a greater impact in regions with higher governance capacities. Encouragingly, however, the survey results also indicate that the necessary competences with regard to RTDI policy can be apparently be bestowed on regions otherwise characterised by a comparatively low degree of autonomy in general terms.

The second finding is that these **governance capacities as such are a necessary but by no means sufficient condition**. In many case the clear-cut differences found between regions with hardly any autonomy at all and regions with some autonomy were less evident between regions with some autonomy and those with high autonomy. Above a certain threshold level, it depends on the concrete actions taken and the policy measures implemented whether certain elements of the governance process can be developed to a satisfactory degree, can be considered effective, and yield convincing results.

Among other things the survey results bear witness that the degree of formalisation and centralisation of the regional governance set-up as well as the **use of evidence**

based methodologies cannot be considered to be highest in those regions with the highest degree of autonomy. Additionally, the influence of national level directives as well as the relevance of structural funding seems to depend on other framework conditions than the extent of regional governance capacities.

Taken together, the survey has underlined that while in a multi-level governance environment there cannot be one single optimal set-up for regional governance, it is fairly evident that **some regions have not yet fully established the elements desirable for efficient RTDI governance at the regional level**. While formal frameworks for regional RTDI policy have been established by a majority of the regions which command the necessary governance capacities to do so, the implementation of them continues to vary strongly.

To remedy this situation, a process of mutual learning will be required across the continent. The case studies, suggest that such a process is very difficult to establish and can only be realised if national and regional idiosyncrasies in policy making and stakeholder interests are taken into account and addressed in an appropriate and effective manner.

2.4 Analysis of trends in regional innovation policies

2.4.1 Methodology

After establishing a better understanding about the general long-term trends in regional governance as well as its importance for the deployment of effective policies, a next logical step is to direct the focus of our analysis on regional innovation policies from three different perspectives, i.e. the past, present and future.

This part of the report is based on different materials, including studies, reports, other empirical findings as well as responses to the RIM survey provided by a network of regional correspondents in the scope of this project. The plan for the next RIM annual report is to complement the current analysis by exploiting the RIM repository, especially information about existing measures in support of innovation across EU regions.

For each question concerning a selected number of innovation policies, 'planned' and 'implemented' were the possible answers. In the case of no answer, it was interpreted that the region has neither foreseen nor implemented the policies in question.

Given a large number of regions involved and in order to allow a better comparability of results, we used the following approach (i.e. whereas more than half of regions in a given country implemented a specific policy measure, such country was mentioned in summary tables presented in this section next to the status 'implemented'). Likewise, the same approach was adopted in the case of absence or implementation plans.

2.4.2 Launch and evolutions of regional innovation policies

The development of regional innovation polices have evolved considerably during the last twenty years and changes have been heavily influenced by both the European Commission and national governments. The rise in popularity of the regional innovation policies has been mainly driven, according to Enright (Enright, 2001) by the following three factors:

- increasing competition in a globalised economy;
- shortcomings of traditional policies; and
- creation of clusters around the world.

Recognising that competing in an ever tougher market place was central for creating jobs and growth, in addition to the increased intensity of international competition led to the rise in the popularity of innovation policies across EU regions.

In the 1990s, there was an observable shift from a linear model to more systemic thinking about innovation which meant a significant change of policy directions, from science-driven and technology-based strategies to actually regional innovation strategies. A decade after (in the 2000s), regions started prioritising clusters which were viewed as a panacea for economic development, increased innovation and competitiveness. Growing interest in cluster policies in general has had an influence on policy makers who began recognising also the importance of research policies. As a result, this led to the creation and strengthening of research-driven clusters (Charles and Uyarra, 2009).

The French concept of "competitiveness clusters" launched in 2004 is a concrete example of cluster policies placed high on the policy agenda of EU countries and regions. The main rationale behind this programme (which was used as a model for developing cluster initiatives in other countries, such as for example in Portugal) was gathering industrial and scientific actions in the cluster model not only to constitute a source of innovation and attractiveness of the region, but also to curb relocation trends.

In concrete terms, the views on innovation started evolving during the last twenty years from old models focused on providing support for technological forms of innovation, linear views (innovation follows predictable and standardised process) or involvement of traditional actors (higher education institutions and R&D institutes) to new developments such as support to services (including low-tech sectors), creative industries, public sector innovations, non-R&D innovations, user-driven innovation, innovation systems, creation of intermediaries and evolving perceptions of the higher education institutions in innovation (Shapira et al., 2009). The "new paradigm" or "new model" of innovation policy is therefore used in the present report as a synonym of changes in policy orientations towards new developments described above.

Regional innovation policies have been evolving significantly in the last twenty years, which is confirmed by the RIM survey results, according to which every four in five regions has actually developed its regional innovation strategy during the 2005-2010 period (101 regions; n=121)[1].

More recently, the model known as 'Doing-Using-Interacting' has started coming to the fore in both academic discussions and public innovation strategies. In contrast with the Science Technology Innovation (STI) approach, this new model of innovation refers to learning which is tacit and often highly localised and non-R&D innovations. All this is in line with the argument that incremental innovations occur in the process of learning by doing' or 'learning by using' rather than as a result of consciously directed R&D investments (Asheim, 2010).

In this context, the recent developments that have taken place in England and Finland are discussed in more detail below to show two very different development paths of regional innovation policies.

The recent strategic document presented by the Secretary of State for Business, Innovation and Skills in October 2010, known as 'White Paper on Local growth', represents significant shift and restructuring of regional innovation policy (HM Government, 2010).

[1] "n" refers to the number of regions with innovation strategies and "101" corresponds to the number of regions which developed their innovation policies during the 2005-2010 period.

Since it represents a significant change in policy directions, it is worthwhile to present and discuss the major planned changes (Box 2-1).

Box 2-1 White Paper on Local growth: Realising every place's potential (October 2010)

In essence, the new approach outlined in the White Paper can be summarised as follows:

- **The newly introduced focus is on functional economical areas. The argument was that the previous approach to sub-national economic development was based on a centrally driven target which sought to narrow the growth rates between different regions.**
- **Shifting power to local communities and businesses. Localities themselves are best placed to understand the drivers and barriers to local growth and prosperity**
- **Abolishing Regional Development Agencies and agreeing to the establishment of the local enterprise partnerships to be directly accountable to local people and local businesses.**
- **Decision-making and delivery mechanisms should operate at the most appropriate geographical levels, based on specific market failures and maximising efficiency and effectiveness.**
- **The need to support important industrial clusters which should not be restricted to neighbouring partnerships (e.g. an important aerospace industry cluster in the North West and the South West).**
- **Local enterprise partnerships and proposed partnerships will submit bids to the Regional Growth Fund.**
- **The Technology Strategy Board will be the main delivery body for supporting innovation.**
- **New structures of management and delivery of ERDF.**

Source: (HM Government, 2010).

First and foremost, the new vision is about focusing on real functional economic areas, even though policy instruments and delivery mechanisms are still much on a drawing board. There is also an observable shift from soft horizontal support measures towards the establishment of an elite network of Technology and Innovation Centres, based on international models such as the Fraunhofer Institutes in Germany. The policy approach seems to be also changing towards traditional growth models because only on market failure rationales as outlined above will constitute the basis for decision-making and delivery mechanisms. Besides that, England's Regional Development Agencies (RDAs) established in 1999 to drive economic growth in the region by adopting a business-led approach are now being abolished and replaced by the so-called led Local Economic Partnerships (LEPs). With the reduction of innovation related roles for regional actors the landscape of regional innovation stakeholders will be completely transformed.

In contrast, Finland adopted a broad-based policy document combining STI and DUI modes of innovation. This reflects a drive towards more holistic approach (an attempt to include DUI mode of innovation without neglecting STI mode) even though concrete instruments are still missing. At the regional level, the related variety based approach is challenging the cluster based development approach because even though geographical proximity in an enabling factor, regions with high degree of related variety defined as variety in sectors that are technologically related will perform better (Neffke et al., 2009).

This new approach seems to be leading to the new model of regional innovation policies, notably the framework of regional development platforms or regional innovation platforms. The concept of platforms has actually strong intellectual roots in the frameworks of regional innovation systems and evolutionary economics. Although the concepts of clusters and regional innovation platforms are similar, there are three underlying differences. First, it is based on the concept of related variety and

not proximity. Second, the focus is not on identification of existing clusters but on building on the existing regional resource basis. Third, platforms are future-oriented (Harmaakorpi and Uotila, 2010). This is in line with new paradigm of regional innovation polices (Box 2-2).

Box 2-2 Regional Innovation Platforms: Finland

The evidence shows that innovations are generated with the involvement of different stakeholders with different backgrounds. This differs completely from traditional thinking that innovations are generated exclusively inside enterprises by staff working in R&D departments and labs. For example, the city of Lahti aimed at fostering innovation by the means of a network-facilitating innovation policy, which primarily aims at promoting practice-based innovation processes through the establishment of networks between different stakeholders, disciplines, institutions, industries and regions.

Despite various obvious challenges, such as for example overcoming diversity or distance between the innovating partners, the existing empirical results show that the success depends on the ability to combine loose network development and an explicit, systematic approach to planning and working on knowledge-related matters within regional innovation networks.

Source: (Helinä et al., 2010; Harmaakorpia and Melkasb, 2005).

The cluster approach has been criticised by some experts because of a lack of causality that would clearly explain why clusters promote innovation. The stylised facts emerging from a review of recent regional innovation case studies show that that both geographical proximity and local interactions might have minor importance as impetus for innovation, whereas customer relations have significant impact. Path dependency is also viewed as a better explanation for rise or decline of clusters rather the presence of networking organisation or even R&D institution (Ellingsen and Tromsø, 2010; Sæther, 2010). Consequently, this explains to some extent the recent developments taking place in Finland, especially the rise in popularity of regional innovation platforms. While the both concepts of 'clusters' and 'regional innovation platforms' are similar, platforms are viewed to have some distinctive differences as outlined above, making them a preferred option for promoting regional innovation processes in Finland.

2.4.3 Current focus of regional innovation policies (baseline regional profiles)

Having outlined the evolutions of regional innovation policies taking into account the recent developments in England and Finland to show two different paths of developing regional innovation policies above, this part of the report sets out the baseline by the means of presentation of some facts to provide better snapshot on the existing regional innovation policies implemented across the EU regions.

Summaries of selected cases[2] presented below are adapted from the Baseline regional profiles (cf. Policy trends) which are published and available on the RIM website (http://www.rim-europa.eu).

- **Austria:** Recently published Action Plan aims at strengthening the region's overall competitiveness and innovation capacity: the "Innovationsoffensive Burgenland 2020". Among the main fields of actions are: fostering entrepreneurship and settlement of firms within the region and in selected fields such as environmental technologies, ICT and food industries and fostering cooperation and networks, especially towards partners outside of the region. In Lower Austria, RTDI support is to a large extent jointly developed in the

[2] In order to provide an overview of innovation policy trends, 11 out of 20 countries were selected for reporting. In addition to baseline regional profiles which are published on the RIM website for all EU 20 countries, a more detailed assessment of regional innovation policies is presented in section 2.5.

framework of the Structural Funds interventions and tailored to its requirements. In Vienna, definition of key areas: life sciences and medicine, information and communication technology (ICT) and creative industries including multimedia, whereas in Styria, a current emphasis is on ten fields of technology (so-called "Stärkefelder"), which are considered to be of special importance for the region.

- **Belgium**: In Flanders policy makers give explicit preference to 'grand projects', 'thematic spear heads' and economic clusters. In Wallonia, there is a continuation of programmes launched in the framework of the previous Marshall Plan (2006-2009) focused on among other priorities on development of human capital, competitiveness poles, business networks, and strengthening scientific research.
- **Bulgaria**: It is worthwhile to mention that the preparation of pilot Regional Innovation Strategies have not received support from the central government leading to the situation that all innovation measures are co-ordinated at the national level.
- **Czech Republic**: In Prague, there is a general lack of attention to innovation measures in the current programming period and approval of the Regional Innovation Strategy. In Central Bohemia, innovation is supported through the general support for micro and small entrepreneurship, while Olomouc region has paid more attention to the activities enhancing regional innovation potential especially by supporting innovation infrastructure and development of the cluster initiatives.
- **Germany**: Baden-Württemberg focused on scientific excellence, fostering science-industry co-operation (through partnership) and targeted support for young researchers. In Bavaria, a special emphasis is placed on the support of networks and clusters. Nineteen branches and technology fields are identified as being of high importance for the region's future. Berlin adopted thematic focus and for each technology fields a master plan defining strategic goals has been prepared. The innovation policy of Brandenburg is oriented towards the development of specific branches and competences. Bremen's innovation policy is focused on inter-sectoral lead topics which are considered as of strategic importance for the federal state of Bremen. North Rhine-Westphalia concentrates on clustering, networking, and selected areas of knowledge for next-generation innovations.
- **Spain**: Galicia has adopted programmes aimed at the promotion of activities in the public R&D system and in technological centres coupled with programmes aimed at fulfilling the industry needs. In La Rioja, promotion of clusters in strategic sectors, modernisation and diversification by the incorporation of emerging technologies, knowledge generation and transfer, internationalisation, promotion of environmental culture based on eco-innovation constitute the main policy priorities. Supporting innovation projects in strategic sectors, creation of a collaborative network that allows the identification of business opportunities of high potential is viewed as the main focus on innovation policies implemented in Madrid. For the Canary Islands, knowledge for innovation, human resources, strengthening R&D and innovation capabilities in strategic areas, mechanisms are considered as priorities with the view of improving the productivity and competitiveness in the region.
- **France**: Ile-de-France regional innovation policy is focused on collaborative R&D projects (incl. competitive sectors), direct support to business R&D and innovation projects, and support to technology transfer (Regional Centres for Innovation and Technology Transfer – CRITT, technology platforms, Centres for Scientific and Technological Expertise Resources). Emerging policy trends in Nord-Pas-de-Calais include: raising entrepreneurship awareness, attract "high-technologically intensive" investments, creation of innovation in services fund, strong priority to research activities in the fields of rail transportation and health. Lorraine, support

to the emergence of innovation platforms, global engineering of complex collaborative project are among the main emerging trends.

- **Poland:** In Silesia, an array of measures to support the development of industrial and technological parks, business intermediary organisations, financial instruments to support entrepreneurship, internationalisation, modernisation of micro- and small and medium-size enterprises, technology transfer and development of local and regional clusters. More attention is being paid to supporting the existing regional strengths. In particular, plans concern the preparation of the Regional Technology Development Programme (2010-2020).
- **Portugal**: In Norte, establishment of priority areas, approval of the Cluster and Competitiveness and Technology (based on the French Competitive Clusters model) are among the most recent developments. Similar approach adopted in the Algarve region (e.g. the Knowledge and economy of the sea cluster).
- **Sweden**: in Mellersta Norrland, the focus is placed on the creation of a number of clusters/innovation system initiatives coupled with ongoing efforts to promote new forms of public-private partnerships. In Västra Götaland, the development of platforms for interactive open innovation in prioritised areas such as automotive/air transport, health/biomedicine, the maritime sector, creative industries and new material is being supported.
- **United Kingdom**: Policies have tended to include: support for knowledge transfer and collaboration activities between the research base and industry and/or science /innovation parks – often in technology or sector priorities identified as most relevant to the region. Regional innovation policy will undergo considerable changes as a result of the change of government in the UK and its policy responses to the economic downturn.
- Highlights of concrete examples of regional innovation policies presented by the type of region defined by the RIM typology are presented under Section 2.6.6.

2.5 Assessment of regional innovation policies

Despite high heterogeneity among EU regions in terms of their performance and governance, there is a number of points of similarity, but also some distinct differences in existing instruments adopted by regions in support of innovation activities. To begin with the similarities.

2.5.1 Similarities

First, in almost all cases there is a trend towards the definition of key areas of strategic importance for the economic growth and regional development (incl. branches and technology fields). The most prominent examples of such prioritisation can be found in Austrian, Belgium, French, German (Box 2-3), Spanish and the UK regions. The explicit preference of Flanders for so-called 'thematic spear heads' is a good illustration of an attempt to introduce tailored-made and more focused regional innovation policies. Such conclusion can be drawn based on the review of Baseline regional profiles published on the RIM website (http://www.rim-europa.eu/).

Box 2-3 Regional innovation policies (Lower Saxony)

Innovation policy in Lower Saxony has traditionally taken a high-level and often case specific approach. Due to the limited number of large corporations accounting for the lion's share of regional employment and value added, this approach has proven both viable and successful, and helped to lay the foundations for the modernisation of the regional industry in the course of the 1980s and 1990s.

Lower Saxony was an early mover with respect to systematic regional innovation policy, which is, e.g., reflected in the set up of a "Support Fund for Regional Economic Development" in 1977 and the establishment of the "Lower Saxony Institute for Economic Research" in 1981. These steps can be considered to have been set up in the spirit of an innovation oriented policy approach. Moreover, "support for research, development and innovation" has been explicitly included in their mission statements.

In 2003, the change from a social-democratic to a conservative government spurred the development of a more systematic and SME friendly approach to innovation policy. In parallel, the regional government took measures to establish a more institutionalised approach to inter-ministerial co-operation. Most decisions aiming at establishing the current regional framework for innovation policy governance were taken at this time, following the commissioning of a study and a process of stakeholder consultation.

Significant funding for support measures in the field of innovation policy have become available with the 2007-2013 ERDF support period, since Lower Saxony is the only Western German region (partially) receiving support under the convergence objective. As a consequence, the regional government remains in a position to implement classic, but costly measures to support R&D in enterprises, as well as R&D co-operations between enterprises and academic partners by means of subsidies.

With regard to the setting of thematic priorities, a number of core regional networking initiatives have been established, which are comparable to cluster platforms, namely the 'Regional Initiative Satellite Navigation', 'Regional Initiative Fuel Cell', 'Regional Initiative BioRegioN', 'Regional Initiative Microsystems Technology', 'Regional Initiative Nanotechnology and Material Sciences', 'European Centre of Adaptive Systems (ECAS) e.V.', 'Regional Initiative Logistics', and the 'Regional Initiative PhotonicNet'.

Source: RIM assessment.

The existing evidence suggests that supporting innovation projects in strategic areas is not only taking place in regions with a strong track record of experience in designing and implementing regional innovation policies. The ongoing preparation of the Regional Technology Development Programme for years 2010-2020 in the region of Silesia (Poland) is a concrete example of the attempt to establish greater prioritisation especially in response to fragmentation of public programmes in support of innovation activities (Box 2-4). Besides that, the interest among policy makers to identify regional sectoral and/or technological specialisation is reflected in a high number of cluster-based initiatives across the EU.

Box 2-4 Evolutions of regional innovation strategies (Silesia)

By the mid-1990s, the policy programmes and strategies in Silesia were mainly focused on restructuring and development of economy. In particular, the year of 1995 marked the establishment of the Upper Silesia Fund to implement the provisions of the regional contract signed between the central government, regional and local stakeholders. The main activities of the Fund were concentrated on restructuring processes in enterprises through direct funding support, assistance in the creation of other intermediary organisations and attracting foreign direct investments. In the 2000s, innovation is started being placed at the top of policy agenda. The first strategic document which made a reference to innovation was the 2000-2015 Regional Development Strategy. In the recognition of the fact that decline of traditional industries trends were inevitable, the Strategy set out increasing the innovativeness and competitiveness of economy as one of its major priorities. The adopted strategic directions included support to small-medium size enterprises, development of scientific research and application of new technologies, increasing the region's attractiveness for investors, and modernisation of agro-food sector.

The actual preparation and development of the 2003-2013 Regional Innovation Strategy was undertaken in the framework of the RIS Silesia project supported by the Fifth Framework Programme. From March 2002 until May 2003, the public consultation with more than 600 regional and local stakeholders was carried out and led to the finalisation and adoption of the Strategy in August 2003. Subsequently, efforts were concentrated on mapping out priorities with all support measures available at both the national and regional level. Those results were presented in the 2005-2008 Implementation Programme of the Regional Innovation Strategy and included altogether nine priorities ranging from development of regional innovation system, creation of regional information system and financial mechanisms for enterprises to technology clusters and promotion of innovation culture, etc.

In comparison with the newly developed Implementation Programme for years 2009-2013, there is an observable trend towards the development of integrated regional innovation policy with the involvement of representatives of key growth sectors, increasing creativity, entrepreneurship and innovation at all levels in society, development of networks as well as open innovation platforms. The recent shifts in the policy directions are confirmed by the ongoing study, which aims at identifying the needs and capacities of R&D and business sector regarding the development and implementation of innovative solutions and technologies. The results will be used the development of Regional Technology Development Programme for the 2010-2020 perspective.

Source: RIM assessment.

The RIM survey results confirm high popularity of cluster policies, according to which only one third of regions have neither implemented nor planned to implement such policies, compared to less than a tenth with the implementation plans and almost three fifths of regions which have already implemented this type of policies (Table 2-8).

Table 2-8 Cluster policies

Policies	Frequency	Percent
none	58	30,4
planned	19	9,9
implemented	114	59,7
Total	191	100,0
none	CZ, GR, UK, BG	
planned	IE	
implemented	BE, DK, FI, PT, FR, IT, PL, DE, SK, NL, HU, ES, AT	
differentiated	RO, SE	

Source: RIM survey.

In particular, the results for Belgian, Danish, Finnish, Portuguese, French, Italian, Polish, German, Slovak, Dutch, Hungarian, Spanish and Austrian regions demonstrate that cluster policies are implemented in more than a half of regions in those countries. On the other hand, cluster policies have not been implemented in more than half of Czech, Greek, the UK, and Bulgarian regions.

Nonetheless, it has to be remembered that a result indicating that more than half of regions in a given country has not implemented cluster policies does not mean that this kind of policies are not implemented at all. In this specific case, the results actually show that national level in certain countries plays a leading role in the development of cluster policies (e.g. the General Secretariat for Research and Technology (GSRT) of the Greek Ministry of Development has been supporting the establishment of Regional Innovation Poles), whereas in others (e.g. in the UK) there are no cluster policies in the strict sense of the term and only some regions implement initiatives focused on key technologies/sectors more akin to so-called 'smart specialisation' than clusters.

The results for Romania and Sweden which are labelled as 'differentiated' shows that both national and regional levels are equally active in cluster policies. In Romania this can be explained by no clear-cut division of competences in this policy area between the central government and regional level due to a relatively recent experience with the design and implementation of regional innovation policies, in general. Therefore, the Swedish results can be considered as a confirmation of mutual efforts from both levels of government (i.e. national and regional) towards supporting cluster policies. Surprisingly, Ireland has plans to implement cluster policies although in the current financial situation it seems rather highly unlikely.

The second similarity is that policies are heavily supply-side driven despite efforts to support knowledge transfer and collaboration activities between the research base and industry. As a consequence, the focus is to a large extent on supporting technological innovations. It is also estimated that more than three fifths of regions have not implemented or planned to implement demand-side innovation policies, while roughly about two tenths of regions have implemented or reported to have such plans (Table 2-9). Demand-side innovation policy instruments are defined as a set of public measures to increase the demand for innovations, to improve the conditions for the uptake of innovations, and/or to improve the articulation of demand in order to spur innovations and the diffusion of innovations (Edler, 2009).

Table 2-9 Demand side policies

Policies	Frequency	Percent
None	122	63,9
Planned	34	17,8
implemented	35	18,3
Total	191	100,0
None	CZ, FI, GR, FR, PL, UK, NL, AT, DE, IT	
Planned	BG, SK	
implemented	DK, HU, BE	
differentiated	IE, PT	

Source: RIM survey.

Moreover, the analysis reveals that innovation-demand side policies are most commonly implemented in Danish, Hungarian and Belgian regions. Certainly, Hungary and Portugal cases require further investigation, but also results especially for Belgium need to be interpreted with caution due to a lower number of regions compared with other countries. It is most likely that the results for Hungary and Portugal are influenced by the interpretation of demand-side policies in a narrow sense (i.e. direct support to business activities) rather than policies aiming at

increasing the demand for innovativeness, improving conditions for the uptake of innovations as well as improving the articulation of the demand.

In contrast, countries where more than half of regions have neither implemented nor planned to implement this type of policies include Czech Republic, Finland, Greece, France, Poland, the UK (Box 2-5), the Netherlands, Austria, Germany, Italy and Spain. Most importantly, those results confirm a general lack of demand-side policies as well as absence of plans to implement them in the nearest future.

Box 2-5 Changing paradigm of regional innovation policies in the North of England

The case of innovation in the North of England is presented next in order to present more detailed and nuanced developments than the ones discussed above. The interest of English regions in STI goes back to the early 2000s. In the North, the controversial Government decision to move a major scientific facility, known as the DIAMOND from the relatively deprived North West of England to the comparatively more prosperous South East. Though the decision to retain the DIAMOND in the region was not successful, the regional consciousness around the importance of science and innovation has given actually impetus and led to the establishment of the first English regional Science Council. Following the establishment of a Science Council in 2002, the first science strategy was excellence-driven and underpinned by the desire to increase national research funding obtained by the regional institutions. The second iteration of the strategy paid greater attention to inter-relationships through for instance emphasis on SMEs, development of programmes such as Knowledge to Innovate and the use of innovation vouchers.

In order to fundamentally transform the region's economy, another key mechanism was the so-called Strategy for Success underpinned by three Centres of Excellence. The aim was to address an institutional gap between businesses with difficulties to absorb new technologies and the platforms required for that purpose. Subsequently in 2004 a top-down initiative was launched, known as the Science Cities with the objective of building knowledge-based regional economy. In contrast, the Northern Way initiative aimed at addressing a gap with more prosperous South of England region. To this end, £100m was earmarked for that purpose. In 2008, the OECD team prepared a review of innovation in the North. One of the conclusions was that that there should be a change in directions from supply-side to demand-side policies. The paradigm of innovation has started to change which can be reflected in a number of initiatives, for instance the Low Carbon Economy Futures Centre. The consolidation, review the evidence base, addressing existing weaknesses by the means of holistic approach to innovation were considered to be one of the main opportunities that the crisis has offered. The real challenge is not to return back to old policies and take stock of lessons to be learned from the last decade.

Source: (Perry, 2010).

The third similarity is that policies are predominantly concentrated on the manufacturing sector. According to the RIM survey results half of regions have neither implemented nor planned to implement policies for innovation in services, less than a third of regions have implemented and less than two tenths have only plans to implement this type of policies in the future.

As regards policies for public sector innovation a large share of regions, i.e. slightly less than three fifths of regions have not implemented such policies. In contrast, it is estimated that less than one fourth of regions have implemented and slightly more than a quarter of regions have plans to implement them in the future (Table 2-10).

Table 2-10 Policies for innovation in services and policies for public sector innovation

Policies	Frequency	Percent	Policies	Frequency	Percent
none	99	51,8	**none**	114	59,7
planned	37	19,4	**planned**	31	16,2
implemented	55	28,8	**implemented**	46	24,1
Total	191	100,0	**Total**	191	100,0
none	CZ, FI, GR, IE, UK, RO, AT, SK, PL, FR, NL		**none**	AT, CZ, FI, GR, PL, SK, UK, DE, HU, FR, BE, RO	
planned	BG, SE		**planned**	BG	
implemented	PT, ES, HU, DK, IT		**implemented**	IE, PT, DK, ES, IT	
differentiated	DE		**differentiated**	SE	

Source: RIM survey.

A comparative analysis shows that policies for innovation in services are mainly implemented in Portuguese, Spanish, Hungarian, Danish, and Italian regions, whereas the absence of implementation and/or plans as such are most common in Czech, Finnish, Greek, Irish, the UK, Romanian, Austrian, Slovak, Polish, French, and provinces of the Netherlands.

Although it is not surprising that regions with a relatively shorter experience in the implementation of innovation policies have neither implemented nor planned to implement such policies, it surprising that Finland is also mentioned in this group of countries. The explanation for this could be that the central government and not regional authorities is responsible for the implementation of policies in support of services.

Cross-country comparison of innovation policies in the public sector show that this type of policies are mainly implemented in Irish, Portuguese, Danish, Spanish, and Italian regions. In contrast, most of Austrian, Czech, Finnish, Greek, Polish, Slovak, the UK, Germany, Hungarian, French, Belgian, Romanian regions have neither implemented nor envisaged implementation of such policies.

The two countries, which stand out, are Ireland and Portugal, because we would not expect the regions in those countries to be taking a lead in innovation policies in the public sector. The Irish case is of course biased due to the fact that it has only two regions. Although we would expect to find most of Danish and Spanish regions to have implemented innovation policies in the public sector, it is quite surprising the majority of regions in other Nordic countries have not implemented this kind of policies. One possible explanation would be again that these policies are driven by the national and not regional level. Above all those considerations, the survey shows that so far only few regions have put in place policies to support innovation in services and/or public sector innovation.

2.5.2 Differences

Primarily a key difference in policies between regions of the EU-15 and countries like Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovakia (RIM coverage does not include Cyprus, Estonia, Latvia, Lithuania, Malta and Slovenia), is that the latter group of regions tend to provide general support for enterprises to increase their competitiveness by the purchase of new technologies rather than experimenting with new models of innovation policies. Since significant financial allocations are available in those regions, a wide range of different types of measures is being supported that is often justified by the existing demand from the business sector.

This could be tested on a concrete example to check to what extent for instance policies for open innovation have been implemented. Open innovation polices are

defined as policies aimed at promoting transfer, sharing and use of knowledge and skills within and between innovation systems. Overall, results show that in almost three fifths of regions this type of policies have neither been planned nor implemented, whereas the number of regions that have implemented and envisaged the implementation is at a low level, respectively 51 and 29 (Table 2-11). Besides a confirmation of limited emphasis of recently most popular RTDI policy topics, there is another important conclusion to be drawn. Specially, introducing small steps and progressively implementing new models of innovation policies might be justified in regions of most recent EU Member States, however, an obvious challenge is to deploy policies that would assist entrepreneurs in increasing their innovation capabilities and avoid policy responses which are exclusively focused on providing only traditional investment grants. Particularly, developing the system of incentives aimed at improving innovation capabilities of SMEs is needed.

Table 2-11 Policies for open innovation

Policy	Frequency	Percent
None	111	58,1
Planned	29	15,2
implemented	51	26,7
Total	191	100,0
none	AT, CZ, FI, GR, PL, RO, HU, DE, SK, FR, BE	
planned	BG, IE	
implemented	PT, UK, IT, DK, ES	
differentiated	SE	

Source: RIM survey.

One of the major findings emerging from this analysis is that no regions from countries like Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovakia implemented policies for open innovation. Besides that, a limited number of answers in relation to planned actions in this policy area (only Bulgarian regions) can be considered as an indication that the evolution from old models to new models of supporting innovation activities might take longer in those countries longer than expected. The results also suggest that only the majority of Hungarian regions have commonly implemented eco-innovation policies, whereas in the majority of other regions in questions have neither implemented nor planned the implementation of this kind of policies (Table 2-12).

Table 2-12 Eco-innovation policies

Policies	Frequency	Percent
None	95	49,7
planned	36	18,8
implemented	60	31,4
Total	191	100,0
None	CZ, FI, UK, DE, SK, BG, PL, RO, GR	
planned	BE, DK	
implemented	IE, PT, HU, ES	
differentiated	SE	

Source: RIM survey.

Second, there are differences in the assessment of relevance of the EU SF interventions for regional innovation policies. The survey results show that assessments provided for regions in Czech Republic, Hungary, oscillated between very low, low and medium-low scores, whilst assessments concerning Polish and Slovak

regions were completely opposite. The striking difference in assessments can be explained as follows. The former assessments formulated a negative opinion about the types of projects being implemented, whereas the latter gave a more positive assessment as the regional innovation policies in those countries are the only sources of funding of support measures and have considerable financial allocations.

Third, while it is more appropriate to make a reference to regionalised national innovation policies in some countries (e.g. Greece, France, Ireland), Bulgaria stands out from the rest of countries as the Regional Innovation Strategies have not been approved / supported by the central government. Also, the recent developments in the UK have been unique representing a significant rethink of whole innovation system with direct implications on the regional innovation systems. Given the current financial situation there might be similar developments unfolding in other countries.

2.5.3 Relations between autonomy and types of implemented policies

One would expect that regions with higher levels of autonomy with regard to the design and implementation of innovation policies especially new models (incl. policies for open innovation, innovation in services, public sector innovation, eco-innovation) would implement them to a larger extent than regions with comparatively a lower degree of autonomy.

Our survey results confirm that the higher the level of autonomy, the higher are shares of regions having implemented policies for open innovation. According to the responses, it is estimated that only 9% (3 out of 33) of regions with low autonomy have implemented such polices, 24% (18 out of 75) with medium autonomy, 41% (25 out of 60) with high autonomy and 50% (5 out of 10) with very high autonomy. In contrast, the shares of regions that have neither implemented nor planned to implement this type of policies are declining in regions with higher autonomy (Table 2-13).

The only exception is the case of regions with very high autonomy for which results indicate that the share of these regions that have neither implemented nor planned to implement this type of policies is five percentage points higher than in the case of regions with high autonomy. This minor difference is certainly biased because of a very low number of regions with very high autonomy (10 in total) and does not undermine the overall finding which indeed confirms that the implementation of policies in support of open innovation is more common in regions with higher levels of autonomy than in regions with lower autonomy.

Table 2-13 Relations between regional innovation autonomy and implementation of policies for open innovation

RTDI autonomy	Policies for open innovation			Total
	none	planned	implemented	
very low	13	0	0	13
low	21	9	3	33
medium	45	12	18	75
high	27	8	25	60
very high	5	0	5	10
Total	111	29	51	191

Source: RIM survey.

The analysis of autonomy and policies for innovation in service reveals very similar results as the ones relating to policies for open innovation. (Table 2-14).

Table 2-14 Relations between regional innovation autonomy and implementation of policies for innovation in services

RTDI autonomy	Policies for innovation in services			Total
	none	planned	implemented	
very low	13	0	0	13
low	21	8	4	33
medium	45	13	17	75
high	18	13	29	60
very high	2	3	5	10
Total	99	37	55	191

Source: RIM survey.

As outlined above, it is interesting to note that the share of regions with high autonomy that have neither implemented nor planned implementation of policies for innovation in services is lower compared to the shares of regions with the same autonomy that reported implementation. In all the remaining policies under review, it is always the case that the shares of regions that have neither implemented nor planned these types of innovation policies are always higher than the shares of regions that reported the actual implementation. This in general confirms a low level of implementation of this type of innovation policies even in regions with high autonomy.

With regard to public sector innovation, the underlying difference which stands at odds with what we would normally expect (i.e. higher shares of regions implementing certain types of innovation policies are associated with higher levels of autonomy to design and implement innovation policies), is that the share of regions with medium autonomy that have neither implemented nor planned implementation of policies for public sector innovation is slightly higher than in the case of regions with low autonomy (Table 2-15). This also shows that the recognition of importance of policies for public sector innovation is actually of slightly higher importance in regions with low and medium autonomy.

Table 2-15 Relations between regional innovation autonomy and implementation of policies for public sector innovation

RTDI autonomy	Policies for public sector innovation			Total
	none	planned	implemented	
very low	13	0	0	13
low	20	7	6	33
medium	50	13	12	75
high	28	8	24	60
very high	3	3	4	10
Total	114	31	46	191

Source: RIM survey.

With regard to eco-innovation polices, the existing results confirm strong relationships between the autonomy and implementation and/or absence of this kind of policies (Table 2-16).

Table 2-16 Relations between regional innovation autonomy and implementation of policies for eco-innovation

RTDI autonomy	Eco-innovation policies			Total
	none	planned	implemented	
very low	12	1	0	13
Low	17	9	7	33
Medium	36	12	27	75
High	27	10	23	60
very high	3	4	3	10
Total	95	36	60	191

Source: RIM survey.

2.5.4 Summary assessment of regional innovation policies

There are three key emerging conclusions from the analysis of relationships between the level of autonomy and types of policies being actually implemented or planned. First, it shows still quite **limited implementation of new models of innovation policies**. Second, the **autonomy in fact appears to have influence on the degree of implementation of new types of policies**. Yet, there is one exception to this, notably public sector innovation as shares of regions with low autonomy that have implemented this kind of policies is higher than in regions with medium autonomy. Third, it is interesting to note that **regions with low autonomy are regions that most commonly plan the implementation of policies discussed above.**

While the regions in Central Eastern Europe have not changed the overall directions in their innovation policy towards the new above-mentioned models, the fact that most of regions plans the implementation of such policies raises doubts of concerns because of the governance capacities but also the relevance of such policy responses from a strategic point of view. The evolution of regional innovation policies has demonstrated that policies are influenced by different factors, and therefore it is very important to guide regions in the design and implementation of most realistic support mechanisms. In the current financial situation, it is likely that more interest and focus will be introduced in order to **maximise the returns of public investments**.

2.5.5 Perspectives of regional innovation policies

In summary, programmes designed in the 1990s and mid-2000s were developed in an **era of relative prosperity**. That is partly why policy support programmes targeting different types of industries provide more or less the same type of support following a generic good practice models for innovation support developed in other regions. It can be therefore expected that the **financial crisis will eventually lead to further fine-tuning and prioritisation** of innovation policies in order to achieve the highest returns of innovation public investments (Martin et al., 2010). There are of course both opportunities as well as threats associated with those changes which are explained below on the basis of concrete types of policies.

In the recognition of the fact that a number of sectors are financed by public budget, some regions have been reflecting on how publicly financed services can foster development of innovation and spirit of entrepreneurship. A practical example can be demonstrated on the case of Region Skåne which has been actively involved since 2004 to promote the development of innovation in its health sector employing approximately 33,000 employees (Region Skåne, 2009). It seems that such activities will become more common in the EU regions as developing a more innovation oriented public sector during the financial crisis is required more than ever.

In the times of austerity and tightening up of public spending, it is possible that the concept of PPPs (Private Public Partnership) might appear more attractive to policy makers as a middle way between private and public delivery. In this respect, an important message is that **PPPs could have a positive impact** on bringing together actors from different sectors although possible impacts of policy decisions needs to be assessed before hand. The argument is as follows. If the PPPs are better alternatives to other arrangements then they will have a positive impact on the future availability of public resources. Otherwise, they might provide short-term benefits at the expense of constraining future decisions and putting the pressure on the public finances in the long-term (Scherrer, 2010).

Taking a step-back to look at the concept that attracted a lot of attention of policy makers during the 2000s is not only an interesting exercise in itself, but also a useful one especially when discussing the perspectives of regional innovation policies. The Triple Helix concept is one of such examples. In particular, it caught the attention because of its simplicity and role that it could play in introducing behavioural changes of innovation stakeholders. Specially, it emphasised the increased collaboration and interdependence between universities, industry and government and evolving role of universities from doing research and teaching to more entrepreneurial-related activities. As pointed by the practitioners, the policy was rather focused on providing support for programmes aiming at fostering science-industry co-operation, financing infrastructure (incubators and science technology parks and stimulating academic entrepreneurship and development of skills necessary for innovation, although little has been done concerning the changing behaviour of third sector (i.e. government) of the triple helix (Cooke, 2006).

Another challenge concerning the triple helix model is to clarify the roles of universities. The recent research indicates that national and regional innovation and research policies tend to explicitly or implicitly reflect one or a combination of several of these models, giving rise to potential contradictions or conflicts of policy rationales and objectives (Uyarra, 2010).

Examples of ongoing research in this area, such as three-year NESTA project undertaken by the University of Wales "Innovation in weaker regions: Creating an effective regional innovation system through the Triple Helix Model" suggests that this model is still being used in order to establish a better understanding of contemporary innovation interactions within specific regional innovation systems. While the Triple Helix model focuses on the relations of universities, industry and governments, the Quadruple Helix introduced by Carayannis and Campbell blends in the perspective of a media-based and culture-based public (Carayannis and Campbell, 2009).

The other considerations relate to the need of ensuring **synergies between different sources of funding**. While this is not a region specific issue, it represents a bigger challenge for some type of regions than for others. In countries like Poland, Slovakia, Hungary, Czech Republic, the rise of regions as a territorial unit for policy intervention can be explained by the assistance provided through the EU SF interventions, which are often the main sources of funding in support of innovation activities both at national and regional level, however, the funding available at the national level is much higher than regional funding.

Disproportionately higher financial allocation at national level compared with the regional level constitutes a major challenge for those regions, as they have no powers to influence neither the design nor implementation of portfolio of national measures. Hence, it can be argued that even though the funding earmarked for innovation at regional level has considerably increased in comparison with the situation prior to the EU accession, regional innovation systems are most likely to be influenced by the national and not regional policies.

Second example, relates to the case of metropolitan regions. In the early 2000s, the cities were considered as powerhouses of innovation and later similar argument was made in relation to metropolitan regions as centres of innovation systems (Doloreux

and Parto, 2004). In practice, however, this is far from being clear-cut and resolved issue in the debate. While companies in metropolitan regions might have highly qualified labour force, a high density of universities and knowledge organisations, they might be also confronted with a lack of knowledge interactions. Such problem of fragmentation, i.e. a lack of networks and interactive learning at the regional level might not be instantaneously picked up by metropolitan regions as they need to pay special attention to ensure the highest degree of complementarity between the national and regional instruments, as a large part of national funding is absorbed in those regions (Tödtling et al., 2010).

It will be very interesting to see how EU regions will be using different types of approaches/policies to maximise the impact on innovation dynamics in their regional innovation systems. In conclusion, it is evident that the proliferation of concepts is highly not recommended, as the **same concepts will assume different models**, as well as results. The living example of that are the Science and Technology Parks and role they have played in the regional innovation systems (Almeida et al., 2010). To sum up, the ability to identify and promote synergies between different sources of funding will have a significant impact of public investments. In this respect, the challenge is to promote synergies at the programming, but also during the actual implementation stage.

2.6 Analysis of governance, policies and performance links

In this subsection the linkages between innovation performance (cf. Section 1) and the issues of governance and policies as discussed in detail in the above paragraphs of this section, are analysed in a more synthesised way (by reducing detail and emphasising the main distinctive factors). The main objective is to assess to what extent differences in innovation performance across EU regions are related to differences in terms of governance and policy aspects, respectively.

Instead of showing the results of each of the survey questions on governance and policy per group of regions as identified in the typology presented under Section 1, we analyse the relationships in a more synthesised way by calculating governance factors and policy factors.

2.6.1 Governance factors

Based on the survey questions (with variance more than 1) on governance four components or factors of governance have been identified with factor analysis, similarly as was done in Section 1 regarding patterns of innovation performance (*cf.* ***Appendix F***).

The first distinctive governance characteristic is labelled **'Autonomy'.** For regions where the regional innovation strategy is politically binding and containing fixed targets, we also find the highest degree of both general institutional autonomy as well as autonomy regarding innovation policy. In addition, formalisation contributes to the autonomy factor and autonomy is associated with an assessment of innovation policy as being effective.

The second distinctive characteristic is named: **'Relying on Structural Funds'**. It is based on the similarity in the answers regarding the strategic relevance and significance in terms of funding of EU Structural Funds for regional innovation policy. It shows that some regions are clearly more depending on Structural Funds than other regions. At the same time these regions report a low level of cooperation with other regions and the innovation system can be characterised as more public-driven.

A third distinctive factor is made up of the similar answers to the two other questions on coordination, namely the existence of vertical and horizontal coordination mechanisms at local, regional, national and European level, and between regional players, respectively. Finally, a fourth factor is labelled **'Central, top-down'** because they combine a centralised policy delivery and top-down approach in policy design.

2.6.2 Links between governance (factors) and patterns of innovation performance (factors)

The relation between governance issues and patterns of innovation performance can be analysed by looking at the governance factor scores of the identified types of regions. Prior to this, we test for each of the innovation performance factor-scores to what extent these can be 'explained' by the four governance factor-scores in order to establish a better understanding of such relationships.

Taking into account that the data has to some extent a 'country-effect', we added country characteristics to control for these country effects. A high score on the factor indicating a high reliance on Structural Funds appears to have a negative statistical effect on **'Innovative entrepreneurship'**. This is not surprising since the less developed regions receive more Structural Funds, and it does not tell anything about the causality in terms of effectiveness of Structural Fund policies on the improvement of innovation performance. Moreover, one should recall that the factor 'relying on Structural Funds' also refers to regions where the key drivers of innovation are public and inter-regional coordination and cooperation is limited. We can however conclude that it is an important and distinctive characteristic of innovation governance.

The governance factor regarding the existence of vertical and horizontal coordination mechanisms has a significant positive effect on 'Innovative entrepreneurship'.

A high score **'Technological innovation'** can partly be 'explained' by the policy factor 'Central-top-down'. A centralised policy following a top-down (or mixed) approach is more common in regions where innovation is driven by business R&D. For the governance factor 'relying on Structural Funds' we see again a negative relation. For the regions where innovation policy is highly depending on Structural Funds the level of 'Technological Innovation' is significantly lower.

The 'Autonomy' factor appears to be associated with the **'Public knowledge'** innovation performance factor. Since the public knowledge factor is largely based on R&D in government institutes, a larger autonomy seems to support (regional) government labs. Regions with low autonomy will have less possibilities to start their own government research institutes.

Appendix G contains regression results of linking governance factor scores to the three innovation performance factors.

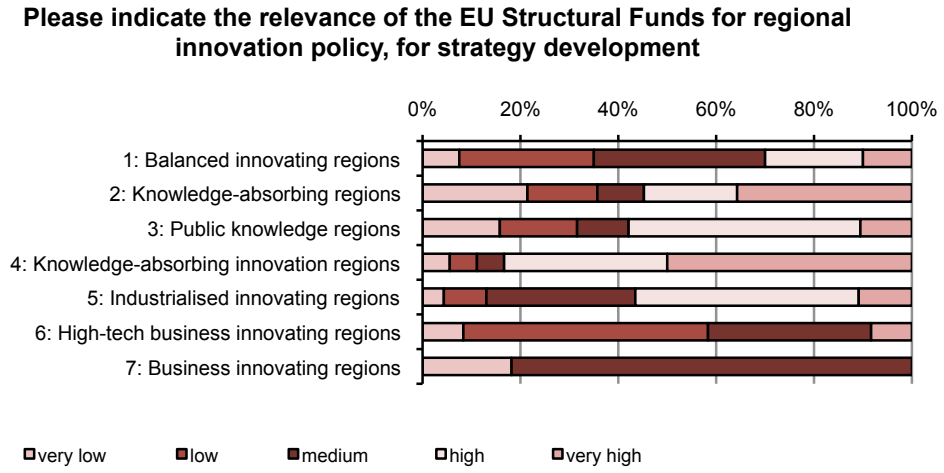
2.6.3 Governance characteristics for the regional groups of innovation performance

Particularly, the following major findings are emerging from the analysis of governance factors[3] and patterns of innovation performance in different types of EU regions:

- The group of **'Balanced innovating regions'** has quite average characteristics in terms of governance, since the average governance factor scores are close to zero, except that they have a below average score on the governance factor 'Relying on Structural Funds'.
- The **'Knowledge-absorbing regions'** have less horizontal and vertical coordination mechanisms in place. Their 'reliance on Structural Funds' is above the average of all regions, but clearly lower than the group of 'Knowledge-absorbing innovating regions'.

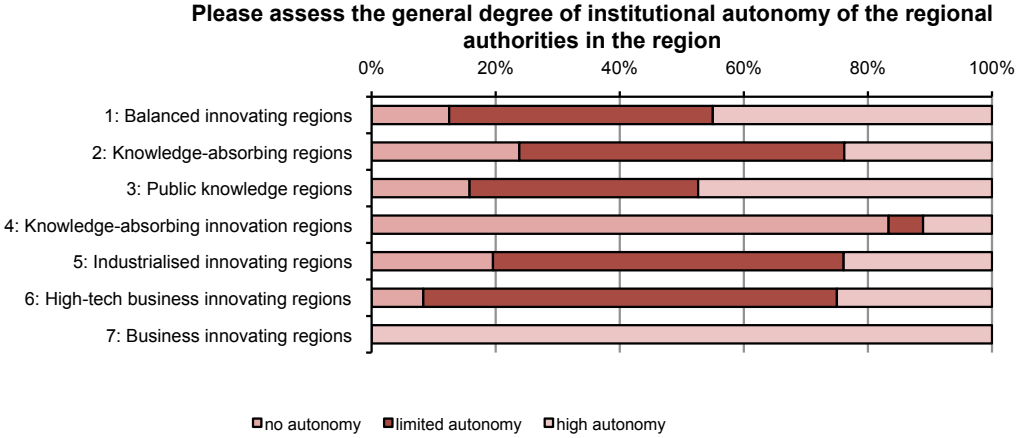
[3] Note that the innovation performance factors and the identified groups of regions refer in total to 203 regions, while the governance factors (and policy factors) refer to 139 regions with valid values for each and every single governance- and policy item.

Figure 2-1 Relevance of EU Structural Funds for innovation strategy development



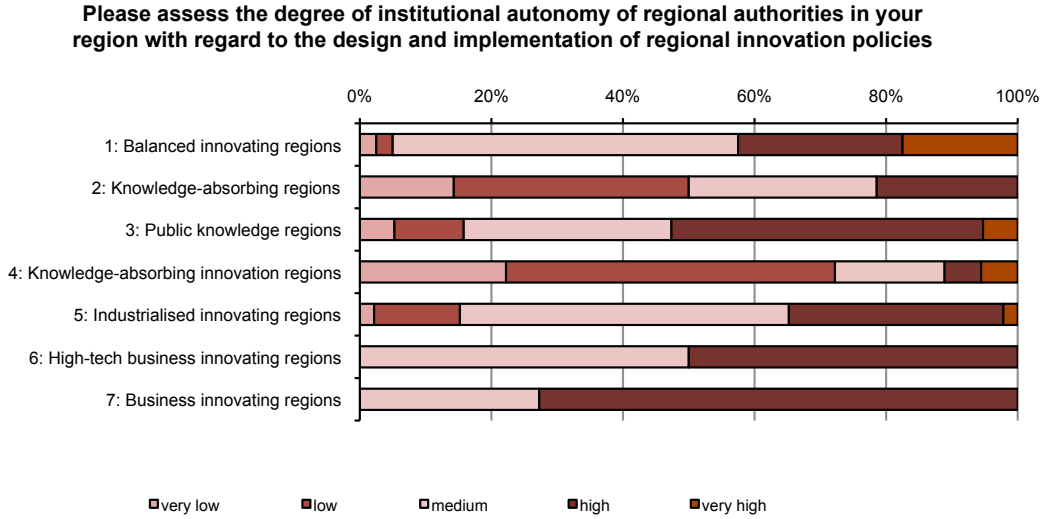
- For **'Public knowledge regions'** the score on 'Central, top-down' is below average, which means that their policy approach is less centralised and 'top-down'.
- The **'Knowledge-absorbing innovating regions'** have the lowest autonomy (Figure 2-2), with the Autonomy factor score way below average. This group of regions is more relying on Structural Funds than any of the other groups and also the score for 'Central, top-down' is the highest.

Figure 2-2 General degree of institutional autonomy by groups of innovation performance.



- The innovation policy governance of **'Industrialised innovating regions'** is characterised by an on average large existence of coordination mechanisms. The score on the 'Autonomy' factor is above average.
- **'High-tech business innovating regions'** have the lowest score on 'Relying on Structural Funds', which for instance is evident in the low importance for strategy development. The mean governance factor 'Autonomy' is below average, but as Figure 2-3 shows, the degree of autonomy regarding innovation policy is high.

Figure 2-3 Degree of autonomy regarding innovation policy by goup of innovation performance



- The group of **'Business innovating regions'** has on average the highest factor score on 'Autonomy'. This group of mainly Austrian and North Italian regions have on average a low score 'Relying on Structural Funds'. The 'Central, top-down' governance factor is above average.

Appendix H contains the analysis of governance factors and patterns of innovation performance.

2.6.4 Policy factors

Regarding the policy questions of the survey we follow the same procedure as with the governance issue, by first identifying the distinctive policy factors (*cf.* ***Appendix I***).

The most important, distinctive factor regarding the innovation policies is labelled **'Public innovation policies'**. A high contribution to this factor comes from the survey questions regarding: policies for public sector innovation, for open innovation, public procurement, and theme based policies aiming at societal goals. The name 'public innovation' has been assigned to this factor, because all the major contributing indicators share a public element (e.g. open innovation makes innovations more publicly accessible, and 'societal goals' are in the public interest).

The second policy factor is labelled **'Demand & service innovation policy'** because of the co-existence of demand-side policies and service innovation policies.

The third policy factor is named **'Cluster & S-I partnership policy'** since it is based on the frequent combination of Cluster policies and policies promoting new forms of public-private-partnerships for Science-Industry (S-I) co-operation. In addition, the implementation of eco-innovation policies contributes to this factor.

The fourth factor is labelled **'Research supply policy'** because it is based on the positive answers to the question on supporting research efforts (the supply side), in combination with an opposite negative answer to the question on 'market and innovation culture (which is more on the demand side).

'Policy making support' is the name for the fifth policy factor, which is based on support to policy making and horizontal policies. The last policy factor is **'HR, creation & growth innovators'** which combines human capital development with policies aimed at creation and growth of innovative firms.

2.6.5 Links between policy (factors) and innovation performance (factors)

A high score on the policy factor 'HR, creation & growth innovators' has a positive impact on the level of innovation performance in terms of **'Innovative entrepreneurship'.** It shows that innovative entrepreneurship can be learned and successfully promoted with regional policies.

The indicator for 'Demand & service innovation policy' has a significant impact on the innovation performance factor **'Technological innovation'**.

The difference in the performance factor **'Public knowledge innovation'** can be explained by differences in several policy factor scores, which have a 'public' element. The 'public innovation policy' factor has a positive impact. Also the factor 'research supply policy' has a significant positive impact, as well as the policy factor 'HR, creation & growth innovators'.

Appendix J contains regression results of linking policy factor scores to the three innovation performance factors.

2.6.6 Policy characteristics for the regional groups of innovation performance

The main results emerging from that analysis of policy factors and innovation performance in different types of EU regions (*cf.* ***Appendix K***) can be summarised as follows:

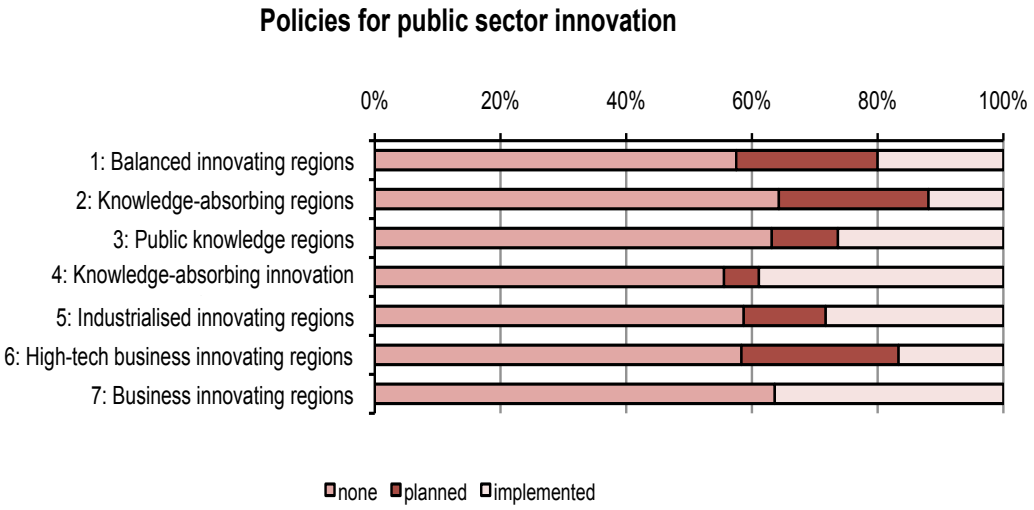
'Balanced innovating regions' have the highest mean score on the policy factor 'Demand & Service innovation policy'. 'Policy making support' is above average. 'Public innovation policies' and 'Research supply policy' is below the average for all European regions.

'Knowledge-absorbing regions' score on average lowest of all groups on 'Public innovation policies' (see also the low share of group-members that have implemented policies for public sector innovation, Figure 2-4), and 'Policy making support'. Regions of this group have a low GDP per capita but many of them are catching-up regions in Eastern Europe. Investments in institutional qualities and policy making capacities seem relevant. These regions have the highest mean score for 'Research supply policy'.

Box 2-6 Balanced innovating regions and Knowledge-absorbing regions: Lower Saxony and Silesia

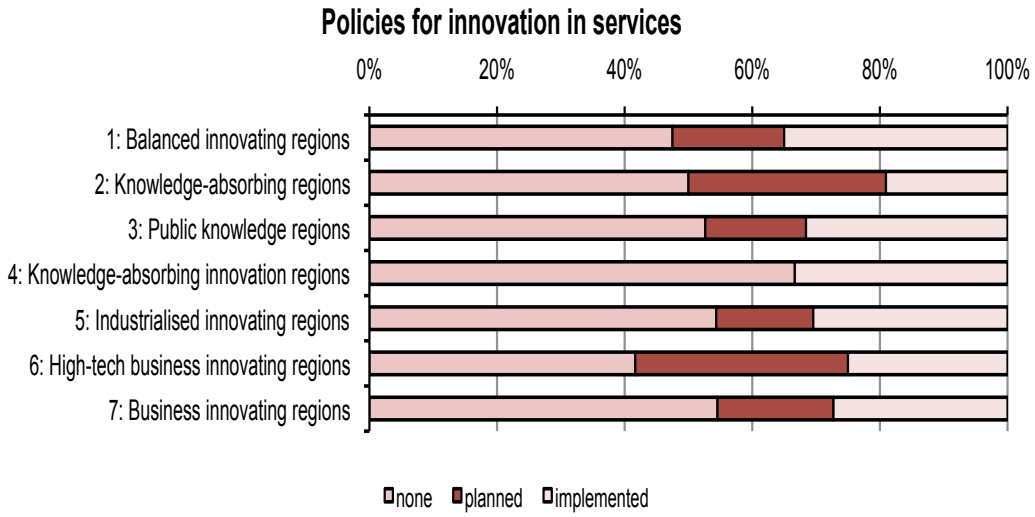
The case of Lower Saxony and Silesia is an illustration of an early mover and relatively late follower of systematic regional innovation policies. Taking into account significantly different record of experience in implementation of regional innovation policies, it is not surprising that those two regions belong to two opposite categories of regions in terms of innovation patterns, i.e. 'Balanced innovating regions' and 'Knowledge absorbing regions', respectively. The establishment of adequate focus on innovation policies and their effective implementation in regions, such as Silesia, will affect not only their growth and development but ultimately will determine whether regions from this group will continue to play a role of knowledge-absorbing regions or follow a different innovation pattern.

Figure 2-4 Percentage of regions per group having none, planned or implemented policy for public sector innovation



The differences between the groups of regions are relatively small regarding policies for innovation services. Knowledge-absorbing regions have the lowest rate of implementation, but they plan to catch-up (Figure 2-5). When the planned implementation of policy for the public sector will indeed be realized, the differences among the groups regarding the percentage of group members which have no such policies, will have diminished.

Figure 2-5 Percentage of regions per group having none, planned or implemented policy for innovation in services



'Public knowledge regions' have the lowest score on 'Demand & service innovation policy' which is quite surprising since in this group there are many capital regions, and service sectors are well represented in capital regions. 'Public knowledge regions' also have the lowest factor score for 'Policy making support'. 'Research supply policies' are above average. On 'HR, creation & growth innovators' the 'Public knowledge regions' have a higher mean factor score than any other group.

Box 2-7 Public knowledge regions: Prague and Scotland

Prague and Scotland both belong to the group of 'Public knowledge regions'. While the Scottish innovation policy mix is rather complete, sophisticated and comparable with the innovation policy mix of most other (smaller) European countries, Prague has not recognised the importance of innovation in their current regional innovation policies and rather concentrated their efforts on attracting foreign investors.

The group of **'Knowledge-absorbing innovating regions'** have the highest mean score on three policy factors: 'Public innovation Policies', Cluster & S-I partnership policy', and 'Policy making support'. Policies regarding 'HR, creation& growth innovators' are less often implemented in Knowledge-absorbing innovating regions.

Box 2-8 Knowledge absorbing innovating regions: Sterea Ellada and Norte

The category of 'Knowledge absorbing innovating regions' includes mainly Greek and Portuguese regions. With regard to regional innovation policies one of the major issues was that support measures have been to a large extent designed centrally not necessarily taking into account regional priorities, as is captured in the governance factor scores for this group of regions. Back in 2010, there were some delays in the design and launching of new measures due to the organisational changes, notably the General Secretariat for Research and Technology was integrated with organisations of other Ministries. A call launched in 2010 for a feasibility study for the establishment of an Innovation Pole and an incubator in the region of Sterea Ellada, suggests that new initiatives regarding 'creation and growth of innovators' will be launched. Concerning Portuguese regions, for example in Norte, implementation of the regional strategy 'Norte 2015' and the 2007-2013 Structural Fund interventions have led to the identification of priority areas and establishment of several clusters including creative industries, knowledge and economy of the sea, and wine cluster.

The **'Industrialised innovating regions'** have a quite average policy portfolio, but the factor scores on 'Demand & service innovation policy' and 'HR, creation & growth innovators' are below average.

Box 2-9 Industrialised innovating regions: North West of England and Bretagne

North East, Yorkshire and the Humber are categorised as 'Balanced innovating regions', while North West of England as 'industrialised innovating regions'. In terms of adopted policy responses what these regions have in common is that back in 2004 they jointly put efforts and launched the initiative, known as 'Northern Way Innovation Programme'. Building on the previous work undertaken in support of innovation assets, this programme aimed at addressing a gap with the more prosperous South of England region. In a nutshell, the programme aims to support market-led innovation across the North, prepare businesses for the recovery by creating business-led partnerships to access new market opportunities, and develop the international reputation of the UK in high value manufacturing, low carbon technologies and in the creative sector through the excellence, commercial strengths and critical mass of Northern regions. The distinctive difference of this initiative is a stronger focus on a relatively small number of key technology areas where the North can offer both research excellence and industrial capability. Despite all uncertainties and the different institutional forms due to public spending cuts and reforms, the interim stage findings of a recent evaluation of the Northern Way 2008-11 underline that there is a strong rationale for pan-northern thinking on certain issues, with innovation (including energy), private sector investment and transport being clear and evidenced ones. The Northern Way has identified these as appropriate areas of focus, and is generating important and valuable momentum around them (SQW Consulting, 2010).

Similar trends of joining efforts are observed in other regions, for example in Bretagne. What is so interesting about it is that while having in place adequate and complete policy mix in support of innovation, the regional innovation policy also recognises the need to diversify the sources of regional innovation potential, as well as to development international partnerships. Sharing life science infrastructures and skills to benefit the Atlantic Area biotechnology sector, which is a project co-financed with the support of the European Union ERDF – Atlantic Area Programme bringing together partners from Portugal and Ireland, aiming at strengthening the biotechnology sector within the Atlantic Area while maximising the benefits of research infrastructures can be considered as a concrete case exemplifying good practice. Also, the initiative such as "Passarelle" managed for example by the Regional Innovation Agency in Basse-Normandie launched "R&D dating" initiative the primer objective of which is to foster collaboration between industry and science by organising joint meetings between entrepreneurs and researchers on very specific topics of common interest.

The group of **'High-tech business innovating regions' have** the lowest mean score of all groups on the factors 'Cluster & S-I partner-ship policy' and 'Research supply policy' (two policy fields which are more popular in the group of 'Knowledge absorbing innovating regions'). On the factor 'HR, creation & growth innovators' this group has the highest mean of all groups. The strength in this policy factor accords with the strength of these regions in terms of innovating firms.

Box 2-10 High-tech business innovating regions: North Brabant

North Brabant is one of the 'High-tech business innovating regions'. Indeed as the average characteristics for this group of regions indicates North Brabant is strong in terms of business R&D and patenting. To a large extent this characteristic is linked with the research activities of Philips in Eindhoven. When Philips applied an open innovation strategy, regional development agencies supported the development of the High-Tech Campus on its corporate research site. Within seven years time, there are now about 90 companies located on the Campus, with about 8,000 researchers working there and about 50 nationalities. North Brabant as a typical 'High-tech business innovating region', is less strong in terms of public R&D. For the policy makers of the region this is more difficult to address, because the distribution of public research investments is decided at national level. Although the regional resources to implement 'Research supply policy', the region has managed to persuade the move of (the public funded) TNO Industry to Eindhoven several years ago and more recently the Dutch Ministry together with TNO have invested in the creation of the Holst Centre, in co-operation with IMEC (public funded research lab located in Leuven, Belgium). This shows that with limited autonomy, a proactive approach towards multi-level governance can work. In 2009 the region has initiated a scheme to remedy the impact of the crisis which threatened many research positions in the region, including researchers at the High-Tech Campus. With national support people from the large R&D performing companies in the region were temporarily stationed at TNO or the university. This has proved to have been a good instrument, as most researchers have returned to their old 'business R&D' positions.

Box 2-11 Business innovating regions: Emilia-Romagna and Upper Austria

Emilia-Romagna and Upper Austria have been characterised as a 'Business innovating regions'. The Regional Programme for Industrial Research, Innovation and Technology Transfer (PRRIITT) of Emilia-Romagna outlines a comprehensive regional innovation strategy. PRRIITT aims to increase efficiency of regional research institutions in supporting local production system, hi-tech start-ups, technology transfer and the formation of networks between local institutions. Thanks to PRRIITT, regional authorities were able to develop the Emilia-Romagna Hi-Tech Network based on one of the PRRIITT's measures, the 'guidelines for the creation of technopoles'. The Network includes several institutions dedicated to industrial research, innovation and technology transfer (industrial research laboratories, innovation centres and innovation parks). In general, PRRIITT can be thus be considered a well-structured attempt to strengthen linkages between industry and research institutions – a measure well adapted to the requirements of a 'Business innovation region'. The region of Upper Austria has launched the 2020 Strategy that defines a number of key actions to consolidate R&D capabilities in the five main regional areas of mechatronics, ICT, life sciences, innovative materials and logistics as well as ensuring the region's status as the main Austrian competence region with regard to cluster initiatives including measures to internationalise the existing clusters. While the focused approach of the strategy stands out as good-practice, it remains open to further consideration whether capacity building in the field of R&D capabilities could not aim beyond 'consolidation'.

2.6.7 Conclusions and perspectives in terms of policy challenges and policy options

The objective of this subsection is to establish a link between the main regional distinctive patterns regarding innovation performance, governance and policy. With regard to innovation performance three different types of innovation performance factors are identified and used to identify groups of regions with similar performance characteristics as well as distinctive differences between the groups (cf. Section 1 'Patterns of regional innovation performance').

Analysing the links between the characteristics regarding performance, governance and policy should not be seen as a search for good practice. It is neither an assessment nor benchmarking of governance aspects, nor an evaluation of policy impact on innovation performance. Nonetheless, similarities and differences in the regional distribution patterns regarding performance, governance and policy are useful to describe the challenges and options concerning governance and policy in trying to improve weak aspects of performance or exploit strong aspects of performance.

The main conclusion is that we did not find strong relations between certain performance, governance and policy aspects. The results of our analysis, thus suggest that **only a few of the governance and policy factors show a significant relationship with one of the performance factors**.

The most distinctive governance factor combines several aspects of autonomy, but there is no strong correlation between the scores on this governance factor and the performance factors. Only regarding the performance factor '**Public knowledge'** we found a significant relationship (i.e. European regions with a higher score on the governance factor 'autonomy' tend to have a higher score on the performance factor 'public knowledge'). The relation is however so weak that a comparison of the group averages can sometimes even suggest the opposite[4]. For example, the small group labelled 'Business innovating regions' has the highest group average score on the 'autonomy' factor.

A stronger (negative) relationship exists regarding the governance factor **'relying on Structural Funds'** and the three aspects of innovation performance. However, regarding the importance of SF in terms funding the causality is rather the opposite, precisely because regions with the lowest performance receive relatively more support from the SF.

Whilst answers on the importance of SF in terms of funding is not the main aspect of the governance factor 'relying on Structural Funds', the other answers which make up this governance factor seems to refer rather to strategy issues, especially a high importance of SF for strategy development, with little inter-regional coordination and cooperation, and where public institutions are more often the key drivers of innovation. In this respect this factor could be interpreted as governance aspects that limit innovation strategy development, including limited governance capacities and experiences regarding strategy development. This issue had been discussed more in-depth in Section 2.3 'Assessment of the governance framework'.

With regard to policy factors, they can be seen as an indication of policy preferences and priorities. As a consequence, their regional distribution is more volatile and easier. In concrete terms, it is easier to end a programme and plan or implement a different policy than to change governance structures (e.g. to transform from a region with low autonomy to one with high autonomy). Although one could claim that specific strengths and weaknesses in the innovation performance of a region should be reflected in the policy choices and regions with similar performance characteristics could therefore show similar policy preferences.

Nonetheless, we only found a limited number of rather weak relationships between the policy and performance factors. There are several possible explanations. First, certain governance characteristics and framework conditions could influence the policy choices. Secondly, the converging policy tendencies mentioned earlier in this section could be considered as another possible explanation.

While recently there is an observable trend of growing attention to learning from own practices (through evaluation), rejecting the idea of 'one-size-fits-all, stressing the

[4] Two other reasons are: the performance factors are calculated for 203 regions and the governance and policy factors for 139; the regressions that identify the relationships refer to 139 regions and control for country-effects.

limits of policy convergence and emphasising the need for more strategic policies, addressing regional specific assets and developing 'smart specialisation', in the past popular new policy instruments were diffused to other regions which emphasised the importance of identifying, transferring and adopting so called 'best practices'.

The policy factor which shows the strongest relation with innovation performance is the factor referring to **'Human Resource policies and support to the creation and growth of innovating firms'.** Regions with relatively high scores on the performance factors 'Innovative entrepreneurship' and 'Public knowledge' often have a high preference for such policies. There is a surprise concerning 'Knowledge-absorbing innovating regions' as well as 'Knowledge-absorbing regions' which would require further investigation to better understand the main factors that have influenced the 'Innovative entrepreneurship performance'. Since the lack of those policies in those two groups of regions does not appear to be a problem, both the assessments of effectiveness as well as the overall length of implementation of such policies might provide some valuable explanations. Besides that, the performance factor 'Public knowledge' is also associated with 'Public innovation policies', and 'Research supply policies'. In this case, more attention should be paid to the 'Public innovation policies' field in 'Business innovating regions'.

With regard to the relationship between the policy factor **'Cluster & Science-Industry partnership'** and performance the analysis also confirms that there is no significant relationship. It can be noted that the group of 'Knowledge-absorbing innovating regions' have the highest group average score whereas the 'High-tech business innovating regions' have the lowest. In essence, this finding suggests that these policies may be more relevant for regions with low-tech sectors than high-tech sectors.

Regarding the performance factor 'Technological innovation' there is a weak association with the policy factor '**Demand and service innovation policy'**. What is important to underline is that this result does not justify a claim that the low score on the 'Technological innovation' performance in 'Public knowledge regions' can be explained by the low priority given to this kind of policies. On the contrary, 'Demand & service innovation' could be considered as a good policy option to address the weaknesses in these regions regarding 'Technological innovation'. Overall, that it would be interesting to follow up on some of these results (especially in surprising and un-expected cases, such as 'Knowledge-absorbing innovating regions' and 'Business innovating regions') by looking at more detail into the policies and evaluation results.

2.6.8 Policy challenges and policy options

The group of '**Balanced innovating regions'** does not really have a specific weak or challenging aspect of innovation performance, and also the policy preferences are close to average.

'Knowledge-absorbing regions' on the other hand have plenty of challenges, but in particular regarding 'Innovative entrepreneurship'. Although we cannot assess the effectiveness of the policies regarding 'HR, creation and growth of innovators', it seems justified to maintain a relatively high preference for this type of policies.

Surprisingly 'policy making support' has been given little attention in regions which are mostly located in the more recent Member States, even though regional policy making capacities in these regions tend to be rather low.

Many of the 'Knowledge-absorbing regions' are also known for their challenge to increase institutional qualities and improve government services. In this respect the 'Public innovation policies' seem to be a good policy option to address this challenge. Also more of the scarcely implemented co-ordination mechanisms seem helpful to address this institutional and governance challenge. Besides that, highest preference for 'research supply policies' given in this group of regions could be questioned.

For **'Public knowledge regions'** we already concluded that given the challenge in terms of the low 'Technological innovation' it seems very relevant to increase the implementation of 'Demand- and service innovation' policies. Regarding governance developing more (vertical and horizontal) coordination mechanisms seem to be particularly important. As with the Knowledge-absorbing regions' it is not clear why 'policy making support' should be of lower importance for the group of 'Public knowledge regions' than for the other groups.

For **'Knowledge-absorbing innovating regions'** especially their low score on 'Technological innovation' signals a main weakness. Stimulating the many innovative SMEs in these mainly Greek and Portuguese regions to engage in (more) R&D seems to be the main challenge. The currently high attention to 'cluster & S-I partnership' policy could be appropriate through linking low-tech SME networks to scientific institutes could stimulate them to engage in R&D partnerships which would raise the performance in terms of 'Technological innovation'. Changing their situation regarding governance could be difficult. Given the national budget situation these regions will probably not manage to receive more funding for regional policy from national government, so EU SF will probably remain very important for this group of regions.

The group of **'Industrialised innovating regions'** have a rather weak performance in terms of 'Innovative entrepreneurship'. More coordination mechanisms do not seem to be a good remedy for this group because they have on average the highest score on this governance factor. Perhaps these mechanisms have been in place only for a very short time or are just not working properly. A good policy option for this group of regions seems to implement more policies regarding 'HR, creation & growth innovators', because our results suggests it could be a good policy to increase 'Innovative entrepreneurship'. Given the challenge in innovation performance, we cannot think of a reason why this type of policies should receive a lower priority than in the other groups.

The group of **'High-tech business innovating regions' does** not have a real weakness in performance, but in 'public knowledge' their performance is rather modest. More autonomy (e.g. for the group members in Scandinavia and the Netherlands) could serve to strengthen their performance in the enabling 'Public knowledge' factor. In terms of policy, an obvious option is to implement more 'research supply' type of policies. However, the policy preferences for the 'High-tech business innovators regions' are to a large extent business oriented.

Finally for the group of **'Business innovating regions'** the low score on 'Public knowledge' is a main weakness. For this group, having the highest score on the 'Autonomy' factor does not result in high 'Public knowledge' scores. A possible explanation could be that the Austrian members of this group of regions indeed have a high autonomy, but not regarding public R&D.

The results of the analysis show that the novel approach of bringing governance and policy indicators into the analysis of regional innovation performance is promising and could provide a useful contribution to better policy making. However, the reported analysis should be seen as a first step. A challenge is to calculate governance and policy factor scores for all regions, increase the validity by checking some of the data and by extending the survey to regional stakeholders. Bringing in evaluation results would also be an interesting next step to assess the impact on the three identified types of innovation performance.

3. Strategic use of the Structural Funds for regional innovation policies

Summary of Key Messages

- **Investing in Europe's regions needs to be based on strategic approach.** The allocation of structural funding in support of RTDI activities and business innovation has increased substantially, yet, there is a need to optimise the impact of interventions. Consequently, strategic approach to structural funding is necessary to develop regional assets in a globalised knowledge-based economy with the view to identify those activities which offer the best chance of strengthening a region's competitiveness and to allocate funding accordingly.
- **The relevance of structural funding for regional innovation policy differs significantly across regions.** The RIM survey finds that it is considered high by nearly a half of the surveyed regions but low in more than a quarter of regions.
- **The governance capacities also differ considerably among EU regions.** Regions with high governance capacities **needed to programme and implement structural funding** are often Regional Competitiveness and Employment Objective regions in which the relevance of the Structural Funds for regional strategy building is considered as low. Convergence regions in which the relevance of structural funding for strategy development is high, in contrast, governance capacities are often low.
- **The Structural Funds already play a strategic role as a means to pilot innovative measures. This is the case f**or many regions with both low governance capacities and low allocations.

Two main challenges remain to improve the strategic allocation of structural funding the future.

- First**, well-positioned regions need to continue to pilot novel approaches** to build on existing competitive strengths. Moreover, they need to integrate structural fund programming with existing regional strategies (Regional Competitiveness and Employment).
- Secondly, **Catching-up regions need to focus their overly broad policy portfolios** in need in favour of smart capacity building strategies. Due to its central relevance for regional innovation policy in those regions, structural funding is constitutive for the development of smart specialisation throughout Europe.

3.1 Contextual information

A strategic approach has been increasingly viewed as necessary for developing regional assets in a globalised knowledge-based economy. This is being reflected in a number of documents and different levels of governance. For instance, the recent Fifth Report on Economic, Social and Territorial Cohesion highlighted that: "More can be done in the future to further align Cohesion Policy with the Europe 2020 Strategy. This requires, first of all, clear guidance at European level and a more strategic negotiating process and follow-up" (European Commission, 2010a).

Complementarily, the European Union Strategy for the Baltic Sea Region emphasised the pressure from a competitive, globalised and changing environment: "Ongoing globalisation results in increased competition between countries and regions regarding investments in knowledge, innovation and production. Furthermore, knowledge-intensive products and services are required to be competitive on major markets" (European Commission, 2010b).

While there are different interpretations at various levels, for regional level it is more about identifying the high-value added activities which offer the best chance of strengthening a region's competitiveness. In particular, this requires strategic intelligence, co-ordination of the use of different sources of funding, and forward-looking exercises, e.g. foresight initiatives, technology road-mapping, innovation platforms, etc.

The comparison of two programming periods clearly shows an upward trend of earmarking more financial resources in support of RTDI activities. According to a recent report commissioned by DG RTD to Technopolis, the EU's Structural Fund (SF) investments on this kind of activities increased from €29.5bn during the 2000-2006 programming period to roughly about €70bn allocated in the current period 2007-2013 (European Commission/Technopolis, 2010). Hence, the SF have become now even more important instrument than they used to be in the previous programming period for promoting innovation.

However, continuous efforts in ensuring strategic use of the SF are necessary in order to achieve the highest impact of public innovation investments. As outlined in recent Communication of the European Commission on Regional Policy contributing to smart growth in Europe 2020: "There is a need for accelerating implementation, optimising the impact of interventions, re-orientating activities towards areas which give a regions the best chance of developing competitive advantage, and maximising synergy between the different sources of Community funding for innovation" (European Commission, 2010b).

This assessment explains precisely why the debate on the future of Cohesion Policy over the last two yeas has intensified. Several major contributions have appeared during that period including the Barca Report, a recent Communication on Regional Policy contributing to smart growth in Europe 2020, and a series of contributions from expert groups and practitioners.

The key ideas contained in these documents (cf. Barca, 2009; European Commission, 2010a; European Parliament, 2010; Assembly of European Regions, 2010) can be summarised as follows:

- to strengthen concentration on EU objectives;
- to adopt a place-based approach;
- to introduce tripartite agreements between the region, Member State and the European Communities;
- to create a Council for Cohesion policy constituted of Ministers in charge of regional development;
- to involve regions in the very early phase of designing future programmes;
- to introduce new measurement systems not only based on GDP;
- to make the de-commitment (N+2) rule more flexible;
- to introduce stronger integration between ESF and ERDF; and
- to rationalise and simplify the management of the SF, etc.

Overall, there seems to be a common agreement on a number of those recommendations since they are likely to bring positive results both in terms of efficiency, effectiveness as well as impacts of the SF. From the perspective of regional innovation policies, strategic use means deploying structural funding in such a way to contribute (if required) to the process of strategy and partnership building even if funding is limited. Most importantly, however, strategic use requires the design of policies based on realistic assessments taking an account of the regional innovation potential as well as governance capacities, which in reality reflect institutional strengths of the region.

In the past many East German regions tended to become high-tech regions after 1990, without any clear knowledge about their comparative advantages. Despite huge cash injections, only few regions succeeded (Dreger and Erber, 2010). This example should serve as a good lesson to those regions aspiring to become high-tech without careful considerations about what would be for them the most optimal strategy.

In the following parts of this section, we set out to analyse two aspects of strategic use of structural funding. The first concerns the relation between the significance in terms

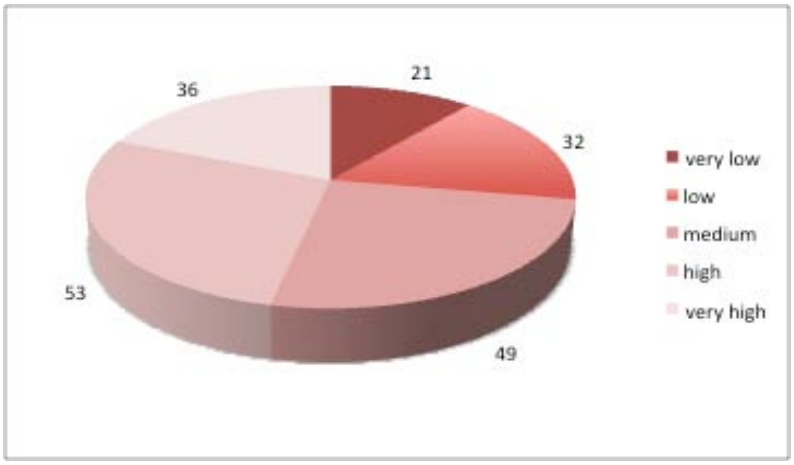
of funding and relevance for strategy development, while the other relates to strategic use of the SF interventions.

3.2 The assessment of the Structural Funds significance in terms of funding and relevance for strategy development

One of the questions included in the RIM survey carried out in the framework of this project related to the assessment of relevance of the SF for innovation for process of strategy development. When analysing the results, it is very important to bear in mind that in certain regions strategies had existed before the deployment of the SF and that is likely to explain why the relevance in certain cases was assessed as low.

According to the survey results, the relevance of the SF for strategy development is evaluated high and very high for many EU region (89 out of 191), however, there is also an important number of regions (53 out of 191) for which such relevance was assessed as very low and low (Figure 3-1).

Figure 3-1 Relevance of the Structural Funds for innovation for strategy development



Source: RIM survey.

Another question included into the survey concerned the assessment of the significance of the SF in terms of funding. The analysis of the survey results largely confirms that there is a positive relationship between the significance of funding and relevance of SF for strategy development (*cf.* ***Appendix L***).

It is also estimated that almost half of regions with significance in terms of funding less than 10% pointed out that the relevance of SF for strategy development as very low, and more than one third of regions assessed it as low. Comparatively, in regions where the EU SF financial contribution to regional innovation policies was between 50-74% more than half of regions viewed the relevance as high and more than one third as very high. Whilst the significance was estimated more than 75%, the very high relevance was reported by more than three fifths of regions.

Nonetheless, there are some exceptions as not always the higher significance of the SF in terms of funding means the higher levels of relevance for development of regional processes for strategy building.
The distinct differences emerging from the survey can be summarised as follows:

- Group 1: Regions with low significance of the SF in terms of funding (less than 10%), but high and medium relevance for strategy development;
- Group 2: Regions with relatively low significance of the SF in terms of funding (11-24%) but high relevance;
- Group 3: Regions with relatively high significance of the SF in terms of funding (25-49%) but both very high and low relevance; and

- Group 4: Regions very high significance of the SF in terms of funding (50-74% and above) but also very high and very low relevance.

In the first group of regions which evaluated significance in terms of funding **less than 10%,** there was only one region which evaluated the relevance as high (Wales), and four as medium (Tirol, Comunidad Valenciana, Stockholm, and Scotland).

In the second group of regions which evaluated significance in terms of funding in the range between **11-24%,** there are 13 regions (Brandenburg, Saxony, Schleswig-Holstein, Castilla y León, Castilla-La Mancha, Illes Balears, Haute-Normandie, Bourgogne, Alsace, Pays de la Loire, Languedoc-Roussillon, Provence-Alpes-Côte d'Azur, Friuli-Venezia Giulia), which evaluated the relevance for strategy development as high.

In the third group of regions which evaluated significance in terms of funding in the range between **25-49%,** there are three regions with very high relevance (Wallonie, Auvergne, Corse) and four regions with low (Hovedstaden, Syddanmark, Midtjylland, and East Midlands) relevance.

In the last (fourth) group of regions which evaluated significance in terms of funding in the range between **50-74%**, there are eleven regions very high relevance (Sjælland, Nordjylland, Abruzzo, Slaskie, Wielkopolskie, Dolnoslaskie, Warminsko-Mazurskie, Opolskie, Pomorskie, and Övre Norrland), and four regions (Severozapaden, Severen tsentralen, Severoiztochen, and Yugoiztochen) with very low relevance.

The above-mentioned four groups of regions are discussed in more detail below to better understand results which stand out from the general funding that a perception of relevance for strategy development depends on the level of funding (i.e. the higher the significance in terms of funding, the higher the relevance for strategy development).

3.2.1 Regions with low significance of the SF in terms of funding (less than 10%), but high and medium relevance for strategy development

The main reason that explains why the relevance of the SF for development of strategy in **Wales** is assessed as high is precisely because those funds have had a significant influence on both the focus and content of regional operational programme, known as the 'Wales Convergence Programme 2007-2015'.

In essence, the programme aims at increasing investment in commercially driven R&D, fostering the commercialisation of knowledge and Intellectual Property as well as maximising the economic impact of academia and business through technology transfer and the creation of a stronger science, engineering and technology base with clear commercial potential.

In contrast, the current programme has been mainly focused on supporting R&D and technology transfer as opposed to the first Wales Regional Technology Plan (1993-1995). The latter paid special attention to support to incremental innovation. For that reason, it can be said that the availability of the SF has indeed contributed to the development of new innovation policy directions in Wales.

The difference between **Scotland** and Wales can be explained by the fact that whereas the Scottish Government has been engaging stakeholders in early discussion on the possible shape and content of Cohesion Policy, it has had a strategy already in place and not used the SF to introduce completely new priorities into its regional innovation policies and certainly not to the same extent as in Wales.

Another example is **Stockholm** where SF programme was developed in a broad partnership, with the involvement of different types of actors, focusing on strategic areas, even though the amount of funding was limited and the impact on regional innovation policy is still at a medium level.

Tirol differs from other regions as it does not have an explicit RTDI strategy, while the overall strategy for regional RTDI support has been to a large extent developed

during the preparation of the Regional Competitiveness of Tyrol 2007-2013, known as 'Regionale Wettbewerbsfähigkeit Tirol 2007-2013'.

3.2.2 Regions with relatively low significance of the SF in terms of funding (11-24%) but high relevance

Similarly, **Saxony** is an example of the German region that has not developed the regional innovation strategy, but instead has used the development of the SF operational programmes as a recurring process of strategy building.

The assessment of high relevance in some **French regions** can be explained by the fact that the regional innovation strategy corresponds to an incentive of the European Commission with the view of establishing a clear diagnosis of innovation conditions before the adoption of ERDF operational programmes.

Castilla y León differs from other regions. On the one hand side, it is a region which has a long history in RTDI policy going back to the 1990s but on the other still considers the relevance of SF for regional strategy development as high. As noted in the Regional Scientific Research, Technological Development & Innovation Strategy of Castilla y León 2007-2013 regional authorities have recognised the potential offered by the SF even though the region changed from the Objective 1 status region and became instead so-called the 'Regional Competitiveness and Employment region' (Junta de Castilla y León, 2007).

3.2.3 Regions with relatively high significance of the SF in terms of funding (25-49%) but both high and low relevance

Next, **Wallonia** is an example of the region which has mobilised additional financial resources in the framework of SF programmes and ranked highly the relevance of those funds for strategy development. A concrete example is the preparation of an integrated development strategy for various programmes during the current (2007-2013) programming period in order to ensure the coherence of actions carried out by the region itself and those co-financed by the SF.

In contrast, there are Danish regions such as for example the **Capital region of Denmark** which assessed the relevance of SF for strategy development as low. This can be explained by the establishment of so-called Regional Growth Foras in 2006 which are based on public-private partnerships and are primarily responsible for developing the Regional Business Development Strategy, monitoring regional and local economic trends, and providing recommendations in co-financing for regional business development activities (including EU SF).

3.2.4 Regions with very high significance of the SF in terms of funding (50-74% and above) but also very high and very low relevance

It is not surprising that regions which assessed the significance of the EU SF for regional innovation policies in terms of funding between (50-74%) assessed the relevance for strategy development as high (e.g. **Polish regions**), but it is astonishing that there are also **Bulgarian regions** for which the assessment of relevance of the SF for strategy development was assessed as low. How such difference in results can be explained?

It has to be remembered that Bulgaria is a country where there are only three national programmes, but no concrete regional measures in support of innovation. More importantly, the absence of regional operation programme as well as lack of support from the national level for RIS project carried out in all Bulgarian regions explain why the assessment of relevance for strategy development was evaluated as low.

Importantly, there are some exceptions to what we would expect from the analysis of causality between the significance of the EU SF in terms of funding and the level of relevance for process of strategy building. The two regions for which the significance of funding was assessed as less than 10% which have used the SF interventions to give

impetus to the establishment of broad partnership and focus on key strategic areas are Scotland and Stockholm. In other words, those regions have used strategically the available financial resources from the SF programmes even though they were limited. When the funding was significant, the existence or lack of regional operation programmes explains enormous differences in assessments of relevance of the SF for strategy development from very high to very low. Yet, a common shortcoming in Central and Eastern Europe is a limited ability of regions to influence the national policies.

3.3 The strategic use of the Structural Funds

When studying the implementation of SF in Europe, it becomes clear that it is based on a number of country specific, and highly distinct, logics. For some regions, recent reports find that the "strategic function of the ERDF-programme is of minor importance (artificial strategy) and is just an implementing tool within the framework of the state level strategy" (Resch, 2010).

In other regions, in contrast, "practically all national development policies have been implemented as part of EU policies" and regional "strategies restate the provisions of the central strategic documents [and] wish to address all possible goals and initiatives regardless of the indigenous resources and possibilities concerning their use" or "objectives and/or measures have been developed either to respond to EU requirements or without a strategic framework" (Gorzelak et al., 2010).

As to be expected, this results in a very different degree of focus of regional policies. A number of Member States have clearly defined strategies with an elaborate hierarchy of objectives on the national and the regional level. In Sweden, for example, "the national level resources are relatively evenly distributed between [policy areas]. The regional picture seems to be radical different. Two regions allocate more than half of the total resources to one single policy area" (Nilsson, 2010).

While some EU-15 Member States moved towards another phase of more focus on strategic priorities, in many Central and Eastern European Countries policies have not achieved the minimum level of sophisticated scientific and technology infrastructure and innovation activities in enterprises. The situation differs from countries like Poland where the role of region has been recognised by the national level, even though the national funding is evidently much higher than at the regional level, to countries like Bulgaria where there is no regional dimension of national innovation policies.

From another perspective, the SF support framework does not only depend on regional governance but also shapes it, even if in very different ways. In some countries where the SF play a central role but appropriate administrative structures were missing, the central government has decided to set up "regions" by decree such as in Portugal where "groups of municipalities, which in the current National Strategic Reference Framework (NSRF) were forced to adjust to the boundaries defined by NUTS II and III regions, as "inter-municipal communities". A different situation was encountered by the Netherlands, where regions as such traditionally exist but were losing competences in the field of innovation policy. Some experts conclude that "regional innovation policy in the Netherlands would probably not have survived without the Community funding" allocated in the 2007-2013 (Wintjes, 2006).

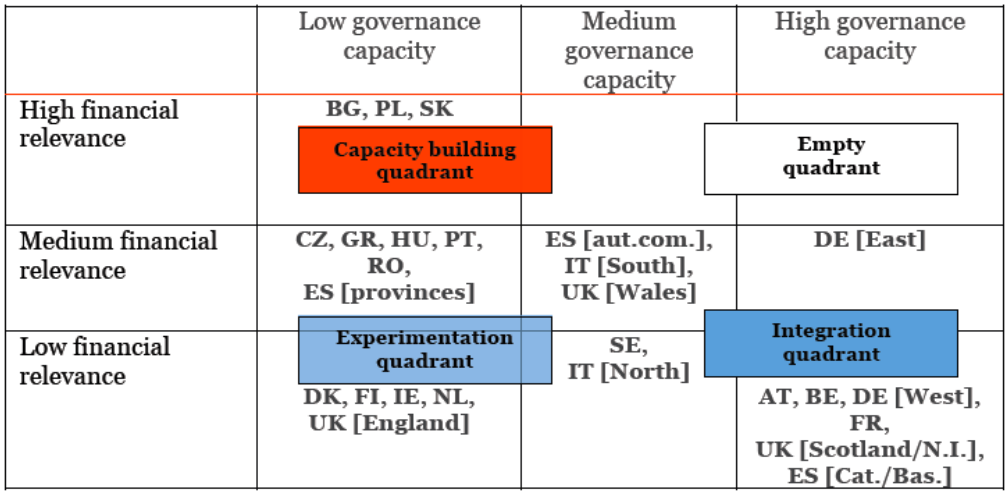
The diversity of assessments is complemented by the finding that the implementation of RTDI programmes in Regional Competitiveness and Employment (RCE) regions is in general progressing somewhat faster than in the Convergence regions. This implies that the innovation governance capacity has to be borne in mind.

While it is difficult to condensate this complex situation into a simple typology, it seems that the process of SF deployment can be understood as influenced by two main factors which implicitly reflect a number of others.

- Firstly, the financial relevance of funding determines to what extent the provisions will motivate regional policy makers to adapt their regional strategies. Implicitly, it reflects the degree of development of the regional innovation system.
- Secondly, the amount of governance capacity at the regional level determines the likelihood that a regional innovation strategy is already present independent of strategic guidelines of the SF. To a degree, this also reflects a country's position on the governance learning curve.

If those two dimensions are used to construct a matrix in which the different Member State can be located (Figure 3-2), it will be possible to derive conclusions of the opportunities with regard to the strategic deployment of the SF.

Figure 3-2 Strategic deployment of the Structural Funds in support of innovation activities



Source: own figure, based on RIM survey and Applica/Ismeri Europa, 2010a.

Capacity Building Quadrant

This quadrant includes catching-up countries with low regional governance capacities but a high relevance of the SF at the regional level. This implies that, before SF interventions innovation was not a relevant topic at this level of governance.

In these regions, SF investment is typically focused on capacity building in the governance field as well as in the field of actual R&D capacities. As a consequence, a strategic deployment of funds is one that uses standardised measures to focus on the issues at hand and avoid the implementation complex approaches for which there is no regional demand.

Integration Quadrant

This quadrant includes fairly well developed regions with high autonomy in which structural funding plays a minor financial role. In many cases these regions will already have developed regional innovation strategies and agreed on clear priorities independently. Typically, it was then no problem to integrate the SF into the existing strategy without major realignments. As a consequence, the SF may be used to fund strategic measures but will only in rare cases have triggered new strategic considerations on its own.

Experimentation Quadrant

This quadrant includes fairly well developed regions with comparatively low regional governance capacities. Due to their low level of autonomy, such regions will not usually have developed innovation strategies on their own. As in the quoted case of the Netherlands, it may thus have been the availability of the SF which enabled the regions to launch new policy measures. Due to the limited amount of available funding and the

fact that standard measures are often already implemented at the national level, such regions are particularly likely to experiment with innovative measures.

Empty Quadrant

The theoretically most appealing quadrant in which a high budgetary relevance of structural funding is accompanied by a well-developed governance capacity is in practice unoccupied. Currently, German regions like Saxony may come closest to this set up, although the relative importance of structural funding for R&D in this region remains non-decisive.

What makes the strategic deployment of the SF so important is that they provide many regions with substantial leverage to introduce targeted activities that take into account the factual regional strengths and likely potentials in the context of what is politically relevant or administratively feasible. From the overall perspective of EU regional policy as well as the substantial amount of resources committed to it is important not to forego this leverage with the replication of measures.

Against this background of the current status quo, both understanding and appraisal of 'strategic deployment' should be reconsidered carefully.

Particularly, it is important to remember that any deployment of the SF that is suitably adapted to the regional specificities and makes a sensible contribution to a broader political framework can and should be considered as strategically adequate. This has naturally different implications for the usefulness of certain policy actions under certain framework conditions.

In Table 3-1 different degrees of focus are outlined with reference to the systematic of regions developed above as well as the three main areas of innovation related interventions which have been used by the most recent report (Applica/Ismeri Europa, 2010a):

- **Boosting applied research and product development**, i.e. direct support for the creation of public research infrastructures, direct subsidies for R&D projects and IPR exploitation in firms, and support for the set up of technology-oriented enterprises. Such measures need little prerequisites in terms of economic or innovative development and can either be developed on a case to case basis or implemented in a standardised manner without major problems. They are useful mostly to build up capacities where there are none or few and are often comparatively expensive. In integration regions SF support may be deployed for capacity building in the context of strategies that the regional government pursues, but for which insufficient regional funds are available.
- **Knowledge transfer and support to innovation poles and clusters**, i.e. direct support for utilising technology-related services or implementing technology transfer projects, indirect support through the funding of infrastructure and services of technology parks, innovation centres, transfer offices, etc., funding for enterprise level cluster activities, as well as indirect support through funding for the infrastructure for clusters. Such measures presuppose that a certain demand for technology and a certain absorptive capacity are present in the regional economy. If this is not the case, they generate little added value or need to be concentrated on very few key fields. Consequently, contrary to common perception, they can only be standardised at a cost. Moreover, they are not as expensive as capacity building actions. These measures, therefore, are the intuitive choice of regions in which the socio-economic situation is sufficiently developed to support an enabling rather than a capacity building policy approach. They do, moreover, profit from a certain level of regional governance capacity e.g. in the form of some institutions for which the region bears responsibility.
- **Support for the creation of an innovation friendly environment**, i.e. improving the availability of finance for innovation (e.g. by establishing VC funds), the development of human capital as well as regulatory improvements and

innovative approaches to public services and procurement. These measures can be considered as inexpensive complementary actions which are most fruitful when the processes of innovation in the regional economy are already fairly self-sustaining. Nonetheless, other types of such measures can also be used to e.g. invest in human capital development or the development of basic IT infrastructure in less developed regions. Although quite diverse, these measures share the trait that they can in many cases be standardised and implemented in other regions without major problems.

- In summary, the following conceptual recommendations can thus be derived for the different types of regions described above (Table 3-1). With regard to the capacity building, it is important to underline that such interventions can be relevant for all types of regions especially with the view of developing smart specialisation. Particularly, ensuring that the planned investments in research infrastructures are well co-ordinated is a major challenge.

Table 3-1 Degree of desirable focus on the three main innovation policy areas in three types of regions

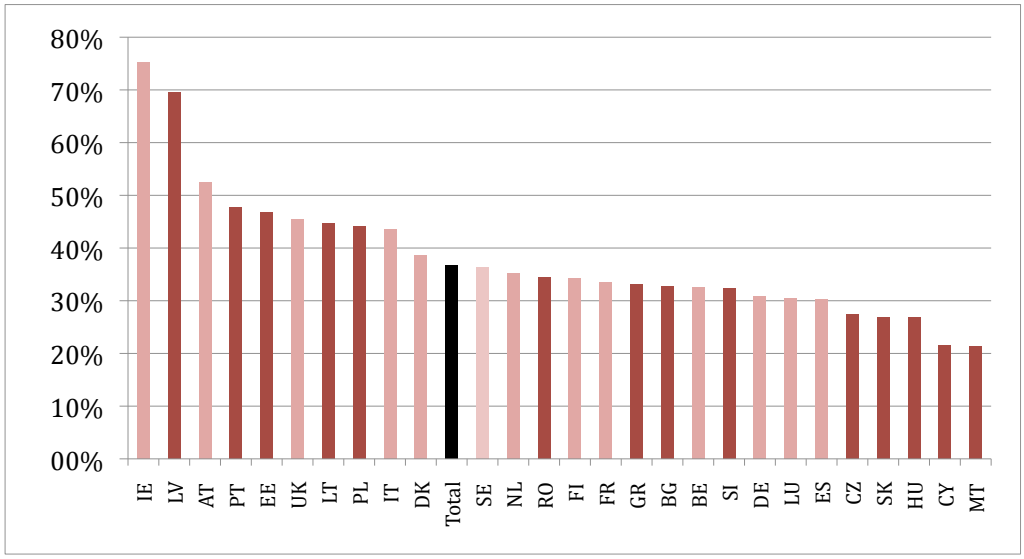
	Capacity Building	Integration	Experimentation
Boosting applied research and product development	central	limited	very limited
Knowledge transfer and support to innovation poles and clusters	limited	central	relevant
Support for the creation of an innovation friendly environment	relevant	relevant	relevant

Source: own table.

3.3.1 Current situation

With a view on the current situation in policy practice, it is indeed evident that above average investments in capacity building can be most often be observed in countries in which many or at least some regions can be considered capacity building regions (cf. Figure 3-3). Ireland, Austria and Denmark constitute country specific exceptions in which a particular focus is set on specific subsidies. Astonishingly, however, we find that a number of countries, for which capacity building remains most definitely an issue, invest in this area below the average. While this may still be understandable in small countries such as the Czech Republic or Slovakia it raises question with regard to the strategic orientation of the SF interventions in Bulgaria, and Romania.

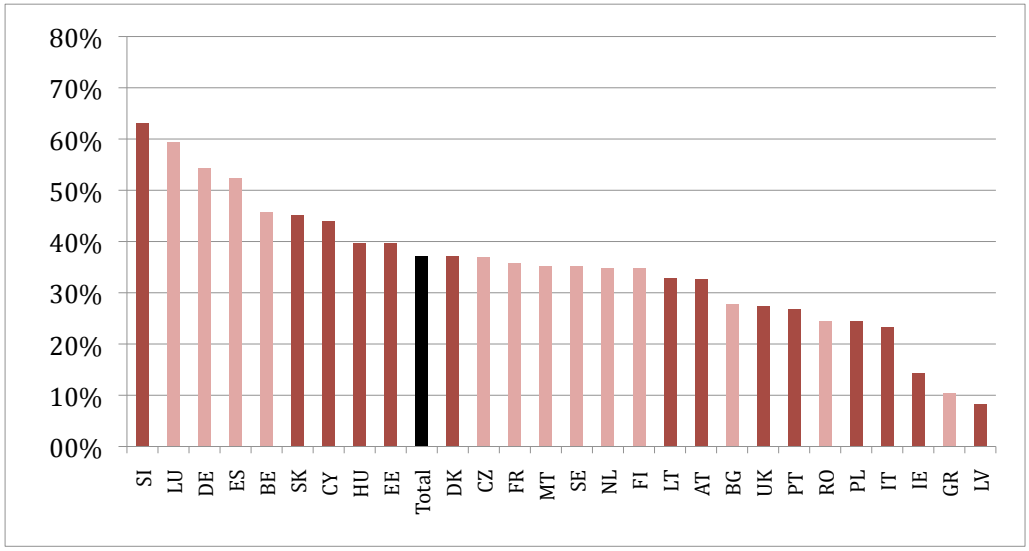
Figure 3-3 Percentage of the SF financial allocations for capacity building



Source: own figure and calculation based on Applica/Ismeri Europa, 2010a

As Figure 3-4 illustrates, this lack of investment in capacity building is in most cases due to an above average focus on measures to improve the innovative environment. In what sense such standardised measures can be considered strategically oriented remains an open question, specifically, as only a limited number of them can sensibly be deployed in regions with a very low innovative basis.

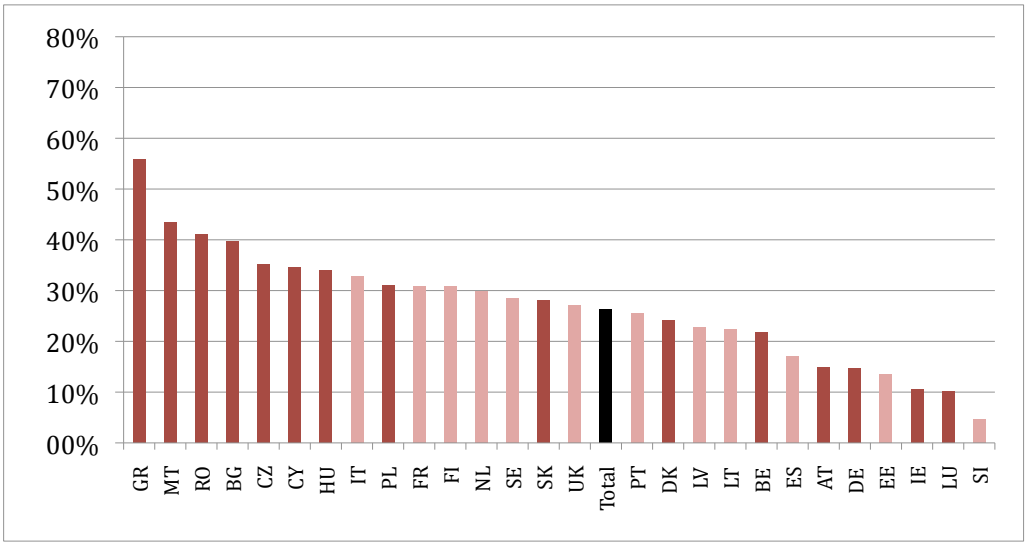
Figure 3-4 Percentage of the SF financial allocations to improve innovative environment



Source: own figure and calculation based on Applica/Ismeri Europa, 2010a

With regard to measures aimed at knowledge transfer and support to innovation poles and clusters, most countries with a large number of integration or experimentation regions display and above or slightly below average allocation of funding – according to expectation. Ireland, Italy and the UK constitute country specific exceptions which in the cases of the UK and Italy may be due to discontinuities and remaining obstacles in policy implementation (cf. Figure 3-5).

Figure 3-5 Percentage of the SF financial allocations for knowledge transfer and support to innovation poles and clusters



Source: own figure and calculation based on Applica/Ismeri Europa, 2010a

Apparently, however, measures with respect to knowledge transfer and support to innovation poles and clusters do also claim a substantial share of funding in a number of countries where regions are still well in the phase of capacity building. Given the considerations outlined above, it appears questionable whether a launch of such measures under these framework conditions can be considered strategic. It does thus not come as a surprise that this sub-field of the SF intervention has been found to be fraught with undue replication and become the greatest source of dissatisfaction in the current support period (Applica/Ismeri Europa, 2010a).

3.3.2 Strategic desirable deployment of the Structural Funds

In detail, the consequences for a strategically desirable deployment of the SF can be described as follows:

In **capacity building** regions it is strategically advisable to spend the available funding on a number of targeted initiatives of capacity building, while bearing in mind the advantages of smart specialisation.

Given the significance of SF in terms of funding for regions in the capacity building quadrant, the real opportunity for them is to strengthen the capacities in areas where there is genuine potential of maximising returns of public investments. In order to achieve this, it appears that targeted investments would be more effective than spreading the funding evenly among all stakeholders, provided that strategic orientations are based on realistic assessments.

Without a suitable basis, measures targeted at knowledge transfer as well as the innovation environment cannot really bear fruit and should only be deployed in a complementary manner with a view of supporting strategic investments at the regional level.

It is also important to underline that while measures in support of innovation friendly environment can be implemented in a standardised manner, it will be much more difficult to implement successfully knowledge transfer measures, as long as no adequate governance capacities exist at the regional level.

Another important consideration is that investments in human capital development will be ultimately beneficial for the development of those regions.

Besides that, the primary focus of public investments should be on incorporating technologies/innovative solutions novel to local enterprises and existing in other countries being closer to the 'technological frontier'. The argument can be extended that policies leaning out of proportion towards the supply-side which affect the public research institutions, will be counter productive to efforts of introducing structural changes in capacity building regions.

Given the financial resources available at the national level, capacity building regions need to make sure that regional activities are complementary to national policies. Specially, this requires closer involvement of regions in the formulation of national innovation programmes already at the design stage.

In general, the role that the SF play in regions of the 'integration quadrant' (Box 3-1) as well as regions of the 'experimentation quadrant' should not be underestimated.

Box 3-1 Structural Funds in Germany

The amount of innovation related ERDF support per inhabitant differs strongly. While in the economically well developed states of the south, less than €10 are available per inhabitant, in all Eastern states as well as in Bremen regional, governments can dispose of more than €100, at times more than €200 per inhabitant. Naturally, the relevance for regional policy making differs accordingly. If less than €50 per inhabitant are allocated as in most German RCE regions, the role of the regional OP becomes that of one element among others which is used to serve specific purpose. In a world-city like Hamburg, an annual €5m of ERDF support will inevitably need to be used for targeted investment.

Nonetheless, the implementation of structural funds co-financed measures can play an important complementary role even in some of those regions where the overall amount of ERDF funding is negligible. In Germany, the innovative leveraging of ERDF for measures not included in the 'traditional set' of SF support activities has often been piloted in RCE regions where funding as such does not play a decisive political role. For example, this applies to cluster support initiatives, novel types of venture funds, and comprehensive start-up programmes. Even where it does not constitute a key factor, structural funding can thus play the role of giving managing authorities the leeway to pilot and test novel approaches to innovation policy making.

Source: (Federal Ministry of Economics and Technology, 2009).

In regions of the **integration** quadrant it is mostly not necessary to deploy the SF for measures of capacity building. Even though these tasks have to be tackled in those regions, the funding available under a typical RCE Operational Programme will not be sufficient to make a relevant contribution. Only in specific cases, and when the amount of available funding is relatively high may a specific intervention be considered as appropriate. This is specifically the case when the regional government pursues a strategy to which momentum can be added by means of structural funding.

Otherwise, it seems strategically advisable to identify areas in the field of knowledge transfer, cluster policies or measures to create an innovation friendly environment where the SF can be used to additionally leverage regional investments. In that sense, the **SF can be strategically deployed to address any gaps in the existing support mechanisms** at the regional level and enable regional policy makers to pursue the strategies developed and priorities identified at the regional level with the necessary momentum.

In regions of the **experimentation** quadrant it is even less adequate to allocate funding to the area of capacity building for which in this case the region has no responsibility and in which the national government has likely already taken sufficient action. Instead, the SF provide the regional authority with the freedom to develop a limited number of innovative but inexpensive measures in the field of knowledge transfer, cluster policies or measures to create an innovation friendly environment.

In this case, a strategic use of the opportunities provided by the SF implies on the one hand a thorough identification and analysis of the key challenges the region is facing

since with the limited amount of funding available, **only a small number of actions can be taken**. On the other hand, experimentation regions need to avoid wasting their scarce resources by duplication national policies. Consequently, they should only invest in areas where no action has been taken which in many cases will suggest an innovative approach aimed at bottom-up, flexible and network based measures. In part, these can be measures to support knowledge transfer and the development of cluster, in part those can be measures to improve the innovative environment in well developed regions (VC funds, support for entrepreneurial activity etc.).

Drawing on a series of interviews conducted with national and regional managing authorities, the European Policies Research Centre paper suggested to retain a share of funds to be allocated on a competitive basis using a model comparable to the Regional Innovation Programmes and Innovative Actions in the 2000-2006 period (Bachtler and Mendez, 2010).

An ongoing study undertaken by Technopolis shows that in all regions can be found interesting approaches in terms of mapping relevant stakeholders, trying new intervention fields, creating new partnerships and modes of cooperation, networking and mobilising relevant public and private stakeholders, trying new innovation policy measures and creation of new organisations (European Commission/Technopolis, forthcoming).

When such instruments exist, regions will use them for testing new approaches and practices in support of innovation activities, which many of them would likely not implement otherwise. This type of instruments might eventually help regions to test in practice and improve strategic use of structural funding.

Since a general analysis has illustrated that different types of practice appear relevant in different policy contexts and that the optimal alignment of strategies does not yet seem to have taken place, the following section will propose a number of good practice examples from different types of regions.

In summary, the strategic use of the SF can involve the following different approaches:

- Capacity building
  - Infrastructure and Scientific Equipment Programme (Extremadura);
  - Networks of public research laboratories (Puglia);
  - Infrastructure supporting innovativeness and entrepreneurship in the region and support to financial instruments for SMEs (Lower Silesia); and
  - Evaluation of complementarities undertaken in the framework of the regional operational programme (Silesia).
  - Integration
  - Focus on singular clusters: CoOptics (Thuringia) and Solar Valley (Saxony-Anhalt);
  - Use of different sources of funding in support of existing and creation of new pôles de competitivité (Lorraine);
  - Integrated location development – technopoles (Lower Austria); and
  - Targeted intervention that can secure competitive advantage (Low Carbon Research Institute – Wales)
- Experimentation
  - Piloting Novel Approaches: Kapital I (Hessen) and BRUT – Programme for Start-Ups (Bremen);
  - Venture Capital Loan Fund (Northwest England); and
  - Going beyond the basic foundations of previous plans (the Galician Research, Development and Technological Innovation Plan 2006-2010).

3.3.2.1 Capacity building

Infrastructure and Scientific Equipment Programme (Extremadura)

The programme is implemented in that framework of the Fourth Regional R&D&I Plan of Extremadura 2010-2013 with the aim to transform, strengthen and consolidate the regional model based on knowledge and environmental sustainability. The focus is clearly on creating a new scientific and technological infrastructure according to the strategic needs of the region, taking into account the needs of research groups and private sector. The budget of the Infrastructure and Scientific Equipment Programme for the period 2010-2013 is €100m.

The programme includes comprehensive support for a number of initiatives, such as, grants for the development of feasibility plans for new R&D public and private centres, support for new R&D projects and required scientific equipment, infrastructure and scientific equipment plan for the R&D+i centres and for technology and science parks, incentives for recruitment of specialists in major infrastructure by University of Extremadura and regional technology centres, etc.

In this specific case, the strategic use of the SF is two-fold. Firstly, the programme was elaborated based on the strategic document 'Fourth Regional R&D and Innovation Plan of Extremadura 2010-2013' to match the regional needs as well as its future potential. Secondly, the programme aims at improving capacity infrastructure and scientific-technological equipment of the Technology, Innovation and Science System of Extremadura which will be essential and one of the central starting points with the view to foster R&D and innovation activities in local enterprises (cf. Regional Innovation Repository; Extremadura; http://www.rim-europa.eu).

Networks of Public Research Laboratories (Puglia)

To address the fragmentation of the regional innovation system in Puglia, the measure 'Networks of Public Research Laboratories' aims at increasing the critical mass of regional research institutions, creating a pool of professionals who will be able to promote and manage initiatives in the area of promotion of firms' access to equipment and scientific instruments available at regional academic laboratories, promotion of research projects with relevant impact on the regional productive system proposed by academic and PRI in collaboration with firms and firms consortia, and promotion of research projects increasing the critical mass of local competencies and human resources in strategic research areas for the regional territory. The grant amounts to €100,000 and covers a period of two years. It covers the costs of recruitment of researchers.

The measure can be viewed as strategic for at least two reasons. On the one hand side, it aims at increasing the critical mass of regional research institutions, but has an objective of maximising the impact on the regional productive system through the collaboration in the strategic areas (cf. Regional Innovation Repository; Puglia; http://www.rim-europa.eu).

Infrastructure Supporting Innovativeness and Entrepreneurship in the Region and Support to Financial Instruments for SMEs (Lower Silesia)

These two measures can be considered as a continuation of the previously implemented initiatives in the framework of the national Operational Programme, known as 'Increasing the Competitiveness of Enterprises Operational Programme (2004-2006)' which provided support for the establishment and development of science and technology parks as well as technological incubators, on the one hand side,

and financial backing to Loan, Bank Guarantee Funds and support to the creation of seed capital funds, on the other.

The current measures being implemented in the framework of the regional operational programme (2007-2013) will contribute to the establishment and development of infrastructure for the development of innovative enterprises through the investments in science and technology parks, entrepreneurship incubators, centres of advanced technologies and implementation of the JEREMIE initiative. The novelty of the ongoing instrument is that the returned investments to the Fund will be re-invested to support innovative enterprises. The National Bank of Economy, which has been implementing other financial instruments like Technology credits in the framework of the Innovative Economy Operational Programme 2007-2013, plays also a role of the Fund Manager.

If efficiency and effectively implemented, those two measures could indeed be regarded as examples of good practice on how to establish a minimum threshold of science and technology excellence in the region and providing complementarily other types of instruments, e.g. to facilitate the access to finance but also triggering the investment readiness of private investors and other financial institutions in the region (cf. Regional Innovation Repository; Lower Silesia; http://www.rim-europa.eu).

Evaluation of Complementarities Implemented in the Framework of Operational Programme 2007-2013 (Silesia)

The regional authorities of Silesia have commissioned the study to evaluate the complementarities of activities being implemented in the framework of the Regional Operational Programme 2007-2013. The objective of the evaluation was to identify areas of synergies to enable the most effective implementation of the programme as well as design mechanisms to foster complementarities between projects.

In particular, the two recommendations put forward by this evaluation which are worthwhile pointing out is the need to introduce a new definition of so-called key strategic projects which would not be limited to a specific priority axis of the operational programme, and create a new mechanism to ensure complementarities between national and regional projects (Silesia, 2010a). This illustrates that policy making support measures can be valuable for establishing complementarities between innovation support measures.

3.3.2.2 Integration

Focus on Singular Clusters: CoOptics (Thuringia) and Solar Valley (Saxony-Anhalt)

In an attempt to concentrate their activities on the key areas of regional strength, two regions in Germany have significantly concentrated their support for clusters on single projects.

In Thuringia, the optical industry with its around 170 enterprises, about 14.000 employment and around €2.5bn turnover constitutes a central factor for regional economic development. For that reason, the regional government has decided to establish the CoOptics Initiative to improve the co-operation between existing high-profile research institutions and internationally competitive firms at the regional level. On the basis of ERDF funding, an overall number of eight co-operative research projects shall be supported of which five were well underway at the end of 2008.

The aim of the initiative is to create an additional 200 jobs based on the commercialisation of the project results. A total of €21.6m shall be invested in these projects of which €6.2m shall be contributed by the private sector. The CoOptics Initiative which also involves activities in the field of human capital development (CoOptics graduate school, CoOptics Master curriculum) which are supported by the regional government as well as the establishment of a regional centre for Photonics.

In total, structural funding makes up but one quarter of the budget of the CoOptics Initiative thus providing a good example for its integration in a larger strategic framework.

In Saxony-Anhalt, the SF support for the Solar Valley has been developed in a similar framework. Funding is added to national level funding for the Leading-Edge Cluster Solar Valley which encompasses firms in the three states of Saxony, Saxony-Anhalt and Thuringia. This national initiative of excellence had at the time selected a number of only five (today: ten) outstanding centres of national excellence of which the Solar Valley was one. The SF were thus strategically deployed to maintain, strengthen and expand the basis of regional science and technology so that the participation in the national level support could be ensured in the mid-term.

Among other actions the SF were allocated to set up the "Fraunhofer Centre for Silicon Photovoltaics" as well as a research centre for material science at the University of Halle-Wittenberg the capacities of which shall be used in co-operation with private firms. T he leading-edge cluster has proclaimed the ambitious aim to safeguard 1,500 jobs and to create 2,000 new ones in the Solar Valley by 2010. While, in the end, the cluster will receive €45m of EU in contrast to only €7.5m national and regional funding respectively, it is more than evident that ERDF funding has been strategically deployed in a reactive manner following a federal initiative (Federal Ministry of Economics and Technology, 2009).

In summary, both cases provide clear evidence of integrative ERDF deployment in two regions in which more than €450m of innovation related ERDF allocations are available (Federal Ministry of Economics and Technology, 2009).

Support of Existing and Creation of New Pôles de Competitivité (Lorraine)

The Lorraine Operational Programme 2007-2013 established the main guidelines for the use of funding provided by the European Union under the European Regional Development Fund (ERDF). It provides financial support among other activities to the two existing pôles de competitivité, namely Matériaux Innovants – Produits Intelligents - MIPI - et Fibres Naturelles Grand Est - FNGE).

MIPI (innovative materials and intelligent products) has jointed forces together with the cluster in Champagne-Ardenne, P2MI (using innovative materials. After the merger, the new identity, known as MATERALIA became France's leading centre for cooperative research into materials. It has now about 130 members from industry and academia and is developing technological excellence especially for the sectors, such as metalworking and processes; nanomaterial; composites; new manufacturing processes; and sustainable development.

The Pôle de Compétitivité, known as 'FIBRES' has been established as a result of the merger between two clusters from Alsace and Lorraine. The potential for development of materials both innovative and 'green' is at the heart of activities performed by that pôle. The potential is based on 2,500 industrial enterprises, five universities and other research centres, in other words bringing together some 2,500 researchers.

As background information these pôles were officially recognised back in 2005 as a part of new national industrial policy in France. The SF are now being used to support industrial R&D and technological projects and not for the actual functioning of those pôles. This actually can be considered as an example of synergies between the national and SF funding in practice. In addition, the new pôles of strategic importance in Lorraine, such as for example rural poles of excellence as well as network of innovative enterprises are also eligible for funding through the SF programmes. As in the case of MIPI and FNGE, the SF can be used for industrial R&D and technological projects (Lorraine, 2007).

Integrated Location Development – Technopoles (Lower Austria)

In Lower Austria, the idea to establish a modern growth pole at a traditional industrial location first emerged in the 1980s. At that time, the development and restructuring of the Wiener Neustadt area was first put on the agenda of Lower Austria's regional development policy. From the beginning, the initiative was based on a comprehensive approach aiming at economic/industrial production, research and innovation, education, as well as at economically oriented services.

Since 1995 the approach has been supported by EU SF with a specific focus on the establishment of a regional innovation centre (RIZ), support for the local university of applied sciences as well as the technology and research centre (TFZ). In the year 2000, Lower Austria launched a technology offensive which added momentum to the envisaged interventions.

In 2004, a strategic direction was taken by focusing support on three technology specific regional 'technopoles' of which the Wiener Neustadt was one. It is technology specific focus has been defined as the area of 'modern industrial technologies' including materials, process technologies, medical technology, sensory actuating elements and surface technologies. In each of the focus areas research is conducted by a minimum of three different research facilities, each with more than thirty scientists, putting the location Wiener Neustadt on the international stage as a stable and competitive location for surface technologies, micro systems and medical technology. This example highlights the importance of integration of three pillars, including science/research, education and economy.

Low Carbon Research Institute (Wales)

Nearly half way into the delivery of the current funding round in Wales, 78% of EU funds (i.e. roughly about €1.7b has been committed to a range of innovative projects, representing a total investment of €3.5bn in Wales. The recently established Low Carbon Research Institute (LCRI) has brought together Welsh academia, industry and government to tackle issues around climate change and can be considered as a flagship initiative in Wales.

Since April 2008 over €6m has been received from the Higher Education Funding Council for Wales under the Reconfiguration and Collaboration Fund to develop the LCRI. The Low Carbon Research Institute (LCRI) has secured €40.2m, over the next three years, which is supported by €17.7m from the European Regional Development Fund (ERDF) Convergence and Regional Competitiveness and Employment Programmes and match funding of €22.5m from Welsh Universities as well as industry.

Securing this new investment will enable Wales and Welsh Universities through the LCRI and its industry partners to lead the way in the development of new research to cut carbon emissions. This in line with the Wales policy, known as the 'Economic Renewal: A New Direction', which identifies energy and the environment as one of six sectors where targeted intervention can secure competitive advantage and a growing market share.

Fundamental to the success of the programme is the unique collaboration of Welsh Universities led by Cardiff University, to build, sustain and export its energy research expertise (cf. http://wefo.wales.gov.uk).

3.3.2.3 Experimentation

Piloting Novel Approaches: Kapital I (Hessen) and BRUT – Programme for Start-Ups (Bremen)

With the objective to add further dynamic to already well established regional innovation systems, several German regions for which ERDF funding does not play a major role have launched innovative approaches.

With Hessen Kapital I, the State of Hesse has launched a fund to increase the equity capital of SMEs that plan to embark on innovation and growth related projects. The capital shares are taken as a partnership to improve the credit rating of the companies concerned. While the fund specifically supports firms in disadvantaged and structurally weak areas its approach presupposes that the initiative to obtain the actual capital for the project is taken by the firm itself and without further recourse to subsidies.

The fund is equipped with €50m of capital of which €25m are contributed by the ERDF. Requests for funding can be submitted by all local firms that are SMEs according to the EU definition. While the most notable feature of this measure is its novel approach it is integrated into a larger regional strategy of which ERDF financing one of the elements. In this case Hessen Kapital I is complemented by the regionally financed Hessen Kapital II for which all firms with less than 500 employees are eligible. A novel approach is thus being piloted while strategically leveraging structural funding to SMEs.

In the city state of Bremen, the project BRUT – Bremen Programme for the Support of Start-Ups by Graduates, Young Professionals, and innovative Craftspeople has been launched to identify innovative ideas at an early stage and to significantly increase the quality of local university start-ups. Support is provided in the form of qualification and training in management skills, start-up coaching, regular feed-back on concrete business issues and well as training in soft skills. Moreover, project specific subsidies of up to €15,000 and, additionally, up to €5,000 for material cost can be applied for and privileged access is provided to cheap office space in technology centres and incubators.

Since 2001, more than 65 projects or 120 persons have been supported and 54 actual start-ups could be realised. The project is thus innovative in its complex approach while it requires a comparatively small amount of funding. For the whole support period, its overall budget is €4.2 m of which €2.1 m are contributed from ERDF sources. Similar programmes could be found in many other federal states.

In summary, both cases provide clear evidence of ERDF funding which is strategically allocated to the development of complex and innovative measures which can be realised even in regions with a comparatively small amount of funding (Federal Ministry of Economics and Technology, 2009).

Venture Capital Loan Fund (Northwest England)

The North West Development Agency (NWDA) has been allocated €755m from ERDF to invest in the Northwest during the 2007-2013 programming period. The main goals of the North West Operational Programme (NWOP) is by December 2015:

- create 26,700 additional net jobs;
- create 2,500 businesses;
- improve the region's annual Gross Value Added by €1.38bn; and
- 25% reduction in additional carbon dioxide emissions

The North West Fund has at its disposal €218.9m to be invested by 2015 and plays a significant part in achieving these goals.

The main reasons explaining why the VC funds are needed include:

- A finance gap exists where viable businesses experience difficulties in accessing finance in the commercial market. This provides the rationale for publicly funded support to business.
- The equity gap occurs most acutely for businesses seeking between £250,000 and £2m (i.e. between €296,000 and €2.37m).
- The ongoing shortage of capital for businesses seeking modest amounts of external funding occurs as a result of rational investor behaviour – information and transaction costs are disproportionately higher for smaller investments.

The region of Northwest England has a strong track-record in the implementation of Venture Funds. Previous publicly backed VC Funds coming to an end of their investment period by the end of 2008 included:

- Northwest Business Investment Scheme;
- Merseyside Special Investment Fund;
- Northwest Equity Fund;
- Rising Stars Growth Fund I; and
- Northwest Seed Fund.

Despite the history of success, the administration has recognised that there was a need for continuation for SME's especially key sectors in the region.

The Norwest JEREMIE amounts to around €204m over the life of the programme 50% ERDF, 50% match funds (EIB). The ERDF requirements are 40% in the Merseyside phasing-in area and 60% in the rest of North West.

The Northwest Fund will operate six "sub-funds" including sector related funds for focused investment in key regional growth sectors. The North West Business Finance Ltd ("NWBF") is a newly established company acting as a Holding Fund, managing a number of individual fund managers. A major shift from past public sector sourced funds is that funding is "matched" at the North West Fund level, so no requirement for deal-by-deal match (Malpass, 2010).

The Research, Development and Technological Innovation Plan 2006-2010 (Galicia)

The Galician Research, Development and Technological Innovation Plan (2006-2010) demonstrates an example of strategic planning, precisely because it aims at going beyond the basic foundations of previous plans which were characterised by supporting research activities of individual stakeholders rather than introducing systemic changes.

The regional authorities have recognised in that strategy that the administration cannot only focus on funding R&D projects and on acquiring infrastructure, but it has to assume responsibilities especially to consolidate a supply of technological services that meet demand and develop real technological platforms in areas in which Galicia can make a difference.

The Plan is structured around three main programmes:

- Horizontal programmes: the aim of these programmes is to contribute to the improvement of the Galician innovation system by affecting all its agents through the support to the development of research careers, articulation of agents of the Galician RDI system, and raising the awareness regarding the importance of science and technology in society.

- General programmes: are specifically aimed at the promotion of innovating activities in the public R+D system and in technological centres that are in line with the strategies and objectives of the Galician R+D+I Plan.
- Sector-based programmes: aim at fulfilling the demands of the industry, companies and new emerging sectors by focusing on support to applied R+D, encouraging SMEs to participate in research activities, funding the most competitive applied R+D to foster projects of medium or high risk and scope and development of strategic technologies areas that that are fundamental for the competition capacities of the strategic sectors in Galicia and in general for the global competitiveness.

With the objective of organising the Galician science and technology system at least the following structures will be identified, notably research and innovation centres, centres of scientific excellence, competence centres and technological centres, technological service labs, technological platforms, and interface organisations. To this end, the SF are used to enable the process of setting up centres in key industrial areas (Xunta de Galicia, 2007).

4. Conclusions and perspectives

4.1 Governance

Following a first broad-based move towards devolution in many Member States during the 1990s, recent years have witnessed the **establishment of a regional governance level** in most of the remaining, particularly the newly accessing, countries which had not so far had one. In many cases, the requirement to be able to administrate structural funding at the regional level acted as a major driver for this process.

With a view on the general strategic approach taken towards regional policymaking, there is an observable trend from centralised, top-down regional policy making towards an increased involvement of regional stakeholders in **bottom-up processes.**

In many Member States, the **process of devolution has not been homogeneous**, so that certain regions have developed higher autonomy than others. Evident examples for such development are the differences between Scotland, Wales and the English regions as well as the different autonomous communities of Spain. As a tendency, however, it plays a role in many other countries as well.

The **regional strategies are frequently absent** in regions where the regional level does not play a central role for policy development. Unsurprisingly, many regions without well-developed governance capacities focus on the development of the required strategy documents for structural fund programming.

There is strong evidence of **multi-level governance:** even in countries where regional autonomy is high and increasing, the national level retains a number of key decision making powers. Even in federal states such as Germany or Austria as well as in Spain national level policy decisions play a constitutive role for the scope of action at the regional level.

Due to the increased involvement of regional stakeholders that occurs in parallel with a trend towards the drafting of overarching strategy documents, the most common governance approach can best be described as a mix of **bottom-up and top-down** elements. While many strategic documents are inevitable drafted centrally there is a growing and broad-based interest to involve all relevant stakeholders.

Even though a formal process of devolution has been initiated in many countries, **governance capacities** have not yet been sufficiently attained by all regions in question. In some Member States, even the development and implementation of structural fund operational programmes at the regional level constitutes a significant challenge. Only a minority of regions has drafted comprehensive strategies independently of SF programming.

Consequently, the **national level remains an important factor** for regional RTDI policy. In about half of the regions surveyed, national policy programmes are considered as the most important determinant for regional policy making. Regional policymaking thus has do be understood as an effort complementary to national level decision that not only en-able or constrain regional action but often has a regional component itself.

Overall, two thirds of the regions surveyed report that process of regional **RTDI governance cannot yet be assessed as "fairly effective".** Given the fact that many regional governance structures, strategies and policy programmes have only quite recently been developed this is not as such reason for concern. Nonetheless, it suggests that substantial challenges remain with a view on improving both the adaptation of interventions to specific regional requirements as well as the professionalisation of the related administrative structures as such.

4.2 Policies

The RIM survey finds that four in five regions with regional innovation strategies designed them during the last five years (since 2005). This illustrates that formalised regional innovation policies are as such a comparatively new phenomenon in many countries. Nonetheless, many of them built on preceding activities so that a number of lessons have already been learned although not always been built on accordingly. For the majority of the regions, the current status quo suggests that policy learning and **further adaptations will remain a major task for the years to come**. Particularly, ad hoc changes should be avoided because they are likely to alienate important actors of the regional innovation system. In order to achieve meaningful results, a reliable basis for policy learning is urgently needed.

There has been recently a significant change in policy directions introduced in the UK, following the publication of a strategic document, known as 'White Paper on Local growth: Realising every place's potential in October 2010. The general conclusions is that the planned focus on **market failures in decision-making and delivery mechanisms as well as abolition of Regional Development Policies** will influence the paradigm of regional innovation policies in the UK. In Finland, to the contrary, a broad-based policy document has been adopted that combines the **new model without neglecting the 'Science, Technology, and Innovation' approach**, which had come to the fore in both academic discussions and policy debates. At the regional level, this has led to the establishment of regional development and innovation platforms.

While in almost all regions efforts are concentrated on defining key areas of strategic importance for regional development, in addition to high popularity of clusters, policies to remain focused on supply-side and are to a large extent concentrated on the manufacturing sector. There is worrying evidence of duplication and a lack of focus in the innovation policies. Also, Apparently, the process of stakeholder involvement has in many regions resulted in broad orientation of political strategies.

Relation between higher degree of autonomy and implementation of more challenging types of innovation policies, such as **policies for open innovation, innovation in services, public sector innovation and eco-innovation** is confirmed, but surprisingly regions with relatively lower autonomy are actually regions that most commonly plan the implementation of such policies. This raises an additional concern because of relevance of such policy responses given existing government capacities.

Programmes developed in the 1990s and mid-2000s were developed in **an area of relative prosperity**, so that broad based approaches and a proliferation of concepts was possible. Against the background of the current financial crisis and the more limited amount of public funding available, however, it will be **inevitable to prioritise policy interventions to achieve the highest return of public investments** even if this implies a prioritisation of the interests of different groups of stakeholders. In times of austerity and tightening up of public spending, policy makers will have to adopt novel approaches to sustain stakeholder involvement while enabling a process of priority setting which has so far been absent at the programming- and design stage of many regional strategy processes.

4.3 Links between governance, policies and innovation patterns

In the light of large differences between the patterns of innovation or pathways among regions in Europe (as shown in the regional typology in Section 1), the major policy implications are two-fold.

The first implication is that at national policy level policy makers should be more aware of the differences between the regional innovation systems in their country. **More interaction between levels of government** is in this respect perhaps even more important than more autonomy. The distribution of powers may be well organised formally, but in any case it is important to organise real interaction and discussion between regional and national policy makers.

A second, and probably most important implication of the diversity in the patterns of innovation between the different types of regions is the need to strengthen the **capacity for strategy development** at regional level. It is necessary for policy makers to be empowered, to have funding resources and policy intelligence, and well functioning implementing agencies, in order to invest in strategy development in cooperation with relevant stakeholders. For those reasons, development and implementation Smart Specialisation Strategies requires enhancement of capacities.

4.4 Strategic use of the Structural Funds

A **strategic approach** to structural funding is necessary to develop regional assets in a globalised knowledge-based economy. A 'strategic approach' is one that aims to identify those activities which offer the best chance of strengthening a region's competitiveness and to allocate funding accordingly. In that, it is alike to the notion of 'smart specialisation'.

Structural funding allocation in support of RTDI activities and business innovation has increased substantially with the shift to Lisbon oriented structural funding and related earmarking in the 2007-13 programming period. Nonetheless, there is a need to **optimise the impact of interventions** and to re-orientate activities towards those areas in the RTDI field which give a region the best chance of developing competitive advantage (cf. e.g. Barca Report).

The relevance of structural funding for regional innovation policy differs. According to the RIM survey, it is considered high and very high by nearly one half of the surveyed regions. In more than a quarter of them, however, its relevance was assessed as low or very low. In many Convergence regions, practically all national and regional development policies have been implemented as part of EU policies and SF programming is the main driver and enabler of regional innovation policy. In some Regional Competitiveness and Employment (RCE) regions, in contrast, both the budgetary and the strategic role of the structural funds is eclipsed by genuinely regional or by national activities.

As a first major finding, the RIM survey has confirmed a positive relationship between the significance of funding of the structural funds and their relevance for strategy development. Where the structural funds define the scope of action of regional policy makers, the related rules, regulations and opportunities play a more important role for the development of regional innovation policies.

Secondly, however, governance **capacities to programme and implement structural funding differs starkly among European regions.** While some Member States have been federalised for 50 years, in others the basic prerequisites for regional governance have only very recently been developed. As a result programming and implementation has been found to differ even between regions with a similar level of financial allocations.

Due to the fact that regions with high governance capacities are often fairly well developed and thus supported under the RCE objective, the relevance of structural funds for regional strategy building is oftentimes low. In these regions, structural funds activities are oftentimes integrated in pre-existing strategies. Due to the limited amount of funding available under the RCE objective, the deployment of structural funding for measures of capacity building is not generally advisable for those regions. Instead, funding should be allocated to measures that build on existing capabilities in the field of knowledge transfer, cluster policies or the creation an innovation friendly environment.

Many regions with low governance capacities, in contrast, display a below average level of economic development and thus are Convergence regions. In most of these regions the relevance of structural funding for strategy development is high. Consequently, it is advisable to allocate the available funding to a number of targeted initiatives of capacity building which is both needed and financially feasible. While

doing so, however, the objective of a smart and adapted choice of interventions needs to be borne in mind (smart specialisation).

Situations where substantial structural funds can be leveraged by a regional government with high governance capacities, in contrast, are very rare. To create the preconditions for a truly strategic deployment of the SF this situation needs to be changed in the coming years. In these cases, structural funding can be additionally be leveraged for more ambitious capacity building efforts even in economically advanced regions.

Regions with low governance capacities as well as low allocations of structural funds typically resort to deploying them in a number of carefully selected fields of intervention (experimentation quadrant). Structural funding enables the regional authority with the freedom to develop and test a limited number of innovative but inexpensive measures in the field of knowledge transfer, cluster policies or measures to create an innovation friendly environment.

With a view to external studies, the overall distribution of allocations conforms to our conceptual propositions. Above average investments in capacity building can be most often be observed in countries where at least some regions can be considered catching-up 'capacity building regions', whereas measures aimed at knowledge transfer and support to innovation poles and clusters are mostly found in countries with a large number of fairly well developed 'integration' or 'experimentation' regions.

Beyond that, however, measures with respect to knowledge transfer and support to innovation poles and clusters claim a substantial share of funding in a number of countries where regions are still well in the phase of capacity building. Against the background of the findings of this study, it appears questionable whether a launch of such measures under these framework conditions can be considered advisable or if they are evidence of duplication and overly generic approaches.

The two major fields of actions for the future thus remain, notably to develop novel approaches to **build on existing competitive strengths** in those regions where such strengths exist (mostly under the RCE objective), and **focus the overly broad policy portfolios** in catching-up and capacity building regions in favour of a strategy of smart specialisation (mostly under the Convergence objective).

Appendix A References

Almeida, A., Santos, C., and Silva, M.-R. (2010) Science and Technologic Parks in Regional Innovation Systems: The Case of Follower Regions. Paper presented at the 5th international seminar on regional innovation policies 14 -15- October 2010, Grimstad.

Applica/Ismeri Europa (2010a): Expert Evaluation Network Delivering Policy Analysis on the Performance of Cohesion Policy 2007-2013, TASK 1: POLICY PAPERS ON INNOVATION, SYNTHESIS REPORT, A report to the European Commission, Directorate-General Regional Policy, http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/eval2007/expert_eval_ntw_inception_report_synthesis.pdf

Asheim, B. (2010) Nordic Innovation Policy in a Comparative Perspective. Key Note Presentation at the 5th International Seminar on Regional Innovation Policies, Grimstad, Norway, 14 October 2010.

Assembly of European Regions (2010) White Paper on Future of Cohesion Policy: Towards a Territorially-Based Policy for All European Regions?

Becattini, G. (1990) The Marshallian Industrial District as a Socio-Economic Concept, in: Industrial Districts and Inter-firm Cooperation in Italy, Pyke, F., Becattini, G. and Sengenberger, W. (eds), Geneva, IILS.

Bachtler, J. and Mendez, C. (2010) The Reform of Cohesion Policy After 2013: More Concentration, Greater Performance and Better Governance? IQ-Net Thematic Paper No. 26(2).

Barca, F. (2009) An Agenda for a Reformed Cohesion Policy: A Place-Based Approach to Meeting European Union Challenges and Expectations.

Belgian Science Policy Office (2010) Belgian Report on Science Technology and Innovation.

Benz, A. (1992): Mehrebenen-Verflechtung. Verhandlungsprozesse in verbundenen Entscheidungsarenen, in: Benz, Arthur/Scharpf, Fritz W./Zintl, Reinhard (Hrsg.): Horizontale Politikverflechtung. Zur Theorie von Verhandlungssystemen, Frankfurt/Main, pp. 147-197.

Benz, A. (Ed.), (2004): Governance – Regieren in komplexen Regelsystemen. Wiesbaden: VS Verlag für Sozialwissenschaften.

Board of Voivodeship of Silesia (2010a) Activity Report From the Implementation of Silesia Regional Operational Programme (2007-2013) for the First Quarter of 2010.

Board of Voivodeship of Silesia (2010b) Implementation Programme 2009-2013 of the Regional Innovation Strategy for Years 2003-2013. Available only in Polish.

Brusis, M. (2005): The Instrumental Use of European Union Conditionality: Regionalisation in the Czech Republic and Slovakia. In: East European Politics and Societies (19), pp. 291-316.

Carayannis, E.G. and Campbell D.F. (2009) “Mode 3” and “Quadruple Helix”: Toward a 21st Century Fractal Innovation Ecosystem. International Journal of Technology Management 46 (3/4), 201-234.

Charles, D. and Uyarra, E. (2009) Practical Benefits of Innovation-Related Policy Instruments At the

Charles, D., Perry, B. and Benneworth, P. (2004): Towards a multi-level Science Policy: Regional Science Policy in a European Context. Regional Studies Association.

Cole, A. (2006): Decentralization in France: Central Steering, Capacity Building and Identity Construction. In: French Politics, 4, pp. 31-57.

Cooke, P. (2006) Constructing Regional Advantage: Principles, Perspectives, Policies.

Doloreux, D., and Parto S. (2004) Regional Innovation Systems: A Critical Review.

Dolowitz, D.P./Marsh, D. (2000): Learning from Abroad: The Role of Policy Transfer in Contemporary Policy Making. Governance 13, pp. 5-23.

Dreger, C. and Erber, G. (2010) The Design of Regional Innovation Systems.

Ellingsen, M.-B. and Tromsø, N. (2010) Innovation in Marine Biotechnology: Clustering Or Trust and Entrepreneurship? An Explorative Study of an Issuant Industry in the High North. Paper submitted to the 5th International Seminar on Regional Innovation Policies, Grimstad 14-15 October 2010.

Enright, M.J. (2001) Regional clusters: what we know and what we should know. Paper presented for the Kiel Institute International Workshop, 12-13 November 2001.

Erk, J. (2004): Austria: A Federation without Federalism. In: The Journal of Federalism, 34 (1), pp. 1-20.

European Commission (2010a) Fifth Report on Economic, Social and Territorial Cohesion.

European Commission (2010a) Regional Policy Contributing to Smart Growth in Europe 2020.

European Commission (2010b) Regional Policy Contributing to Smart Growth in Europe 2020.

European Commission (2010b) The European Union Strategy for the Baltic Sea Region: Background and Analysis.

European Commission/Technopolis (2010) Cohesion Policy and Regional Research and Innovation Potential: An Analysis of the Effects of Structural Funds Support for Research, Technological Development and Innovation 2000-2010.

European Commission/Technopolis (forthcoming) Ex-Post Programme Assessment "Policy Lessons From Experimentation With Regional Programmes of Innovative Actions in the Fields of Innovation, Sustainable Development and Information Society".

European Parliament (2010) Position Paper on the Future Cohesion Policy.

Edler, J. (2009) 'Theme 5: demand policies for innovation in EU CEE countries'. Paper presented at the workshop Innovation for Competitiveness INCOM Prague / 22-23 January 2009.

Foray, D.; David, P.A.; Hall, B. (2009) Smart Specialisation: The Concept, Knowledge Economists Policy Brief n° 9 June 2009.

Federal Ministry of Economics and Technology (2009) Strategic Report 2009, National Strategic Reference Framework for the EU Structural Funds in Germany 2007-2013.

Fernández, F.M.; Mediavilla, J.S.; Graells, A.S. (2006): Decentralisation, Regulatory Burden and Economic Development in Spain. Online: http://ssrn.com/abstract=948457 (accessed: 02.12.2010).

Frosini, R.E. (2009) Introduction to Italian Fiscal Federalism.

Garcia-Milà, T.; McGuire, T. (2002) Fiscal Decentralization in Spain: An Asymmetric Transition to Democracy. Barcelona: Universitat Pompeu Fabra. Online: http://www.econ.upf.es/docs/papers/downloads/866.pdf (accessed: 13.12.2010).

George, S. (2004) Multi-level Governance and the European Union. In I. Bache & M. Flinders, (eds.) Multi-level Governance. Oxford: Oxford University Press: 107-126.

Giordano, B.; Roller, E. (2004) 'Té para todos'? A comparison of the process of devolution in Spain and the UK. In: Environment and Planning A, 36, pp. 2163-2181.

Gorzelak, G., Olechnicka, A., and Ploszaj, A. (2010) Policy Paper on Innovation: Poland.

Harmaakorpi, V. and Uotila, T. (2010) Practice-Based Innovation and Related Variety: New Elements in Innovation Policy: Case Finnish Regional Innovation Platforms.

Harmaakorpia, V. and Melkasb, H. (2005) Knowledge Management in Regional Innovation Networks: The Case of Lahti, Finland.

Helinä, M., Uotila, T., and Kallio, A. (2010) Information Quality and Absorptive Capacity in Service and Product Innovation Processes. Interdisciplinary Journal of Information, Knowledge, and Management.

Héraud, J.-A. (2003): Regional Innovation Systems and European Research Policy: Convergence of Misunderstanding ?, European Planning Studies, vol. 11, Nr. 1, pp. 44-56.

Heywood, P.; Closa, C. (2004): Spain and the European Union: Lavoisier.

HM Government (2010) White Paper on Local Growth: Realising Every Place's Potential.

Hooghe, L. (1996): Building a Europe with the regions: 'the changing role of the European Commission', in: Hooghe, L. (ed.): Cohesion Policy and European Integration: building Multi-level Governance, Oxford: Oxford University Press, pp. 89-126.

Hooghe, L.;Marks, G. (2001): Types of Multi- Level Governance, in: European Integration online Papers, Vol.5, No.11.

Howells, J. (2006): Intermediation and the role of intermediaries in innovation, Research Policy 35, pp. 715-728.

Jamet, S. (2008): Meeting the Challenges of Decentralisation in France, OECD Economics Department Working Papers No. No., Paris: OECD Publishing.

Johnson, N. (2007): The Government of Wales Act 2006: Welsh Devolution Still a Process and Not an Event? In: Web Journal of Current Legal Issues.

Junta de Castilla y León (2007) Regional Scientific Research, Technological Development and Innovation Strategy of Castilla Y Leon (2007-2013).

Kaiser, R. and Prange, H. (2002): A new concept of deepening European integration? – The European Research Area and the emerging role of policy co-ordination in a multi-level governance system. European Integration online Papers (EIoP), Vol. 6, No. 18, http://eiop.or.at/eiop/texte/2002-018a.htm

Keating, M.; Wilson, A. (2010): Federalism and Decentralisation in Italy, PSA (ed.), Edinburgh: PSC Conference.

Kohler-Koch, B. (1999): The evolution and Transformation of European Governance. In: Kohler-Koch, B. and Eising (eds.) The Transformation of Governance in the European Union. Routledge.

Koschatzky, K. (2000): The regionalisation of Innovation Policy in Germany – Theoretical foundations and recent experience, Fraunhofer ISI Working Papers Firms and Regions, No. R1/2000.

Koschatzky, K./Lo, V. (2005): Innovationspolitik in den neuen Ländern. Bestandsaufnahme und Gestaltungsmöglichkeiten. Stuttgart: Fraunhofer IRB Verlag.

Kuhlmann, S. (2001): Future governance of innovation policy in Europe – three scenarios, Research Policy 30, pp. 953-976.

Kuhlmann, S., Boekholt, P., Georghiou, L., Guy, K., Heraud, J.-A., Laredo, P., Lemola, T., Loveridge, D., Luukkonen, T., Moniz, A., Polt, W., Rip, A., Sanz-Menendez, L. and Smits, R. (1999): Improving Distributed Intelligence in Complex Innovation Systems. In: Advanced Science & Technology Policy Planning (ASTPP) Thematic Network, TSER Final Report, pp. 1-87.

Kuhlmann, S./Edler, J., 2003: Changing Governance in European Research and Technology Policy. In: Edler, J.; Kuhlmann, S.; Behrens, M. (eds.): Changing Governance of Research and Technology Policy - the European Research Area. Cheltenham: E. Elgar, pp. 3-32

Lyall, C. (2007): Changing boundaries: the role of policy networks in the multi-level governance of science and innovation in Scottland. In: Science and Public Policy, 34 (1), pp. 3-14.

Malpass, D. (2010) Venture Capital Loan Fund Financed From ERDF. the Case of Northwest England: Challenges, Achievements and Perspectives. Presentation at the Conference on JEREMIE & JESSICA: Towards successful implementation 29-30 October 2010.

Marks, G. (1993): Structural policy and multilevel governance in the EC, in: Cafruny, A.W./Rosenthal, G.C. (eds.): The state of the European Community, Vol. 2: The Maastricht Debates and Beyond, Harlow: Longman, pp. 391-410.

Marks, G., Neilsen, F., Ray, L., and Salk, J. 1998. 'Competencies, Cracks and Conflicts: Regional Mobilization in the European Union.' In G. Marks, F. Scharpf, P. Schmitter, and W. Streek (eds.) Governance in the European Union. London: Sage Publications Ltd: 40-63.

Martin, R., Moodysson, J., and Zukauskaite, E. (2010) Regional Innovation Policy Beyond 'Best Practice': Lessons From Sweden . Paper submitted to the 5th International Seminar on Regional Innovation Policies, Grimstad 14-15 October 2010.

Metcalfe, J. Stan/Georghiou, Luke (1997): Equilibrium and evolutionary foundations of technology policy, CRIC Discussion Paper No. 3, September 1997.

Neffke, F., Henning, M., and Boschma, R. (2009) How Do Regions Diversify Over Time? Industry Relatedness and the Development Of New Growth Paths in Regions, Papers in Evolutionary Economic Geography.

Nilsson, J.-E. (2010) Policy Paper on Innovation: Sweden.

Perry, B. (2010) Innovation in the North of England: Drivers, Progress and Prospects.

Peters, B. Guy, and Jon Pierre (2000) Developments in Intergovernmental Relations: Towards Multi-Level Governance. Policy and Politics 29, 2: 131-135.

Piore, Michael J. and Charles F. Sabel. 1984. The Second Industrial Divide: Possibilities for Prosperity. New York: Basic Books.

Préfecture de Région Lorraine (2007) Le Programme Opérationnel Compétitivité Régional Feder Lorraine 2007-201.

Region Skåne (2009) Skåne's Innovation Capacity – a Situation Analysis.

Regional and Local Level. Report for the OECD Review on Regional Innovation Policies.

Resch, A. (2010) Policy Paper on Innovation: Austria.

Rodríguez-Pose, A.; Bwire, A. (2003): The economic (in)efficiency of devolution, Department of Geography (ed.) London: London School of Economics.

Sæther, B. (2010) Agricultural Restructuring and Innovation in Norway: a Comparative Case Study. Paper submitted to the 5th International Seminar on Regional Innovation Policies, Grimstad 14-15 October 2010.

Scharpf, F.W. (1997): Introduction: the problem-solving capacity of multi-level governance, in: Scharpf, F.W. (ed.), Governance in the Internal Market, special issue of Journal of European Public Policy 4, pp. 520-538.

Scherrer, W. (2010) Institutional Co-Operation and Regional Innovation – the Case of PPP. Paper submitted to the 5th International Seminar Regional Innovation, University of Agder, Oct.2010.

Shapira, P. et al. (2009) Innovation for the Manchester City Region: A Discussion Paper.

SQW Consulting (2010) An Evaluation of the Northern Way 2008-2011 programme.

Sutcliffe, J.B. (2000): The 1999 reform of the structural fund regulations: multi-level governance or re-nationalisation? Journal of European Public Policy 7, pp. 290-309.

Tödtling F. et al. (2010) Constructing Regional Advantage in the Austrian Ict Sector – Towards Fine Tuned Innovation Policies? Paper to be presented at the 8th European Urban and Regional Studies Conference 15th 17th September 2010.

Uyarra, E. (2010) Conceptualising the Regional Roles of Universities, Implications and Contradictions. European Planning Studies.

Uyarra, E. (2010): Systems, what systems? A reflection on the innovation strategy of region Skåne. In: Eriksson, A. (Ed.) Regional Innovation Policy in Transition – Reflections on the Change Process in the Skåne Region, pp. 119-138.

Uyarra, E.; Koschatzky, K.; Héraud, J.-A. (2007): Understanding the multi-level, multi-actor governance of regions for developing new policy design, PRIME Position Paper.

Vasallo, S. (2009): Le Regioni. Capitale Sociale, Equilibri Politici e Rendimento Istituzionale: Rapporto di Ricerca Bologna: Instituto Cattaneo.

Wintjes, R. (2006) Strategic Evaluation on Innovation and the Knowledge Based Economy in Relation to the Structural and Cohesion Funds, for the Programming Period 2007-2013. European Commission, Dg Regio.

Xunta de Galicia (2007) Galician Research, Development and Technological Innovation Plan 2008 - 2010.

Yoder, J.A. (2007): Leading the Way to Regionalization in Post-Communist Europe: An Examination of the Process and Outcomes of Regional Reform in Poland. In: East European Politics and Societies, 21, pp. 424-446.

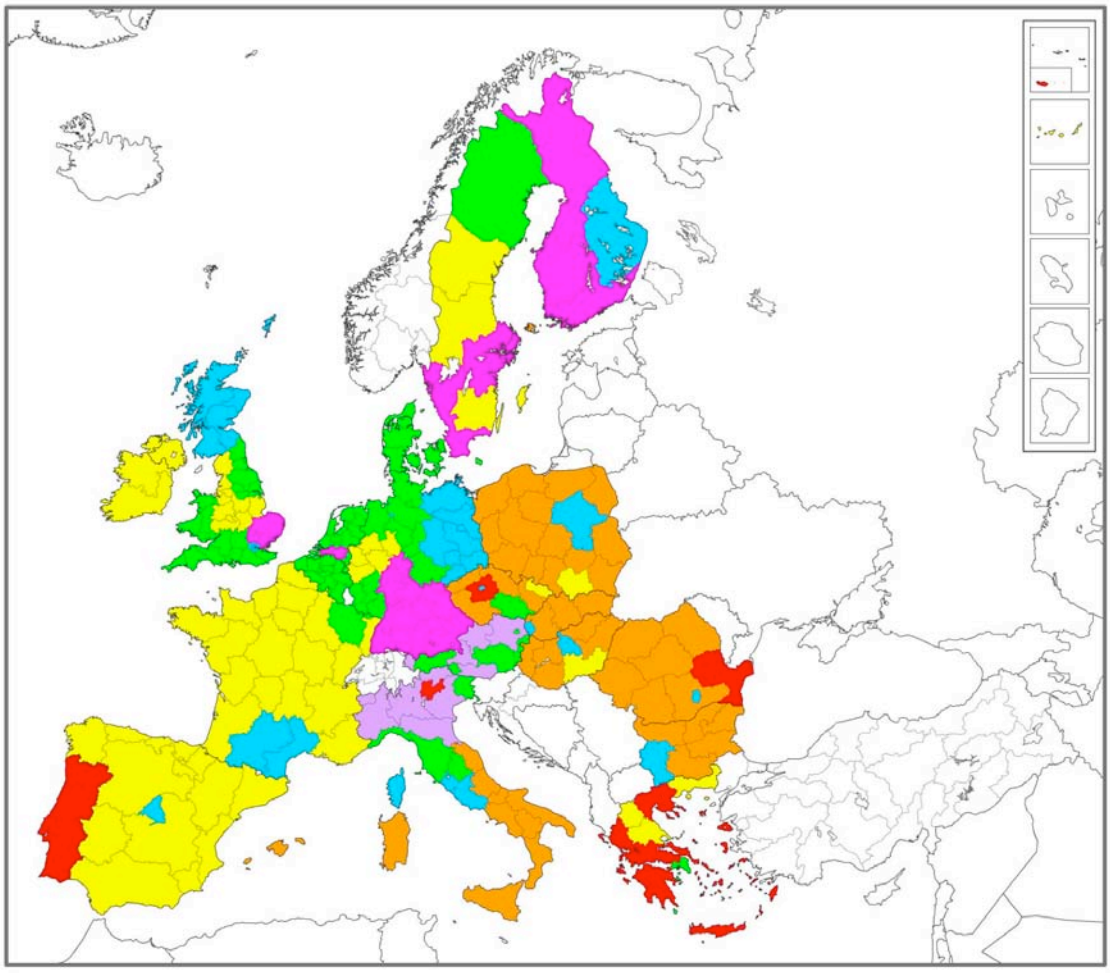
Appendix B Innovation performance factors and their composition

	1 Innovative entrepreneurship	2 Technological innovation	3 Public knowledge
Non-technological innovators	**0.911**		
Technological innovators	**0.869**		
Higher education R&D	**0.520**	0.356	0.477
Non-R&D innovation expenditure		**-0.849**	
Business R&D	0.410	**0.770**	
Patents	0.458	**0.711**	
Government R&D			**0.894**
Tertiary educated		0.435	**0.641**

Note: Principal Component Analysis with SPSS, Rotation Method: Equamax with Kaiser Normalisation; Rotation converged in 5 iterations; 203 regions included.

Appendix C Typology of patterns of regional innovation performance and average scores of innovation performance

Figure 1: Typology of patterns of regional innovation performance: map of seven groups of EU regions with distinctive innovation performance characteristics



Sources: Based on UNU-MERIT analysis. Appendix E contains a list of 203 regions used for the development of EU regional innovation pattern typology.

Table 1: Average scores of innovation performance patterns by group of regions

	1	2	3	4	5	6	7
	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Factor 1: Innovative entrepreneurship	0.6426	-0.9213	-0.2449	1.4006	-0.5495	0.9803	1.0774
Factor 2: Technological innovation	0.2253	-0.4722	-0.5110	-1.6120	0.4632	2.3760	0.3478
Factor 3: Public knowledge	0.2348	-0.6122	2.0880	-0.4414	-0.0611	0.1811	-1.3189
Frequency	42	49	21	19	49	12	11
Average normalised scores for each of the indicators							
Non-technological innovators	0.63	0.30	0.51	0.84	0.45	0.73	0.70
Technological innovators	0.66	0.25	0.43	0.74	0.39	0.70	0.89
Higher education R&D	0.27	0.08	0.22	0.15	0.16	0.32	0.10
Non-R&D innovation expenditure	0.37	0.47	0.37	0.65	0.30	0.15	0.36
Business R&D	0.21	0.04	0.15	0.04	0.14	0.55	0.19
Patents	0.17	0.01	0.08	0.01	0.10	0.49	0.24
Government R&D	0.17	0.08	0.52	0.10	0.11	0.23	0.05
Tertiary educated	0.40	0.20	0.49	0.18	0.44	0.50	0.17
Colour code used in the map in Figure 1	GREEN	ORANGE	BLUE	RED	YELLOW	PINK	PURPLE

In this table the average on each of the three innovation performance factors characterise the type of innovation performance for the seven distinguished groups. Scores close to zero mean that the score is close to the average of all regions. Scores below zero means that the average of the concerning group of regions is below the average of all 203 regions.

Appendix D A comparison of the typology on performance patterns and Scoreboard typology

	RIM 1: Balanced innovating regions	RIM 2: Knowledge-absorbing regions	RIM 3: Public knowledge regions	RIM 4:Knowledge-absorbing innovation regions	RIM 5: Industrialised innovating regions	RIM 6: High-tech business innovati region
RIS: Low innovators		cz04 Severozápad hu22 Nyugat-Dunántúl hu23 Dél-Dunántúl hu31 Észak-Magyarország hu32 Észak-Alföld itf6 Calabria itg2 Sardegna pl11 Lódzkie pl31 Lubelskie pl32 Podkarpackie pl33 Swietokrzyskie pl34 Podlaskie pl41 Wielkopolskie pl42 Zachodniopomorskie pl43 Lubuskie pl52 Opolskie pl61 Kujawsko-Pomorskie pl62 Warminsko-Mazurskie ro11 Nord-Vest ro12 Centru ro21 Nord-Est ro31 Sud - Muntenia ro41 Sud-Vest Oltenia ro42 Vest sk02 Západné Slovensko sk03 Stredné Slovensko sk04 Východné Slovensko		ro22 Sud-Est	es43 Extremadura hu33 Dél-Alföld	
RIS: Medium-low innovators	gr3 Attiki ite1 Toscana ite2 Umbria	cz03 Jihozápad cz05 Severovýchod cz07 Střední Morava es53 Illes Balears hu21 Közép-Dunántúl ite3 Marche itf3 Campania itf4 Puglia itf5 Basilicata itg1 Sicilia pl22 Slaskie pl51 Dolnoslaskie pl63 Pomorskie	pl12 Mazowieckie ro32 Bucuresti - Ilfov	gr12 Kentriki Makedonia pt11 Norte pt15 Algarve pt16 Centro (PT) pt18 Alentejo	cz08 Moravskoslezsko es11 Galicia es12 Principado de Asturias es13 Cantabria es23 La Rioja es41 Castilla y León es42 Castilla-la Mancha es61 Andalucia es62 Región de Murcia es7 Canarias (ES) fr3 Nord - Pas-de-Calais pl21 Malopolskie	

	RIM 1: Balanced innovating regions	RIM 2: Knowledge-absorbing regions	RIM 3: Public knowledge regions	RIM 4:Knowledge-absorbing innovation regions	RIM 5: Industrialised innovating regions	RIM 6: High-tech business innovating region	RIM 7: Business innovating regions	Regions not used in RIM typology
RIS: Average innovators	cz06 Jihovýchod itc3 Liguria itd4 Friuli-Venezia Giulia nl12 Friesland (NL) nl13 Drenthe nl34 Zeeland		dee Sachsen-Anhalt hu1 Közép-Magyarország ite4 Lazio sk01 Bratislavský kraj	cz02 Strední Cechy itd2 Provincia Autonoma Trento pt17 Lisboa	es24 Aragón es52 Comunidad Valenciana ie01 Border, Midlands and Western ukn Northern Ireland		itd3 Veneto	de22 Niederbayern de94 Weser-Ems deb1 Koblenz deb2 Trier ee ESTONIA fr2 Bassin Parisien fr5 Ouest fr8 Méditerranée itc1+itc2 Piemonte + Valle d'Aosta itf1+itf2 Abruzzo + Molise si01 Vzhodna Slovenija
RIS: Medium-high innovators	be1 Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest be2 Vlaams Gewest be3 Région Wallonne dec Saarland def Schleswig-Holstein deg Thüringen nl11 Groningen nl21 Overijssel nl22 Gelderland nl23 Flevoland nl31 Utrecht nl32 Noord-Holland nl33 Zuid-Holland nl42 Limburg (NL) se33 Övre Norrland ukc North East (ENGLAND) uke Yorkshire and The Humber ukk South West (ENGLAND) ukl Wales		cz01 Praha de4 Brandenburg de5 Bremen de8 Mecklenburg-Vorpommern es3 Comunidad de Madrid fi13 Itä-Suomi uki London ukm Scotland		es21 Pais Vasco es22 Comunidad Foral de Navarra es51 Cataluña fr1 Île de France ie02 Southern and Eastern se21 Småland med öarna se31 Norra Mellansverige se32 Mellersta Norrland ukd North West (ENGLAND) ukf East Midlands (ENGLAND) ukg West Midlands (ENGLAND)		itc4 Lombardia itd5 Emilia-Romagna	at1 Ostösterreich at2 Südösterreich at3 Westösterreich de23 Oberpfalz de24 Oberfranken de27 Schwaben de72 Gießen de73 Kassel de92 Hannover de93 Lüneburg dea1 Düsseldorf dea3 Münster dea4 Detmold dea5 Arnsberg ded1 Chemnitz ded3 Leipzig fr4 Est fr6 Sud-Ouest fr7 Centre-Est lu LUXEMBOURG si02 Zahodna Slovenija
RIS: High innovators	de6 Hamburg ukj South East		de3 Berlin			fi18 Etelä-Suomi fi19 Länsi-Suomi fi1a Pohjois-Suomi nl41 Noord-Brabant se11 Stockholm se12 Östra Mellansverige se22 Sydsverige se23 Västsverige ukh Eastern		de11 Stuttgart de12 Karlsruhe de13 Freiburg de14 Tübingen de21 Oberbayern de25 Mittelfranken de26 Unterfranken de71 Darmstadt de91 Braunschweig dea2 Köln deb3 Rheinhessen-Pfalz ded2 Dresden dk DENMARK

	RIM 1: Balanced innovating regions	RIM 2: Knowledge-absorbing regions	RIM 3: Public knowledge regions	RIM 4:Knowledge-absorbing innovation regions	RIM 5: Industrialised innovating regions	RIM 6: High-tech business innovating region	RIM 7: Business innovating regions	Regions not used in RIM typology
Regions not used in RIS typology	at11 Burgenland (A) at13 Wien at22 Steiermark at33 Tirol de9 Niedersachsen deb Rheinland-Pfalz dk01 Hovedstaden dk02 Sjælland dk03 Syddanmark dk04 Midtjylland dk05 Nordjylland fr41 Lorraine	bg31 Severozapaden bg32 Severen tsentralen bg33 Severoiztochen bg34 Yugoiztochen bg42 Yuzhen tsentralen fi2 Åland itf1 Abruzzo itf2 Molise	bg41 Yugozapaden ded Sachsen fr62 Midi-Pyrénées fr81 Languedoc-Roussillon fr83 Corse	gr21 Ipeiros gr22 Ionia Nisia gr23 Dytiki Ellada gr24 Sterea Ellada gr25 Peloponnisos gr41 Voreio Aigaio gr42 Notio Aigaio gr43 Kriti pt2 Região Autónoma dos Açores (PT) pt3 Região Autónoma da Madeira (PT)	dea Nordrhein-Westfalen fr21 Champagne-Ardenne fr22 Picardie fr23 Haute-Normandie fr24 Centre fr25 Basse-Normandie fr26 Bourgogne fr42 Alsace fr43 Franche-Comté fr51 Pays de la Loire fr52 Bretagne fr53 Poitou-Charentes fr61 Aquitaine fr63 Limousin fr71 Rhône-Alpes fr72 Auvergne fr82 Provence-Alpes-Côte d'Azur gr11 Anatoliki Makedonia, Thraki gr13 Dytiki Makedonia gr14 Thessalia	de1 Baden-Württemberg de2 Bayern de7 Hessen	at12 Niederösterreich at21 Kärnten at31 Oberösterreich at32 Salzburg at34 Vorarlberg itc1 Piemonte itc2 Valle d'Aosta/Vallée d'Aoste	

Appendix E List of regions used for the development of regional innovation performance typology

Burgenland (A)	AT11	1
Wien	AT13	1
Steiermark	AT22	1
Tirol	AT33	1
Région de Bruxelles-Capitale	BE10	1
Vlaams Gewest	BE20	1
Région Wallonne	BE30	1
Jihovýchod	CZ06	1
Hamburg	DE60	1
Niedersachsen	DE90	1
Rheinland-Pfalz	DEB	1
Saarland	DEC	1
Schleswig-Holstein	DEF	1
Thüringen	DEG	1
Hovedstaden	DK01	1
Sjælland	DK02	1
Syddanmark	DK03	1
Midtjylland	DK04	1
Nordjylland	DK05	1
Lorraine	FR41	1
Attiki	GR31	1
Liguria	ITC3	1
Friuli-Venezia Giulia	ITD4	1
Toscana	ITE1	1
Umbria	ITE2	1
Groningen	NL11	1
Friesland (NL)	NL12	1
Drenthe	NL13	1
Overijssel	NL21	1
Gelderland	NL22	1
Flevoland	NL23	1
Utrecht	NL31	1
Noord-Holland	NL32	1
Zuid-Holland	NL33	1
Zeeland	NL34	1

Limburg (NL)	NL42	1
Övre Norrland	SE08	1
North East (ENGLAND)	UKC	1
Yorkshire and The Humber	UKE	1
South East	UKJ	1
South West (ENGLAND)	UKK	1
Wales	UKL	1
Severozapaden	BG31	2
Severen tsentralen	BG32	2
Severoiztochen	BG33	2
Yugoiztochen	BG34	2
Yuzhen tsentralen	BG42	2
Jihozápad	CZ03	2
Severozápad	CZ04	2
Severovýchod	CZ05	2
Střední Morava	CZ07	2
Illes Balears	ES53	2
Åland	FI20	2
Közép-Dunántúl	HU21	2
Nyugat-Dunántúl	HU22	2
Dél-Dunántúl	HU23	2
Észak-Magyarország	HU31	2
Észak-Alföld	HU32	2
Marche	ITE3	2
Abruzzo	ITF1	2
Molise	ITF2	2
Campania	ITF3	2
Puglia	ITF4	2
Basilicata	ITF5	2
Calabria	ITF6	2
Sicilia	ITG1	2
Sardegna	ITG2	2
Lódzkie	PL11	2
Slaskie	PL22	2
Lubelskie	PL31	2

Podkarpackie	PL32	2
Swietokrzyskie	PL33	2
Podlaskie	PL34	2
Wielkopolskie	PL41	2
Zachodniopomorskie	PL42	2
Lubuskie	PL43	2
Dolnoslaskie	PL51	2
Opolskie	PL52	2
Kujawsko-Pomorskie	PL61	2
Warminsko-Mazurskie	PL62	2
Pomorskie	PL63	2
Nord-Vest	RO11	2
Centru	RO12	2
Nord-Est	RO21	2
Sud - Muntenia	RO31	2
Sud-Vest Oltenia	RO41	2
Vest	RO42	2
Západné Slovensko	SK02	2
Stredné Slovensko	SK03	2
Východné Slovensko	SK04	2
Yugozapaden	BG41	3
Praha	CZ01	3
Berlin	DE30	3
Brandenburg	DE4	3
Bremen	DE50	3
Mecklenburg-Vorpommern	DE80	3
Sachsen	DED	3
Sachsen-Anhalt	DEE	3
Comunidad de Madrid	ES30	3
Itä-Suomi	FI13	3
Midi-Pyrénées	FR62	3
Languedoc-Roussillon	FR81	3
Corse	FR83	3
Közép-Magyarország	HU10	3
Lazio	ITE4	3
Mazowieckie	PL12	3
Bucuresti - Ilfov	RO32	3
Bratislavský kraj	SK01	3
London	UKI	3
Scotland	UKM	3
Střední Cechy	CZ02	4

Kentriki Makedonia	GR12	4
Ipeiros	GR21	4
Ionia Nisia	GR22	4
Dytiki Ellada	GR23	4
Sterea Ellada	GR24	4
Peloponnisos	GR25	4
Voreio Aigaio	GR41	4
Notio Aigaio	GR42	4
Kriti	GR43	4
Provincia Autonoma Trento	ITD2	4
Norte	PT11	4
Algarve	PT12	4
Centro (PT)	PT13	4
Lisboa	PT14	4
Alentejo	PT15	4
Região Autónoma dos Açores (PT)	PT20	4
Região Autónoma da Madeira (PT)	PT30	4
Sud-Est	RO22	4
Moravskoslezsko	CZ08	5
Nordrhein-Westfalen	DEA	5
Galicia	ES11	5
Principado de Asturias	ES12	5
Cantabria	ES13	5
Pais Vasco	ES21	5
Comunidad Foral de Navarra	ES22	5
La Rioja	ES23	5
Aragón	ES24	5
Castilla y León	ES41	5
Castilla-la Mancha	ES42	5
Extremadura	ES43	5
Cataluña	ES51	5
Comunidad Valenciana	ES52	5
Andalucia	ES61	5
Región de Murcia	ES62	5
Canarias (ES)	ES70	5
Île de France	FR10	5
Bassin Parisien	FR21	5
Picardie	FR22	5
Haute-Normandie	FR23	5
Centre	FR24	5

Basse-Normandie	FR25	5
Bourgogne	FR26	5
Nord - Pas-de-Calais	FR30	5
Alsace	FR42	5
Franche-Comté	FR43	5
Pays de la Loire	FR51	5
Bretagne	FR52	5
Poitou-Charentes	FR53	5
Aquitaine	FR61	5
Limousin	FR63	5
Rhône-Alpes	FR71	5
Auvergne	FR72	5
Provence-Alpes-Côte d'Azur	FR82	5
Anatoliki Makedonia, Thraki	GR11	5
Dytiki Makedonia	GR13	5
Thessalia	GR14	5
Dél-Alföld	HU33	5
Border, Midlands and Western	IE01	5
Southern and Eastern	IE02	5
Malopolskie	PL21	5
Norra Mellansverige	SE06	5
Mellersta Norrland	SE07	5
Småland med öarna	SE09	5
North West (ENGLAND)	UKD	5
East Midlands (ENGLAND)	UKF	5
West Midlands (ENGLAND)	UKG	5
Northern Ireland	UKN	5
Baden-Württemberg	DE1	6
Bayern	DE2	6
Hessen	DE7	6
Etelä-Suomi	FI18	6
Länsi-Suomi	FI19	6
Pohjois-Suomi	FI1A	6
Noord-Brabant	NL41	6
Stockholm	SE01	6
Östra Mellansverige	SE02	6
Sydsverige	SE04	6
Västsverige	SE0A	6
Eastern	UKH1	6
Niederösterreich	AT12	7
Kärnten	AT21	7
Oberösterreich	AT31	7
Salzburg	AT32	7
Vorarlberg	AT34	7
Piemonte	ITC1	7
Valle d'Aosta/Vallée d'Aoste	ITC2	7
Lombardia	ITC4	7
Provincia Autonoma Bolzano-Bozen	ITD1	7
Veneto	ITD3	7
Emilia-Romagna	ITD5	7

Appendix F Governance factors and their composition

	1 Autonomy	2 Relying on structural funds	3 Coordina-tion mecha-nisms	4 Central, top-down
How formally binding is the regional innovation strategy document on the regional public authorities?	**.847**			
The general degree of institutional autonomy of the regional authorities in the region	**.730**			
To what degree is priority setting, design and monitoring of innovation policy subject to the design and of formalisation of the general set-up of institutions tasked with the development of innovation policy in your region	**.689**			
Degree of institutional autonomy of regional authorities in your region with regard to the design and implementation of regional innovation policies	**.680**			
How effective is the regional governance process?	**.588**		.518	
The relevance of the EU Structural Funds for regional innovation policy, for strategy development		**.798**		
The significance of the EU Structural Funds for regional innovation policy, in terms of funding		**.705**		
Inter-regional co-ordination projects and mechanisms (e.g. co-operation between agencies in different regions)		**-.686**		
Characterise the regional innovation system according to key drivers of innovative activities (1=private, 2=different, 3=public)		**.684**		
Horizontal coordination projects and mechanisms between regional players (e.g. inter-departmental working groups, council or multi-sector platforms)			**.801**	
Vertical co-ordination projects and mechanisms between local, regional, national and European authorities involved in designing or implementing innovation policy			**.731**	
Regional system of policy delivery is centralised (3), mixed (2), or de-centralised (1)				**.813**
Design of regional innovation policies follows a top-down approach (as opposed to bottom-up)				**.809**

Note: Principal Component Analysis on 139 regions, rotation method: Equamax with Kaiser Normalisation; Rotation converged in 6 iterations. The main contributions of the indicators to the factors are emphasised in bold.

Appendix G Governance factor scores: Regression results

Regression result: linking governance factor scores to Innovative entrepreneurship factor score

	Direction	Significance
Governance factor 2: 'Relying on Structural Funds'	negative	***
Governance factor 3: 'Coordination mechanisms'	positive	*

Note: Dependent Variable: innovative entrepreneurship factor score, independent variables: the four governance factor scores and country dummies; backward linear regression on 139 regions; only significant results for governance factors are shown.

Regression result: linking governance factor scores to Technological Innovation factor score

	Direction	Significance
Governance factor 2: 'Relying on Structural Funds'	negative	***
Governance factor 4: 'Central-top-down'	positive	**

Note: Dependent Variable: Technological innovation factor score, independent variables: the four governance factor scores and country dummies; backward linear regression on 139 regions; only significant results for governance factors are shown.

Regression result: linking governance factor scores to the 'Public Knowledge factor score

	Direction	Significance
Governance factor 1: 'Autonomy'	positive	**
Governance factor 2: 'Relying on Structural Funds'	negative	**

Note: Dependent Variable: 'Public knowledge factor score, independent variables: the four governance factor scores and country dummies; backward linear regression on 139 regions; only significant results for governance factors are shown.

Appendix H Linking the performance groups with the governance factors

	Mean governance factor scores			
Groups of innovation performance	1 Autonomy	2 Relying on Structural funds	3 Coordination mechanisms	4 Central, top-down
1 Balanced innovating regions	-0.04	-0.55	0.25	-0.18
2 Knowledge-absorbing regions	-0.10	0.37	-1.10	0.04
3 Public knowledge regions	0.16	-0.16	-0.10	-0.30
4 Knowledge-absorbing innovating regions	-0.84	1.18	0.29	0.40
5 Industrialised innovating regions	0.32	0.14	0.66	0.15
6 High-tech business innovating regions	-0.40	-0.89	0.00	-0.06
7 Business innovating regions	0.66	-0.89	-0.11	0.22

Note: highest group average per governance factor in green, lowest in red; 139 regions included.

Appendix I Policy factors and their composition

	1 Public innovation policies	2 Demand & service innova-tion policy	3 Cluster & S-I partner-ship policy	4 Research supply policy	5 Policy making support	6 HR , creation & growth innovators
Policies for public sector innovation	**.720**					
Policies for open innovation	**.664**			-.418		
Public procurement policies	**.641**	.551				
Theme-based policies aimed at broader societal goals	**.623**				.479	
Demand-side policies		**.795**				
Policies for innovation in services		**.500**				
Support for the internationalisatio n of innovation policy.		**.476**				
Cluster policies			**.701**			
Policies promoting new forms of public-private-partnerships for science-industry co-operation			**.610**			
Eco-innovation policies			**.588**			
Innovation related tax policies			**.571**			
Support research efforts				**.744**		
Market and innovation culture policies				**-.629**		
Support to policy making and horizontal policies					**-.795**	
Support human capital development						**.822**
Support creation and growth of innovative enterprises						**.675**

Note: Principal Component Analysis on 139 regions. Rotation Method: Equamax with Kaiser Normalisation. Rotation converged in 29 iterations. The main contributions of the indicators to the factors are emphasised in bold.

Appendix J Policy factor scores: Regression results

Regression result: linking policy factor scores to the 'Innovative Entrepreneurship' performance factor

	Direction	Significance
Policy factor 6: 'HR , creation & growth innovators	positive	***

Note: Dependent Variable: 'Innovative entrepreneurship' factor score, independent variables: the six policy factor scores and country dummies; backward linear regression on 139 regions; only significant results for policy factors are shown.

Regression result: linking policy factor scores to performance on the factor 'Technological innovation'

	Direction	Significance
Policy factor 2: 'Demand & service innovation policy'	positive	**

Note: Dependent Variable: 'Technological innovation' factor score, independent variables: the six policy factor scores and country dummies; backward linear regression on 139 regions; only significant results for policy factors are shown.

Regression result: linking policy factors to the performance factor 'Public knowledge factor score'

	Direction	Significance
Policy factor 1: 'Public innovation policies'	positive	**
Policy factor 4: 'Research supply policy'	positive	**
Policy factor 6: "HR , creation & growth innovators'	positive	***

Note: Dependent Variable: 'Public knowledge' factor score, independent variables: the six policy factor scores and country dummies; backward linear regression on 139 regions; only significant results for policy factors are shown.

Appendix K Linking the performance groups with the policy factors

	1 Public innovation policies	2 Demand & service innovation policy	3 Cluster & S-I partner-ship policy	4 Research supply policy	5 Policy making support	6 HR , creation & growth innovators
1 Balanced innovating regions	-0.24	0.37	-0.05	-0.37	0.24	0.07
2 Knowledge absorbing regions	-0.32	0.13	-0.19	0.34	-0.45	0.38
3 Public knowledge regions	0.14	-0.46	-0.27	0.23	-0.36	0.42
4 Knowledge-absorbing innovating regions	1.68	0.20	1.19	0.23	0.54	-0.51
5 Industrialised innovating regions	0.12	-0.31	0.28	0.07	0.00	-0.63
6 High-tech business innovating regions	-0.04	0.22	-0.58	-0.44	-0.01	0.43
7 Business innovating regions	-0.04	-0.10	0.10	-0.04	0.32	0.28

Note: highest group average per innovation policy factor in green, lowest in red; 139 regions included.

Appendix L Relationships between significance of the Structural Funds in terms of funding and relevance for strategy development

Significance of the Structural Funds in terms of funding	Please indicate the relevance of the Structural Funds for regional innovation policy, for strategy development					Total
	very low	low	medium	high	very high	
less than 10%	14 (48,28%)	10 (34,48%)	4	1	0	29
11-24%	1	12	31	13	0	57
25-49%	0	4	11	18	3	36
50-74%	4	0	2	18 (51,43%)	11 (31,43%)	35
over 75%	2	6	1	3	22 (64,71%)	34
Total	21	32	49	53	36	191

Source: RIM survey.

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