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Regional **Innovation** Scoreboard 2012

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Regional **Innovation** Scoreboard 2012

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The year 2012 in this edition of the Regional Innovation Scoreboard refers to the year in which the analytical work was completed.



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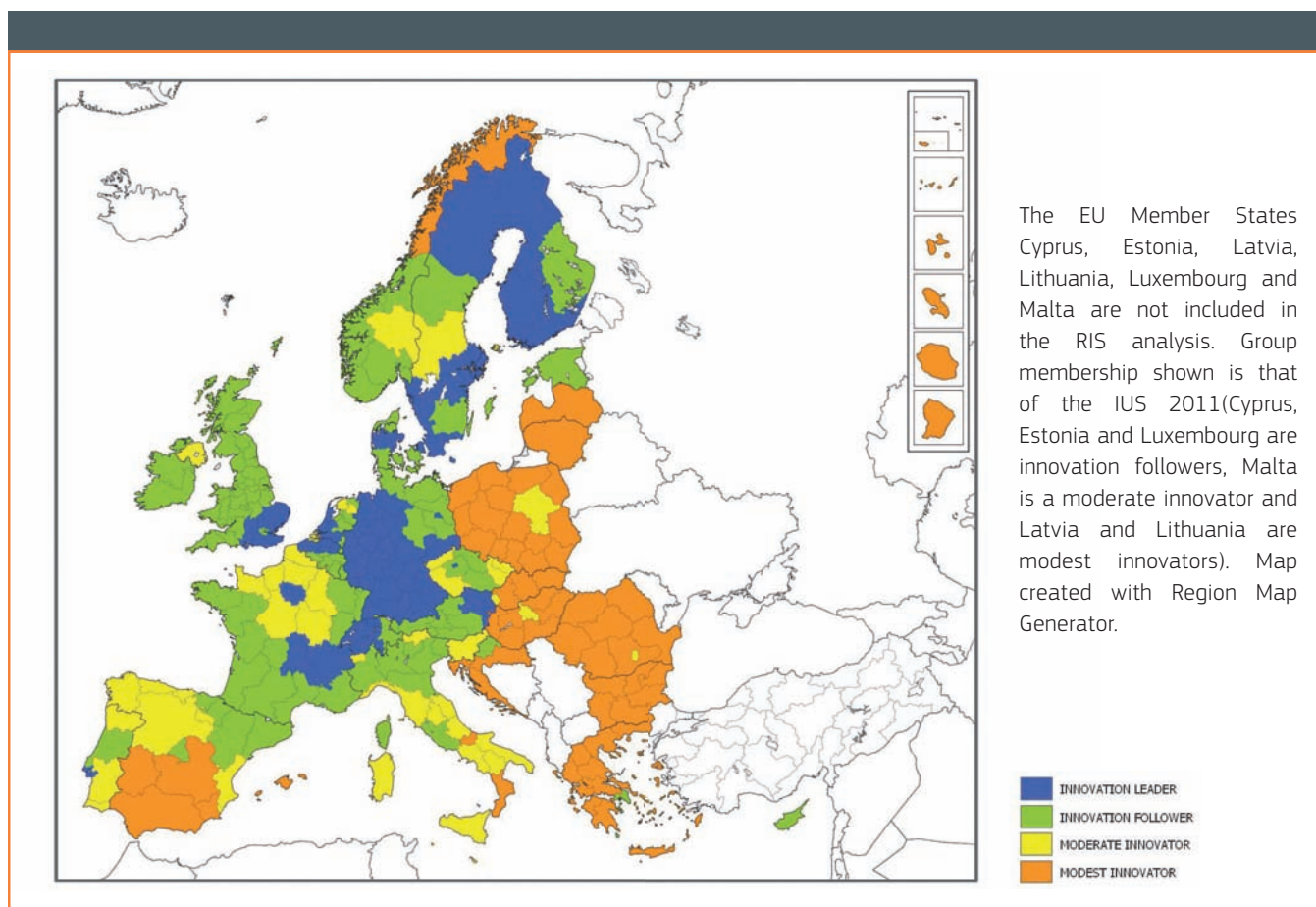
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Executive summary

This edition of the European Regional Innovation Scoreboard (RIS) provides a comparative assessment of innovation performance across NUTS 1 and NUTS 2 regions of the European Union, Croatia, Norway and Switzerland. As the regional level is important for economic development and for the design and implementation of innovation policies, it is important to have indicators to compare and benchmark innovation

performance at regional level. Such evidence is vital to inform policy priorities and to monitor trends.

The 2012 Regional Innovation Scoreboard replicates the methodology used at national level in the Innovation Union Scoreboard (IUS), using 12 of the 24 indicators used in the IUS for 190 regions across Europe.



The data available at regional level remains considerably less than at national level. Due to these limitations, the 2012 RIS does not provide an absolute ranking of individual regions, but ranks groups of regions at broadly similar levels of performance. The main results of the grouping analysis are summarised in the map above, which shows four performance groups similar to those identified in the Innovation Union Scoreboard, ranging from Innovation leaders to Modest innovators. Within each of the 4 performance groups 3 further subgroups could be identified leading to a total of 12 regional innovation performance groups.

There is considerable diversity in regional innovation performances

The results show that most European countries have regions at different levels of performance. For 2011 we observe at least one region in each of the 4 broader performance groups in France and Portugal. Czech Republic, Finland, Italy, Netherlands, Norway, Spain, Sweden and the UK have at least one region in 3 different performance groups. This regional diversity in innovation performance also calls for regional

innovation support programmes better tailored to meet the needs of individual regions.

The most innovative regions are typically in the most innovative countries

Most of the regional innovation leaders and innovation followers are located in the country leaders and followers identified as such in the Innovation Union Scoreboard (IUS) 2011. The results do highlight several regions in weaker performing countries being much more innovative:

- Praha (CZ01) is an innovation leader within the Czech Republic (a moderate innovator);
- Attiki (GR3) is an innovation follower where Greece is a moderate innovator;
- Közép-Magyarország (HU1) is the most innovative region in Hungary;
- Mazowieckie (Warsaw) (PL12) is the most innovative region in Poland;
- Lisboa (PT17) is an innovation leader in Portugal (a moderate innovator).
- Bucuresti – Ilfov (RO32), a moderate innovator, is much more innovative than any other Romanian region;
- East of England (UKH) and South East (UKJ) are innovation leaders within the UK. Northern Ireland (UKN) lags behind being a moderate innovator and all other regions are innovation followers.
- In Croatia (a moderate innovator), Sjeverozapadna Hrvatska (Zagreb) (HR01) is an innovation follower.

Regions have different strengths and weaknesses

Three groups of regions can be identified based on their relative performance on Enablers, Firm activities and Outputs. The majority of innovation leaders and high performing innovation followers are characterised by a balanced performance structure whereas the majority of the moderate and modest innovators are characterised by an imbalanced performance structure. Regions wishing to improve their innovation performance should thus pursue a more balanced performance structure.

Regional performance appears relatively stable

Between 2007 and 2011 regional performance is quite stable with only a relatively small number of regions moving from one broader performance group to the other. More changes are observed at the level

of the 12 subgroups and 8 regions have demonstrated a continuous improvement by moving to a higher subgroup in both 2009 and 2011: Niedersachsen (DE9), Bassin Parisien (FR2), Ouest (FR5), Calabria (ITF6), Sardegna (ITG2), Mazowieckie (PL12), Lisboa (PT17) and Ticino (CH07).

Regional research and innovation potential through EU funding

There are remarkable differences in the use of EU funds across EU regions. There are 4 typologies of regions absorbing and leveraging EU funds: Framework Programme leading absorbers, Structural Funds leading users, full users/absorbers – but at low levels, and low users/absorbers.

The results suggest that Structural Funds and FP are complementary types of funding targeting a rather specific, but comparatively different set of regions. Whereas capital regions in the EU15 are largely FP leading absorbers or low users/absorbers in both periods, there is no much differentiation between capital regions and all other regions in the EU12. The latter were mainly low users/absorbers in the period 2000-06 (96%) and full users/absorbers (50%) in 2007-13.

We find a relatively even distribution of shares of high, medium and low innovators in low absorber/user regions and full absorber/user regions. A majority of FP leading absorbers in FP6 were innovation leaders or innovation followers in 2007 and 2011. In contrast, a majority of all SF leading user regions in the period 2000-06 were also modest innovators in 2007 and 2011. The results show a lack of common characteristics/patterns linking innovation performance and the use of EU funds in regions across time.

There is a need for more disaggregated analyses of the impact of EU funding on innovation performance and that such analyses need to be built around a model that takes into account a broad set of potential variables affecting performance over a longer time period. Moreover and needless to say, the SFs are an instrument that is significantly easier to control by the regions than FP. In practice, the SF can fund activities “normally” funded by research programmes thus supporting “research excellence” objectives without the obligation to form international research consortia as in FP.

1. Introduction

Innovation is a key factor determining productivity growth. Understanding the sources and patterns of innovative activity in the economy is fundamental to develop better policies. The Innovation Union Scoreboard (IUS) benchmarks on a yearly basis the innovation performance of Member States, drawing on statistics from a variety of sources, including the Community Innovation Survey. It is increasingly used as a reference point by innovation policy makers across the EU.

The IUS benchmarks performance at the level of Member States, but innovation plays an increasing role in regional development, both in the Lisbon strategy and in Cohesion Policy. Regions are increasingly becoming important engines of economic development. Geographical proximity matters in business performance and in the creation of innovation. Recognising this, innovation policy is increasingly designed and implemented at regional level. However, despite some advances, there is an absence of regional data on innovation indicators which could help regional policy makers design and monitor innovation policies.

The European Regional Innovation Scoreboard (RIS) addresses this gap and provides statistical facts on regions' innovation performance. In 2002 and 2003 under the European Commission's "European Trend Chart on Innovation" two Regional Innovation Scoreboards have been published. Both reports focused on the regional innovation performance of the EU15 Member States using a more limited number of indicators as compared to the European Innovation Scoreboard (EIS). In 2006 a Regional Innovation Scoreboard was published providing an update of both earlier reports by using more recent data and also including the regions from the New Member States but with an even more limited set of data as regional CIS data were not available.

Following the revision of the EIS in 2008, the 2009 RIS was using as many of the EIS indicators at the regional level for all EU Member States and Norway including regional data from the Community Innovation Survey (CIS) where available. The 2009 RIS paid more attention to wider measures of innovation including among others non-R&D and non-technological innovation. For the 2009 RIS for the first time regional CIS data have been collected (directly from most but not all Member States) on a large scale.

This 2012 RIS report provides both an update of the 2009 RIS report and it resembles the revised Innovation Union Scoreboard (IUS) at the regional level. Regions are ranked in four groups of regions showing different levels of regional innovation performance. These peer groupings are derived from regional data and do not directly correspond to the country groupings in the IUS.

For all regions we will identify regions with comparable performance patterns within each of the clusters. The purpose of this analysis is to provide regions with additional information about their relative strengths and weaknesses.

The European Regional Competitiveness Index (RCI) maps economic performance and competitiveness at the NUTS 2 regional level for all EU Member States. Innovation is a key driver of competitiveness and we will establish a link between regions' performance in the RIS and RCI using correlation analyses.

In section 2 we will briefly discuss the availability of regional data, the indicators that are available for the RIS and the regions for which regional CIS data are available. Section 3 presents two sets of results, one identifying groups of regions with similar levels of innovation performance and the other identifying groups of regions with similar relative patterns of innovation performance. For each region group membership for both the absolute and relative performance analysis is provided in full detail in Annex 1. Section 4 summarizes the methodology for calculating regional composite indicator and for imputing missing data. Section 5 concludes.

Section 6 provides a separate analysis on the relationship between the use of two main EU funding instruments and innovation performance: the Framework Programmes for Research and Technological Development (FP6, FP7) and the Structural Funds.

2. Indicators and data availability

2.1 Indicators

The Regional Innovation Scoreboard (RIS) includes regional data for 12 of the 24 indicators used in the IUS. For the other IUS indicators regional data are not available. The definition of the indicators is identical to the IUS for 7 of these indicators, while for 5 indicators there is some difference as shown in Table 1. The indicator measuring the educational attainment of the population uses a broader age group, the CIS indicators on non-R&D innovation

expenditures and the sales share of new innovative products refer to SMEs only and the IUS indicator on employment in knowledge-intensive activities has been replaced with an indicator capturing employment in medium-high and high-tech manufacturing and knowledge-intensive services. The indicators are explained in detail in Annex 1.

2.2 Data availability

Overall data availability depends on the availability of regional CIS data. As highlighted in Annex 3, most of the missing data are CIS data. In particular for Croatia, Denmark, Germany, Ireland, the Netherlands and Switzerland data availability is poor as for these countries regional CIS data are not available. Regional CIS data requests were made to 20 countries in April-May 2010¹ and 16 countries provided regional in May-June 2011². For Croatia, Denmark and Switzerland a regional CIS data request was not submitted as at the time of filing

these requests it was thought that these countries would not be included in the RIS.

Overall data availability is perfect for Belgium, Czech Republic, Romania and Slovakia, very good for Bulgaria, Finland, Poland, Portugal, Slovenia and Spain, good for Austria, France, Hungary and UK, relatively good for Italy, Norway and Sweden, relatively poor for Germany, Greece, Ireland and the Netherlands and poor for Croatia, Denmark and Switzerland.

¹ Austria, Belgium, Bulgaria, Czech Republic, Finland, France, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and UK.

² Austria, Belgium, Bulgaria, Czech Republic, Finland, France, Hungary, Italy, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Table 1: A comparison of the indicators included in IUS and RIS

Innovation Union Scoreboard	Regional Innovation Scoreboard
ENABLERS	
Human resources	
1.1.1 New doctorate graduates (ISCED 6) per 1000 population aged 25-34	No regional data available
1.1.2 Percentage population aged 30-34 having completed tertiary education	Percentage population aged 25-64 having completed tertiary education
1.1.3 Percentage youth aged 20-24 having attained at least upper secondary level education	No regional data available
Open, excellent and attractive research systems	
1.2.1 International scientific co-publications per million population	No regional data available
1.2.2 Scientific publications among the top 10% most cited publications worldwide as % of total scientific publications of the country	No regional data available
1.2.3 Non-EU doctorate students as a % of all doctorate students	No regional data available
Finance and support	
1.3.1 R&D expenditure in the public sector as % of GDP	Identical
1.3.2 Venture capital (early stage, expansion and replacement) as % of GDP	No regional data available
FIRM ACTIVITIES	
Firm investments	
2.1.1 R&D expenditure in the business sector as % of GDP	Identical
2.1.2 Non-R&D innovation expenditures as % of turnover	Similar (only for SMEs)
Linkages & entrepreneurship	
2.2.1 SMEs innovating in-house as % of SMEs	Identical
2.2.2 Innovative SMEs collaborating with others as % of SMEs	Identical
2.2.3 Public-private co-publications per million population	Identical
Intellectual assets	
2.3.1 PCT patent applications per billion GDP (in PPSE)	EPO patent applications per billion regional GDP (PPSE)
2.3.2 PCT patent applications in societal challenges per billion GDP (in PPSE)	No regional data available
2.3.3 Community trademarks per billion GDP (in PPSE)	No regional data available
2.3.4 Community designs per billion GDP (in PPSE)	No regional data available
OUTPUTS	
Innovators	
3.1.1 SMEs introducing product or process innovations as % of SMEs	Identical
3.1.2 SMEs introducing marketing or organisational innovations as % of SMEs	Identical
3.1.3 High-growth innovative firms – indicator not yet included	No regional data available
Economic effects	
3.2.1 Employment in knowledge-intensive activities (manufacturing and services) as % of total employment	Employment in knowledge-intensive services + Employment in medium-high/high-tech manufacturing as % of total workforce
3.2.2 Medium and high-tech product exports as % total product exports	No regional data available
3.2.3 Knowledge-intensive services exports as % total service exports	No regional data available
3.2.4 Sales of new to market and new to firm innovations as % of turnover	Similar (only for SMEs)
3.2.5 License and patent revenues from abroad as % of GDP	No regional data available

2.3 Regional coverage

Based on regional data availability the analysis will cover 190 regions for 21 EU Member States, Croatia, Norway and Switzerland at different NUTS levels with 55 NUTS 1 level regions and 135 NUTS 2 level

regions (cf. Table 2). The EU Member States Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta have not been included as there are no separate regions in these countries³.

Table 2: Regional coverage

Country	NUTS		Regions
	1	2	
Austria	3		Ostösterreich (AT1), Südösterreich (AT2), Westösterreich (AT3)
Belgium	3		Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1), Vlaams Gewest (BE2), Région Wallonne (BE3)
Bulgaria	2		Severna i iztočna Bulgaria (BG3), Yugozapadna i yuzhna tsentralna Bulgaria (BG4)
Croatia		3	Sjeverozapadna Hrvatska (HR01), Sredisnja i Istocna (Panonska) Hrvatska (HR02), Jadranska Hrvatska (HR03)
Czech Republic		8	Praha (CZ01), Střední Čechy (CZ02), Jihozápad (CZ03), Severozápad (CZ04), Severovýchod (CZ05), Jihovýchod (CZ06), Střední Morava (CZ07), Moravskoslezsko (CZ08)
Denmark		5	Hovedstaden (DK01), Sjælland (DK02), Syddanmark (DK03), Midtjylland (DK04), Nordjylland (DK05)
Finland	1	4	Itä-Suomi (FI13), Etelä-Suomi (FI18), Länsi-Suomi (FI19), Pohjois-Suomi (FI1A), Åland (FI2)
France	9		Île de France (FR1), Bassin Parisien (FR2), Nord - Pas-de-Calais (FR3), Est (FR) (FR4), Ouest (FR) (FR5), Sud-Ouest (FR) (FR6), Centre-Est (FR) (FR7), Méditerranée (FR8), French overseas departments (FR) (FR9)
Germany	16		Baden-Württemberg (DE1), Bayern (DE2), Berlin (DE3), Brandenburg (DE4), Bremen (DE5), Hamburg (DE6), Hessen (DE7), Mecklenburg-Vorpommern (DE8), Niedersachsen (DE9), Nordrhein-Westfalen (DEA), Rheinland-Pfalz (DEB), Saarland (DEC), Sachsen (DED), Sachsen-Anhalt (DEE), Schleswig-Holstein (DEF), Thüringen (DEG)
Greece	4		Voreia Ellada (GR1), Kentriki Ellada (GR2), Attiki (GR3), Nisia Aigaiou, Kriti (GR4)
Hungary	1	6	Közép-Magyarország (HU1), Közép-Dunántúl (HU21), Nyugat-Dunántúl (HU22), Dél-Dunántúl (HU23), Észak-Magyarország (HU31), Észak-Alföld (HU32), Dél-Alföld (HU33)
Ireland		2	Border, Midland and Western (IE01), Southern and Eastern (IE02)
Italy		21	Piemonte (ITC1), Valle d'Aosta/Vallée d'Aoste (ITC2), Liguria (ITC3), Lombardia (ITC4), Provincia Autonoma Bolzano/Bozen (ITD1), Provincia Autonoma Trento (ITD2), Veneto (ITD3), Friuli-Venezia Giulia (ITD4), Emilia-Romagna (ITD5), Toscana (ITE1), Umbria (ITE2), Marche (ITE3), Lazio (ITE4), Abruzzo (ITF1), Molise (ITF2), Campania (ITF3), Puglia (ITF4), Basilicata (ITF5), Calabria (ITF6), Sicilia (ITG1), Sardegna (ITG2)
Netherlands		12	Groningen (NL11), Friesland (NL) (NL12), Drenthe (NL13), Overijssel (NL21), Gelderland (NL22), Flevoland (NL23), Utrecht (NL31), Noord-Holland (NL32), Zuid-Holland (NL33), Zeeland (NL34), Noord-Brabant (NL41), Limburg (NL) (NL42)
Norway		7	Oslo og Akershus (NO01), Hedmark og Oppland (NO02), Sør-Østlandet (NO03), Agder og Rogaland (NO04), Vestlandet (NO05), Trøndelag (NO06), Nord-Norge (NO07)
Poland		16	Lódzkie (PL11), Mazowieckie (PL12), Malopolskie (PL21), Slaskie (PL22), Lubelskie (PL31), Podkarpackie (PL32), Swietokrzyskie (PL33), Podlaskie (PL34), Wielkopolskie (PL41), Zachodniopomorskie (PL42), Lubuskie (PL43), Dolnoslaskie (PL51), Opolskie (PL52), Kujawsko-Pomorskie (PL61), Warminsko-Mazurskie (PL62), Pomorskie (PL63)
Portugal	2	5	Norte (PT11), Algarve (PT15), Centro (PT) (PT16), Lisboa (PT17), Alentejo (PT18), Região Autónoma dos Açores (PT) (PT2), Região Autónoma da Madeira (PT) (PT3)
Romania		8	Nord-Vest (RO11), Centru (RO12), Nord-Est (RO21), Sud-Est (RO22), Sud - Muntenia (RO31), Bucuresti - Ilfov (RO32), Sud-Vest Oltenia (RO41), Vest (RO42)
Slovakia		4	Bratislavský kraj (SK01), Západné Slovensko (SK02), Stredné Slovensko (SK03), Východné Slovensko (SK04)
Slovenia		2	Vzhodna Slovenija (SI01), Zahodna Slovenija (SI02)
Spain	2	17	Galicia (ES11), Principado de Asturias (ES12), Cantabria (ES13), País Vasco (ES21), Comunidad Foral de Navarra (ES22), La Rioja (ES23), Aragón (ES24), Comunidad de Madrid (ES3), Castilla y León (ES41), Castilla-la Mancha (ES42), Extremadura (ES43), Cataluña (ES51), Comunidad Valenciana (ES52), Illes Balears (ES53), Andalucía (ES61), Región de Murcia (ES62), Ciudad Autónoma de Ceuta (ES) (ES63), Ciudad Autónoma de Melilla (ES) (ES64), Canarias (ES) (ES7)
Sweden		8	Stockholm (SE11), Östra Mellansverige (SE12), Småland med öarna (SE21), Sydsverige (SE22), Västsverige (SE23), Norra Mellansverige (SE31), Mellersta Norrland (SE32), Övre Norrland (SE33)
Switzerland		7	Région lémanique (CH01), Espace Mittelland (CH02), Nordwestschweiz (CH03), Zürich (CH04), Ostschweiz (CH05), Zentralschweiz (CH06), Ticino (CH07)
UK	12		North East (UK) (UKC), North West (UK) (UKD), Yorkshire and The Humber (UKE), East Midlands (UK) (UKF), West Midlands (UK) (UKG), East of England (UKH), London (UKI), South East (UK) (UKJ), South West (UK) (UKK), Wales (UKL), Scotland (UKM), Northern Ireland (UK) (UKN)

³ In the IUS 2011 Cyprus, Estonia and Luxembourg are innovation followers, Malta is a moderate innovator and Latvia and Lithuania are modest innovators.

3. Regional innovation performance

Cluster analysis is used to identify regions that share similar innovation systems⁴. Two approaches are taken. The first method searches for similarities in absolute performance, or regions that display similar strengths and weaknesses in innovation (Section 3.1). The second method searches for similarities in the pattern of strengths and weaknesses (Section 3.3). For example, a region that performed twice as well as another region on every composite index would have an identical pattern of strengths and weaknesses. In order to remove the effect of absolute performance in the cluster analysis of similar patterns, the sum of performance across all composite indices is set to the same value for all regions. Both approaches have different uses for policy.

3.1 Innovation performance analysis – Regional Innovation Index

Hierarchical cluster analysis using Ward's method distinguishes 4 performance groups⁵ based on the overall Regional Innovation Index (RII). For these 4 performance groups we find (over the 3 observation periods 2007, 2009 and 2011, i.e. 570 observations or 190 regions) 113 innovation leaders, 165 innovation followers, 121 moderate innovators and 171 modest innovators.

The IUS 2011 innovation leader and innovation follower countries include 252 regions whereas there are 286 regional leaders and followers (cf. Table 3). Most of the regional leaders and followers are found in IUS country innovation leaders and followers although we also observe 62 cases of regional leaders and followers in IUS moderate innovator countries and 1 case in IUS modest innovator countries.

Table 3: A comparison of number of regions between the IUS and RIS performance groups

		Regions				
		LEADERS	FOLLOWERS	MODERATE	MODEST	TOTAL NUMBER OF REGIONS
Country group	Leaders	77	39	7	0	123
	Followers	32	67	28	2	129
	Moderate	4	58	81	133	276
	Modest	0	1	5	36	42
	Total number of regions	113	165	121	171	

The ranking in performance across the 4 performance groups is also observed for the separate composite indicators for Enablers, Firm activities and Outputs

(cf. Table 4). Innovation leaders also perform best in each of the 3 main innovation groups whereas the Modest innovators perform worst.

Table 4: Performance characteristics for the 4 performance groups

	LEADERS	FOLLOWERS	MODERATE	MODEST
RII	0.621	0.494	0.395	0.269
Enablers	0.631	0.522	0.407	0.317
Firm activities	0.606	0.469	0.362	0.234
Outputs	0.632	0.506	0.432	0.280

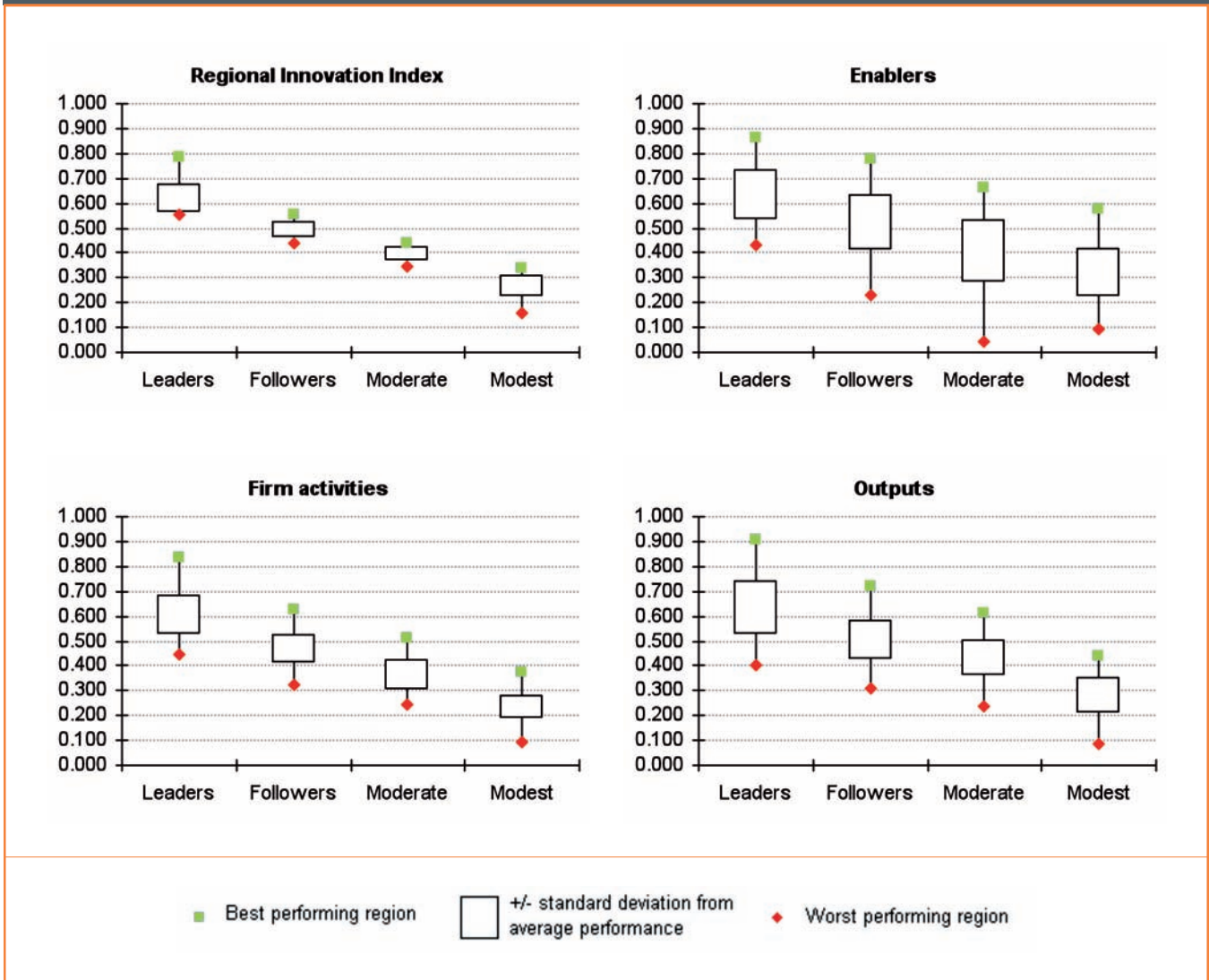
But whereas there is no overlap in overall innovation performance between the 4 performance groups, there is an overlap in performance in Enablers, Firm activities and Outputs (cf. Figure 1). E.g. part of the innovation

followers perform better than several innovation leaders on Enablers and the worst performing Moderate innovator performs worse than the worst performing Modest innovator.

⁴ Hierarchical clustering with Ward's method was used for all cluster analyses.

⁵ The difference in coefficients' values as provided in the agglomeration schedule was used to identify the optimal number of solutions.

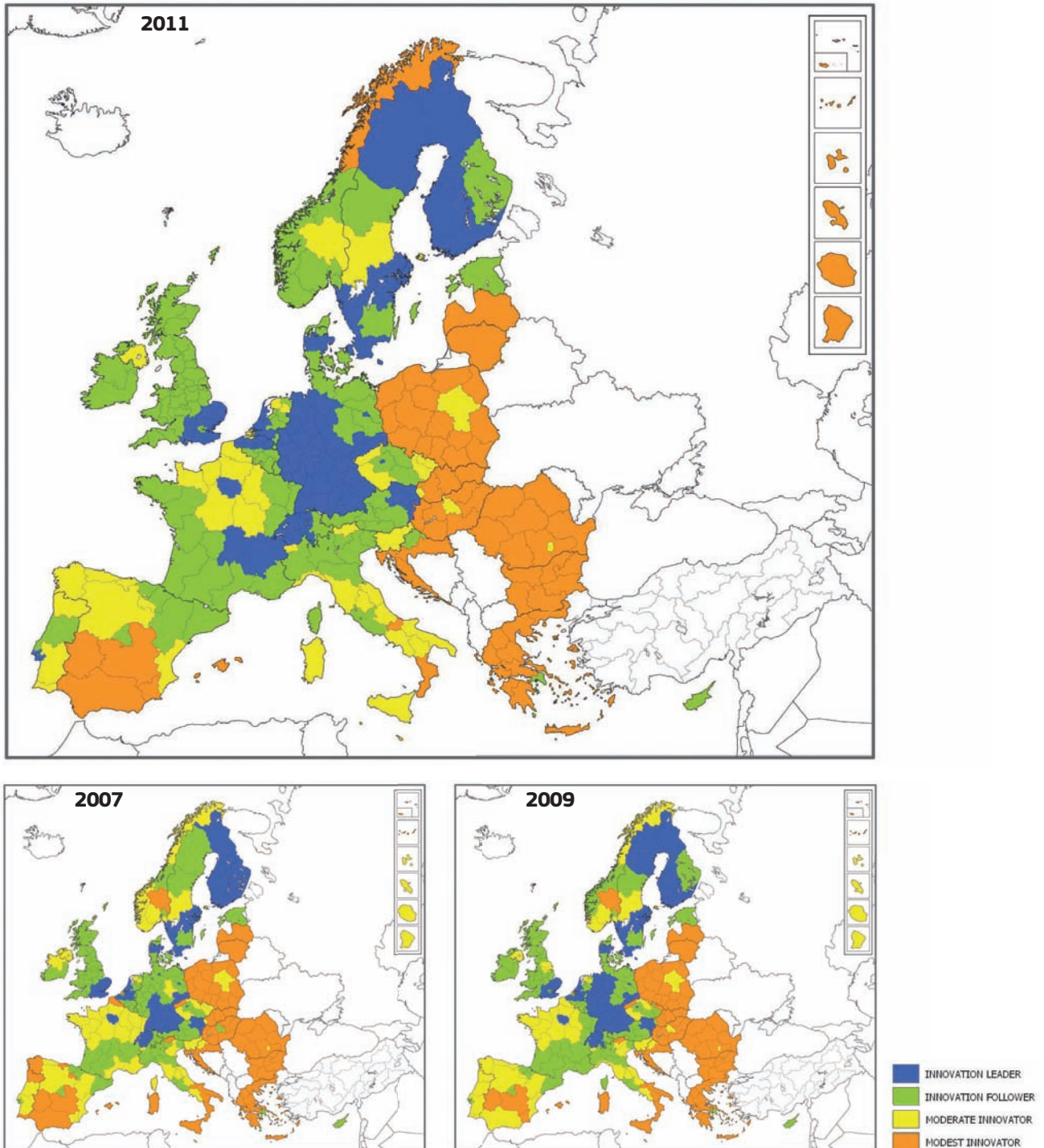
Figure 1: Distribution of performance for the 4 performance groups



Maps of the regional performance groups are shown in Figure 2. For 2007, 2009 and 2011 the maps show group membership for each of the 190 regions covered in the RIS. Most of the regional innovation leaders and followers are found in Austria, Belgium, Denmark, France, Germany, Finland, Ireland, Netherlands, Sweden, Switzerland and UK but we also observe regional innovation followers in parts of Czech Republic, Italy, Norway and Spain and in individual regions in Croatia, Greece, Hungary, Poland, Portugal, Romania and Slovakia.

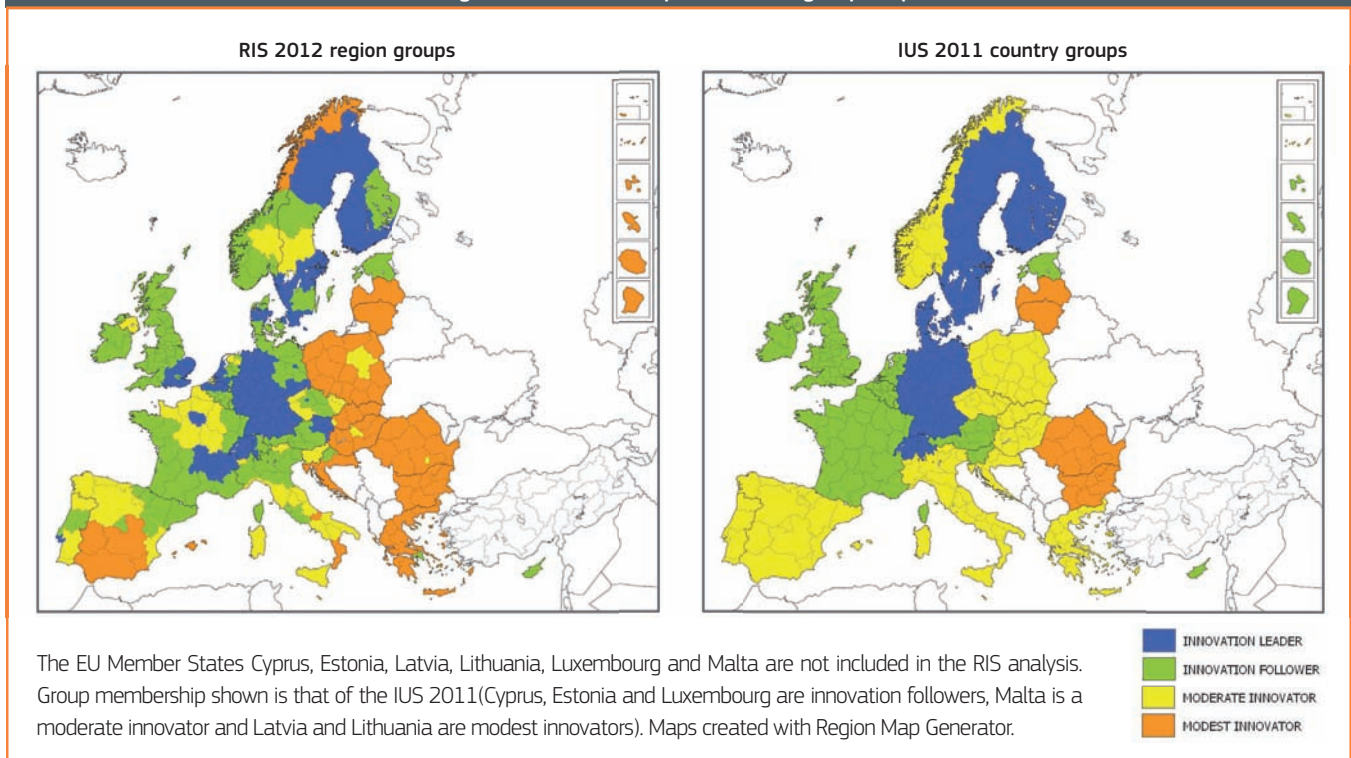
Most of the moderate and modest innovators are found in Eastern and Southern Europe, with most of the moderate innovators in Czech Republic, Italy, Portugal and Spain, and most of the modest innovators in Bulgaria, Hungary, Italy, Poland, Portugal, Romania, Slovakia and Spain.

Figure 2: RIS performance group maps



The EU Member States Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta are not included in the RIS analysis. Group membership shown is that of the IUS 2011 (Cyprus, Estonia and Luxembourg are innovation followers, Malta is a moderate innovator and Latvia and Lithuania are modest innovators). Maps created with Region Map Generator.

Figure 3: RIS and IUS performance group maps

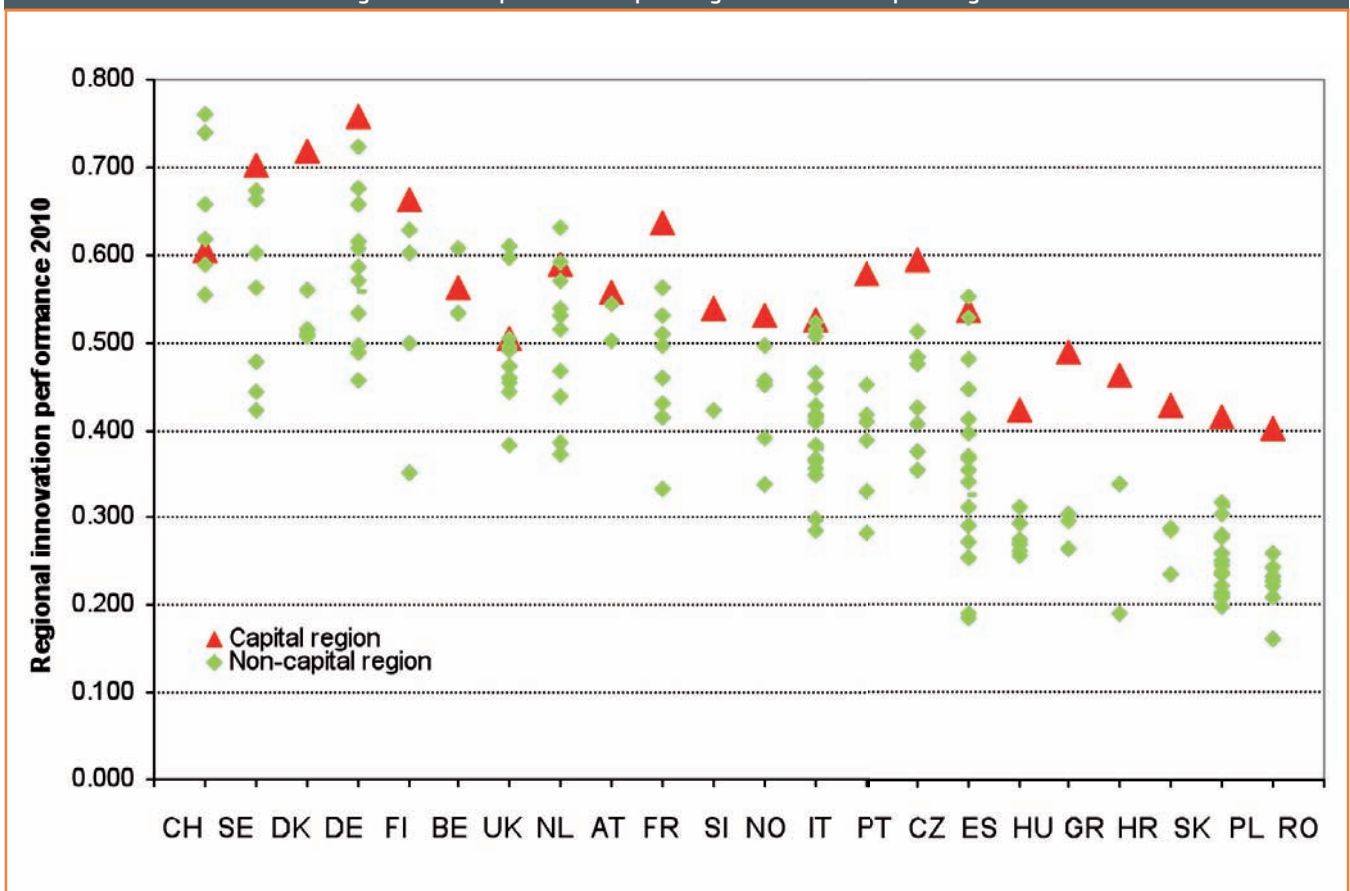


By comparing regional group membership in 2011 with country group membership (cf. Figure 3) we observe the following:

- Praha (CZ01) is an innovation leader within the Czech Republic and 3 more Czech regions are innovation followers.
- Denmark is an innovation leader mainly by the strong performance of Hovedstaden (DK01) and Midtjylland (DK04). The other Danish regions are innovation followers.
- 12 of the 16 German NUTS-1 regions are innovation leaders. 4 Regions are innovation followers are found in Eastern and Northern Germany.
- Attiki (GR3) is an innovation follower where Greece is a moderate innovator and the other Greek regions are modest innovators.
- Spain is a moderate innovator but there is a large variance in innovation performance with 8 modest innovators, 6 moderate innovators and 5 innovation followers.
- In France (an innovation follower), Île de France (FR1) and Centre-Est (FR7) are innovation leaders. 4 French regions are innovation followers, 2 are moderate innovators and 1 region is a Modest innovator.
- In Italy (a moderate innovator) 12 regions are also moderate innovators, 7 regions are innovation followers and 2 regions are Modest innovators.
- Közép-Magyarország (HU1), Hungary's capital region, is the most innovative region in Hungary and all other regions are modest innovators.
- In the Netherlands we observe 3 moderate innovators, 4 innovation followers and 4 innovation leaders.
- Ostösterreich (Vienna) (AT1) is an innovation leader within Austria.
- Poland is a moderate innovator with 15 regions being a modest innovator and Mazowieckie (Warsaw) (PL12) being a moderate innovator.
- Lisboa (PT17) is an innovation leader and the most innovative Portuguese region.
- Bucuresti – Ilfov (RO32), a moderate innovator, is much more innovative than any other Romanian region.
- In Slovakia (a moderate innovator) Bratislavský kraj (SK01) is the most innovative region being a moderate innovator. The other regions are modest innovators.
- Finland is an innovation leader, but 2 Finnish regions lag behind in their innovation performance, in particular Åland (FI2) which is a moderate innovator.

- In Sweden we find 5 innovation leaders, 2 innovation followers and 1 moderate innovator.
 - East of England (UKH) and South East (UKJ) are innovation leaders within the UK. Northern Ireland (UKN) lags behind being a moderate innovator and all other regions are innovation followers.
 - Almost all Swiss regions are innovation leaders. Only Ostschweiz (CH05) is an innovation follower.
 - For Norway 5 regions are an innovation follower,
- 1 region is a moderate innovator and 1 region is a modest innovator.
- In Croatia (a moderate innovator), Sjeverozapadna Hrvatska (Zagreb) (HR01) is an innovation follower.
- These findings confirm that capital regions are more innovative than non-capital regions. This is also confirmed in Figure 4 below which shows the difference in performance between capital and non-capital regions in each of the countries with at least 3 regions.

Figure 4: A comparison of capital regions with non-capital regions



The performance results appear relatively stable over time (as can be seen from a visual inspection of Figure 2). But between 2007 and 2011 we do find changes in overall group membership across Europe in as many as 14 European countries with 42 changes in regional group membership (cf. Annex 1). Most of these are positive changes with 9 innovation followers becoming an innovation leader, 13 moderate innovators becoming an innovation follower and 13 modest innovators becoming a

moderate innovator. But we also observe 7 negative changes, with 2 innovation leaders slipping down to becoming an innovation follower, 2 innovation followers becoming a moderate innovator and 3 moderate innovators becoming a modest innovator (cf. Annex 2 showing group membership for each region for 2007, 2009 and 2011).

3.2 A further refinement of the cluster groups

The identified performance groups correlate well with the IUS performance groups but, with 190 regions covered, provide insufficient detail to observe differences in regional performance. The same clustering technique (Hierarchical clustering, Ward's method) has therefore been applied to

each of the 4 performance groups and within each group 3 further subgroups could be defined. For reasons of simplicity, we label these as high, medium and low innovating regions. In total we thus have 12 performance groups as summarized in Table 5.

Table 5: 12 regional performance groups

2007	Leader	Follower	Moderate	Modest	Total number of regions
High	10	24	18	21	73
Medium	9	13	10	21	53
Low	15	17	12	20	64
Total number of regions	34	54	40	62	190
2009	Leader	Follower	Moderate	Modest	Total number of regions
High	11	18	14	16	59
Medium	12	20	16	24	72
Low	15	15	12	17	59
Total number of regions	38	53	42	57	190
2011	Leader	Follower	Moderate	Modest	Total number of regions
High	13	27	18	16	74
Medium	17	14	9	17	57
Low	11	17	12	19	59
Total number of regions	41	58	39	52	190

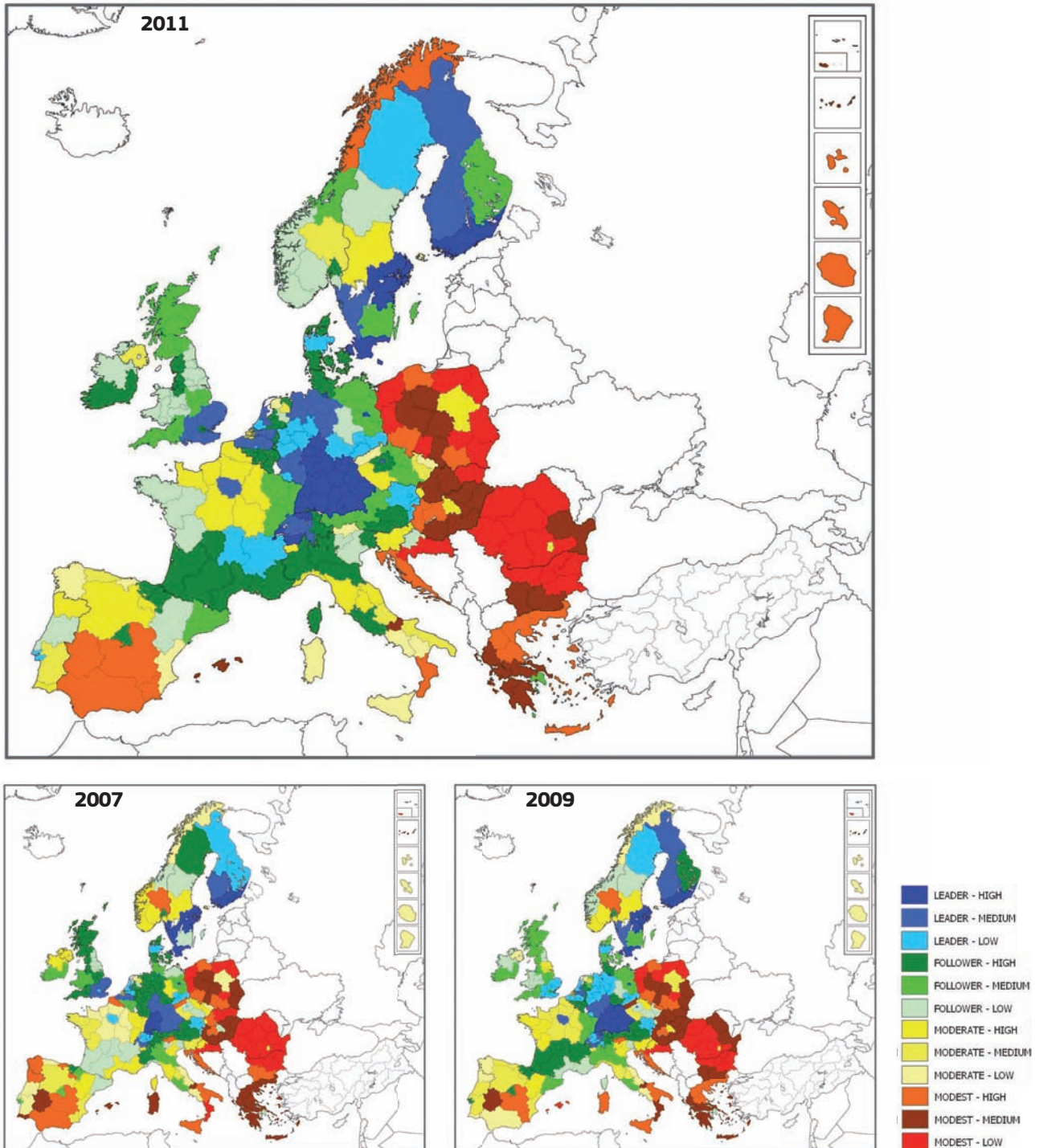
Within each performance group we find relatively equal shares of high, medium and low innovators. We also observe more variation across the years, with e.g. the number of high leading innovators increasing from 10 in 2007 to 13 in 2009. These more detailed groups are shown in regional maps in Figure 5. A comparison of the maps shows a much higher degree of variation in innovation

performance over time at the regional level than at the country level where performance groups have proven to be stable over time (cf. IUS 2011 report). A small number of 8 regions show a continuous improvement over time as shown in Table 6. Bassin Parisien (FR2), Calabria (ITF6) and Mazowieckie (PL12) show this continuous improvement within their broader performance group.

Table 6: Continuous improvement in regional innovation performance

		2007	2009	2011
DE9	Niedersachsen	Follower - high	Leader - low	Leader - medium
FR2	Bassin Parisien	Moderate - low	Moderate- medium	Moderate- high
FR5	Ouest	Moderate - medium	Moderate- high	Follower - low
ITF6	Calabria	Modest - low	Modest - medium	Modest - high
ITG2	Sardegna	Modest - medium	Modest - high	Moderate - low
PL12	Mazowieckie	Moderate - low	Moderate- medium	Moderate- high
PT17	Lisboa	Follower - medium	Follower - high	Leader - low
CH07	Ticino	Follower - high	Leader - low	Leader - medium

Figure 5: RIS detailed performance group maps



The EU Member States Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta are not included in the RIS analysis. In the IUS 2011 Cyprus, Estonia and Luxembourg are innovation followers, Malta is a moderate innovator and Latvia and Lithuania are modest innovators. Map created with Region Map Generator.

3.3 Comparison with the Regional Competitiveness Index

In this section we compare the Regional Innovation Index and the Regional Competitiveness Index (RCI) (Annoni and Kozovska, 2010)⁶. First we briefly discuss the definition of regional competitiveness and the construction of the RCI.

Defining regional competitiveness

Many authors, with Krugman (1996)⁷ and Porter (Porter and Ketels, 2003)⁸ among others, agree on the definition of competitiveness as productivity, which is measured by the value of goods and services produced by a nation per unit of human, capital and natural resources. They see as the main goal of a nation the production of high and raising standard of living for its citizens which depends essentially on the productivity with which a nation's resources are employed.

However, regional competitiveness cannot be regarded as a macroeconomic concept. A region is neither a simple aggregation of firms nor a scaled version of nations (Gardiner et al., 2004)⁹. Hence, regional competitiveness is not simply resulting from a stable macroeconomic framework or entrepreneurship on the micro-level. New patterns of competition are recognizable, especially at the regional level: for example, geographical concentrations of linked industries, like clusters, are of increasing importance and the availability of knowledge and technology based tools show high variability within countries (Annoni and Kozovska, RCI 2010 report).

An interesting broad definition of regional competitiveness is the one reported by Meyer-Stamer (2008, p. 7)¹⁰:

"We can define (systemic) competitiveness of a territory as the ability of a locality or region to generate high and rising incomes and improve livelihoods of the people living there."

This definition, on which the RCI index is build upon, focuses on the close link between regional competitiveness and regional prosperity, characterizing competitive regions not only by output-related terms such as productivity but also by overall economic performance such as sustained or improved level of comparative prosperity (Bristow, 2005)¹¹. Huggins (2003)¹² underlines, in fact, that "true local and regional competitiveness occurs only when sustainable growth is achieved at labour rates that enhance overall standards of living."

Construction of the RCI

The main goal of the European Regional Competitiveness Index is to map economic performance and competitiveness at the NUTS 2 regional level for all EU Member States. On the basis of existing competitiveness studies discussed in the RCI 2010 report (Annoni and Kozovska, 2010), an ideal framework for RCI is proposed which includes eleven major pillars. The reference for these eleven pillars is the well-established Global Competitiveness Index (GCI), published yearly by the World Economic Forum (WEF). The pillars included in the RCI framework are¹³:

1. Institutions
2. Macroeconomic Stability
3. Infrastructure
4. Health
5. Quality of Primary and Secondary Education
6. Higher Education/Training and Lifelong Learning
7. Labour Market Efficiency
8. Market Size
9. Technological Readiness
10. Business Sophistication
11. Innovation

The RCI is set up based upon values computed for these eleven different pillars. For a detailed discussion on the computation of these pillar values and on which indicators they are based we refer to the RCI Report 2010 (Annoni and Kozovska, 2010 pp. 59-205).

The RCI furthermore controls for the degree of heterogeneity on the development stage of European regions. This approach is based on a similar method the WEF adopts for the GCI (Schwab and Porter, 2007; Schwab, 2009). In the RCI case, regional economies are divided into '**medium**', '**transition**' and '**high**' stage of development. The development stage of the regions is computed on the basis of the regional GDP at current market prices (year 2007) measured as PPP per inhabitants and expressed as percentage of the EU average – GDP%. EU regions are then classified into three groups of medium, transition or high stage according to a GDP% respectively lower than 75%, between 75% and 100% and above 100%.

⁶ Annoni, P. and K. Kozovska (2010), *EU Regional Competitiveness Index 2010*, EUR 24346 EN – 2010.

⁷ Krugman, P. (1996), *Making sense of the competitiveness debate*, *Oxford Review of Economic Policy* 12(3): 17-25.

⁸ Porter, M.E. and Ketels, C.H.M. (2003), *UK Competitiveness: moving to the next stage*. Institute of strategy and competitiveness, Harvard Business School: DTI Economics paper n. 3.

⁹ Gardiner, B., Martin, R., Tyler, P. (2004), *Competitiveness, Productivity and Economic Growth across the European Regions*, *Regional Studies* 38: 1045-1067.

¹⁰ Meyer-Stamer, J. (2008), *Systematic Competitiveness and Local Economic Development*. In Shamin Bodhanya (ed.), *Large Scale Systemic Change: Theories, Modelling and Practices*.

¹¹ Bristow, G. (2005), *Everyone's a 'winner': problematising the discourse of regional competitiveness*, *Journal of Economic Geography* 5: 285-304.

¹² Huggins, R. (2003), *Creating a UK Competitiveness Index: regional and local benchmarking*, *Regional Studies* 37(1): 89-96.

¹³ The GCI also includes Goods market efficiency and Financial market as pillars, but they have been excluded in the RCI. Furthermore GCI combines Health and Primary education in one pillar, RCI separates the two. For a discussion on this see the RCI 2010 report (Annoni and Kozovska, 2010 pp. 28-29)

Table 7: Thresholds (% GDP) for the definition of stages of development

Stage of development	% of GDP (PPP/inhabitants)
Medium	< 75
Transition	≥ 75 and < 100
High	≥ 100

The eleven pillars are subdivided in three groups of pillars, mostly coinciding with the WEF groups. The first group of pillars includes Institutions, Macroeconomic Stability, Infrastructure, Health, and Quality of Primary and Secondary Education (see Table 8). These are considered as factors which are strictly necessary for the basic functioning of any economy. The simple average of these pillars gives the first competitiveness sub-index. Except for the pillar Macroeconomic Stability the expectation is that this first group does not have a strong correlation with the RIS.

The second group of pillars includes Higher Education/ Training and Lifelong Learning, Labour Market Efficiency and Market Size. They describe an economy which is more sophisticated, with a higher potential skilled labour force and a structured labour market. These pillars are used for the computation (simple average) of the second pillar group. We expect this pillar group to be somewhat related to one of the main type of RIS indicators 'enablers' and more specifically its dimension, 'Human Resources'.

The last group of pillars comprises all the high tech

and innovation related pillars: Technological Readiness, Business Sophistication and Innovation. A region with high scores in these sectors is expected to have the most competitive economy. The RIS is expected to correlate strong and significantly with this last pillar group.

Given the pillar classification, EU regions are assigned different weights according to their development stage. The set of weights assigned for the RCI computation stems from the WEF approach with some modifications to accommodate for the fact that EU regions do not show the same level of heterogeneity, in terms of stages of development, as the countries covered by WEF.

The regions classified into the 'medium' stage are assigned the weights that WEF assigns to the efficiency-driven economy (corresponding to the WEF intermediate group), while the weights of the 'high' stage are those which WEF uses for the innovative-driven economy. The weights of the 'transition' stage of development have been chosen as the middle point between the weights of the first and third stages. Table 8 displays the pillar-groups and the development stage weights.

Table 8: The 11 pillars of RCI classified into three groups and weighting scheme for each development stage

	Weights assigned according to the region stage		
	MEDIUM STAGE	TRANSITION STAGE	HIGH STAGE
First pillar-group (Basic)			
- Institutions	0.4	0.3	0.2
- Macroeconomic stability			
- Infrastructure			
- Health			
- Quality of primary and secondary education			
Second pillar-group (Efficiency)			
- Higher education and training	0.5	0.5	0.5
- Labour market efficiency			
- Market size			
Third pillar-group (Innovation)			
- Technological readiness	0.1	0.2	0.3
- Business sophistication			
- Innovation			

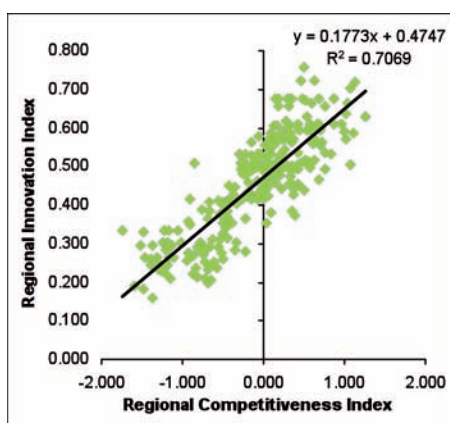
It can be seen that for all development stages the highest weight is assigned to the second pillar group. The importance of the first group of pillar decreases going from medium to high stage of development, while the last pillar group is correspondingly gaining importance.

Correlation of the RIS and RCI

As can be seen in Figure 6, the RIS and RCI are strong and positively related. The partial correlation, controlling for regional levels of GDP, is 0.655. The relationship between

these two indexes can be seen as respectively cause and effect rather than a one way direction. The competitive performance of a region and its innovative performance strongly rely on its knowledge intensive employment. Huggins and Davies (2006)¹⁴ have characterized this two-fold relationship as follows: i) highly educated population is a key ingredient for business performances; ii) regions which are competitive in terms of creativity, economic performance and accessibility also tend to host high value-added and knowledge intensive employment (Huggins and Davies, 2006).

Figure 6: Scatter plot of RII 2011 and RCI 2010



The positive and significant correlation of the RIS and the RCI stems mostly from the third pillar group of the RCI. This third pillar group has strong links with the RIS (cf. Figure 7).

The partial correlation of the RIS and the third pillar is 0.706. This is mainly due to the fact that the underlying

indicators of the third pillar group are similar to the three main RIS indicators. For instance the third pillar is very strongly and positively correlated with RIS firm activities (partial correlation of 0.702) (cf. Figure 8). This is due to similar indicators used for the innovation pillar (patent applications and scientific publications).

Figure 7: Scatter plot of RII 2011 and RCI 2010 "Innovation pillar"

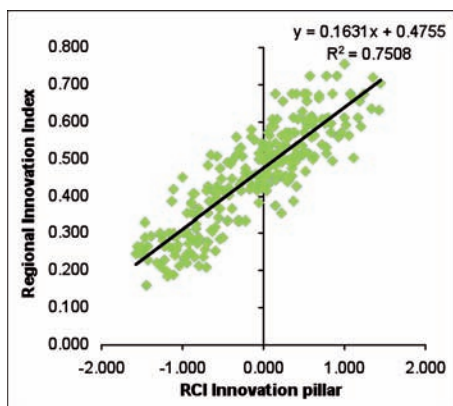
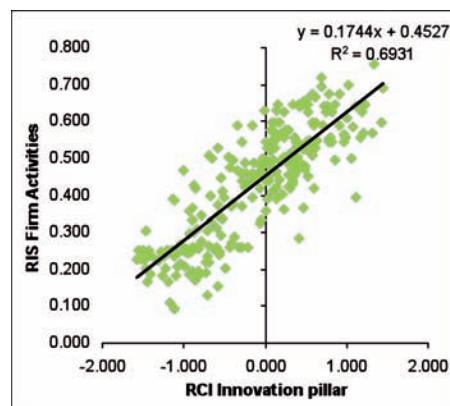


Figure 8: Scatter plot of RII "Firm activities" and RCI 2010 "Innovation pillar"



¹⁴ Huggins, R., Davies, W. (2006) *European Competitiveness Index 2006-07*. University of Wales Institute, Cardiff – UWIC: Robert Huggins Associates Ltd. <http://www.cforic.org/downloads.php>

The third pillar group is also positively related to RIS Enablers (partial correlation of 0.510) as a result of

similar indicators on higher educated population and public R&D expenditures.

Figure 9: Scatter plot of RII “Enablers” and RCI 2010 “Innovation pillar”

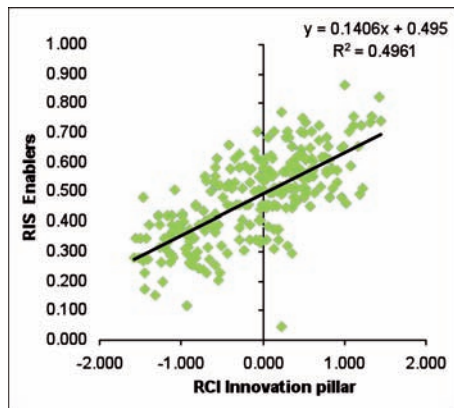
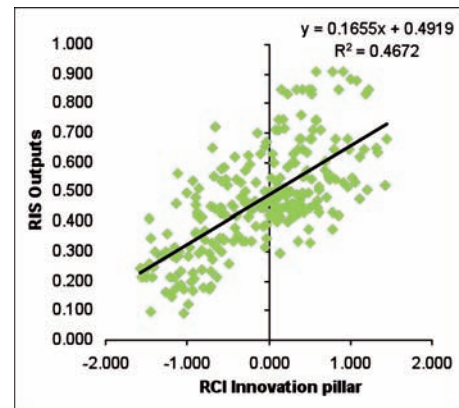


Figure 10: Scatter plot of RII “Outputs” and RCI 2010 “Innovation pillar”



The third pillar has the weakest positive relationship with RIS Outputs with a partial correlation of 0.381 (Figure 10). However, these indices do both use a similar indicator on an important determinant of the positive relationship between the RIS and RCI, namely; Employment in technology and knowledge-intensive sectors.

As can be seen in Table 8, firm activities, as one of the three main indicators of the RIS, has the strongest links with individual pillar groups and the RCI.

Table 8: Partial correlations RIS and RCI

	RCI 1 st pillar Basic	RCI 2 nd pillar Efficiency	RCI 3 rd pillar Innovation	RCI weighted
RIS Enablers	.336	.358	.510	.440
RIS Firm activities	.682	.530	.702	.696
RIS Outputs	.280	.227	.381	.323
RIS RII	.596	.498	.706	.655

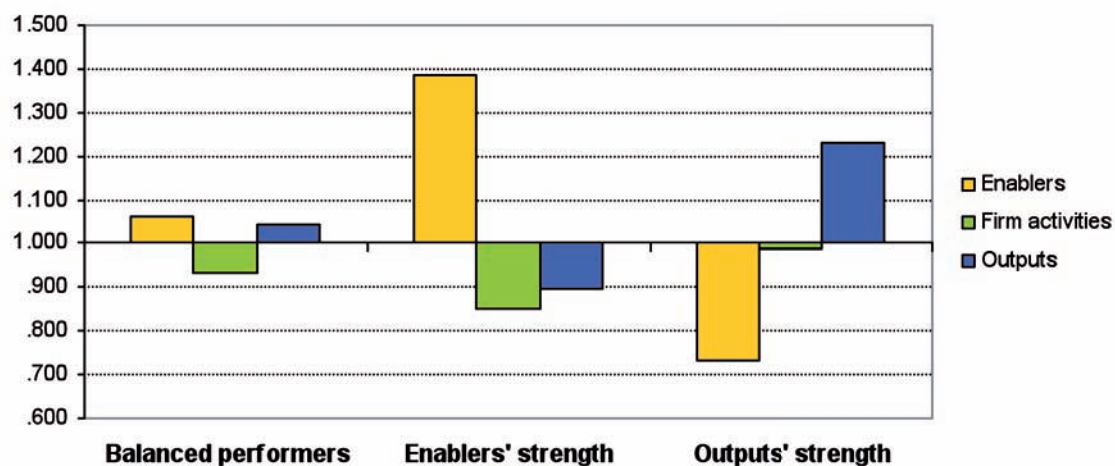
Note: All correlations are significant at 1%. 260 observations, control variable is per capita GDP.

3.4 Relative performance analysis

This section identifies regions with similar patterns of innovation performance. The sum of performance across the composite indexes for Enablers, Firm activities and Outputs has been adjusted to equal the same value of 3 across all regions in order to exclude absolute differences in performance between regions.

Based on their relative performance we can identify 3 groups of regions using hierarchical cluster analysis (Ward's method). The first group includes 266 regions with a balanced performance structure (cf. Figures 11 and 12). The second group includes 171 regions having a significant strength in Enablers. The third group includes 133 regions having a significant strength in Outputs (and a significant weakness in Enablers).

Figure 11: Relative strengths and weaknesses



A comparison of the regional innovation performance groups and the relative performance groups shows that the majority of innovation leaders and high performing innovation followers are characterised by a balanced performance structure. The majority of the moderate

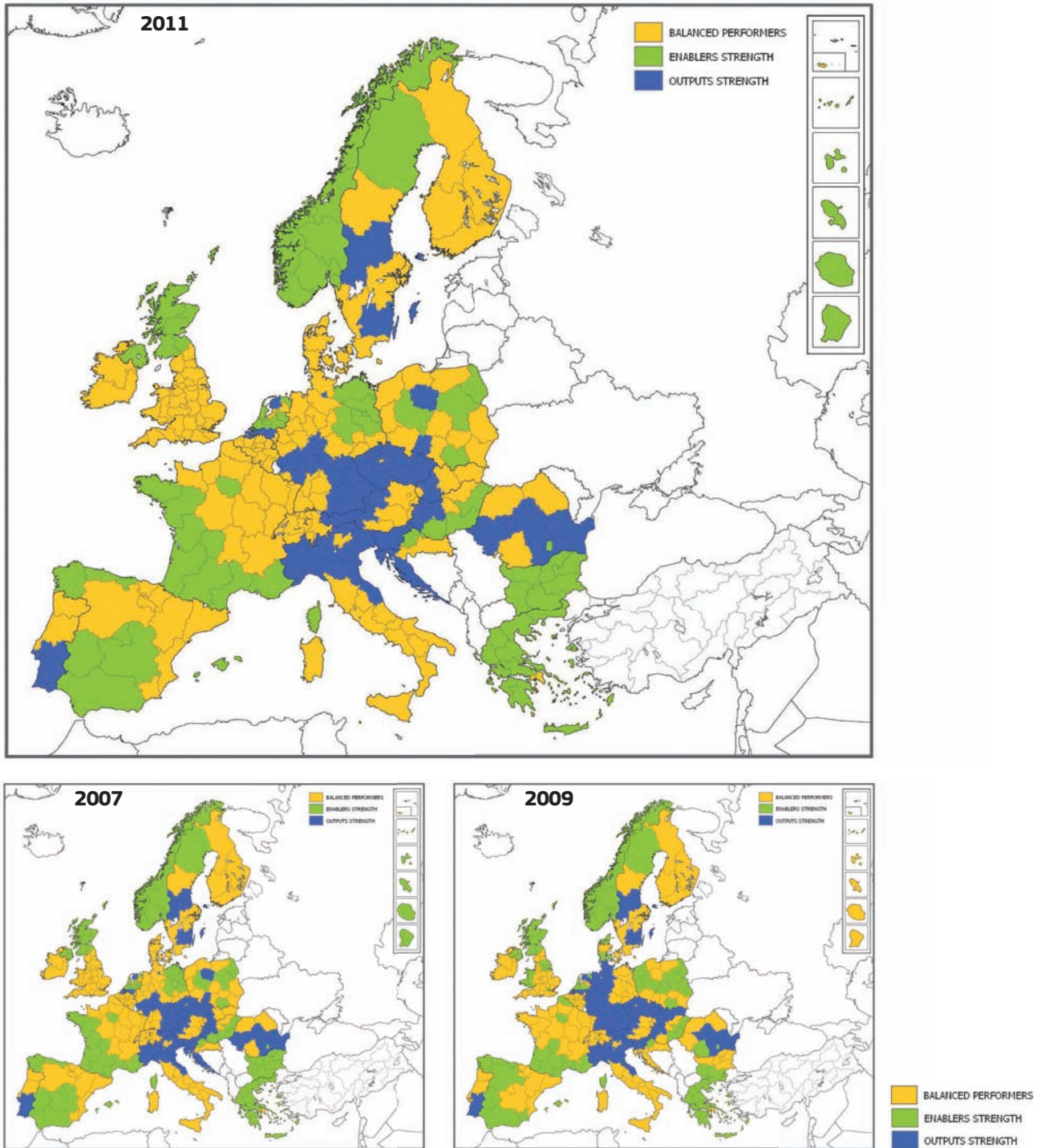
innovators have a relative strength in outputs and the majority of the modest innovators have a relative strength in enablers. Regions wishing to improve their innovation performance should thus pursue a more balanced performance structure¹⁵.

Table 9: Matching absolute and relative performance groups

	Balanced performers	Enablers' strength	Outputs' strength	Total number of regions
INNOVATION LEADERS				
Total number of regions	73	18	22	113
High	25	2	7	34
Medium	23	6	9	38
Low	25	10	6	41
INNOVATION FOLLOWERS				
Total number of regions	90	42	33	165
High	42	15	12	69
Medium	24	12	11	47
Low	24	15	10	49
MODERATE INNOVATORS				
Total number of regions	40	38	43	121
High	15	15	20	50
Medium	13	12	10	35
Low	12	11	13	36
MODEST INNOVATORS				
Total number of regions	63	73	35	171
High	21	21	11	53
Medium	16	30	16	62
Low	26	22	8	56

¹⁵ A similar result at the country level was reported in Arundel, A. and H. Hollanders, "Innovation Strengths and Weaknesses", European Trend Chart on Innovation Technical Paper, Brussels: European Commission, DG Enterprise and Industry, December 2005.

Figure 12: Maps relative performance



The EU Member States Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta are not included in the RIS analysis.

4. Methodology

The methodology used for the Regional Innovation Scoreboard is fully described in an accompanying methodology report which is available as a thematic paper at the European Commission website (http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/index_en.htm).

4.1 Imputation of missing data

For many regions data are not available for all indicators. For a representative comparison of performance across regions using composite indicators we should have 100% data availability whereas average regional data availability for RIS regions is 70%. Before the imputation there are **2058 out of a total of 6840 values missing**, meaning that 30% of the cells are empty. The imputation procedure is implemented entirely in Excel using linear regression and another hierarchical procedure. Full details are provided in the RIS 2009 Methodology report.

Not only regional values are missing but also values at national level, whilst all values for the EU27 aggregate are available. The imputation is based on the following procedure:

Consider a missing value for indicator Y in region R for a given year, e.g. Y-2009.

```
IF a value is available for Y-2011 in region R, THEN
  apply linear regression between Y-2009 and
  Y-2011 ELSE
  {
    find the indicator Z with the highest correlation
    with Y (Z can span both years).
    IF correlation between Y and Z is > 0.6 AND a
    value is available for Z in R THEN
      apply linear regression between Y and Z.
  }
```

After regression, not all of the missing values could be imputed. Regression was not successful as many regions have missing values for the pairs of indicators that are employed in the regression.

The remaining values are imputed using a hierarchical procedure, which first imputes missing values at national level using values at EU27 level and, in a

second phase, imputes missing values at regional level using values at national level. The procedure is illustrated hereafter.

The procedure calculates for each indicator Y, where possible, the ratios between the values of Y for country C and for EU27. Then, the median¹⁶ ratio across the indicators is calculated. The missing value for indicator Z in country C is imputed by assuming that for Z the median ratio just computed applies between C and EU27. Given that all values for EU27 are available, all missing values at national level can be imputed.

The procedure calculates for each indicator Y, where possible, the ratios between the values of Y for region R and for country C. Then, the median ratio across the indicators is calculated. The missing value for indicator Z in country R is imputed by assuming that for Z the median ratio just computed applies between R and C. Given that all national values all available, all missing values at regional level can be imputed.

4.2 Composite indicators

The regional innovation indexes have been calculated as a weighted average of the 12 indicators. The approach resembles a mix of the methodology used in the RIS 2009 and the IUS 2011. In the RIS 2009 a weighting schedule was used which reflected the overall weights of Enablers, Firm activities and Outputs and the overall weights of the CIS indicators in the EIS 2009. Applying a similar weighting scheme to the RIS 2011 would give the indicator weights as shown in Table 10.

¹⁶ It was decided to consider the median values instead of the mean value, as the distribution of the ratios contained, in some instances, some outliers.

Table 10: Indicator weights using RIS 2009 methodology

	Weight in Enablers			Weight of Enablers in IUS	Weight of indicator in RIS
1.1.2 Percentage population aged 25-64 having completed tertiary education	1/2			8/24	16.67%
1.3.1 R&D expenditure in the public sector as % of regional GDP	1/2			8/24	16.67%
	Weight of non-CIS indicators in Firm activities	Weight of indicator in non-CIS indicators	Weight in Firm activities	Weight of Firm activities in IUS	Weight of indicator in RIS
2.1.1 R&D expenditure in the business sector as % of regional GDP	2/3	1/3	2/9	9/24	8.33%
2.2.3 Public-private co-publications per million population	2/3	1/3	2/9	9/24	8.33%
2.3.1 EPO patents applications per billion regional GDP (in PPSE)	2/3	1/3	2/9	9/24	8.33%
	Weight of CIS indicators in Firm activities	Weight of indicator in CIS indicators			
2.1.2 Non-R&D innovation expenditures as % of turnover	1/3	1/3	1/9	9/24	4.17%
2.2.1 SMEs innovating in-house as % of SMEs	1/3	1/3	1/9	9/24	4.17%
2.2.2 Innovative SMEs collaborating with others as % of SMEs	1/3	1/3	1/9	9/24	4.17%
	Weight of non-CIS indicators in Outputs	Weight of indicator in non-CIS indicators	Weight in Outputs	Weight of Outputs in IUS	Weight of indicator in RIS
3.2.1 Employment in knowledge-intensive services + Employment in medium-high/high-tech manufacturing as % of total workforce	4/7	100%	4/7	7/24	16.67%
	Weight of CIS indicators in Outputs	Weight of indicator in CIS indicators			
3.1.1 SMEs introducing product or process innovations as % of SMEs	3/7	33.33%	1/7	7/24	4.17%
3.1.2 SMEs introducing marketing or organisational innovations as % of SMEs	3/7	33.33%	1/7	7/24	4.17%
3.2.4 Sales of new to market and new to firm innovations as % of turnover	3/7	33.33%	1/7	7/24	4.17%

The combined weight of the CIS indicators would be 25%, identical to the weight of these indicators in the IUS. But the table also shows that some indicators have a weight 4 times that of the CIS indicators and this overemphasized the relative importance of these indicators. We have therefore decided to combine the weights shown in Table 9 with a scheme of equal weights where each of the 12 indicators would receive a weight of 8.33%. The combination of

weights results in the percentage share of each of the indicators in the RIS composite index as shown in Table 11.

All data have been normalized using the same procedure as in the IUS, where the normalized value is equal to the difference between the real value and the lowest value across all regions divided by the difference between the highest and lowest value across all regions.

These values are first transformed using a power root transformation if the data are not normally distributed.

Most of the indicators are fractional indicators with values between 0% and 100%. Some indicators are unbound indicators, where values are not limited to an upper threshold. These indicators can have skewed data distributions (where most regions show low performance levels and a few regions show exceptionally high performance levels). For all indicators data will be transformed using a square root

transformation with power N if the degree of skewness of the raw data exceeds 0.5 such that the skewness of the transformed data is below 0.5 (none of the imputed data are included in this process):

$$\tilde{X}_r = \sqrt[N]{X_r}$$

Table 11 summarizes the degree of skewness before and after the transformation and the power N used in the transformation.

Table 11: Percentage contribution indicators to RII, degree of skewness and transformation for each of the RIS indicators

	"RIS 2009 weights"	"Equal weights"	RIS 2011 weights	Degree of skewness before transformation	Power used in transformation	Degree of skewness after transformation
ENABLERS						
1.1.2 Percentage population aged 25-64 having completed tertiary education	16.67%	8.33%	12.5%	0.150	1	0.150
1.3.1 R&D expenditure in the public sector as % of regional GDP	16.67%	8.33%	12.5%	0.853	2/3	0.215
FIRM ACTIVITIES						
2.1.1 R&D expenditure in the business sector as % of regional GDP	8.33%	8.33%	8.33%	1.715	1/3	0.259
2.1.2 Non-R&D innovation expenditures as % of turnover	4.17%	8.33%	6.25%	1.158	1/2	0.193
2.2.1 SMEs innovating in-house as % of SMEs	4.17%	8.33%	6.25%	-0.015	1	-0.015
2.2.2 Innovative SMEs collaborating with others as % of SMEs	4.17%	8.33%	6.25%	0.275	1	0.275
2.2.3 Public-private co-publications per million population	8.33%	8.33%	8.33%	3.343	1/3	0.358
2.3.1 PCT patents applications per billion regional GDP (in PP5€)	8.33%	8.33%	8.33%	2.197	1/3	0.229
OUTPUTS						
3.1.1 SMEs introducing product or process innovations as % of SMEs	4.17%	8.33%	6.25%	0.113	1	0.113
3.1.2 SMEs introducing marketing or organisational innovations as % of SMEs	4.17%	8.33%	6.25%	0.667	2/3	0.368
3.2.1 Employment in knowledge-intensive services + Employment in medium-high/high-tech manufacturing as % of total workforce	4.17%	8.33%	12.5%	0.003	1	0.003
3.2.4 Sales of new to market and new to firm innovations as % of turnover	16.67%	8.33%	6.25%	0.225	1	0.225

The data have then been normalized using the min-max procedure where the transformed score is first subtracted with the minimum score over all regions in 2006, 2008 and 2010 and then divided by the difference between the maximum and minimum scores over all regions in 2006, 2008 and 2010:

$$\hat{X}_r = \frac{\tilde{X}_r - \text{MIN}(\forall_r \tilde{X}_r)}{\text{MAX}(\forall_r \tilde{X}_r) - \text{MIN}(\forall_r \tilde{X}_r)}$$

The maximum normalised score is thus equal to 1 and the minimum normalised score is equal to 0. These normalised scores are then used to calculate the composite indicators.

5. Regional research and innovation potential through EU funding^{17,18}

5.1 Introduction

This special chapter of the Regional Innovation Scoreboard (RIS 2012) aims to understand the relationship of the use of two main EU funding instruments and innovation performance: the Framework Programmes for Research and Technological Development (FP6 and FP7), and the Structural Funds (SFs).

Firstly, the chapter proposes a typological classification of EU regions according to their use of EU funds, providing a landscape of the EU regions' use of Structural Funds for business innovation and the regional participation in FP funded research, technological development and demonstration projects. The chapter focuses on the case of regional SF support for business innovation, and investigates whether the regions' capacity to invest in business innovation improved over the past two programming periods, and if this improvement is linked with an increased participation in the Framework Programme competitive funding.

Secondly, it addresses the link between the use of EU funds and regional innovation performance by making use of the results of the RIS 2012. Does the regions' absorption capacity and leverage power of EU funding match their level of innovativeness? Or are the most innovative regions mobilising more local resources in support of innovation and particularly from the private sector? More particularly, the chapter aims to contribute to the debate of the so called "regional innovation paradox"- or the contradiction between the comparatively greater need to spend on innovation in lagging regions and their relatively lower capacity to absorb public funds earmarked for the promotion of innovation and to invest in innovation related activities due to their low innovation performance. The study will contribute to the debate on the role of EU funding instruments in a "multilevel governance system" and help to understand to what extent these funds complement and reinforce national and regional innovation

policies. It also contributes in understanding the challenges of improving coordination and seeking synergies and impacts of various EU interventions at regional level.

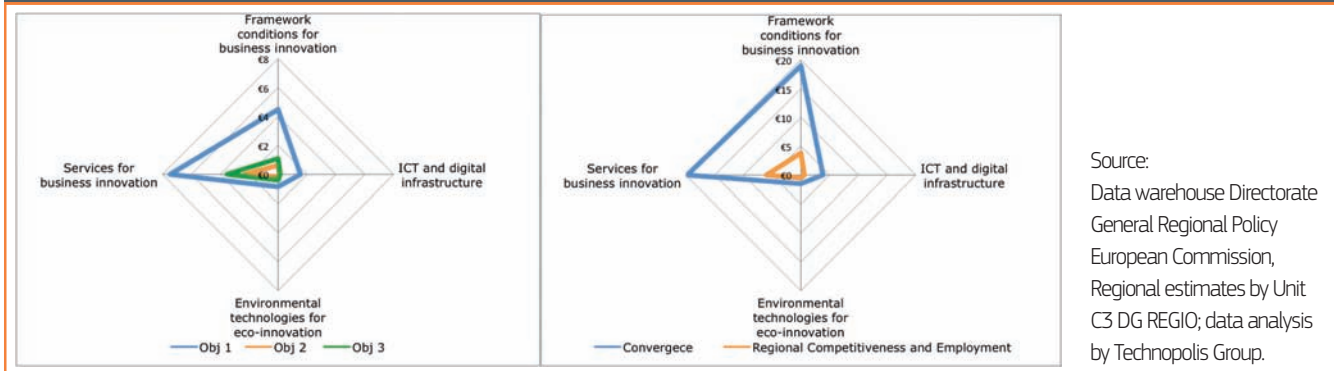
Section 5.2 gives a brief overview of the broad use of SF and FP funds across all regions in the periods 2000-2006 and 2007-2013, showing a general landscape of the absorption of EU funds. Sections 5.3 and 5.4 describe the indicators, data sources and methodology used for the analysis. Section 5.5 presents the different typological groups of regions according to their use of EU funds and innovation performance. Section 5.6 concludes.

5.2 The use of EU funding at regional level

The Structural Funds are an instrument of the EU's cohesion policy through which the EU invests in job creation, competitiveness, economic growth, improved quality of life and sustainable development, in line with the Europe 2020 strategy¹⁹. They are an important source of investment in research and innovation in regions, with €19.5 billion of expenditure in this field in 2000-2006 and around €69 billion allocated to business innovation in 2007-2013²⁰. Relative to the total value of Structural Funds available for each period, the funds for business innovation represented 11% of the total SF expenditures in 2000-2006, and 20% of all allocations of available funds in the period 2007-2013.

Figure 12 shows a comparison of the distribution of average structural funds expenditures/allocations by type of region per year/per capita in both periods analysed. The highest annual Structural Funds investments per capita were targeted towards supporting services for business innovation across all three types of regions²¹. Objective 1 regions spent the highest amounts of funds on support for services in the first period (€7.46/year/capita), followed by Objective 3 regions (€3.5/year/capita). Furthermore,

Figure 12: Average annual Structural Funds expenditure/allocations per capita by type of region, 2000-2006 and 2007-2013



¹⁷ This chapter was prepared by Lorena Rivera León and Laura Roman from Technopolis Group.

¹⁸ The analysis in this chapter is at NUTS 2 level as this is the level of detail for which data on Structural Funds and Framework Programmes for Research and Technological Development (FP6 and FP7) are available.

¹⁹ See DG REGIO, What is regional policy? http://ec.europa.eu/regional_policy/what/index_en.cfm

²⁰ See section 3 for the definition of the indicators for structural funds for business innovation used in this chapter.

²¹ The funds were targeted towards three types of regions in 2000-2006, according to the previous programming's period development "objectives": Objective 1 funds targeted regions in need of structural adjustment, with a GDP per capita of less than 75% of the EU average; Objective 2 regions were the ones undergoing economic and social conversion (industrial, rural, urban and fisheries-dependent zones); Objective 3 funds supported improved training and employment policies in regions.

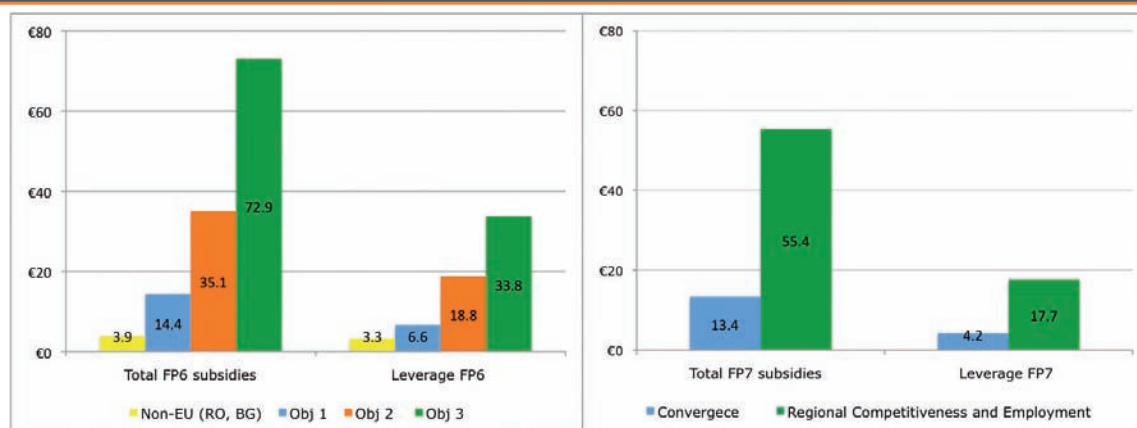
the investments in framework conditions for business innovation (including R&D investments) were the second highest expenditure in all regions, with €4.5/year/capita spent in Objective 1 regions.

For the current programming period, Figure 12 shows that the Structural Funds' annual allocations per capita supporting framework conditions for business innovation (€19/year/capita) are on average almost equal to the annual average support for services for business innovation (€19.8/year/capita) in Convergence regions²². The regions belonging to the Competitiveness and Employment objective allocated on average more funds to services for business innovation (€6/year/capita) than to enhancing framework conditions (€3.8/year/capita). It is also visible that the bulk of the funds were allocated to Convergence

regions, with 71.8% of the absolute volume of Structural Funds reported as allocated for business innovation, while the Competitiveness (RCE) regions have a smaller amount of funds allocated (28.1% of the total Structural Funds for business innovation).

Investments in ICT and digital infrastructure, and environmental technologies for eco-innovation are low across most regions in both periods²³. Objective 1 regions spent €1.5/year/capita on ICT stimulating measures in 2000-2006, while the Convergence regions allocated on average €3.8/year/capita for ICT in the current period. Structural Fund investments of Objective 2 and Objective 3 regions in 2000-2006 as well as the reported allocations of the Competitiveness regions in 2007-2013 were close to zero in the field of ICT and environmental technologies.

Figure 13: Overview of FP6 (2002-2006) and FP7 (2007-2013) average participation by type of regions, (€ per capita)



Source: External Common Research Data Warehouse E-CORDA of the Directorate General Research and Innovation of the European Commission (cut-off date 16 February 2012). Data analysis by Technopolis Group.

Note: The indicator 'leverage' shows the difference between the total cost of research in all projects and the total amount of subsidies granted.

Since the individual regions' participation in the Framework Programme is conditioned by the location of research infrastructure within their boundaries, an overview of the average FP funds attracted by the regions needs to be considered with care. As shown in Figure 13, Objective 3 regions were the ones attracting the highest amount of FP6 funds, worth on average around €92.3 million per region, or 73€ per capita. Objective 2 regions were not very far behind, as their average participation in FP6 amounted to €79.4 million. However, the latter only attracted an average of 35€ in per capita terms. Comparatively, objective 1 regions attracted €21.4 million of FP6 funds, or 14.4€ per capita on average. The low absorbers in the current FP7 are Convergence regions, which attracted €13.4 per capita on average (or an average of €22.7 million each) (up to February 2012), while the Competitiveness regions reached an amount four times higher – of 55.4€ per capita

(or a total of €116.3 million) on average per region.

The leverage of the funds (difference between the total cost of the projects and the total subsidies received) is generally lower in FP7 for Competitiveness and Convergence regions than in FP6 for the three types of regions respectively. It is interesting to note that for €55.4 per capita absorbed in Competitiveness regions in FP7 so far, the contribution of the region to the project cost amounted on average to €17.7 per capita. In contrast, the leverage for the average FP6 participation in Objective 2 and 3 regions amounted to around half of the average total subsidies received in nominal terms and per capita terms. For a total of €92.2 million absorbed from FP6 funds in Objective 3 regions on average, the leverage amounted to €52.4 million per region, compared to €79.3 absorbed on average in Objective 2 regions, and only €6.6 per capita leveraged on average in Objective 1 regions.

²² In the 2007-2013 period, the Structural Funds target primarily regions belonging to the Convergence Objective (with a GDP below 75% of the EU average) and to the Regional Competitiveness and Employment Objective (with a GDP higher than 75% of the EU average).

²³ However, it is important to note that the fields of investment included in both indicators are different for the two periods, see Table 2 for more details. The comparison between these indicators in the two periods needs to be treated with care.

5.3 Indicators and data availability

5.3.1 Data sources

Two are the main data sources used in this analysis:

- Structural Funds data was obtained from the data warehouse of the Directorate General for Regional Policy of the European Commission (regional estimates by Unit C3 DG REGIO)
- Framework Programme data was obtained from the External Common Research Data Warehouse E-CORDA of the Directorate General Research and Innovation of the European Commission (cut-off date 16 February 2012)

In order to link the use of EU funding in regions with regional innovation performance, the chapter makes use of the results of the assessment of regional innovation performance calculated in the main section of this report as part of the RIS 2012.

5.3.2 Indicators

This chapter explores the use of Structural Funds in business innovation according to a composite thematic categorisation of the fields of intervention for the periods of 2000-2006 and 2007-2013. The comparison of the indicators between the two periods needs to be considered with care, as the figures for 2000-06 are certified expenditures, while the 2007-2013 indicators reflect the reported allocations of funds (i.e. not actual expenditures). Moreover, the amounts registered for each field of investment are self-reported by the regions, which might create some unobserved bias and thus diminish the validity of the data analysis. In order to compare the use of structural funds for business innovation for both periods and at the regional level, the values of the funds are reported at a per capita level for each region and annualised. For this, the data for the Member States that joined the EU in 2004 accounts for the fact that they benefitted from Structural Funds for only three years in 2000-2006.

The relevant thematic categories of investment priorities established by DG REGIO for the Structural Funds were summed into four main indicators that reflect the amount of regional support for four core areas:

- **Framework conditions for business innovation (including R&D):** portrays the use of funds in support of improving the general conditions that are in place in regions for research and innovation activities, which have an impact on both the public and private sectors' performance;
- **ICT and digital infrastructure:** funds targeted specifically at improving the infrastructure for Information and Communication Technology;

- **Environmental technologies for eco-innovation:** investments aimed to strengthen the take-up of sustainable and environmentally friendly technologies. It is included as a separate indicator in the analysis based on the importance of the direct link that such support is considered to have as a driver for business innovation, particularly in the last years of increased support to the green economy as an EU policy priority;
- **Services for business innovation** is an indicator composed of the fields of investments that are directly targeting the enhancement of innovation outputs in enterprises (mainly advisory services, technology transfer and training measures aimed at enterprises).

The Framework Programme funds were analysed based on quantifying four major indicators for the participation of the regions in competitive research and technology development. In particular, the indicators shed light on the strength of the private sector's participation in the programme by considering the following dimensions:

- **The total amount of subsidies received** by the regional actors per year (per capita) indicates the absorptive capacity of the region in attracting FP funds;
- **The leverage** (per capita), or the difference between the total cost of the projects and the total subsidies received in the region for the FP projects undertaken, which shows the power of the regional research actors to raise additional funds from further public or private sources to support competitive research;
- **The number of participations from the private sector** (per thousand inhabitants) is linked to the amount of private enterprises engaged in FP projects in the region. It shows the strength of the business sector as a research actor;
- **Percentage of SME participation in private sector** shows the share of Small and Medium Enterprises in the total number of FP participations from the private sector. This indicator hints to the vibrancy of the business innovation environment in the region.

Data is available for building all indicators for a total of 271 NUTS2 regions of the 27 Member States. Table 1.2 shows the categories of expenditures and allocations that are included in each indicator, based on DG REGIO's definitions for both periods. The titles of the fields of investments were changed by DG REGIO from one period to the other.

Table 12: Use of EU funds in regions, 2000-2006 and 2007-2013

Indicator	Structural Funds 2000-2006	Structural Funds 2007-2013
Framework conditions for business innovation	180. Research, technological development and innovation (RTDI) 181. Research projects based in universities and research institutes 183. RTDI Infrastructure 184. Training for researchers	01: R&TD activities in research centres 02: R&TD infrastructure and centres of competence in a specific technology 04: Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres) 07: Investment in firms directly linked to research and innovation
ICT and digital infrastructure	322. Information and Communication Technology (including security and safe transmission measures)	11: Information and communication technologies 15: Other measures for improving access to and efficient use of ICT by SMEs
Environmental technologies for eco-innovation	162. Environment-friendly technologies, clean and economical energy technologies	06: Assistance to SMEs for the promotion of environmentally-friendly products and production processes
Services for business innovation	182. Innovation and technology transfers, establishment of networks and partnerships between businesses and/or research institutes 153. Business advisory services (including internationalisation, exporting and environmental management, purchase of technology) 163. Business advisory services (information, business planning, consultancy services, marketing, management, design, internationalisation, exporting, environmental management, purchase of technology) 164. Shared business services (business estates, incubator units, stimulation, promotional services, networking, conferences, trade fairs) 324. Services and applications for SMEs (electronic commerce and transactions, education and training, networking)	03: Technology transfer and improvement of cooperation networks 09: Other measures to stimulate research and innovation and entrepreneurship in SMEs 05: Advanced support services for firms and groups of firms 62: Development of life-long learning systems and strategies in firms; training and services for employees ... 63: Design and dissemination of innovative and more productive ways of organising work 14: Services and applications for SMEs (e-commerce, education and training, networking, etc.)
FP6 AND FP7 INDICATORS	Total amount of subsidies received (per capita)	
	Leverage (per capita)	
	Number of participations from the private sector (per thousand inhabitants)	
	Percentage of SME participation in private sector	

Source: Technopolis Group

5.4 Methodology

A cluster analysis was performed to group information on the use of EU funds in regions based on their similarity on the different sub-indicators presented in section 3. In order to perform the analysis and to avoid results being influenced by scores of regions over-performing, the dataset has been normalised for outlier's scores with the next best values²⁴. Two periods are analysed and compared: 2000-2006, including the first programming period (PP) of Structural Funds (SFs), and FP6 (2002-2006); and 2007-2013, accounting for the second PP of SFs and FP7.

The method of *k-means* clustering has been used. This procedure attempts to identify relatively homogenous groups of cases based on the selected characteristics. It is useful when the aim

is to divide the sample in *k clusters* of greatest possible distinction. Different *k parameters* were tested. Since the ultimate aim of the analysis was to relate the clustering exercise of EU funds to innovation performance as per the results of the RIS 2012, the tested values for the *k parameters* tested ranged from 2 to 5. The *k-means* algorithm supplies *k clusters*, as distinct as possible, by analysing the variance of each cluster. The aim of the algorithm is to minimise the variance of elements within the clusters, while maximising the variance of the elements outside the clusters. Cases were classified using the method updating cluster centres iteratively, with optimal solutions for a *k* parameter value of 4; and 8 and 7 iterations for both analysed periods respectively.

²⁴ Values representing the mean plus two standard deviations were normalised with the next best value considering that 68% of the values drawn from a normal distribution are within one standard deviation $\sigma > 0$ away from the mean μ ; about 95% are within two standard deviations and about 99,7% lie within three standard deviations.

5.5 Regional absorption and leverage of EU funding

Cluster analysis distinguishes four typologies of regions absorbing and leveraging EU funds over the two observation periods:

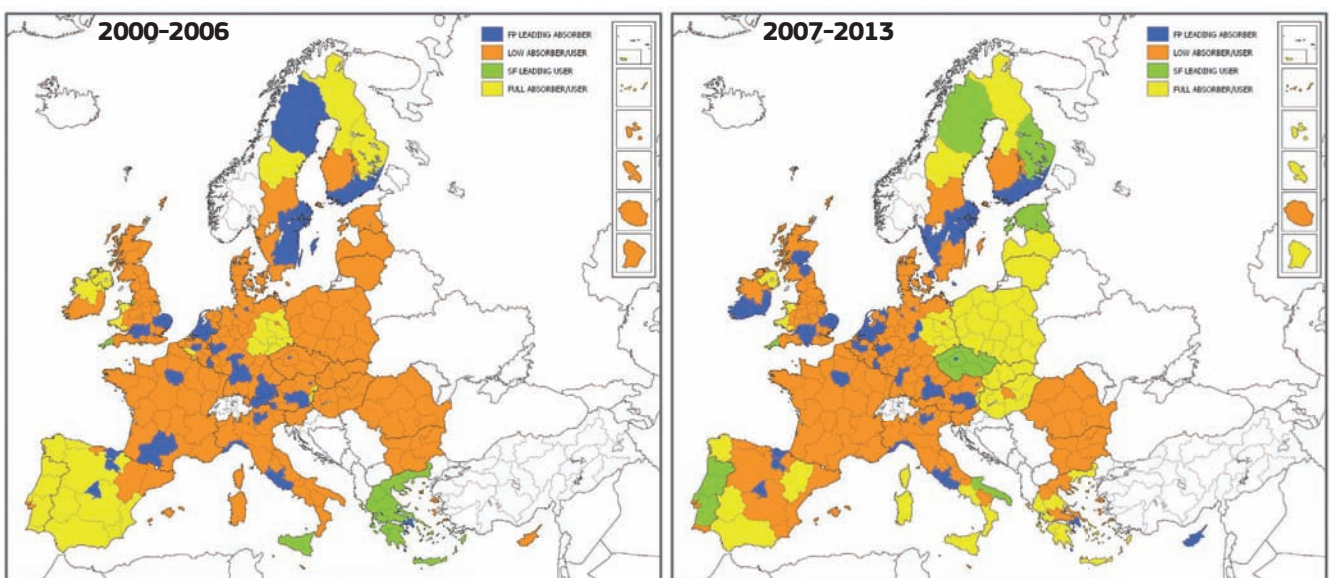
- **FP leading absorbers**, or regions with low use of SFs for business innovation; and medium-to-high participation in FPs, leverage power, and FP participation from the private sector;
- **SFs leading users**, or regions with medium-to-high use of SFs for business innovation (including R&D) and services (including ICTs and digital infrastructure and environmental technologies); and low participation in FPs and leverage power;
- **Full users/absorbers –but at low levels**, or regions with medium-to-high use of SFs for

business innovation and services, low use of funds for ICTs and digital infrastructure and environmental technologies; and low participation in FP and leverage power, but medium-high importance of SMEs' participation in the private sector;

- **Low users/absorbers**, or regions with low use of SFs for business innovation; and low participation in FP and leverage power.

For these four groups we find, over the two observation periods (542 observations or 271 regions), a majority of low users/absorbers (63%), followed by full users/absorbers (17%), FP leading absorbers (15%) and SF leading users (6%) (cf. Figure 14).

Figure 14: Maps of funding typology of regions



Maps created with Region Map Generator.

The differences in the characteristics of the use of EU funds are also observed for each of the typologies across both periods (cf. Table 13). On average, FP leading absorbers received around 6 times more of FP6 subsidies per capita (€96) than the low users/absorbers (€16) and had about 8 times more leverage power in the period 2000-2006. The gaps between both regions decreased in FP7, but increased between FP leading absorbers and full users/absorbers. In contrast, SFs leading users spent 7 times more of SFs to business innovation than the low user regions in the period 2000-2006, and

the gap remained constant in their allocations for the period 2007-2013. Moreover, the gap between SF leading users and full/users absorbers doubled between the two periods. However, all regions increased considerably their per capita allocations to business innovation in the period 2007-2013, compared to expenditures for 2000-2006.

Cluster membership is shown for each of the 271 regions in the Annex to this chapter. When looking at the countries that gather most of the regions in each typology (cf. Table 14), results show that

most of the FP leading absorber regions are from Germany, the Netherlands, and the UK across both periods. German and UK regions also hold a large share of the low absorbers/users. The dichotomy of having large absorption of competitive funding through FPs in some regions, and low use of SFs for business innovation in others could reflect the differences in regional capacities inside both countries –in line with the results showed in the RIS 2011, and the use of alternative funds in support of business innovation (i.e. national sources –non SFs, and private sources).

Interesting changes occur between both periods in the membership structure of SF leading users and full users/absorbers. Probably the most interesting case is that of Greek regions, which were a large majority in the typology of SF leading users in 2000–2006, to then being second most representatives of full users/absorbers in 2007–2013. This could show three possible phenomena: a full absorption of SFs in support of business innovation in the first period leading to other priorities in the allocation of funds for the second period; a lack of capacity to absorb SFs to business innovation in the second period (after large investments in the first period) leading to changes in priorities; or a mix of both phenomena across regions.

In more detail, by comparing regional typology membership with country group membership, we observe the following interesting facts:

- Praha (CZ01) is a FP leading absorber region within the Czech Republic in both studied periods, while all other Czech regions changed from being low absorbers/users to SF leading users.
- All Danish regions are low absorbers/users of EU funds in both periods, with the exception of Hovedstaden (DK01), which became a FP leading absorber in FP7.
- The large majority of German regions are low absorber/users of EU funding (64% in P1 and 69% in P2), followed by FP leading absorber regions (18% and 15% in both periods respectively), and full users/absorbers. The large majority of the low users/absorbers and FP leading absorbers are Objective 2/RCE regions, whereas all full users/absorbers are Objective 1/Convergence regions.

None of the German regions are SF leading users.

- Spain had a large majority of full users/absorber regions in the period 2000–2006 (53%), and a majority of low users/absorber regions in the period 2007–2013.
- In France, the large majority of regions are low absorbers/users (92% and 81% in each period respectively). Ile de France (FR10) is an FP leading absorber in both periods²⁵, and the regions of Corse (FR83), Guadeloupe (FR91), Martinique (FR92) and Guyane (FR93), changed their typology membership from low users/absorbers to full users/absorbers between both periods.
- Most of the Italian regions are low users/absorbers (81% and 62% in both periods). The region of Sicilia (ITG1) was a SF leading user in 2000–2006, and Puglia (ITF4) was in 2007–2013. The regions of Liguria (ITC3), Provincia Autonoma Trento (ITD2), and Lazio (ITE4) are FP leading absorbers in both periods.
- All Hungarian regions were low users/absorbers in the period 2000–2006, and most of them became full users/absorbers in 2007–2013, with the exception of Hungary's capital region, Közép-Magyarország (HU10), and Észak-Alföld (HU32).
- In the Netherlands, there is a majority of FP leading absorbers (50% and 58% in each period respectively), with the regions of Groningen (NL11) and Overijssel (NL21) changing from low users/absorbers to FP leading absorbers between both periods.
- Most of the regions in Austria are low users/absorbers, whereas the region of Burgenland (AT11) is the only full user/absorber region in both periods.

All regions in Poland and Slovakia changed their membership from being low user/absorber regions in 2000–2006, to being full users/absorbers in 2007–2013.

²⁵ However, in FP data there is a bias toward capital and metropolitan regions due to the “headquarters effect”, namely that large organisations and particularly national public research organisations are officially located, registered and submit their accounts at their registered headquarters, and not where the project teams are actually working. This is notably the case of countries with highly centralised research systems, such as France, Spain and Italy.

Table 13: Number of regions and average characteristics of EU funds used/leveraged for the four typologies of regions

		FP leading absorbers	SF leading users	Full users/absorbers (low)	Low absorbers/users
		2000-2006			
SFs PP 2000-2006 (expenditures): euros/ annual/per capita	No. regions	39	15	29	188
	Framework conditions for business innovation (including R&D)	1,1	5,4	10,2	0,8
	ICTs and digital infrastructure	0,1	6,2	0,9	0,3
	Environmental technologies for eco-innovation	0,2	3,1	0,8	0,2
	Services for business innovation	1,3	15,7	12,0	2,7
FP6	Total amount of subsidies received (per capita)	96	17,5	14	16
	Leverage (per capita)	55,9	5,2	7,8	7,0
	Number of participations from the private sector (per thousand inhabitants)	0,07	0,01	0,02	0,02
	Percentage of SME participation in private sector	49%	54%	66%	56%
		2007-2013			
SFs PP 2007-2013 (allocations): euros/annual/ per capita	No. regions	42	17	61	151
	Framework conditions for business innovation (including R&D)	3,0	36,9	19,8	3,8
	ICTs and digital infrastructure	0,4	4,9	5,1	0,5
	Environmental technologies for eco-innovation	0,4	4,7	1,1	0,5
	Services for business innovation	4,8	33,8	20,1	6,5
FP7 (Feb 2012)	Total amount of subsidies received (per capita)	136,7	24,0	13,2	30,4
	Leverage (per capita)	45,4	7,7	3,9	9,4
	Number of participations from the private sector (per thousand inhabitants)	0,10	0,03	0,01	0,03
	Percentage of SME participation in private sector	55%	72%	64%	65%

Table 14: Main country membership of four regional typologies using EU funding

	FP leading absorbers		SF leading users		Full users/absorbers (low)		Low absorbers/users	
2000-2006	Germany	18%	Greece	73%	Spain	35%	United Kingdom	15%
	Netherlands	15%			Germany	24%	Germany	13%
	Sweden	10%			Portugal	14%	France	13%
	United Kingdom	10%						
2007-2013	Netherlands	17%	Czech Republic	41%	Poland	26%	United Kingdom	19%
	Germany	14%	Portugal	18%	Greece	13%	Germany	18%
	United Kingdom	14%	Slovenia	12%			France	14%

- Portugal has a mix of regions with a majority of full users/absorbers (57%) in the first period, and a majority of SF leading users in the second period (43%). None of the Portuguese regions are FP leading absorbers.
- All regions in Romania remain low users/absorbers in both periods.
- Finland has a mix of different types of regions, being the low user/absorber regions of most importance in both periods (40%), together with full users/absorbers in the period 2000-06. Etelä-Suomi (F118) is the only FP leading absorber region, whereas Itä-Suomi (F113) became a SF leading user in the period 2007-13.
- Sweden has a mix of regions, with a majority of FP leading absorbers (50%) in both periods, and low users/absorbers (37%) in the second period. The

region of Övre Norrland (SE33) changed membership from FP leading absorber to SF leading user.

- The large majority of regions in the UK are low users/absorbers in both periods (78% and 76% respectively). The regions of Merseyside (UKD5) (only in 2000-06) and Cornwall and the Isles of Scilly (UKK3) are the only SF leading users for business innovation.

These findings reveal a relatively differentiated pattern of use of EU funds in regions between the EU15 and the EU12. Whereas capital regions in the EU15 are largely FP leading absorbers or low users/absorbers in both periods, there is not much differentiation between capital regions and all other regions in the EU12. The latter were mainly low users/absorbers in the period 2000-06 (96%) and full users/absorbers (50%) in 2007-13.

5.5.1 Matching leverage and absorption capacity to innovation performance

In order to understand the relationship between the use of EU funds in regions and innovation performance, we proceed to do a cross analysis between the typology of regions using EU funds presented in the section above and the innovation performance analysis of the Regional Innovation Scoreboard (cf. Section 3 of the RIS 2012). We adopt the same classification used in the RIS performance groups, regions that are leader, follower, moderate and modest innovators. In order to allow comparison with the periods analysed in this chapter, we use the performance groups of 2007 and 2011. From the cross analysis we obtain 16 different groups of regions, as summarised in Table 15.

Table 15: 16 groups of regions – use of EU funding and innovation performance

Typologies use of EU funding period 2000-2006	RIS innovation performance groups 2006				
	LEADER	FOLLOWER	MODERATE	MODEST	
	FP leading absorber	21	17	0	1
	SF leading users	0	2	0	13
	Full absorbers/users	6	7	9	7
	Low absorber/user	27	65	40	56
	RIS innovation performance groups 2010				
	LEADER	FOLLOWER	MODERATE	MODEST	
	FP leading absorber	22	15	2	0
	SF leading users	0	2	1	12
Full absorbers/users	6	10	7	6	
Low absorber/user	39	66	34	49	

We find a relatively even distribution of shares of high, medium and low innovators in low absorber/user regions, and full absorber/user regions. The FP leading absorber regions and SF leading users regions are unevenly distributed in relation to innovation performance. Between 95% and 97% of all FP leading absorbers in FP6 were innovation leaders or innovation followers in 2006 and 2010. Moreover, between 80-87% of all SF leading user regions in the period 2000-2006 were modest innovators in 2006 and 2010. These more detailed groupings are shown in Annex 6. From the detailed analysis of the 16 groups we find the following characteristics:

- A majority of the FP leading absorbers – innovation leaders are capital regions in the EU15, including the Brussels region (BE10), Île de France (FR10), Wien (AT13), Etelä-Suomi (FI18), Stockholm (SE11) and Inner London (UK11). The region of Praha (CZ01)

is also a member of this group in both periods.

- The region of La Rioja (ES23) is the only FP leading absorber and modest innovator in 2006. The same region, together with Liguria (ITC3) is one of the FP leading absorbers – moderate innovators in 2010.
- Most of the SF leading users – modest innovators are regions in Greece (cf. Annex), together with the regions of Sicilia (ITG1) and the Região Autónoma da Madeira (PT30). The region of Sicilia (ITG1) became a moderate innovator in 2010.
- The full absorber/user regions – modest innovators were mainly from Spain in 2006, and all of them were Spanish in 2010. The regions of Norte (PT11) and Algarve (PT15) became moderate innovators in 2010.
- A majority of low absorber/user regions – leader innovators in 2006 and 2010 were German regions.

5.5.2 Changing leverage, absorption capacity of EU funding and innovation performance

Interesting is also to understand whether innovation performance has changed over time, and if this has been accompanied with changes in the way regions use EU funding. There are changes in overall group membership across all Member States in as many as 95 regions, or 35% of total. Most of these changes are in low user/absorber regions (62%), and the largest share corresponds to regions in Poland (17% of all changes), Greece (12%) and Spain (8%). An analysis of changes in innovation performance across typology groups shows that in absolute overall terms 9 regions increased their innovation performance (i.e. even if decreases were registered, these were 'compensated' with performance increases), with an additional 2 regions becoming leader innovators in 2011 comparatively to 2007, and 5 additional regions becoming follower innovators (cf. Annex 7).

The RIS 2011 identifies a small number of 8 regions (3 of them at NUTS1 level and 1 outside the EU27) that show a continuous improvement on innovation performance over time (cf. Table 6). Together with their increases in innovation performance, the following regions registered interesting changes in the use of EU funds:

- The region of Braunschweig (DE91) became a FP leading absorber of FP7, after being a low absorber/user of EU funds in the period 2000-2006.
- The regions of Calabria (ITF6), Sardegna (ITG2), and Mazowieckie (PL12) became full absorbers/users in the period 2007-2013 after being low absorbers/users of EU funding in 2000-2006.

The following regions registered no change in their use of EU funding despite their continuous increases on innovation performance:

- All the NUTS2 regions belonging to the Bassin Parisien (FR2) and Ouest (FR5) regions in France remained low absorber/user of EU funding in the periods 2000-2006 and 2007-2013. The same was the case for the region of Lisboa (PT17).

With the exception of Braunschweig (DE91), all regions increasing their innovation performance between 2000 and 2010 and changing their typology in the use of EU funds were Objective 1 regions in the period 2000-06. However, these results show a lack of common characteristics/patterns linking innovation performance and the use of EU funds in regions across time.

5.6 Regional research and innovation potential through EU funding: conclusions

The analysis presented in this chapter shows remarkable differences in the use of EU funds across EU regions. There are 4 typologies of regions absorbing and leveraging EU funds over the two observation periods: Framework Programme leading absorbers, Structural Funds leading users, full users/absorbers –but at low levels, and low users/absorbers. Evidence shows that a large majority of EU regions are low users/absorbers (63%), followed by full users/absorbers (17%), FP leading absorbers (15%) and SF leading users (6%).

The results suggest that Structural Funds and FP are complementary types of funding targeting a rather specific, but comparatively different set of regions. Whereas capital regions in the EU15 are largely FP leading absorbers or low users/absorbers in both periods, there is no much differentiation between capital regions and all other regions in the EU12. The latter were mainly low users/absorbers in the period 2000-2006 (96%) and full users/absorbers (50%) in 2007-2013.

We find a relatively even distribution of shares of high, medium and low innovators in low absorber/user regions, and full absorber/user regions. The FP leading absorber regions and SF leading users regions are unevenly distributed in relation to innovation performance. A majority of FP leading absorbers in FP6 were innovation leaders or innovation

followers in 2007 and 2011. In contrast, a majority of all SF leading user regions in the period 2000-2006 were also modest innovators in 2007 and 2011. The results show a lack of common characteristics/patterns linking innovation performance and the use of EU funds in regions across time. Taken into account the limitations of this study, it is clear that there is need for more disaggregated analysis of the impact of EU funding on innovation performance and that such analysis needs to be built around a model that takes into account a broad set of potential variables affecting performance over a longer time period (e.g. in terms of innovation performance, EU funding investments made in 2000-2006 can be expected to start influencing standard RTD indicators only with a 4-5 year lag). Moreover and needless to say, the SFs are an instrument that is significantly easier to control by the regions than FP. In practice, the SF can fund activities "normally" funded by research programmes thus supporting "research excellence" objectives without the obligation to form international research consortia as in FP. If further synergies are sought between different EU funding schemes, the funding structure needs changes, programming needs to be co-ordinated and administrative burdens need to be lowered for allowing moderate and modest innovator regions to benefit more from competitive funding in the future (i.e. Horizon2020).

6. Conclusions

In this report we have used a more limited set of 12 indicators to measure regional innovation performance across a sample of 190 European regions. The indicators match those used in the Innovation Union Scoreboard as closely as possible. The 12 indicators include 6 indicators using regional data from the Community Innovation Survey. These data are not publicly available and have been made available by 18 European countries following a data request by Eurostat. All missing data have been estimated using a combination of statistical techniques.

The analysis shows that there are 4 broad performance groups similar to those identified in IUS – innovation leaders, innovation followers, moderate innovators and modest innovators – and that within each broad performance groups 3 subgroups can be distinguished leading to a total of 12 regional performance groups.

Almost all countries have a smaller or larger degree of diversity in performance between their regions. This clearly shows the importance of measuring innovation at the regional level. Differences in regional performance may also require differences in regional innovation support programmes. The Regional Innovation Monitor (RIM) project provides detailed information on regional innovation policies for 20 EU Member States²⁶.

The current report also shows that for 12 IUS indicators regional data are not available. In order to even better measure regional innovation performance we call upon the various statistical offices and responsible government agencies to improve the availability of regional data.

There are remarkable differences in the use of EU funds across EU regions. There are 4 typologies of regions absorbing and leveraging EU funds: Framework Programme leading absorbers, Structural Funds leading users, full users/absorbers – but at low levels, and low users/absorbers.

The results suggest that Structural Funds and FP are complementary types of funding targeting a rather specific, but comparatively different set of regions. Whereas capital regions in the EU15 are largely FP leading absorbers or low users/absorbers in both periods, there is no much differentiation between capital regions and all other regions in the EU12. The latter were mainly low users/absorbers in the period 2000-06 (96%) and full users/absorbers (50%) in 2007-13.

²⁶ The core of the RIM project (<http://www.rim-europa.eu/>) is a knowledge base of information on about 200 regions, including:

- An 'inventory' of regional innovation policy measures, policy documents and organisations
- A single access point for good practice dissemination on regional innovation policy in Europe
- An on-line interregional comparison of innovation performance and governance trends by means of the benchmarking tool
- A new communication platform for innovation stakeholders

Annex 1: RIS indicators explained in detail

1.1.2 Population with tertiary education per 100 population aged 25-64	
Numerator	Number of persons in age class with some form of post-secondary education (ISCED 5 and 6)
Denominator	The reference population is all age classes between 25 and 64 years inclusive
Rationale	This is a general indicator of the supply of advanced skills. It is not limited to science and technical fields because the adoption of innovations in many areas, in particular in the service sectors, depends on a wide range of skills. Furthermore, it includes the entire working age population, because future economic growth could require drawing on the non-active fraction of the population. International comparisons of educational levels however are difficult due to large discrepancies in educational systems, access, and the level of attainment that is required to receive a tertiary degree. Differences among countries should be interpreted with caution
Included in RIS 2009	Yes
Included in IUS	Comparable, IUS refers to age group 30-34
Data source	Eurostat
Data availability	NUTS 2, 2000-2010
1.3.1 Public R&D expenditures (% of GDP)	
Numerator	All R&D expenditures in the government sector (GOVERD) and the higher education sector (HERD). Both GOVERD and HERD according to the Frascati-manual definitions, in national currency and current prices
Denominator	Regional Gross Domestic Product, in national currency and current prices
Rationale	R&D expenditure represents one of the major drivers of economic growth in a knowledge-based economy. As such, trends in the R&D expenditure indicator provide key indications of the future competitiveness and wealth of the EU. Research and development spending is essential for making the transition to a knowledge-based economy as well as for improving production technologies and stimulating growth
Included in RIS 2009	Yes
Included in IUS	Yes
Data source	Eurostat
Data availability	2000 - ...: NUTS 1: BE (2007), BG (2008), DE (2007), GR (2005), FR (2004), AT (2007), UK (2008) NUTS 2: CZ (2008), IE (2008), ES (2008), IT (2007), HU (2008), NL (2007), PL (2007), PL (2008), PT (2008), RO (2008), SI (2008), SK (2008), FI (2008), SE (2007) NUTS 3: DK (2007)
2.1.1 Business R&D expenditures (% of GDP)	
Numerator	All R&D expenditures in the business sector (BERD), according to the Frascati-manual definitions, in national currency and current prices
Denominator	Regional Gross Domestic Product, in national currency and current prices
Rationale	The indicator captures the formal creation of new knowledge within firms. It is particularly important in the science-based sector (pharmaceuticals, chemicals and some areas of electronics) where most new knowledge is created in or near R&D laboratories
Included in RIS 2009	Yes
Included in IUS	Yes
Data source	Eurostat
Data availability	2000 - ...: NUTS 1: BE (2007), BG (2008), DE (2007), GR (2005), FR (2004), AT (2007), UK (2008) NUTS 2: CZ (2008), IE (2008), ES (2008), IT (2007), HU (2008), NL (2007), PL (2007), PL (2008), PT (2008), RO (2008), SI (2008), SK (2008), FI (2008), SE (2007) NUTS 3: DK (2007)
2.1.2 Non-R&D innovation expenditures (% of total turnover)	
Numerator	Sum of total innovation expenditure for SMEs only, in national currency and current prices excluding intramural and extramural R&D expenditures
Denominator	Total turnover for SMEs only (both innovators and non-innovators), in national currency and current prices
Rationale	This indicator measures non-R&D innovation expenditure as percentage of total turnover. Several of the components of innovation expenditure, such as investment in equipment and machinery and the acquisition of patents and licenses, measure the diffusion of new production technology and ideas. Compared to the EIS 2007 the indicator no longer captures intramural and extramural R&D expenditures and thus no longer overlaps with the indicator on business R&D expenditures

Included in RIS 2009	Yes	
Included in IUS	Yes, but for all firms	
Data source	Community Innovation Survey - Eurostat in collaboration with Member States	
Data availability	AT: NUTS 1 2008 BE: NUTS 1 2004-2006-2008 BG: NUTS 1 2004-2006-2008 CZ: NUTS 2 2004-2006-2008 ES: NUTS 2 2004-2006-2008 FR: NUTS 1 2004-2008 GR: NUTS 2 2006 HU: NUTS 2 2006-2008	IT: NUTS 2 2008 NO: NUTS 2 2004-2008 PL: NUTS 2 2004-2006-2008 PT: NUTS 2 2004-2006-2008 RO: NUTS 2 2004-2006-2008 SE: NUTS 2 2008 SI: NUTS 2 2004-2006-2008 SK: NUTS 2 2004-2006-2008

2.2.1 SMEs innovating in-house (% of all SMEs)

Numerator	Sum of SMEs with in-house innovation activities. Innovative firms with in-house innovation activities have introduced a new product or new process either in-house or in combination with other firms. The indicator does not include new products or processes developed by other firms	
Denominator	Total number of SMEs (both innovators and non-innovators).	
Rationale	This indicator measures the degree to which SMEs, that have introduced any new or significantly improved products or production processes during the period 2002-2004, have innovated in-house. The indicator is limited to SMEs because almost all large firms innovate and because countries with an industrial structure weighted to larger firms would tend to do better	
Included in RIS 2009	Yes	
Included in IUS	Yes	
Data source	Community Innovation Survey - Eurostat in collaboration with Member States	
Data availability	AT: NUTS 1 2004-2006-2008 BE: NUTS 1 2004-2006-2008 BG: NUTS 1 2004-2006-2008 CZ: NUTS 2 2004-2006-2008 ES: NUTS 2 2004-2006-2008 FI: NUTS 2 2004-2006-2008 FR: NUTS 1 2004-2006-2008 GR: NUTS 2 2006 HU: NUTS 2 2006-2008	IT: NUTS 2 2004-2008 NO: NUTS 2 2004-2006-2008 PL: NUTS 2 2004-2006-2008 PT: NUTS 2 2004-2006-2008 RO: NUTS 2 2004-2006-2008 SE: NUTS 2 2008 SI: NUTS 2 2004-2006-2008 SK: NUTS 2 2004-2006-2008 UK: NUTS 1 2004-2006

2.2.2 Innovative SMEs collaborating with others (% of all SMEs)

Numerator	Sum of SMEs with innovation co-operation activities. Firms with co-operation activities are those that had any co-operation agreements on innovation activities with other enterprises or institutions in the three years of the survey period	
Denominator	Total number of SMEs	
Rationale	This indicator measures the degree to which SMEs are involved in innovation co-operation. Complex innovations, in particular in ICT, often depend on the ability to draw on diverse sources of information and knowledge, or to collaborate on the development of an innovation. This indicator measures the flow of knowledge between public research institutions and firms and between firms and other firms. The indicator is limited to SMEs because almost all large firms are involved in innovation co-operation	
Included in RIS 2009	Yes	
Included in IUS	Yes	
Data source	Community Innovation Survey - Eurostat in collaboration with Member States	
Data availability	AT: NUTS 1 2004-2006-2008 BE: NUTS 1 2004-2006-2008 BG: NUTS 1 2004-2006-2008 CZ: NUTS 2 2004-2006-2008 ES: NUTS 2 2004-2006-2008 FI: NUTS 2 2004-2006-2008 FR: NUTS 1 2004-2006-2008 GR: NUTS 2 2006 HU: NUTS 2 2006-2008	IT: NUTS 2 2004-2008 NO: NUTS 2 2004-2006-2008 PL: NUTS 2 2004-2006-2008 PT: NUTS 2 2004-2006-2008 RO: NUTS 2 2004-2006-2008 SE: NUTS 2 2008 SI: NUTS 2 2004-2006-2008 SK: NUTS 2 2004-2006-2008 UK: NUTS 1 2004-2006

2.2.3 Public-private co-publications	
Numerator	Number of public-private co-authored research publications (PPCs). The definition of the "private sector" covers business enterprises and for-profit organizations, but excludes the private medical and health sector. Publications are assigned to the region in which the private sector organization is physically located.
Denominator	Total population or total publication output
Rationale	This indicator captures public-private research linkages and active collaboration activities between business sector researchers and public sector researchers resulting in academic publications
Included in RIS 2009	No
Included in IUS	Yes
Data source	CWTS (Web of Science database)
Data availability	NUTS 2 (all regions with sufficiently large PPC output), 2007-2008

2.3.1 EPO patent applications per billion GDP (in PPP€)	
Numerator	Number of patents applied for at the European Patent Office (EPO), by year of filing. The national distribution of the patent applications is assigned according to the address of the inventor
Denominator	Regional Gross Domestic Product in Purchasing Power Parity Euros
Rationale	The capacity of firms to develop new products will determine their competitive advantage. One indicator of the rate of new product innovation is the number of patents. This indicator measures the number of patent applications at the European Patent Office
Included in RIS 2009	Yes
Included in IUS	No, IUS uses PCT patent applications (per billion GDP)
Data source	Eurostat
Data availability	NUTS 2: 2000-2007

3.1.1 Technological (product or process) innovators (% of all SMEs)																			
Numerator	The number of SMEs who introduced a new product or a new process to one of their markets																		
Denominator	Total number of SMEs																		
Rationale	Technological innovation as measured by the introduction of new products (goods or services) and processes is key to innovation in manufacturing activities. Higher shares of technological innovators should reflect a higher level of innovation activities																		
Included in RIS 2009	Yes																		
Included in IUS	Yes																		
Data source	Community Innovation Survey - Eurostat in collaboration with Member States																		
Data availability	<table border="0"> <tr> <td>AT: NUTS 1 2004-2006-2008</td> <td>IT: NUTS 2 2004-2008</td> </tr> <tr> <td>BE: NUTS 1 2004-2006-2008</td> <td>NO: NUTS 2 2004-2006-2008</td> </tr> <tr> <td>BG: NUTS 1 2004-2006-2008</td> <td>PL: NUTS 2 2004-2006-2008</td> </tr> <tr> <td>CZ: NUTS 2 2004-2006-2008</td> <td>PT: NUTS 2 2004-2006-2008</td> </tr> <tr> <td>ES: NUTS 2 2004-2006-2008</td> <td>RO: NUTS 2 2004-2006-2008</td> </tr> <tr> <td>FI: NUTS 2 2004-2006-2008</td> <td>SE: NUTS 2 2008</td> </tr> <tr> <td>FR: NUTS 1 2004-2006-2008</td> <td>SI: NUTS 2 2004-2006-2008</td> </tr> <tr> <td>GR: NUTS 2 2006</td> <td>SK: NUTS 2 2004-2006-2008</td> </tr> <tr> <td>HU: NUTS 2 2006-2008</td> <td>UK: NUTS 1 2004-2006</td> </tr> </table>	AT: NUTS 1 2004-2006-2008	IT: NUTS 2 2004-2008	BE: NUTS 1 2004-2006-2008	NO: NUTS 2 2004-2006-2008	BG: NUTS 1 2004-2006-2008	PL: NUTS 2 2004-2006-2008	CZ: NUTS 2 2004-2006-2008	PT: NUTS 2 2004-2006-2008	ES: NUTS 2 2004-2006-2008	RO: NUTS 2 2004-2006-2008	FI: NUTS 2 2004-2006-2008	SE: NUTS 2 2008	FR: NUTS 1 2004-2006-2008	SI: NUTS 2 2004-2006-2008	GR: NUTS 2 2006	SK: NUTS 2 2004-2006-2008	HU: NUTS 2 2006-2008	UK: NUTS 1 2004-2006
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FI: NUTS 2 2004-2006-2008	SE: NUTS 2 2008																		
FR: NUTS 1 2004-2006-2008	SI: NUTS 2 2004-2006-2008																		
GR: NUTS 2 2006	SK: NUTS 2 2004-2006-2008																		
HU: NUTS 2 2006-2008	UK: NUTS 1 2004-2006																		

3.1.2 Non-technological (marketing or organisational) innovators (% of all SMEs)	
Numerator	The number of SMEs who introduced a new marketing innovation and/or organisational innovation to one of their markets
Denominator	Total number of SMEs
Rationale	The Community Innovation Survey mainly asks firms about their technical innovation. Many firms, in particular in the services sectors, innovate through other non-technological forms of innovation. Examples of these are organisational innovations. This indicator tries to capture the extent that SMEs innovate through non-technological innovation
Included in RIS 2009	Yes
Included in IUS	Yes

Data source	Community Innovation Survey - Eurostat in collaboration with Member States	
Data availability	AT: NUTS 1 2004-2006-2008 BE: NUTS 1 2004-2006-2008 BG: NUTS 1 2004-2006-2008 CZ: NUTS 2 2004-2006-2008 ES: NUTS 2 2004-2006-2008 FI: NUTS 2 2004-2006-2008 FR: NUTS 1 2004-2006-2008 GR: NUTS 2 2006 HU: NUTS 2 2006-2008	IT: NUTS 2 2004-2008 NO: NUTS 2 2004-2006-2008 PL: NUTS 2 2004-2006-2008 PT: NUTS 2 2004-2006-2008 RO: NUTS 2 2004-2006-2008 SE: NUTS 2 2008 SI: NUTS 2 2004-2006-2008 SK: NUTS 2 2004-2006-2008 UK: NUTS 1 2004-2006
3.2.1 Employment in knowledge-intensive services + Employment in medium-high/high-tech manufacturing as % of total workforce (% of total workforce)		
Numerator	<p>Number of employed persons in the knowledge-intensive services sectors include water transport (NACE 61), air transport (NACE 62), post and telecommunications (NACE64), financial intermediation (NACE 65), insurance and pension funding (NACE 66), activities auxiliary to financial intermediation (NACE 67), real estate activities (NACE 70), renting of machinery and equipment (NACE 71), computer and related activities (NACE72), research and development (NACE73) and other business activities (NACE 74)</p> <p>Number of employed persons in the medium-high and high-tech manufacturing sectors include chemicals (NACE24), machinery (NACE29), office equipment (NACE30), electrical equipment (NACE31), telecommunications and related equipment (NACE32), precision instruments (NACE33), automobiles (NACE34) and aerospace and other transport (NACE35)</p>	
Denominator	Total workforce including all manufacturing and service sectors	
Rationale	Knowledge-intensive services provide services directly to consumers, such as telecommunications, and provide inputs to the innovative activities of other firms in all sectors of the economy. The latter can increase productivity throughout the economy and support the diffusion of a range of innovations, in particular those based on ICT. Employment in high technology manufacturing sectors is an indicator of the manufacturing economy that is based on continual innovation through creative, inventive activity. The use of total employment gives a better indicator than using the share of manufacturing employment alone, since the latter will be affected by the hollowing out of manufacturing in some countries	
Included in RIS 2009	Yes	
Included in IUS	No (IUS uses indicator on employment in knowledge-intensive activities)	
Data source	Eurostat	
Data availability	NUTS 2: 2000-2010	
3.2.4 Sales of new to market and new to firm innovations as % of turnover (% of total turnover)		
Numerator	Sum of total turnover of new or significantly improved products either new to the market or new to the firm (and not to the market) for SMEs only	
Denominator	Total turnover for SMEs only (both innovators and non-innovators), in national currency and current prices	
Rationale	Community Innovation Survey - Eurostat in collaboration with Member States	
Included in RIS 2009	Yes	
Included in IUS	Yes	
Data source	Community Innovation Survey Eurostat in collaboration with Member States - CONFIDENTIAL	
Data availability	AT: NUTS 1 2008 BE: NUTS 1 2004-2006-2008 BG: NUTS 1 2004-2006-2008 CZ: NUTS 2 2004-2006-2008 ES: NUTS 2 2004-2006-2008 FR: NUTS 1 2004-2008 GR: NUTS 2 2006 HU: NUTS 2 2006-2008	NO: NUTS 2 2004-2006-2008 PL: NUTS 2 2004-2006-2008 PT: NUTS 2 2006-2008 RO: NUTS 2 2004-2006-2008 SE: NUTS 2 2008 SI: NUTS 2 2004-2006-2008 SK: NUTS 2 2004-2006-2008

Annex 2: Regional innovation performance group membership

		2007	2009	2011
BE	BELGIUM	FOLLOWER	FOLLOWER	FOLLOWER
BE1	Région de Bruxelles-Capitale	Leader - low	Leader - low	Leader - low
BE2	Vlaams Gewest	Leader - medium	Leader - low	Leader - medium
BE3	Région Wallonne	Follower - medium	Follower - high	Follower - high
BG	BULGARIA	MODEST	MODEST	MODEST
BG3	Severna i iztochna Bulgaria	Modest - low	Modest - low	Modest - low
BG4	Yugozapadna i yuzhna tsentralna Bulgaria	Modest - high	Modest - medium	Modest - medium
CZ	CZECH REPUBLIC	MODERATE	MODERATE	MODERATE
CZ01	Praha	Leader - low	Leader - medium	Leader - medium
CZ02	Strední Čechy	Follower - low	Follower - low	Follower - high
CZ03	Jihozápad	Moderate - medium	Moderate - medium	Moderate - high
CZ04	Severozápad	Modest - high	Modest - medium	Moderate - low
CZ05	Severovýchod	Moderate - high	Moderate - high	Follower - medium
CZ06	Jihovýchod	Follower - low	Follower - low	Follower - medium
CZ07	Strední Morava	Moderate - high	Follower - low	Moderate - medium
CZ08	Moravskoslezsko	Moderate - low	Modest - high	Moderate - low
DK	DENMARK	LEADER	LEADER	LEADER
DK01	Hovedstaden	Leader - high	Leader - high	Leader - high
DK02	Sjælland	Follower - high	Follower - medium	Follower - high
DK03	Syddanmark	Follower - high	Follower - medium	Follower - high
DK04	Midtjylland	Leader - low	Leader - low	Leader - low
DK05	Nordjylland	Follower - high	Follower - medium	Follower - high
DE	GERMANY	LEADER	LEADER	LEADER
DE1	Baden-Württemberg	Leader - high	Leader - high	Leader - high
DE2	Bayern	Leader - medium	Leader - high	Leader - high
DE3	Berlin	Leader - high	Leader - high	Leader - high
DE4	Brandenburg	Follower - medium	Follower - medium	Follower - medium
DE5	Bremen	Leader - low	Leader - medium	Leader - medium
DE6	Hamburg	Leader - medium	Leader - high	Leader - high
DE7	Hessen	Leader - medium	Leader - medium	Leader - high
DE8	Mecklenburg-Vorpommern	Follower - low	Follower - medium	Follower - medium
DE9	Niedersachsen	Follower - high	Leader - low	Leader - medium
DEA	Nordrhein-Westfalen	Follower - high	Leader - low	Leader - low
DEB	Rheinland-Pfalz	Follower - high	Leader - medium	Leader - medium
DEC	Saarland	Follower - high	Leader - low	Leader - low
DED	Sachsen	Leader - low	Leader - low	Leader - low
DEE	Sachsen-Anhalt	Moderate - high	Follower - low	Follower - low
DEF	Schleswig-Holstein	Follower - medium	Follower - high	Follower - high
DEG	Thüringen	Follower - high	Follower - high	Leader - low
IE	IRELAND	FOLLOWER	FOLLOWER	FOLLOWER
IE01	Border, Midland and Western	Moderate - high	Follower - low	Follower - low
IE02	Southern and Eastern	Follower - medium	Follower - medium	Follower - high
GR	GREECE	MODERATE	MODERATE	MODERATE
GR1	Voreia Ellada	Modest - medium	Modest - high	Modest - high
GR2	Kentriki Ellada	Modest - medium	Modest - medium	Modest - medium

		2007	2009	2011
GR3	Attiki	Follower - low	Follower - low	Follower - medium
GR4	Nisia Aigaiou, Kriti	Modest - medium	Modest - medium	Modest - high
ES	SPAIN	MODERATE	MODERATE	MODERATE
ES11	Galicia	Modest - high	Moderate - low	Moderate - low
ES12	Principado de Asturias	Moderate - low	Moderate - medium	Moderate - medium
ES13	Cantabria	Modest - high	Moderate - medium	Moderate - low
ES21	País Vasco	Follower - high	Follower - high	Follower - high
ES22	Comunidad Foral de Navarra	Follower - medium	Follower - high	Follower - high
ES23	La Rioja	Modest - high	Moderate - medium	Moderate - high
ES24	Aragón	Moderate - high	Moderate - high	Follower - low
ES3	Comunidad de Madrid	Follower - medium	Follower - high	Follower - high
ES41	Castilla y León	Moderate - medium	Moderate - medium	Moderate - high
ES42	Castilla-la Mancha	Modest - high	Modest - high	Modest - high
ES43	Extremadura	Modest - medium	Modest - medium	Modest - high
ES51	Cataluña	Follower - low	Follower - medium	Follower - medium
ES52	Comunidad Valenciana	Moderate - medium	Moderate - medium	Moderate - low
ES53	Illes Balears	Modest - medium	Modest - low	Modest - medium
ES61	Andalucía	Modest - high	Moderate - low	Modest - high
ES62	Región de Murcia	Moderate - medium	Modest - high	Modest - high
ES63	Ciudad Autónoma de Ceuta (ES)	Modest - low	Modest - low	Modest - low
ES64	Ciudad Autónoma de Melilla (ES)	Modest - low	Modest - low	Modest - low
ES7	Canarias (ES)	Modest - medium	Modest - medium	Modest - medium
FR	FRANCE	FOLLOWER	FOLLOWER	FOLLOWER
FR1	Île de France	Leader - low	Leader - medium	Leader - medium
FR2	Bassin Parisien	Moderate - low	Moderate - medium	Moderate - high
FR3	Nord - Pas-de-Calais	Modest - high	Moderate - medium	Moderate - high
FR4	Est (FR)	Moderate - high	Follower - medium	Follower - medium
FR5	Ouest (FR)	Moderate - medium	Moderate - high	Follower - low
FR6	Sud-Ouest (FR)	Follower - low	Follower - high	Follower - high
FR7	Centre-Est (FR)	Follower - low	Follower - high	Leader - low
FR8	Méditerranée	Moderate - high	Follower - low	Follower - high
FR9	French overseas departments (FR)	Moderate - low	Moderate - low	Modest - high
IT	ITALY	MODERATE	MODERATE	MODERATE
ITC1	Piemonte	Follower - high	Follower - medium	Follower - high
ITC2	Valle d'Aosta/Vallée d'Aoste	Moderate - high	Moderate - medium	Moderate - high
ITC3	Liguria	Follower - low	Moderate - high	Moderate - high
ITC4	Lombardia	Follower - medium	Follower - medium	Follower - high
ITD1	Provincia Autonoma Bolzano/Bozen	Modest - high	Modest - high	Moderate - low
ITD2	Provincia Autonoma Trento	Follower - low	Moderate - high	Follower - low
ITD3	Veneto	Moderate - high	Moderate - high	Follower - low
ITD4	Friuli-Venezia Giulia	Follower - low	Follower - low	Follower - high
ITD5	Emilia-Romagna	Follower - medium	Follower - medium	Follower - high
ITE1	Toscana	Moderate - high	Moderate - medium	Moderate - high
ITE2	Umbria	Moderate - medium	Moderate - medium	Moderate - high
ITE3	Marche	Moderate - low	Moderate - low	Moderate - high

		2007	2009	2011
ITE4	Lazio	Follower - medium	Follower - medium	Follower - high
ITF1	Abruzzo	Moderate - low	Moderate - low	Moderate - medium
ITF2	Molise	Modest - medium	Modest - medium	Modest - medium
ITF3	Campania	Moderate - low	Moderate - low	Moderate - low
ITF4	Puglia	Modest - high	Modest - high	Moderate - medium
ITF5	Basilicata	Modest - high	Modest - high	Moderate - low
ITF6	Calabria	Modest - low	Modest - medium	Modest - high
ITG1	Sicilia	Modest - high	Modest - high	Moderate - low
ITG2	Sardegna	Modest - medium	Modest - high	Moderate - low
HU	HUNGARY	MODERATE	MODERATE	MODERATE
HU1	Közép-Magyarország	Follower - low	Moderate - high	Moderate - high
HU21	Közép-Dunántúl	Modest - high	Modest - high	Modest - high
HU22	Nyugat-Dunántúl	Modest - medium	Modest - medium	Modest - high
HU23	Dél-Dunántúl	Modest - medium	Modest - medium	Modest - medium
HU31	Észak-Magyarország	Modest - medium	Modest - medium	Modest - medium
HU32	Észak-Alföld	Modest - medium	Modest - medium	Modest - medium
HU33	Dél-Alföld	Modest - medium	Modest - medium	Modest - medium
NL	NETHERLANDS	FOLLOWER	FOLLOWER	FOLLOWER
NL11	Groningen	Follower - high	Follower - medium	Follower - high
NL12	Friesland (NL)	Moderate - low	Moderate - low	Moderate - low
NL13	Drenthe	Moderate - medium	Moderate - medium	Moderate - medium
NL21	Overijssel	Follower - low	Follower - medium	Follower - low
NL22	Gelderland	Follower - high	Follower - high	Follower - high
NL23	Flevoland	Follower - high	Follower - high	Follower - high
NL31	Utrecht	Leader - medium	Leader - medium	Leader - medium
NL32	Noord-Holland	Leader - low	Leader - low	Leader - medium
NL33	Zuid-Holland	Leader - low	Leader - low	Leader - low
NL34	Zeeland	Moderate - high	Moderate - high	Moderate - high
NL41	Noord-Brabant	Leader - low	Leader - medium	Leader - medium
NL42	Limburg (NL)	Follower - high	Follower - high	Follower - high
AT	AUSTRIA	FOLLOWER	FOLLOWER	FOLLOWER
AT1	Ostösterreich	Leader - low	Leader - low	Leader - low
AT2	Südösterreich	Follower - high	Follower - high	Follower - high
AT3	Westösterreich	Follower - high	Follower - high	Follower - medium
PL	POLAND	MODERATE	MODERATE	MODERATE
PL11	Lódzkie	Modest - medium	Modest - medium	Modest - medium
PL12	Mazowieckie	Moderate - low	Moderate - medium	Moderate - high
PL21	Malopolskie	Modest - high	Modest - high	Modest - high
PL22	Slaskie	Modest - high	Modest - high	Modest - medium
PL31	Lubelskie	Modest - medium	Modest - medium	Modest - low
PL32	Podkarpackie	Modest - medium	Modest - medium	Modest - low
PL33	Swietokrzyskie	Modest - low	Modest - low	Modest - low
PL34	Podlaskie	Modest - low	Modest - low	Modest - low
PL41	Wielkopolskie	Modest - medium	Modest - medium	Modest - medium
PL42	Zachodniopomorskie	Modest - low	Modest - low	Modest - low
PL43	Lubuskie	Modest - low	Modest - low	Modest - low
PL51	Dolnoslaskie	Modest - high	Modest - high	Modest - high

		2007	2009	2011
PL52	Opolskie	Modest - medium	Modest - medium	Modest - low
PL61	Kujawsko-Pomorskie	Modest - medium	Modest - low	Modest - medium
PL62	Warmińsko-Mazurskie	Modest - low	Modest - low	Modest - low
PL63	Pomorskie	Modest - high	Modest - high	Modest - high
PT	PORTUGAL	MODERATE	MODERATE	MODERATE
PT11	Norte	Modest - high	Moderate - low	Moderate - high
PT15	Algarve	Modest - medium	Moderate - low	Moderate - high
PT16	Centro (PT)	Moderate - low	Moderate - medium	Follower - low
PT17	Lisboa	Follower - medium	Follower - high	Leader - low
PT18	Alentejo	Moderate - low	Moderate - medium	Moderate - medium
PT2	Região Autónoma dos Açores (PT)	Modest - medium	Modest - medium	Modest - high
PT3	Região Autónoma da Madeira (PT)	Modest - low	Modest - low	Modest - medium
RO	ROMANIA	MODEST	MODEST	MODEST
R011	Nord-Vest	Modest - low	Modest - low	Modest - low
R012	Centru	Modest - low	Modest - low	Modest - low
R021	Nord-Est	Modest - low	Modest - medium	Modest - low
R022	Sud-Est	Modest - low	Modest - medium	Modest - medium
R031	Sud - Muntenia	Modest - low	Modest - low	Modest - low
R032	Bucuresti - Ilfov	Moderate - medium	Moderate - medium	Moderate - medium
R041	Sud-Vest Oltenia	Modest - low	Modest - low	Modest - low
R042	Vest	Modest - low	Modest - low	Modest - low
SI	SLOVENIA	FOLLOWER	FOLLOWER	FOLLOWER
SI01	Vzhodna Slovenija	Moderate - medium	Moderate - high	Moderate - high
SI02	Zahodna Slovenija	Follower - medium	Follower - high	Follower - high
SK	SLOVAKIA	MODERATE	MODERATE	MODERATE
SK01	Bratislavský kraj	Moderate - high	Follower - low	Moderate - high
SK02	Západné Slovensko	Modest - high	Modest - medium	Modest - medium
SK03	Stredné Slovensko	Modest - low	Modest - medium	Modest - medium
SK04	Východné Slovensko	Modest - low	Modest - medium	Modest - low
FI	FINLAND	LEADER	LEADER	LEADER
FI13	Itä-Suomi	Leader - low	Follower - high	Follower - medium
FI18	Etelä-Suomi	Leader - high	Leader - high	Leader - high
FI19	Länsi-Suomi	Leader - medium	Leader - medium	Leader - medium
FI1A	Pohjois-Suomi	Leader - low	Leader - medium	Leader - medium
FI2	Åland	Moderate - medium	Moderate - low	Moderate - low
SE	SWEDEN	LEADER	LEADER	LEADER
SE11	Stockholm	Leader - high	Leader - high	Leader - high
SE12	Östra Mellansverige	Leader - high	Leader - high	Leader - high
SE21	Småland med öarna	Follower - low	Follower - medium	Follower - medium
SE22	Sydsverige	Leader - high	Leader - high	Leader - high
SE23	Västsverige	Leader - high	Leader - medium	Leader - medium
SE31	Norra Mellansverige	Moderate - high	Moderate - high	Moderate - high
SE32	Mellersta Norrland	Follower - low	Follower - low	Follower - low
SE33	Övre Norrland	Follower - high	Leader - low	Leader - low
UK	UNITED KINGDOM	FOLLOWER	FOLLOWER	FOLLOWER
UKC	North East (UK)	Follower - low	Follower - low	Follower - low
UKD	North West (UK)	Follower - high	Follower - medium	Follower - high

		2007	2009	2011
UKE	Yorkshire and The Humber	Follower - low	Moderate - high	Follower - low
UKF	East Midlands (UK)	Follower - high	Follower - medium	Follower - medium
UKG	West Midlands (UK)	Follower - medium	Follower - low	Follower - low
UKH	East of England	Leader - medium	Leader - low	Leader - medium
UKI	London	Leader - low	Follower - medium	Follower - high
UKJ	South East (UK)	Leader - medium	Leader - low	Leader - medium
UKK	South West (UK)	Follower - high	Follower - medium	Follower - medium
UKL	Wales	Follower - medium	Follower - low	Follower - low
UKM	Scotland	Follower - high	Follower - medium	Follower - medium
UKN	Northern Ireland (UK)	Moderate - high	Moderate - low	Moderate - medium
CH	SWITZERLAND	LEADER	LEADER	LEADER
CH01	Région lémanique	Leader - medium	Leader - medium	Leader - high
CH02	Espace Mittelland	Leader - low	Leader - low	Leader - medium
CH03	Nordwestschweiz	Leader - high	Leader - high	Leader - high
CH04	Zürich	Leader - high	Leader - high	Leader - high
CH05	Ostschweiz	Follower - high	Follower - high	Follower - high
CH06	Zentralschweiz	Leader - low	Leader - medium	Leader - medium
CH07	Ticino	Follower - high	Leader - low	Leader - medium
NO	NORWAY	MODERATE	MODERATE	MODERATE
N001	Oslo og Akershus	Follower - high	Follower - high	Follower - high
N002	Hedmark og Oppland	Modest - high	Modest - high	Moderate - medium
N003	Sør-Østlandet	Moderate - high	Moderate - high	Follower - low
N004	Agder og Rogaland	Moderate - high	Moderate - high	Follower - low
N005	Vestlandet	Moderate - high	Follower - low	Follower - low
N006	Trøndelag	Follower - low	Follower - low	Follower - medium
N007	Nord-Norge	Moderate - low	Moderate - low	Modest - high
HR	CROATIA	MODERATE	MODERATE	MODERATE
HR01	Sjeverozapadna Hrvatska	Moderate - high	Moderate - high	Follower - low
HR02	Sredisnja i Istocna (Panonska) Hrvatska	Modest - low	Modest - low	Modest - low
HR03	Jadranska Hrvatska	Modest - high	Modest - high	Modest - high

Annex 3: Regional data availability

NUTS level	Population with tertiary education per 100 population aged 25-64			Public R&D expenditures (% of regional GDP)			Business R&D expenditures (% of regional GDP)			Non-R&D innovation expenditures (% of total turnover)			SMEs innovating in-house (% of all SMEs)			Innovative SMEs collaborating with others (% of all SMEs)		
	2006	2008	2010	2005	2007	2008	2005	2007	2008	2004	2006	2008	2004	2006	2008	2004	2006	2008
BE	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BG	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CZ	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DK	3	--	X	X	--	X	X	X	--	--	--	--	--	--	--	--	--	--
DE	1	X	X	X	X	X	X	X	X	--	--	--	--	--	--	--	--	--
IE	2	X	X	X	X	X	X	X	X	--	--	--	--	--	--	--	--	--
GR	1	X	X	X	X	--	X	X	X	--	X	--	--	X	--	--	X	--
ES	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FR	1	X	X	X	--	X	X	--	X	X	X	X	X	X	X	X	X	X
IT	2	X	X	X	X	X	X	X	X	--	--	--	--	--	--	--	--	--
HU	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NL	2	X	X	X	X	X	X	X	X	--	--	--	--	--	--	--	--	--
AT	1	X	X	X	--	X	X	X	X	--	--	--	X	X	X	X	X	X
PL	2	X	X	X	X	X	X	X	X	--	--	--	X	X	X	X	X	X
PT	2	X	X	X	X	--	X	X	X	X	X	X	X	X	X	X	X	X
RO	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SI	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SK	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FI	2	X	X	X	X	X	X	X	X	--	--	--	X	X	X	X	X	X
SE	2	X	X	X	X	X	X	X	X	--	--	--	X	X	X	X	X	X
UK	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CH	2	X	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NO	2	X	X	X	--	--	--	--	--	X	X	X	X	X	X	X	X	X
HR	2	--	X	X	--	--	--	--	--	X	X	X	X	X	X	X	X	X

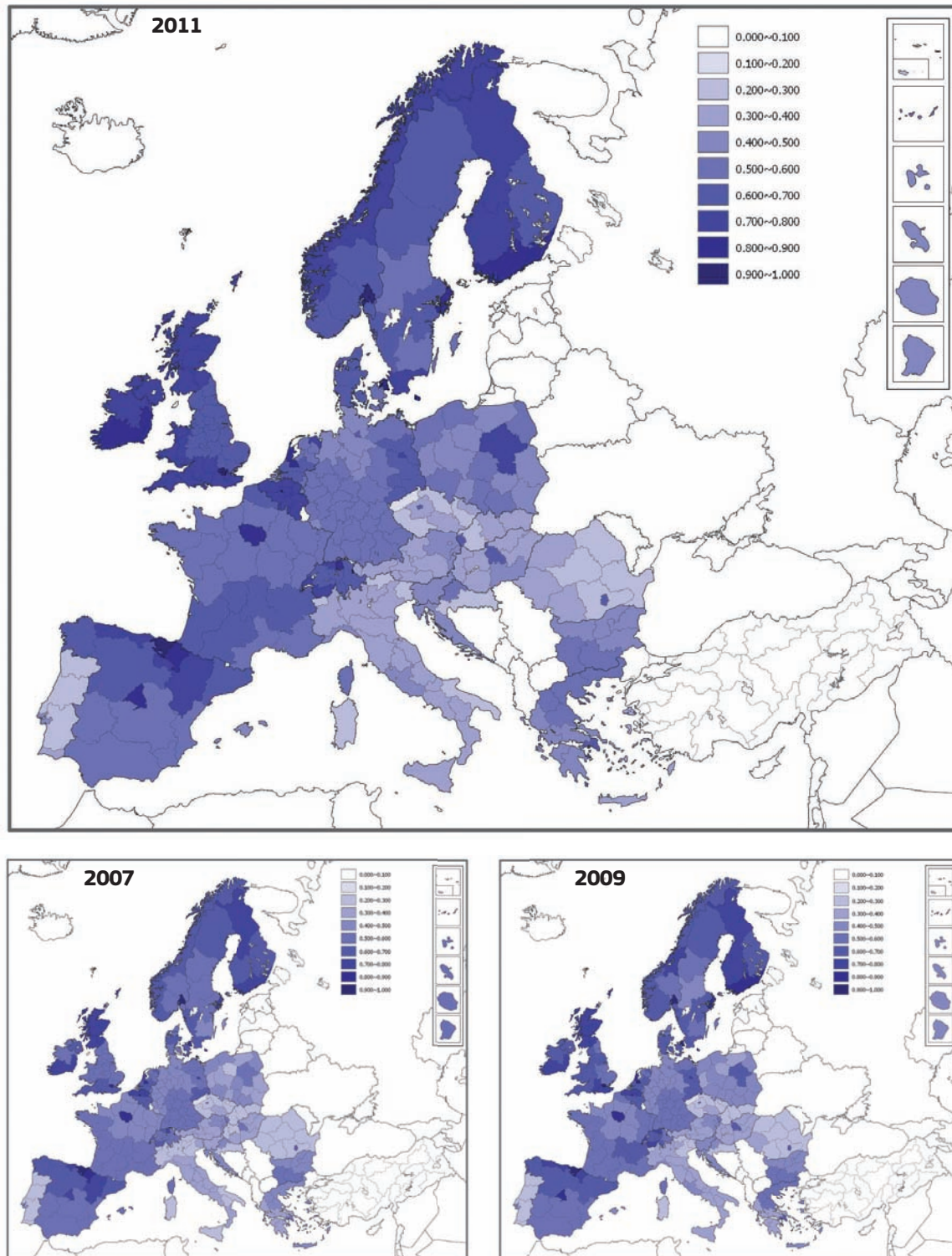
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NUTS level	Public-private co-publications per million population				EPO patents per billion GDP				Technological (product or process) innovators (% of all SMEs)				Non-technological (marketing or organisational) innovators (% of all SMEs)				Employment in medium-high and high-tech manufacturing & knowledge-intensive services (% of total workforce)				Sales of new-to-market and new-to-firm products (% of total turnover)			
	2004	2006	2008	2008	2004	2006	2007	2008	2004	2006	2008	2008	2004	2006	2008	2008	2004	2006	2008	2010	2004	2006	2008	2008
BE	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BG	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CZ	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DK	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DE	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IE	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
GR	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ES	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FR	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IT	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HU	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NL	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AT	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PL	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PT	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
RO	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SI	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SK	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FI	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SE	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
UK	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CH	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NO	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HR	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X: data available

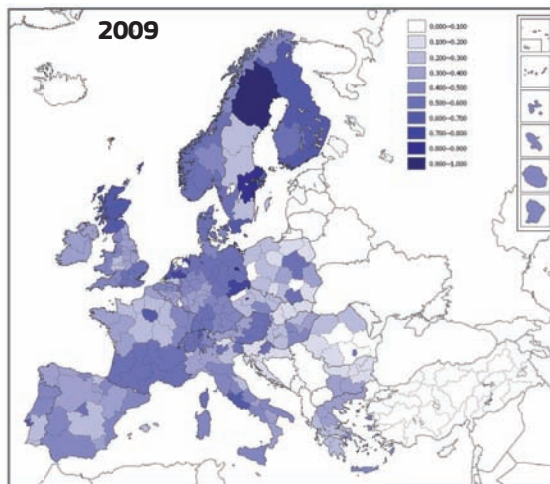
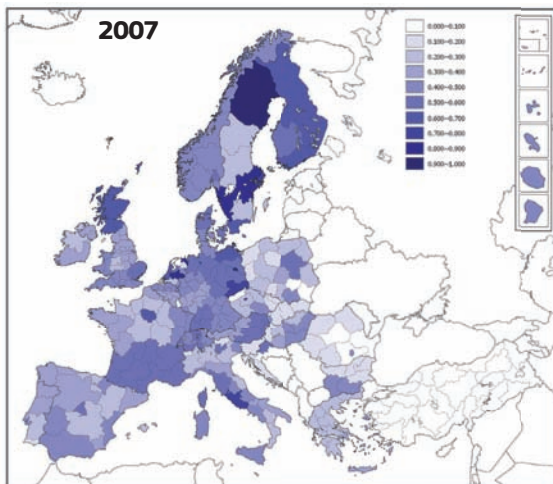
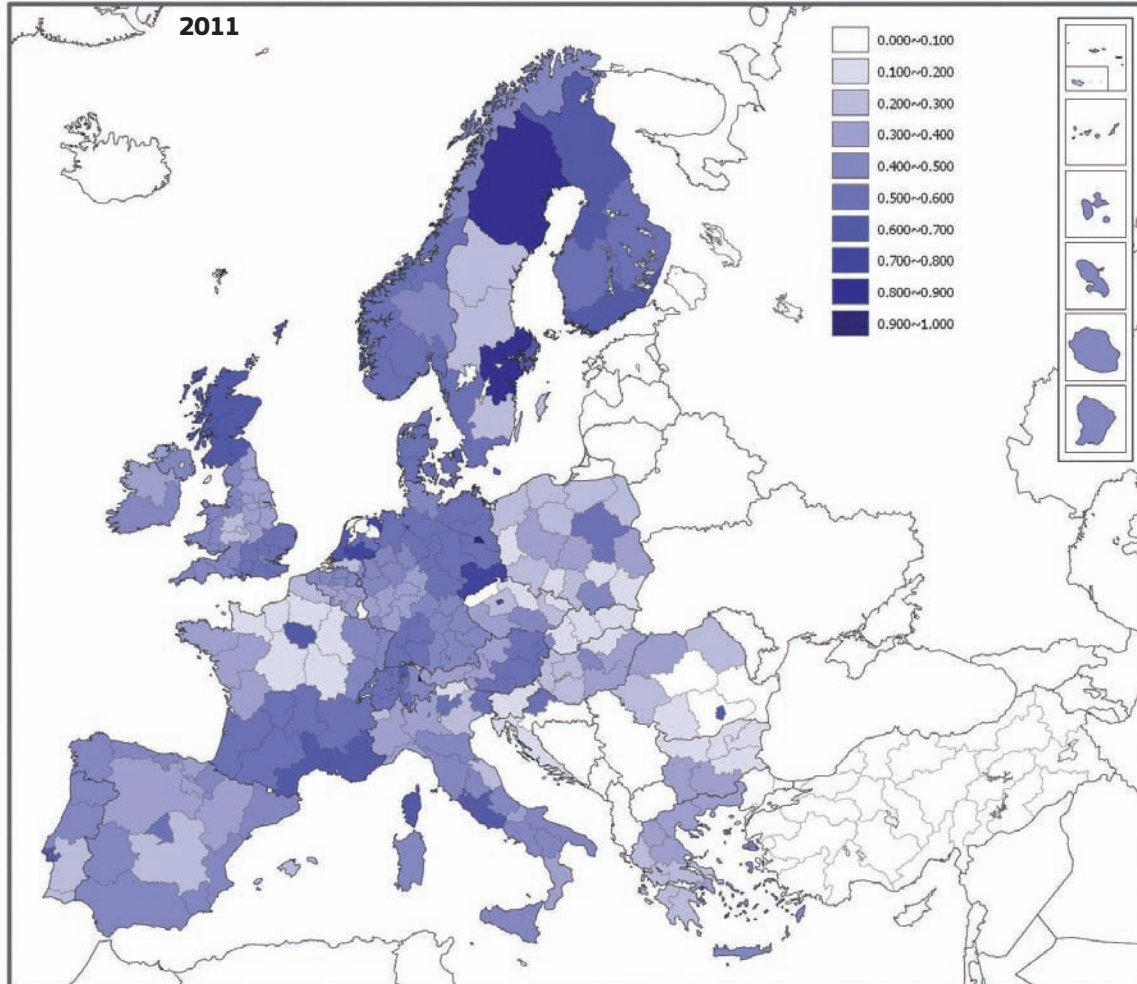
Annex 4: Performance maps per indicator

Population with tertiary education per 100 population aged 25-64



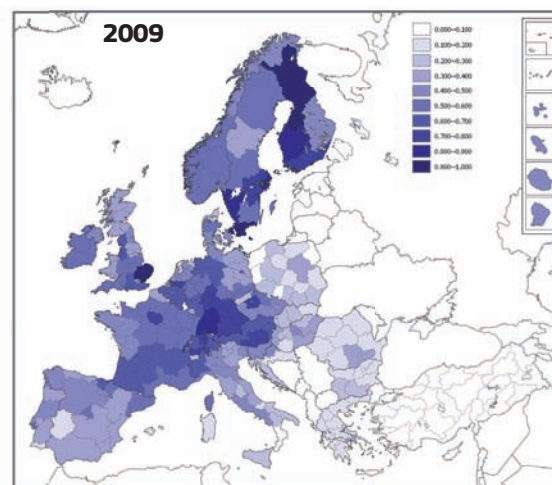
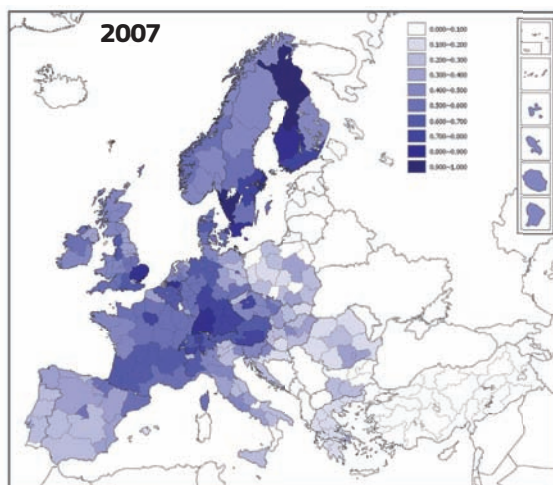
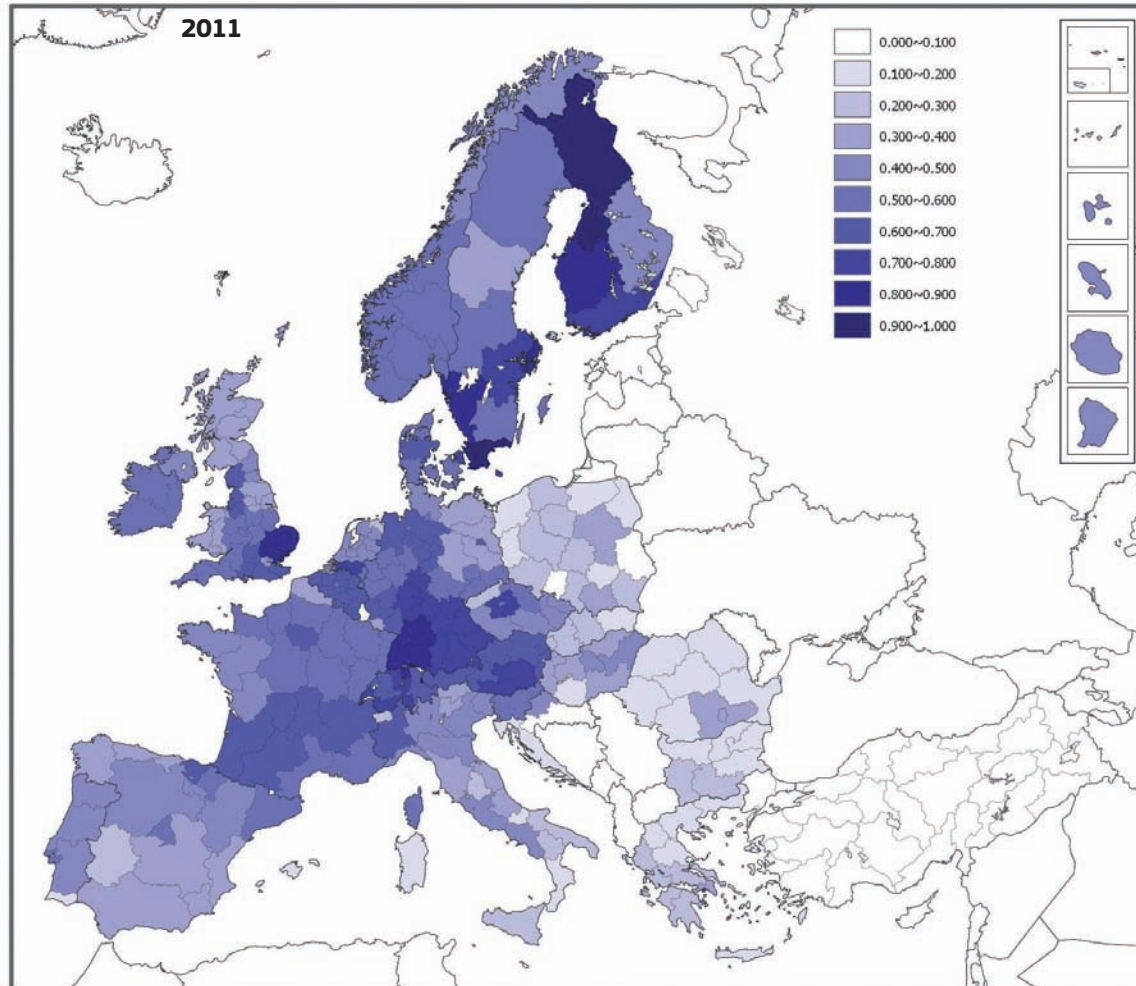
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Public R&D expenditures (% of regional GDP)



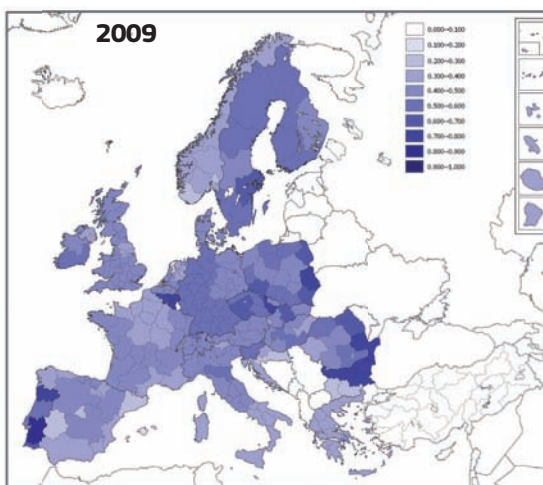
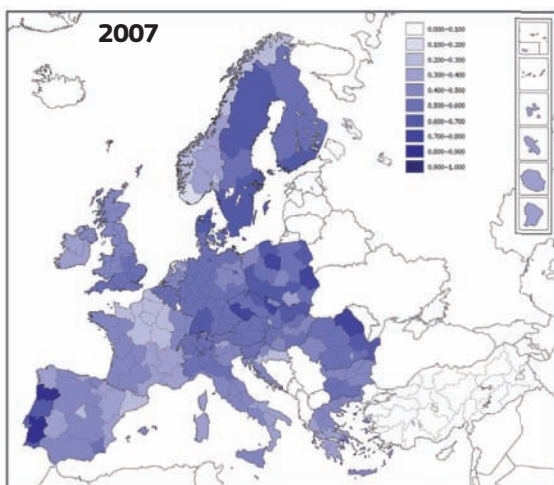
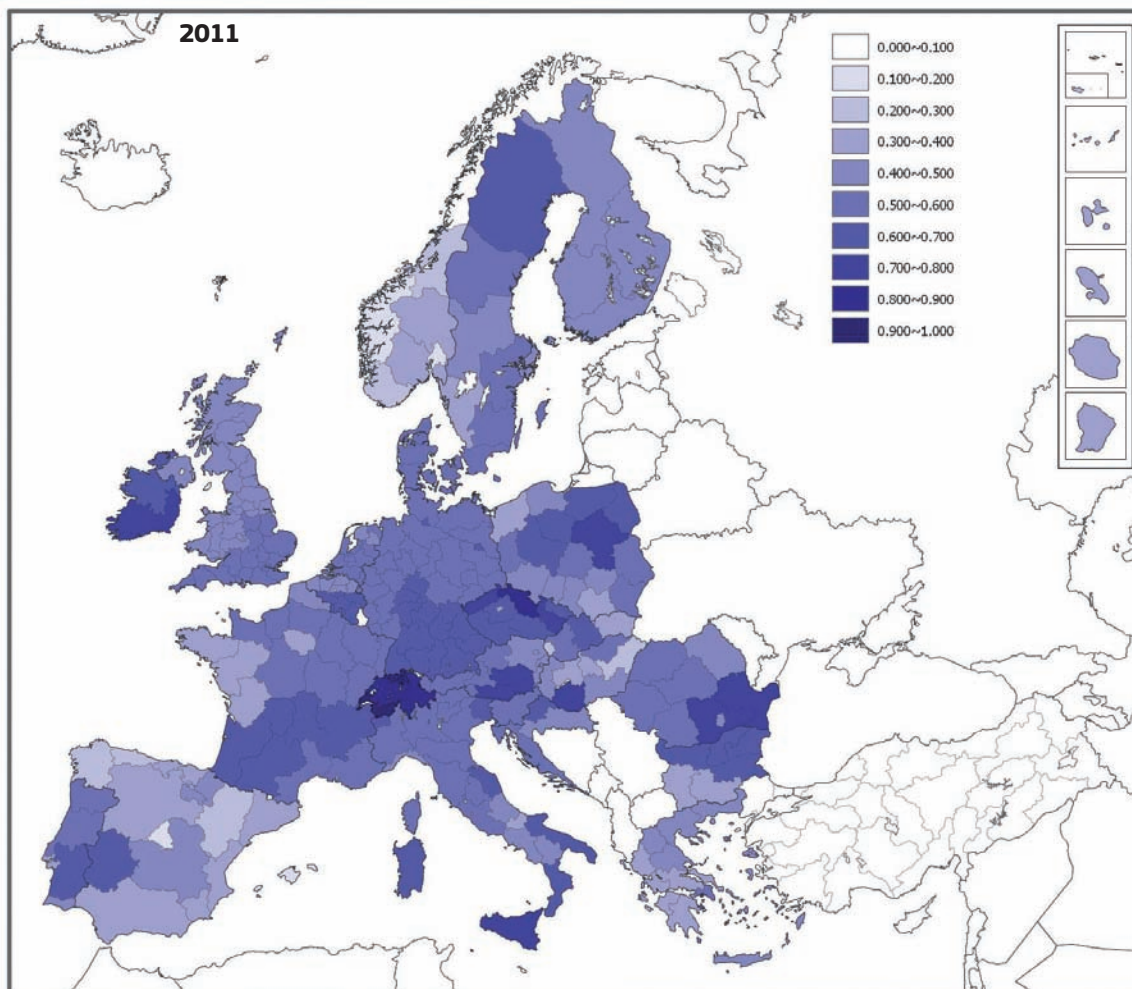
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Business R&D expenditures (% of regional GDP)



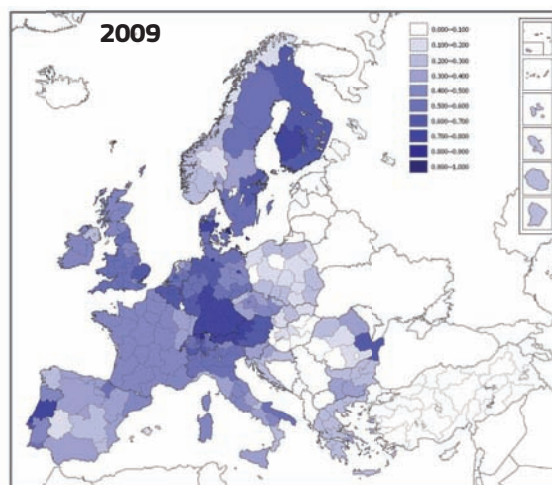
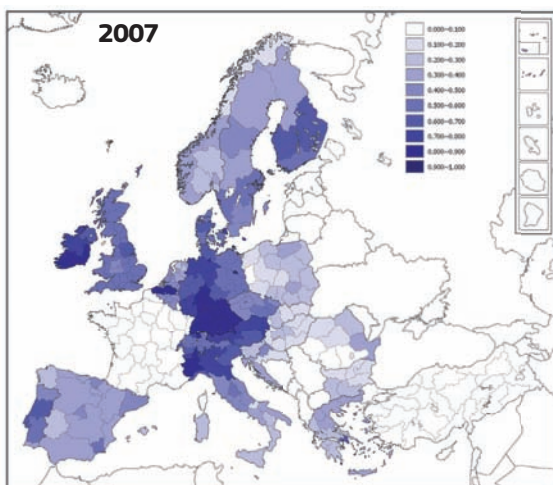
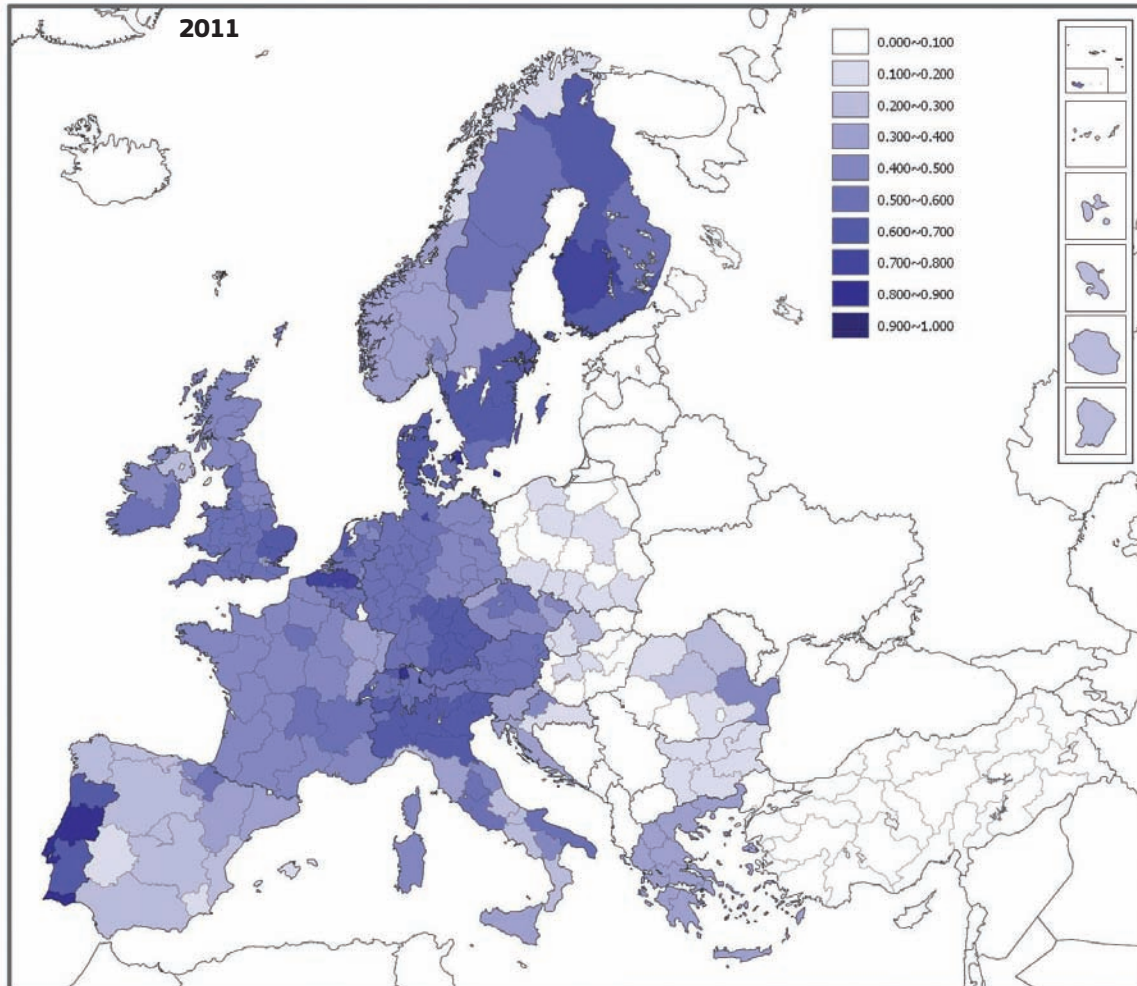
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Non-R&D innovation expenditures (% of total turnover)



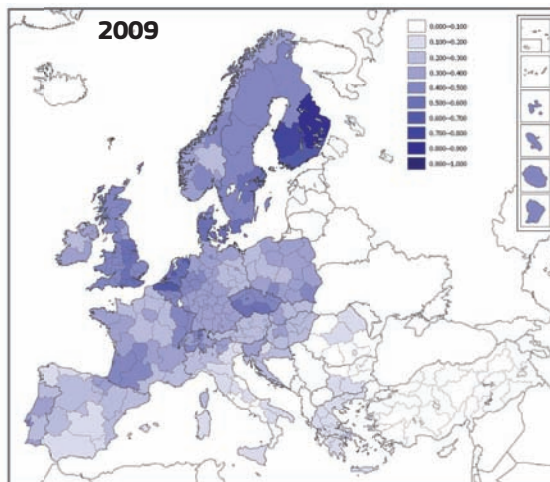
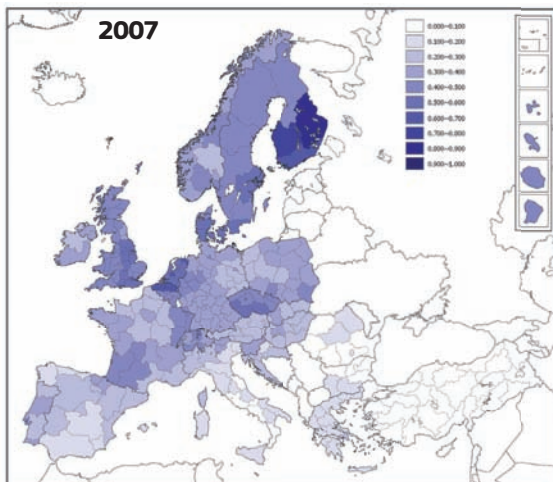
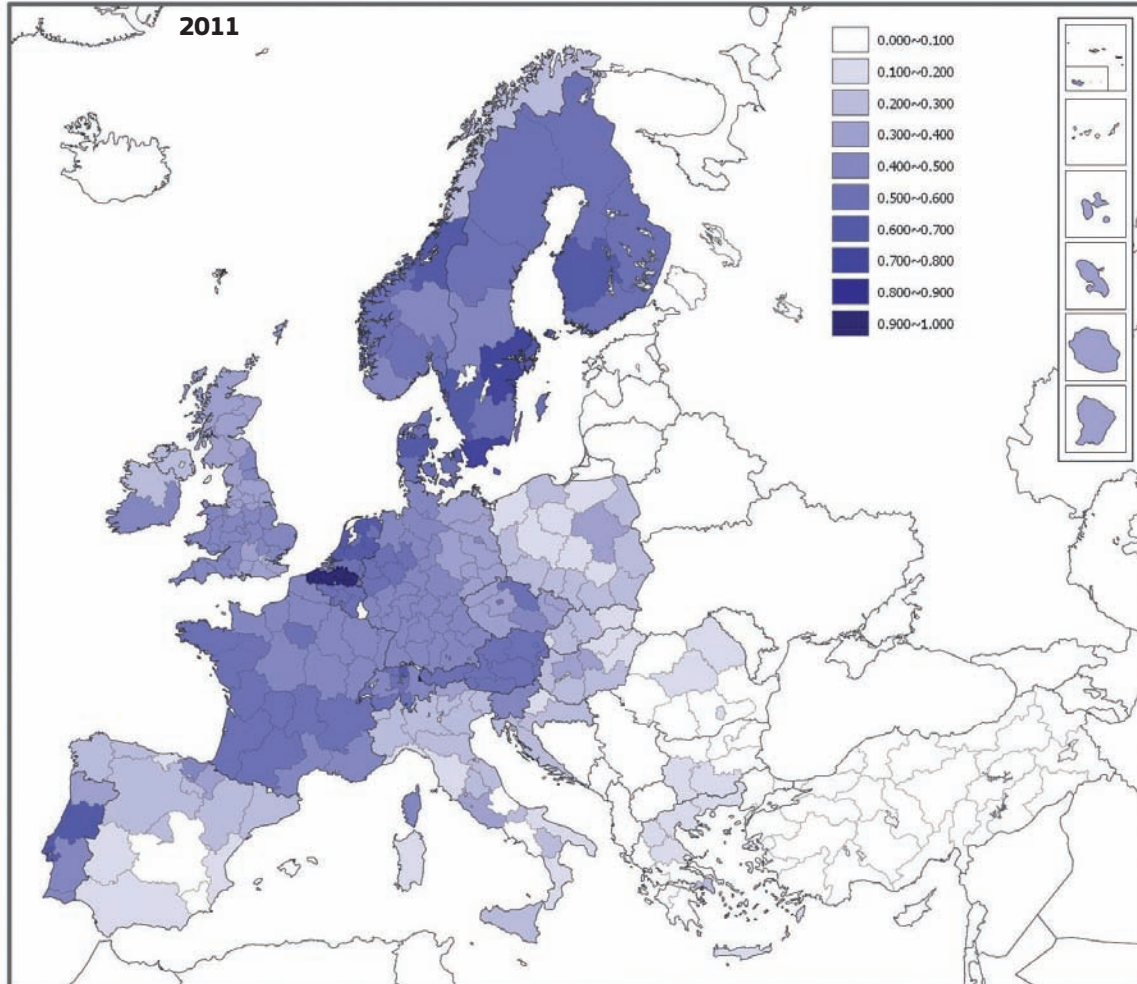
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

SMEs innovating in-house (% of all SMEs)



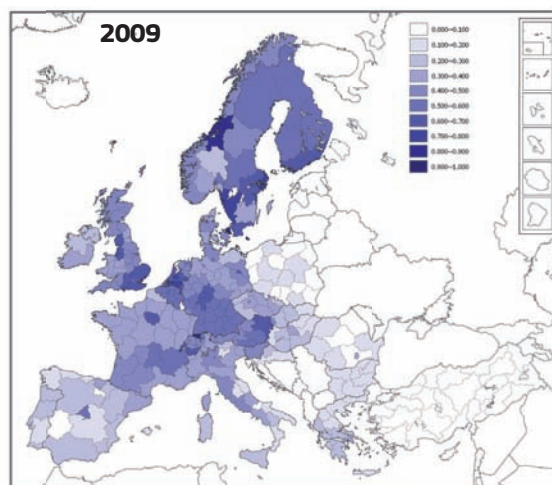
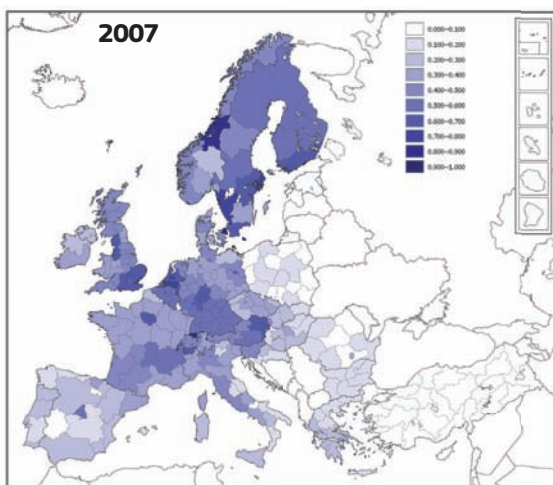
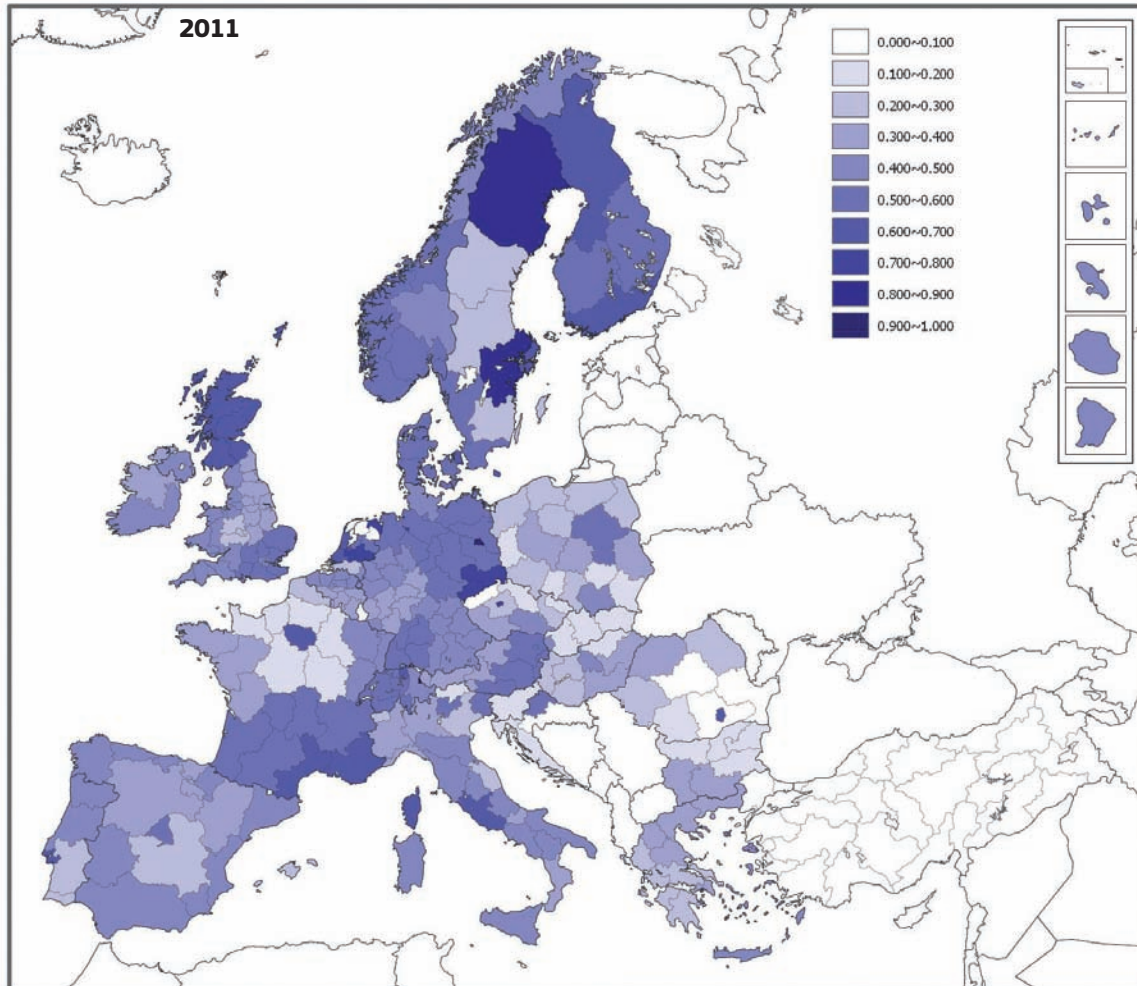
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Innovative SMEs collaborating with others (% of all SMEs)



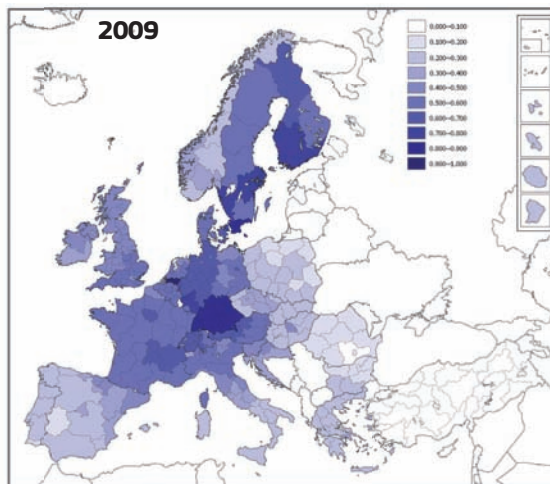
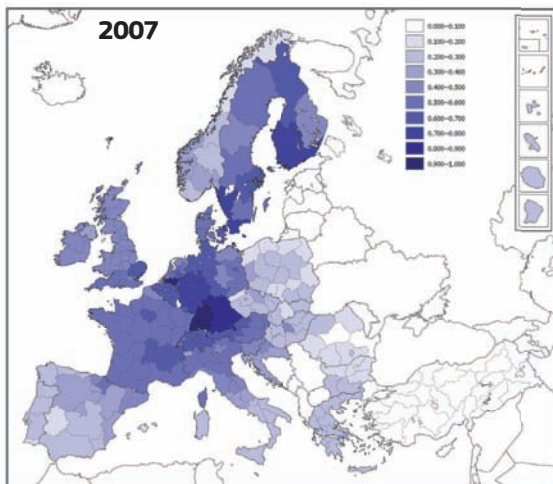
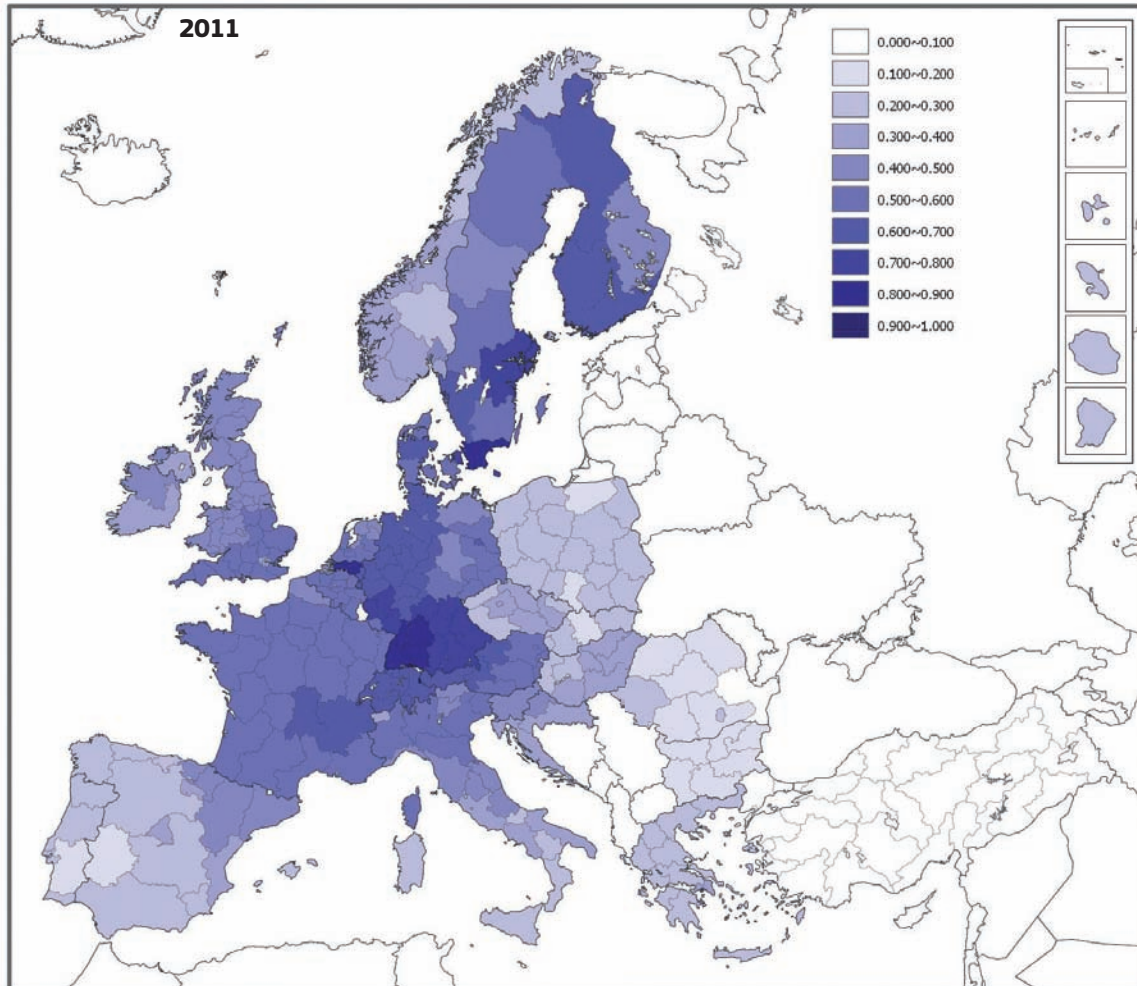
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Public-private co-publications per million population



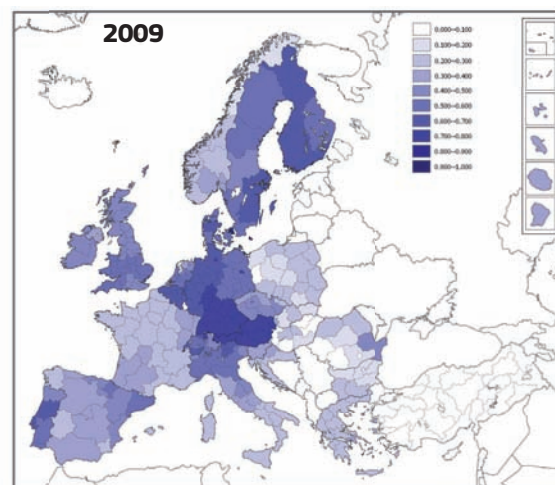
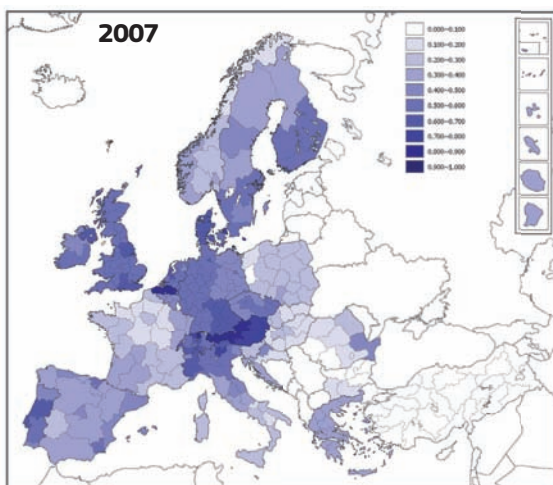
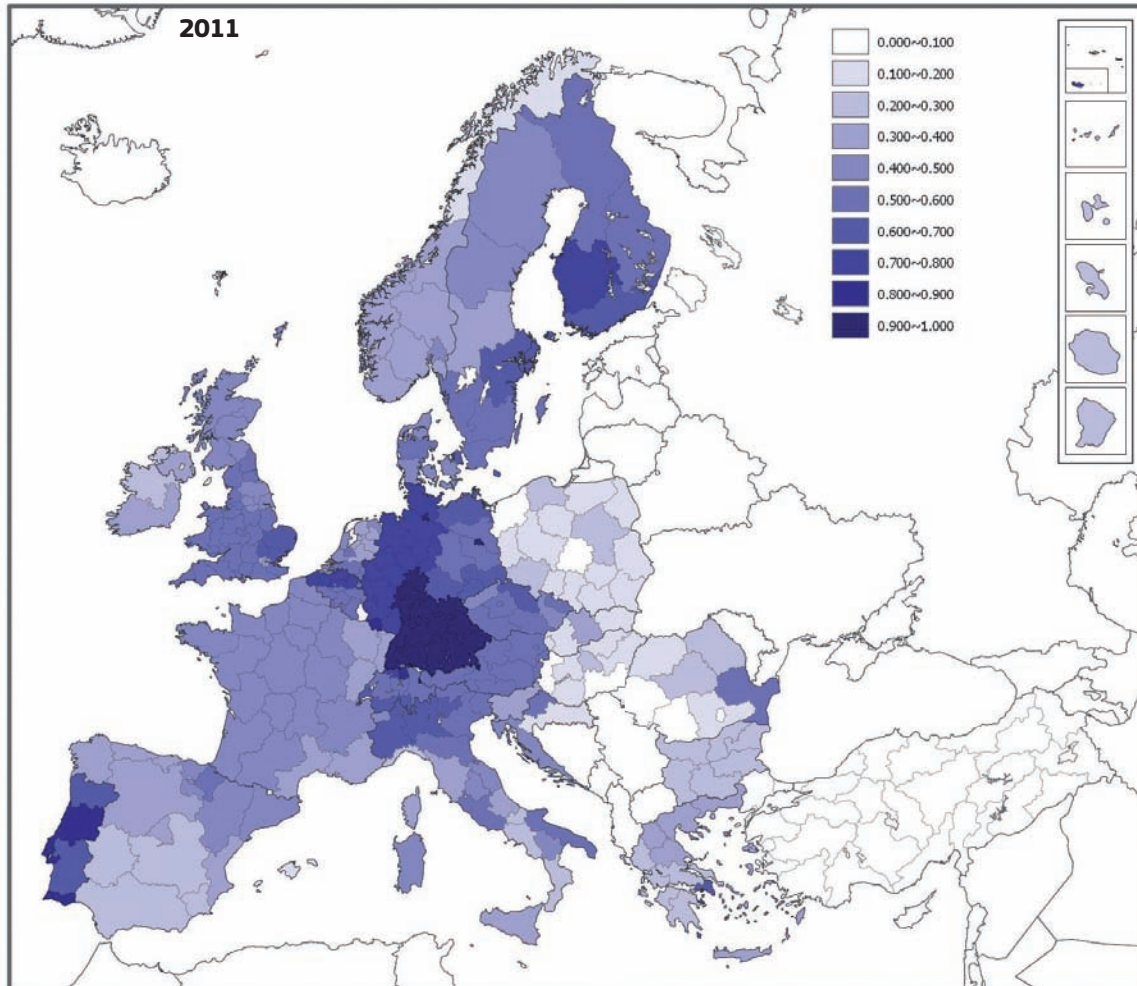
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

EPO patents per billion regional GDP



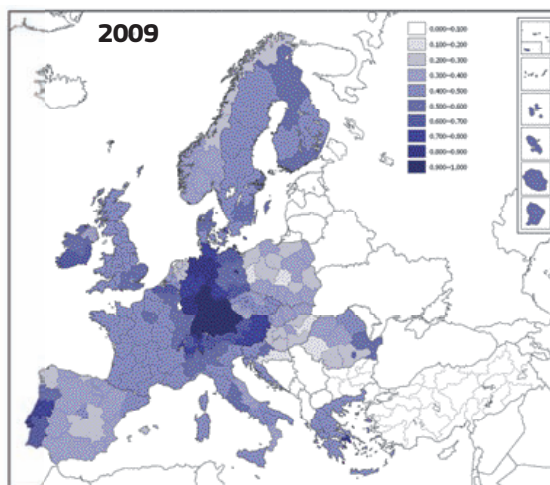
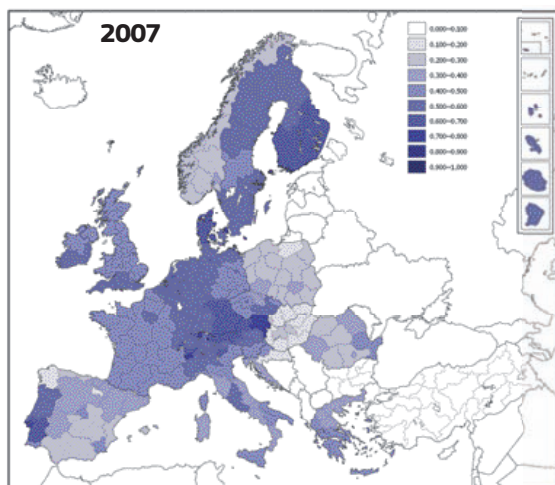
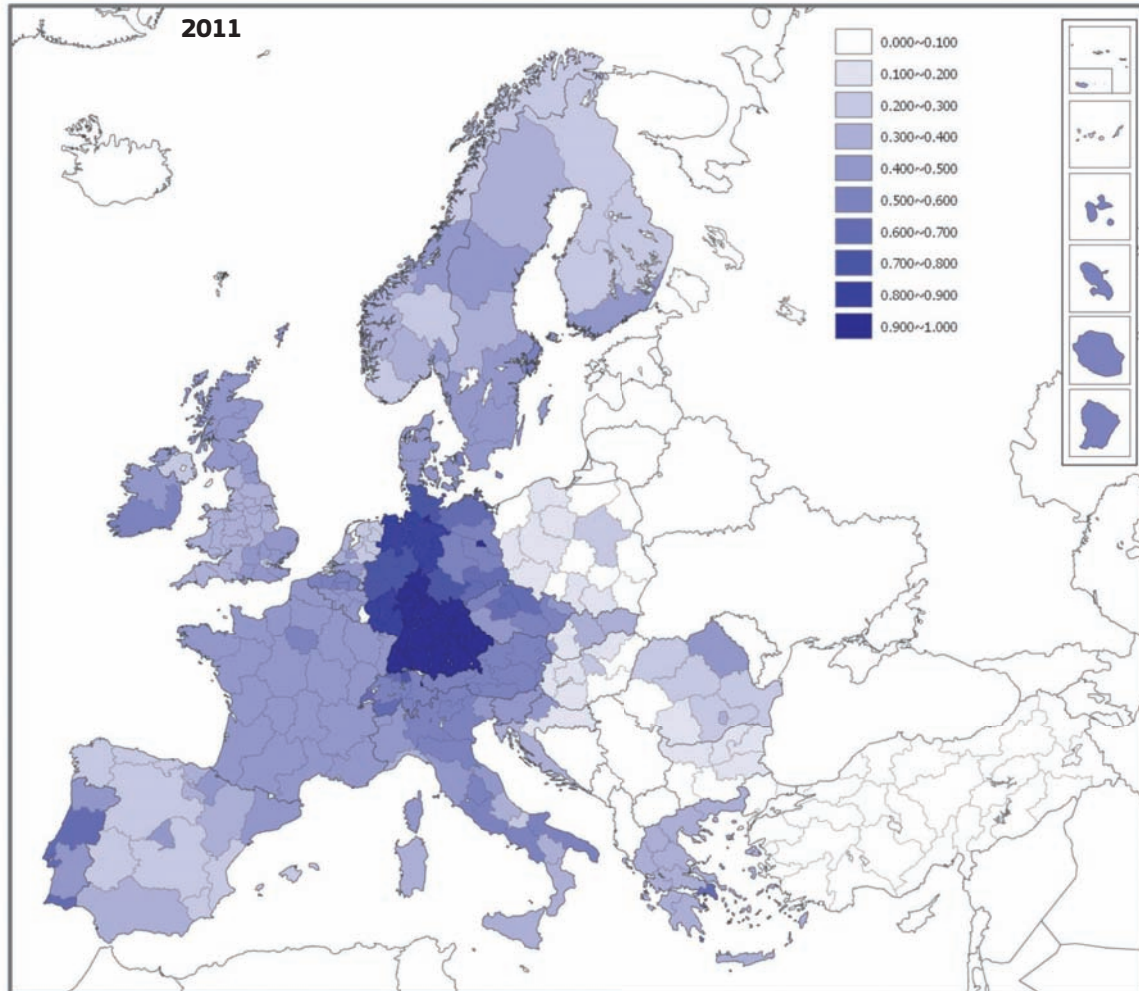
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Technological (product or process) innovators (% of all SMEs)



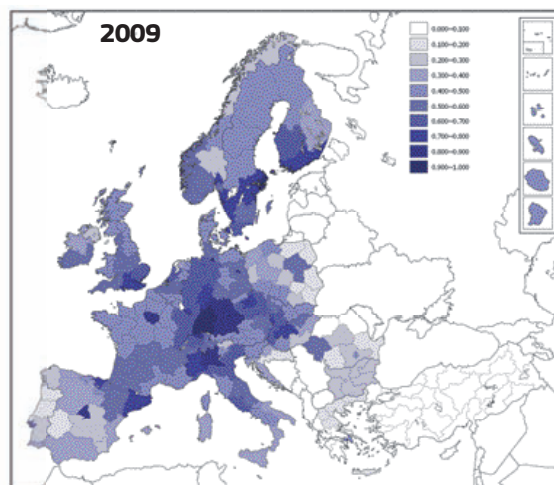
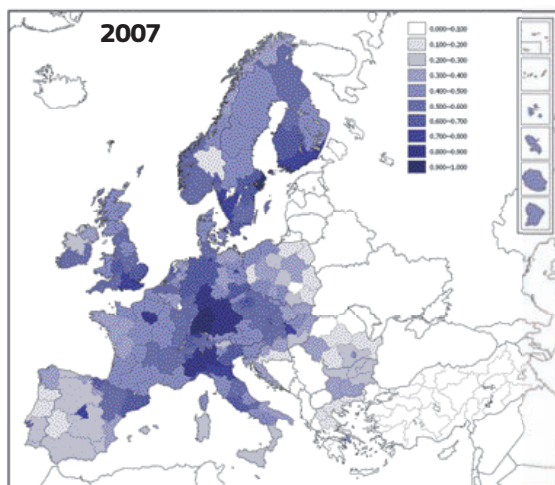
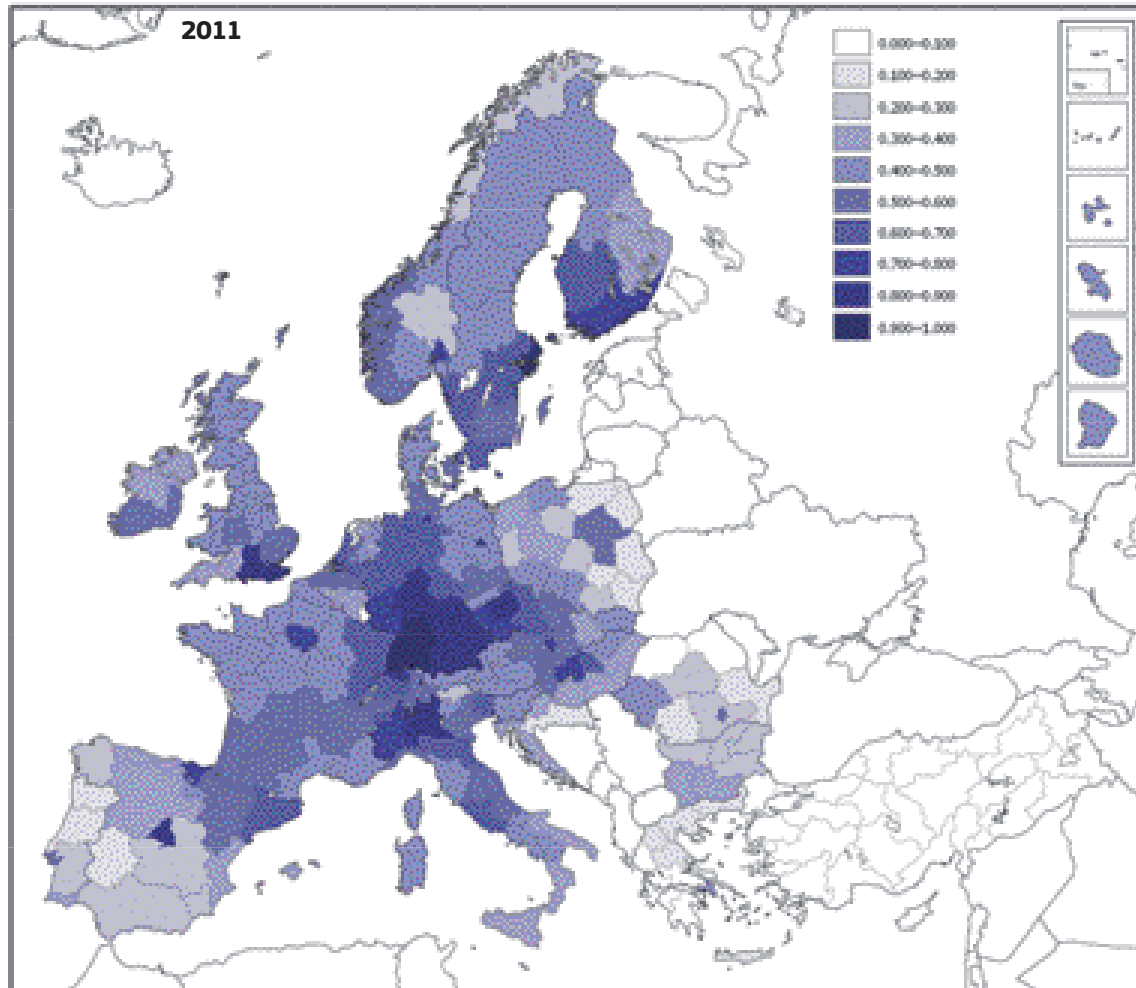
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Non-technological (marketing or organisational) innovators (% of all SMEs)



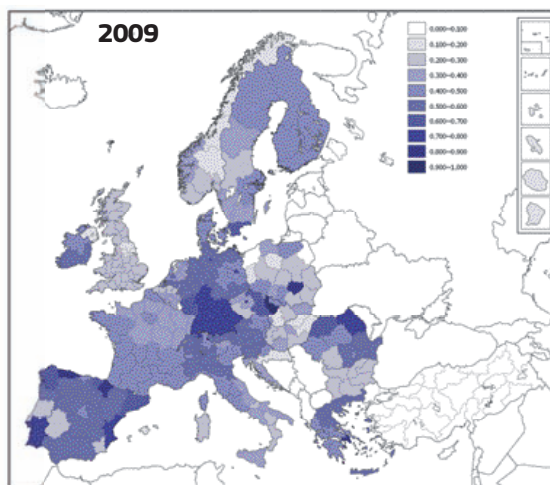
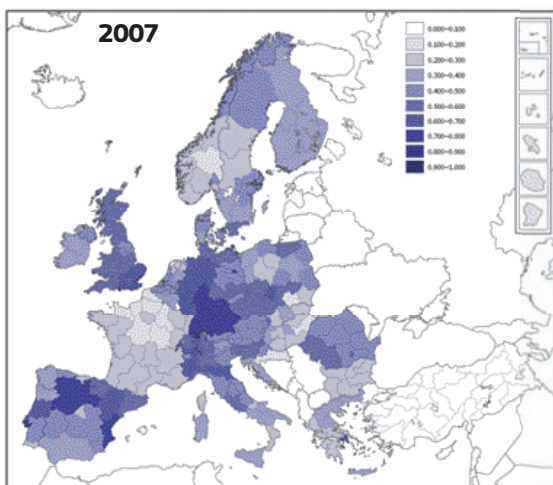
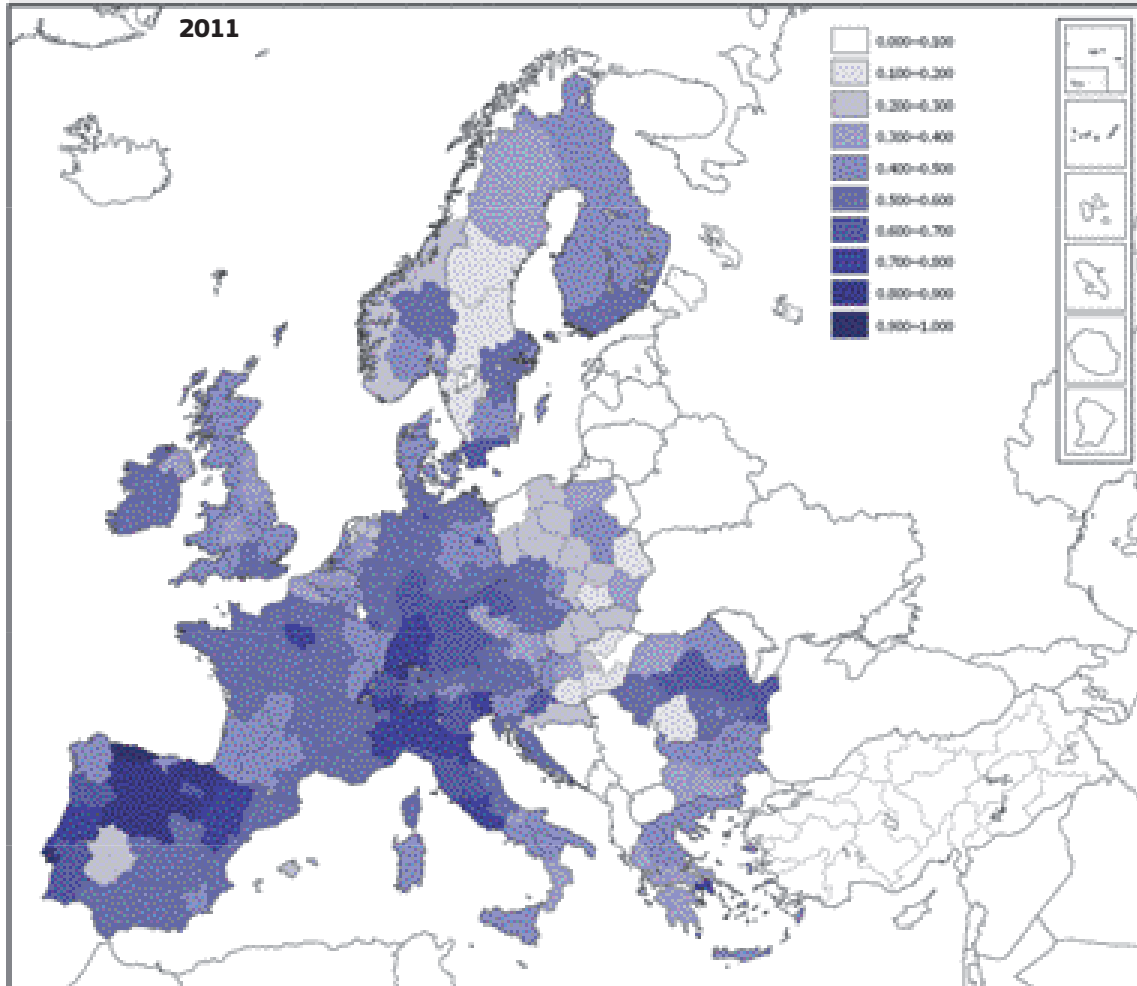
Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Employment in medium-high and high-tech manufacturing & knowledge-intensive services (% of total workforce)



Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Sales of new-to-market and new-to-firm products (% of total turnover)



Source: UNU-MERIT/JRC (maps partially based on imputed data). Maps generated by Region Map Generator

Annex 5: Normalised data per indicator by region

This annex shows the performance of each region for each indicator where data is available. The value of the indicator has been rescaled from a minimum value of 0 for the lowest performing region to a maximum value of 1.0 for the best performing region.

	Population with tertiary education		Public R&D expenditures		Business R&D expenditures		Non-R&D innovation expenditures		SMEs innovating in-house		Innovative SMEs collaborating with others								
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011							
BE																			
BEL	0.92	0.90	0.93	0.44	0.43	0.48	0.41	0.48	0.49	0.39	0.33	0.31	0.50	0.66	0.56	0.54	0.70	0.71	1.00
BE2	0.71	0.72	0.77	0.45	0.45	0.47	0.62	0.61	0.62	0.57	0.42	0.44	0.84	0.70	0.74	0.70	0.71	1.00	
BE3	0.67	0.68	0.75	0.38	0.37	0.39	0.61	0.65	0.64	0.50	0.71	0.65	0.46	0.68	0.56	0.49	0.47	0.53	
BG																			
BG3	0.43	0.43	0.44	0.10	0.11	0.11	0.06	0.10	0.12	0.42	0.73	0.68	0.14	0.22	0.19	0.08	0.11	0.09	
BG4	0.56	0.58	0.59	0.42	0.36	0.37	0.21	0.25	0.25	0.52	0.30	0.34	0.28	0.32	0.16	0.14	0.17	0.15	
CZ																			
CZ01	0.56	0.64	0.69	0.74	0.82	0.78	0.52	0.56	0.54	0.44	0.33	0.38	0.58	0.50	0.45	0.59	0.48	0.51	
CZ02	0.23	0.27	0.31	0.30	0.24	0.24	0.76	0.78	0.74	0.59	0.64	0.68	0.49	0.42	0.54	0.45	0.57	0.39	
CZ03	0.25	0.27	0.29	0.29	0.30	0.33	0.40	0.40	0.44	0.74	0.63	0.68	0.46	0.39	0.46	0.50	0.48	0.37	
CZ04	0.17	0.15	0.19	0.02	0.05	0.05	0.27	0.26	0.28	0.51	0.51	0.78	0.44	0.27	0.39	0.43	0.40	0.39	
CZ05	0.24	0.25	0.28	0.24	0.20	0.18	0.49	0.50	0.52	0.67	0.60	0.87	0.42	0.38	0.50	0.41	0.40	0.51	
CZ06	0.31	0.33	0.37	0.42	0.43	0.42	0.46	0.44	0.46	0.60	0.52	0.67	0.52	0.49	0.47	0.60	0.47	0.46	
CZ07	0.26	0.28	0.29	0.18	0.22	0.22	0.50	0.47	0.44	0.71	0.71	0.72	0.57	0.46	0.33	0.41	0.54	0.35	
CZ08	0.24	0.25	0.33	0.17	0.21	0.19	0.41	0.41	0.40	0.47	0.47	0.65	0.49	0.27	0.42	0.45	0.41	0.33	
DK																			
DK01	0.87	0.91	0.91	0.59	0.66	0.61	0.73	0.93	0.73	0.68	0.49	0.59	0.79	1.00	0.82	0.55	0.89	0.66	
DK02	0.61	0.64	0.59	0.50	0.43	0.51	0.53	0.42	0.54	0.59	0.42	0.51	0.57	0.53	0.57	0.50	0.49	0.60	
DK03	0.58	0.61	0.61	0.49	0.50	0.51	0.53	0.41	0.54	0.59	0.42	0.51	0.56	0.52	0.66	0.51	0.49	0.60	
DK04	0.65	0.68	0.69	0.52	0.53	0.54	0.64	0.52	0.64	0.62	0.44	0.54	0.64	0.75	0.65	0.54	0.69	0.64	
DK05	0.58	0.60	0.62	0.51	0.59	0.53	0.52	0.28	0.54	0.61	0.43	0.52	0.60	0.52	0.65	0.47	0.49	0.56	
DE																			
DE1	0.54	0.57	0.60	0.56	0.54	0.54	0.87	0.89	0.89	0.61	0.57	0.64	0.89	0.73	0.58	0.35	0.41	0.47	
DE2	0.51	0.56	0.59	0.44	0.44	0.44	0.75	0.74	0.74	0.60	0.56	0.63	0.86	0.75	0.63	0.33	0.41	0.48	
DE3	0.72	0.72	0.75	1.00	1.00	0.97	0.69	0.61	0.61	0.63	0.58	0.66	0.94	0.72	0.50	0.37	0.43	0.48	
DE4	0.58	0.61	0.61	0.58	0.58	0.58	0.30	0.32	0.33	0.47	0.44	0.50	0.50	0.48	0.46	0.27	0.29	0.31	
DE5	0.49	0.52	0.56	0.74	0.76	0.75	0.51	0.50	0.51	0.55	0.51	0.58	0.71	0.64	0.57	0.30	0.33	0.35	
DE6	0.57	0.59	0.64	0.52	0.54	0.53	0.57	0.57	0.57	0.61	0.56	0.64	0.88	0.80	0.72	0.47	0.47	0.46	
DE7	0.56	0.56	0.60	0.34	0.38	0.38	0.72	0.73	0.73	0.60	0.56	0.63	0.87	0.72	0.57	0.37	0.41	0.46	
DE8	0.52	0.53	0.55	0.67	0.59	0.59	0.31	0.35	0.35	0.51	0.47	0.53	0.59	0.53	0.48	0.31	0.33	0.35	
DE9	0.44	0.44	0.48	0.51	0.52	0.52	0.63	0.67	0.67	0.55	0.51	0.58	0.71	0.61	0.52	0.34	0.41	0.48	
DEA	0.44	0.48	0.50	0.48	0.47	0.47	0.55	0.56	0.56	0.55	0.51	0.57	0.69	0.60	0.50	0.40	0.45	0.50	
DEB	0.46	0.49	0.51	0.39	0.38	0.38	0.58	0.61	0.61	0.56	0.52	0.58	0.73	0.64	0.54	0.33	0.41	0.48	
DEC	0.35	0.40	0.47	0.49	0.46	0.47	0.32	0.37	0.38	0.57	0.53	0.60	0.76	0.66	0.56	0.44	0.46	0.49	
DED	0.64	0.65	0.65	0.74	0.73	0.72	0.55	0.60	0.60	0.51	0.47	0.53	0.59	0.52	0.46	0.30	0.32	0.35	
DEE	0.46	0.49	0.51	0.54	0.53	0.53	0.33	0.33	0.34	0.47	0.44	0.50	0.50	0.48	0.45	0.29	0.31	0.33	
DEF	0.43	0.47	0.47	0.45	0.46	0.47	0.40	0.40	0.41	0.54	0.50	0.56	0.67	0.59	0.51	0.35	0.41	0.46	
DEG	0.55	0.56	0.58	0.56	0.57	0.57	0.52	0.51	0.52	0.52	0.48	0.54	0.61	0.53	0.45	0.34	0.37	0.40	

	Population with tertiary education		Public R&D expenditures		Business R&D expenditures		Non-R&D innovation expenditures		SMEs innovating in-house		Innovative SMEs collaborating with others	
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011
IE												
IE01	0.57	0.64	0.75	0.28	0.33	0.39	0.56	0.50	0.52	0.36	0.48	0.67
IE02	0.72	0.78	0.85	0.36	0.35	0.40	0.47	0.50	0.52	0.39	0.52	0.72
GR												
GR1	0.48	0.50	0.52	0.28	0.32	0.32	0.15	0.10	0.19	0.40	0.35	0.40
GR2	0.38	0.38	0.40	0.28	0.29	0.29	0.10	0.10	0.20	0.38	0.33	0.38
GR3	0.60	0.63	0.67	0.37	0.40	0.39	0.33	0.32	0.35	0.54	0.47	0.54
GR4	0.40	0.41	0.38	0.39	0.41	0.40	0.09	0.04	0.16	0.41	0.36	0.41
ES												
ES11	0.64	0.66	0.67	0.38	0.36	0.41	0.35	0.42	0.39	0.39	0.38	0.29
ES12	0.68	0.72	0.75	0.31	0.39	0.41	0.32	0.36	0.36	0.46	0.31	0.30
ES13	0.71	0.75	0.77	0.25	0.43	0.45	0.23	0.31	0.35	0.39	0.45	0.34
ES21	0.93	0.92	0.96	0.28	0.30	0.32	0.56	0.63	0.65	0.42	0.42	0.36
ES22	0.80	0.76	0.82	0.43	0.46	0.44	0.55	0.58	0.60	0.37	0.31	0.43
ES23	0.61	0.65	0.76	0.21	0.35	0.35	0.37	0.46	0.42	0.37	0.34	0.47
ES24	0.72	0.69	0.71	0.29	0.33	0.34	0.37	0.39	0.43	0.36	0.41	0.30
ES3	0.77	0.81	0.85	0.52	0.53	0.56	0.54	0.56	0.57	0.30	0.25	0.13
ES41	0.65	0.68	0.69	0.33	0.36	0.37	0.39	0.44	0.48	0.49	0.43	0.35
ES42	0.51	0.50	0.53	0.22	0.27	0.28	0.24	0.31	0.35	0.42	0.42	0.44
ES43	0.52	0.52	0.54	0.40	0.45	0.48	0.22	0.19	0.23	0.32	0.29	0.65
ES51	0.64	0.64	0.66	0.38	0.41	0.45	0.50	0.52	0.53	0.28	0.28	0.34
ES52	0.58	0.57	0.59	0.44	0.42	0.43	0.34	0.35	0.38	0.37	0.33	0.35
ES53	0.51	0.44	0.47	0.20	0.23	0.26	0.12	0.15	0.13	0.44	0.16	0.19
ES61	0.55	0.55	0.56	0.42	0.46	0.48	0.29	0.35	0.33	0.40	0.35	0.34
ES62	0.53	0.54	0.52	0.33	0.35	0.40	0.32	0.38	0.33	0.53	0.34	0.39
ES63	0.46	0.53	0.51	0.11	0.15	0.16	0.00	0.39	0.38	0.54	0.09	0.00
ES64	0.70	0.53	0.50	0.16	0.21	0.22	0.28	0.12	0.04	0.25	0.23	0.20
ES7	0.53	0.51	0.52	0.35	0.39	0.38	0.21	0.21	0.21	0.27	0.47	0.30
FR												
FR1	0.81	0.81	0.83	0.63	0.63	0.63	0.73	0.70	0.70	0.26	0.32	0.39
FR2	0.43	0.47	0.51	0.27	0.30	0.18	0.53	0.54	0.51	0.29	0.33	0.50
FR3	0.49	0.55	0.61	0.33	0.35	0.30	0.33	0.35	0.35	0.29	0.33	0.48
FR4	0.49	0.52	0.58	0.42	0.44	0.44	0.52	0.53	0.54	0.46	0.45	0.57
FR5	0.52	0.52	0.57	0.36	0.38	0.35	0.47	0.48	0.48	0.43	0.43	0.38
FR6	0.56	0.59	0.67	0.59	0.59	0.50	0.67	0.67	0.67	0.46	0.45	0.62
FR7	0.54	0.61	0.61	0.52	0.52	0.54	0.67	0.68	0.65	0.39	0.40	0.66
FR8	0.53	0.57	0.58	0.60	0.60	0.65	0.53	0.54	0.53	0.33	0.36	0.54
FR9	0.50	0.41	0.43	0.47	0.48	0.49	0.45	0.47	0.46	0.31	0.35	0.34
IT												
ITC1	0.27	0.31	0.31	0.29	0.35	0.35	0.61	0.61	0.61	0.50	0.49	0.60
ITC2	0.25	0.26	0.23	0.12	0.26	0.27	0.27	0.26	0.27	0.44	0.43	0.64
ITC3	0.34	0.40	0.40	0.42	0.36	0.36	0.45	0.46	0.47	0.46	0.45	0.48
ITC4	0.30	0.34	0.35	0.28	0.32	0.32	0.48	0.49	0.49	0.50	0.49	0.52
ITD1	0.22	0.23	0.26	0.14	0.17	0.19	0.26	0.35	0.35	0.39	0.38	0.55
ITD2	0.30	0.34	0.35	0.58	0.55	0.55	0.27	0.33	0.34	0.45	0.44	0.54
ITD3	0.26	0.28	0.31	0.25	0.29	0.30	0.30	0.39	0.40	0.45	0.44	0.60

	Population with tertiary education		Public R&D expenditures		Business R&D expenditures		Non-R&D innovation expenditures		SMEs innovating in-house		Innovative SMEs collaborating with others							
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011						
ITD4	0.31	0.30	0.30	0.45	0.51	0.51	0.40	0.44	0.44	0.48	0.47	0.70	0.62	0.56	0.62	0.18	0.21	0.25
ITD5	0.31	0.34	0.34	0.36	0.47	0.47	0.46	0.49	0.49	0.50	0.50	0.52	0.76	0.57	0.62	0.15	0.17	0.28
ITE1	0.33	0.34	0.34	0.51	0.44	0.44	0.33	0.36	0.37	0.45	0.44	0.54	0.47	0.38	0.38	0.10	0.12	0.11
ITE2	0.34	0.33	0.37	0.43	0.49	0.49	0.24	0.25	0.45	0.44	0.54	0.54	0.54	0.49	0.52	0.13	0.16	0.28
ITE3	0.33	0.31	0.35	0.28	0.28	0.29	0.28	0.33	0.34	0.43	0.42	0.63	0.49	0.46	0.48	0.09	0.11	0.29
ITE4	0.39	0.45	0.43	0.75	0.66	0.65	0.40	0.41	0.42	0.49	0.48	0.52	0.47	0.47	0.50	0.08	0.11	0.38
ITF1	0.34	0.37	0.38	0.41	0.43	0.43	0.39	0.37	0.38	0.41	0.40	0.44	0.46	0.32	0.30	0.11	0.13	0.05
ITF2	0.32	0.35	0.35	0.35	0.32	0.32	0.09	0.13	0.16	0.33	0.33	0.33	0.19	0.29	0.26	0.06	0.08	0.24
ITF3	0.31	0.32	0.36	0.49	0.49	0.49	0.36	0.41	0.42	0.40	0.39	0.42	0.35	0.31	0.29	0.07	0.09	0.08
ITF4	0.28	0.32	0.30	0.39	0.45	0.45	0.22	0.23	0.24	0.39	0.38	0.67	0.39	0.54	0.59	0.12	0.14	0.13
ITF5	0.28	0.32	0.31	0.28	0.39	0.40	0.25	0.22	0.24	0.36	0.36	0.44	0.28	0.40	0.41	0.12	0.14	0.26
ITF6	0.32	0.35	0.36	0.30	0.34	0.35	0.06	0.09	0.12	0.35	0.34	0.68	0.30	0.29	0.26	0.06	0.08	0.13
ITG1	0.29	0.32	0.33	0.43	0.45	0.46	0.26	0.25	0.26	0.40	0.39	0.77	0.28	0.34	0.33	0.13	0.15	0.25
ITG2	0.26	0.28	0.29	0.41	0.40	0.40	0.09	0.15	0.17	0.36	0.36	0.61	0.30	0.45	0.46	0.15	0.18	0.13
HU																		
HU1	0.59	0.62	0.62	0.48	0.45	0.45	0.45	0.46	0.46	0.49	0.44	0.36	0.24	0.18	0.19	0.29	0.27	0.34
HU21	0.30	0.35	0.32	0.25	0.23	0.24	0.21	0.28	0.31	0.58	0.57	0.32	0.23	0.17	0.12	0.31	0.31	0.31
HU22	0.29	0.32	0.34	0.18	0.20	0.20	0.20	0.35	0.33	0.52	0.49	0.49	0.14	0.03	0.02	0.27	0.24	0.30
HU23	0.33	0.35	0.38	0.32	0.26	0.21	0.12	0.15	0.18	0.46	0.40	0.77	0.14	0.02	0.01	0.27	0.23	0.24
HU31	0.34	0.32	0.38	0.20	0.20	0.15	0.20	0.26	0.31	0.52	0.49	0.52	0.11	0.02	0.03	0.26	0.22	0.18
HU32	0.35	0.36	0.38	0.40	0.35	0.35	0.32	0.37	0.43	0.45	0.38	0.28	0.12	0.04	0.02	0.23	0.18	0.16
HU33	0.33	0.38	0.40	0.41	0.40	0.37	0.24	0.32	0.31	0.53	0.50	0.42	0.17	0.08	0.04	0.26	0.23	0.24
NL																		
NL11	0.68	0.65	0.74	0.83	0.78	0.77	0.28	0.21	0.22	0.42	0.40	0.52	0.36	0.44	0.55	0.63	0.65	0.67
NL12	0.52	0.53	0.57	0.02	0.00	0.05	0.45	0.43	0.44	0.38	0.36	0.47	0.28	0.37	0.49	0.53	0.58	0.62
NL13	0.54	0.53	0.52	0.16	0.02	0.06	0.40	0.46	0.47	0.38	0.37	0.48	0.29	0.41	0.48	0.54	0.53	0.53
NL21	0.56	0.61	0.59	0.49	0.50	0.50	0.41	0.46	0.47	0.40	0.38	0.50	0.32	0.53	0.50	0.56	0.60	0.65
NL22	0.63	0.66	0.66	0.81	0.73	0.72	0.50	0.44	0.45	0.40	0.38	0.50	0.33	0.52	0.50	0.60	0.61	0.61
NL23	0.53	0.57	0.60	0.59	0.53	0.53	0.46	0.47	0.47	0.40	0.38	0.50	0.33	0.41	0.56	0.60	0.60	0.60
NL31	0.84	0.90	0.88	0.82	0.78	0.76	0.43	0.47	0.47	0.47	0.45	0.59	0.49	0.61	0.64	0.67	0.65	0.64
NL32	0.76	0.80	0.83	0.62	0.63	0.62	0.42	0.45	0.45	0.44	0.42	0.55	0.42	0.53	0.61	0.59	0.63	0.67
NL33	0.66	0.70	0.69	0.64	0.62	0.61	0.45	0.46	0.47	0.44	0.42	0.55	0.42	0.56	0.58	0.59	0.61	0.62
NL34	0.47	0.52	0.54	0.05	0.06	0.09	0.39	0.39	0.40	0.41	0.39	0.51	0.35	0.43	0.52	0.55	0.55	0.55
NL41	0.62	0.66	0.62	0.28	0.28	0.30	0.80	0.78	0.78	0.47	0.45	0.59	0.49	0.51	0.54	0.56	0.58	0.60
NL42	0.54	0.59	0.58	0.46	0.46	0.46	0.63	0.52	0.52	0.45	0.43	0.57	0.45	0.67	0.49	0.58	0.59	0.60
AT																		
AT1	0.43	0.43	0.47	0.58	0.60	0.59	0.66	0.66	0.66	0.53	0.45	0.42	0.73	0.70	0.58	0.29	0.45	0.60
AT2	0.36	0.35	0.35	0.56	0.57	0.56	0.78	0.78	0.76	0.52	0.43	0.72	0.64	0.65	0.54	0.28	0.43	0.58
AT3	0.35	0.37	0.38	0.36	0.36	0.37	0.64	0.63	0.64	0.53	0.45	0.54	0.75	0.73	0.56	0.29	0.41	0.53
PL																		
PL11	0.41	0.45	0.50	0.34	0.34	0.38	0.17	0.16	0.21	0.44	0.44	0.59	0.19	0.11	0.01	0.29	0.22	0.16
PL12	0.57	0.61	0.72	0.53	0.52	0.51	0.31	0.31	0.35	0.55	0.41	0.73	0.21	0.19	0.18	0.39	0.36	0.32
PL21	0.44	0.46	0.53	0.48	0.50	0.48	0.32	0.25	0.31	0.38	0.54	0.38	0.30	0.16	0.13	0.35	0.31	0.27
PL22	0.42	0.44	0.54	0.20	0.21	0.24	0.20	0.22	0.26	0.65	0.60	0.40	0.26	0.24	0.15	0.38	0.33	0.28
PL31	0.37	0.44	0.49	0.28	0.37	0.36	0.21	0.13	0.06	0.71	0.72	0.59	0.26	0.23	0.07	0.37	0.30	0.23
PL32	0.35	0.43	0.49	0.08	0.16	0.13	0.27	0.25	0.28	0.58	0.69	0.54	0.25	0.26	0.14	0.40	0.31	0.21

	Population with tertiary education		Public R&D expenditures		Business R&D expenditures		Non-R&D innovation expenditures		SMEs innovating in-house		Innovative SMEs collaborating with others							
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011						
PL33	0.37	0.44	0.49	0.05	0.06	0.13	0.09	0.13	0.17	0.63	0.48	0.44	0.31	0.18	0.08	0.37	0.26	0.15
PL34	0.44	0.44	0.51	0.22	0.17	0.23	0.09	0.06	0.19	0.68	0.65	0.66	0.23	0.17	0.08	0.38	0.30	0.22
PL41	0.39	0.40	0.48	0.30	0.30	0.32	0.19	0.23	0.20	0.54	0.48	0.61	0.19	0.10	0.07	0.28	0.25	0.19
PL42	0.44	0.49	0.51	0.15	0.22	0.22	0.06	0.00	0.13	0.47	0.45	0.33	0.12	0.14	0.01	0.20	0.23	0.15
PL43	0.36	0.37	0.45	0.11	0.06	0.15	0.10	0.09	0.16	0.65	0.52	0.51	0.08	0.06	0.06	0.26	0.26	0.20
PL51	0.43	0.43	0.51	0.25	0.24	0.25	0.24	0.21	0.22	0.65	0.67	0.45	0.19	0.28	0.19	0.32	0.40	0.29
PL52	0.35	0.43	0.43	0.10	0.12	0.13	0.09	0.06	0.04	0.61	0.60	0.48	0.22	0.24	0.12	0.43	0.40	0.27
PL61	0.30	0.36	0.42	0.10	0.12	0.20	0.22	0.16	0.29	0.75	0.59	0.70	0.25	0.09	0.12	0.37	0.26	0.18
PL62	0.36	0.39	0.49	0.21	0.19	0.22	0.04	0.17	0.12	0.53	0.58	0.65	0.31	0.21	0.08	0.32	0.22	0.19
PL63	0.42	0.47	0.54	0.26	0.25	0.28	0.27	0.27	0.28	0.70	0.52	0.42	0.22	0.29	0.13	0.35	0.41	0.25
PT																		
PT11	0.24	0.27	0.28	0.33	0.44	0.43	0.29	0.38	0.44	0.80	0.71	0.60	0.46	0.46	0.65	0.21	0.21	0.39
PT15	0.27	0.26	0.31	0.18	0.29	0.27	0.00	0.13	0.12	0.66	0.62	0.45	0.38	0.52	0.89	0.35	0.24	0.44
PT16	0.24	0.24	0.26	0.33	0.49	0.49	0.28	0.41	0.40	0.67	0.53	0.60	0.62	0.71	0.85	0.31	0.27	0.65
PT17	0.45	0.46	0.49	0.48	0.67	0.67	0.37	0.51	0.57	0.59	0.47	0.35	0.63	0.64	0.87	0.40	0.34	0.65
PT18	0.20	0.30	0.29	0.24	0.30	0.28	0.24	0.31	0.42	0.85	0.80	0.66	0.57	0.49	0.65	0.25	0.30	0.45
PT2	0.19	0.16	0.23	0.29	0.32	0.30	0.00	0.04	0.12	0.62	0.59	0.55	0.60	0.55	0.61	0.25	0.07	0.55
PT3	0.23	0.27	0.29	0.22	0.25	0.24	0.09	0.10	0.19	0.26	0.31	0.22	0.45	0.34	0.60	0.09	0.17	0.49
RO																		
RO11	0.24	0.30	0.32	0.16	0.25	0.31	0.17	0.18	0.15	0.51	0.51	0.60	0.14	0.23	0.12	0.09	0.06	0.05
RO12	0.26	0.28	0.30	0.03	0.09	0.09	0.20	0.13	0.12	0.54	0.49	0.59	0.17	0.18	0.23	0.12	0.14	0.11
RO21	0.22	0.25	0.26	0.13	0.26	0.28	0.15	0.13	0.12	0.74	0.66	0.47	0.25	0.33	0.30	0.15	0.19	0.11
RO22	0.23	0.23	0.26	0.06	0.09	0.09	0.15	0.17	0.17	0.70	0.75	0.79	0.34	0.64	0.48	0.04	0.11	0.08
RO31	0.21	0.20	0.24	0.00	0.05	0.06	0.33	0.35	0.31	0.58	0.58	0.72	0.09	0.18	0.13	0.09	0.12	0.06
RO32	0.62	0.65	0.66	0.46	0.55	0.66	0.37	0.39	0.33	0.38	0.40	0.47	0.16	0.08	0.09	0.13	0.06	0.11
RO41	0.25	0.29	0.31	0.12	0.15	0.15	0.15	0.12	0.13	0.54	0.42	0.57	0.06	0.03	0.00	0.06	0.06	0.00
RO42	0.26	0.31	0.34	0.10	0.16	0.22	0.16	0.17	0.15	0.47	0.39	0.51	0.04	0.01	0.05	0.05	0.10	0.03
SI																		
SI01	0.39	0.42	0.45	0.15	0.16	0.15	0.44	0.48	0.52	0.50	0.54	0.57	0.28	0.38	0.36	0.34	0.48	0.49
SI02	0.58	0.61	0.63	0.61	0.60	0.60	0.53	0.52	0.57	0.44	0.45	0.44	0.28	0.44	0.44	0.45	0.67	0.60
SK																		
SK01	0.58	0.60	0.69	0.45	0.48	0.48	0.29	0.21	0.26	0.38	0.35	0.30	0.18	0.30	0.16	0.20	0.32	0.19
SK02	0.27	0.26	0.30	0.10	0.11	0.11	0.34	0.30	0.30	0.58	0.43	0.58	0.20	0.15	0.12	0.32	0.24	0.22
SK03	0.29	0.30	0.36	0.12	0.11	0.13	0.25	0.20	0.21	0.62	0.62	0.62	0.12	0.23	0.25	0.26	0.36	0.25
SK04	0.27	0.28	0.32	0.16	0.19	0.16	0.19	0.19	0.18	0.63	0.49	0.32	0.10	0.16	0.06	0.25	0.19	0.18
FI																		
FI13	0.65	0.65	0.69	0.65	0.61	0.56	0.44	0.44	0.43	0.55	0.47	0.44	0.62	0.65	0.57	0.88	0.73	0.57
FI18	0.79	0.84	0.87	0.67	0.64	0.65	0.77	0.76	0.79	0.61	0.51	0.41	0.54	0.68	0.63	0.64	0.59	0.54
FI19	0.70	0.71	0.77	0.54	0.52	0.52	0.80	0.82	0.85	0.60	0.51	0.44	0.61	0.75	0.72	0.72	0.71	0.70
FI1A	0.71	0.72	0.75	0.67	0.65	0.65	0.90	0.96	1.00	0.59	0.50	0.47	0.38	0.67	0.61	0.47	0.53	0.59
FI2	0.55	0.60	0.60	0.09	0.08	0.09	0.10	0.16	0.22	0.55	0.46	0.45	0.40	0.31	0.66	0.26	0.66	0.63
SE																		
SE11	0.77	0.82	0.86	0.71	0.64	0.63	0.84	0.83	0.83	0.69	0.61	0.42	0.53	0.60	0.66	0.53	0.65	0.69
SE12	0.60	0.61	0.63	0.83	0.84	0.82	0.77	0.74	0.74	0.69	0.61	0.52	0.53	0.63	0.70	0.54	0.67	0.72
SE21	0.48	0.53	0.54	0.21	0.21	0.23	0.50	0.51	0.51	0.65	0.58	0.55	0.48	0.60	0.66	0.43	0.52	0.53
SE22	0.65	0.69	0.74	0.68	0.61	0.60	0.86	0.91	0.91	0.65	0.58	0.58	0.49	0.55	0.60	0.55	0.68	0.72

	Population with tertiary education			Public R&D expenditures			Business R&D expenditures			Non-R&D innovation expenditures			SMEs innovating in-house			Innovative SMEs collaborating with others		
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011
SE23	0.61	0.64	0.68	0.87	0.53	0.53	0.91	0.83	0.83	0.66	0.59	0.33	0.50	0.57	0.62	0.48	0.58	0.61
SE31	0.50	0.49	0.56	0.25	0.24	0.25	0.54	0.54	0.54	0.56	0.49	0.43	0.31	0.38	0.37	0.40	0.48	0.49
SE32	0.55	0.60	0.63	0.28	0.25	0.26	0.41	0.39	0.39	0.61	0.53	0.51	0.44	0.50	0.53	0.45	0.54	0.56
SE33	0.61	0.61	0.65	0.94	0.91	0.89	0.46	0.50	0.50	0.61	0.54	0.61	0.38	0.50	0.53	0.45	0.56	0.58
United Kingdom																		
UK	0.57	0.56	0.64	0.35	0.36	0.37	0.35	0.46	0.46	0.48	0.40	0.47	0.56	0.50	0.49	0.39	0.48	0.43
UKD	0.60	0.63	0.70	0.39	0.40	0.40	0.65	0.66	0.67	0.49	0.42	0.49	0.54	0.53	0.52	0.45	0.40	0.37
UKF	0.55	0.61	0.64	0.37	0.39	0.39	0.35	0.37	0.37	0.47	0.39	0.47	0.63	0.45	0.44	0.50	0.40	0.37
UKG	0.59	0.59	0.67	0.35	0.36	0.36	0.60	0.58	0.56	0.51	0.43	0.51	0.59	0.58	0.57	0.50	0.54	0.46
UKH	0.57	0.61	0.63	0.28	0.28	0.27	0.48	0.52	0.50	0.48	0.40	0.48	0.49	0.55	0.54	0.41	0.46	0.41
UKI	0.57	0.59	0.68	0.54	0.53	0.54	0.85	0.90	0.87	0.54	0.45	0.53	0.57	0.62	0.61	0.47	0.44	0.40
UKJ	0.88	0.91	0.99	0.47	0.47	0.46	0.29	0.35	0.34	0.50	0.42	0.50	0.56	0.36	0.34	0.54	0.27	0.28
UKK	0.68	0.71	0.79	0.49	0.50	0.52	0.68	0.68	0.67	0.55	0.46	0.54	0.58	0.53	0.51	0.55	0.41	0.38
UKL	0.65	0.65	0.73	0.44	0.40	0.43	0.59	0.57	0.59	0.51	0.43	0.51	0.56	0.55	0.53	0.49	0.49	0.43
UKM	0.59	0.65	0.75	0.45	0.45	0.43	0.40	0.38	0.39	0.49	0.41	0.49	0.60	0.55	0.54	0.42	0.44	0.40
UKN	0.73	0.77	0.79	0.63	0.63	0.62	0.43	0.38	0.39	0.49	0.41	0.49	0.55	0.45	0.43	0.47	0.33	0.33
UKO	0.63	0.69	0.71	0.39	0.39	0.40	0.39	0.42	0.41	0.45	0.38	0.45	0.62	0.29	0.28	0.33	0.26	0.28
CH Switzerland																		
CH01	0.69	0.75	0.78	0.52	0.54	0.53	0.74	0.73	0.74	0.57	0.48	0.90	0.65	0.66	0.64	0.44	0.50	0.55
CH02	0.60	0.65	0.67	0.48	0.50	0.50	0.70	0.70	0.70	0.54	0.45	0.85	0.56	0.57	0.55	0.39	0.44	0.49
CH03	0.62	0.73	0.74	0.55	0.57	0.56	0.76	0.75	0.76	0.60	0.50	0.93	0.71	0.73	0.70	0.47	0.53	0.59
CH04	0.72	0.79	0.82	0.60	0.62	0.61	0.79	0.79	0.80	0.64	0.54	1.00	0.83	0.85	0.82	0.54	0.61	0.68
CH05	0.54	0.60	0.63	0.46	0.48	0.48	0.69	0.68	0.69	0.52	0.44	0.82	0.51	0.53	0.50	0.37	0.41	0.46
CH06	0.59	0.66	0.68	0.50	0.52	0.51	0.72	0.72	0.72	0.55	0.47	0.87	0.60	0.61	0.59	0.41	0.46	0.52
CH07	0.56	0.64	0.61	0.50	0.52	0.51	0.72	0.72	0.72	0.55	0.47	0.87	0.60	0.61	0.59	0.41	0.47	0.52
NO Norway																		
N001	0.95	0.99	1.00	0.50	0.53	0.53	0.48	0.51	0.51	0.20	0.28	0.12	0.34	0.36	0.42	0.36	0.41	0.51
N002	0.54	0.52	0.64	0.42	0.45	0.45	0.48	0.50	0.50	0.36	0.38	0.36	0.22	0.18	0.35	0.26	0.40	0.41
N003	0.59	0.64	0.66	0.48	0.52	0.51	0.48	0.51	0.51	0.33	0.36	0.37	0.30	0.26	0.36	0.40	0.41	0.52
N004	0.65	0.66	0.70	0.47	0.51	0.50	0.49	0.51	0.51	0.18	0.27	0.26	0.34	0.24	0.33	0.32	0.42	0.49
N005	0.64	0.70	0.76	0.48	0.51	0.50	0.50	0.52	0.52	0.28	0.33	0.19	0.31	0.25	0.36	0.37	0.43	0.52
N006	0.68	0.73	0.78	0.47	0.51	0.50	0.50	0.53	0.53	0.36	0.38	0.24	0.31	0.24	0.33	0.47	0.44	0.66
N007	0.62	0.69	0.71	0.41	0.43	0.43	0.44	0.47	0.46	0.29	0.34	0.05	0.18	0.16	0.14	0.31	0.34	0.30
HR Croatia																		
HR01	0.42	0.44	0.52	0.58	0.59	0.59	0.47	0.48	0.48	0.45	0.37	0.61	0.47	0.38	0.43	0.16	0.36	0.16
HR02	0.27	0.29	0.27	0.09	0.12	0.09	0.15	0.13	0.04	0.29	0.24	0.41	0.13	0.26	0.11	0.22	0.22	0.24
HR03	0.40	0.42	0.49	0.17	0.19	0.17	0.23	0.22	0.18	0.41	0.34	0.56	0.38	0.28	0.34	0.22	0.23	0.24

	Public-private co-publications			EPO patents			Technological (product or process) innovators			Non-technological (marketing or organisational) innovators			Employment in medium-high/tech manufacturing & knowledge-intensive services			Sales of new-to-market and new-to-firm products		
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011
BE																		
BE1	0.62	0.62	0.62	0.46	0.42	0.43	0.49	0.64	0.55	0.68	0.66	0.58	0.72	0.64	0.62	0.30	0.33	0.29
BE2	0.53	0.53	0.53	0.61	0.59	0.59	0.84	0.70	0.72	0.57	0.61	0.57	0.58	0.55	0.54	0.48	0.24	0.39
BE3	0.52	0.52	0.52	0.61	0.59	0.57	0.44	0.70	0.53	0.51	0.58	0.49	0.39	0.42	0.39	0.37	0.39	0.42
BG																		
BG3	0.19	0.19	0.19	0.19	0.18	0.16	0.05	0.11	0.21	0.05	0.07	0.13	0.24	0.23	0.23	0.21	0.30	0.41
BG4	0.13	0.13	0.13	0.24	0.27	0.19	0.15	0.20	0.22	0.03	0.07	0.08	0.31	0.30	0.31	0.26	0.23	0.38
CZ																		
CZ01	0.49	0.49	0.49	0.31	0.31	0.32	0.58	0.52	0.51	0.54	0.58	0.62	0.71	0.83	0.85	0.52	0.89	0.58
CZ02	0.34	0.34	0.34	0.27	0.33	0.33	0.52	0.42	0.59	0.46	0.43	0.67	0.63	0.73	0.86	0.60	0.32	0.62
CZ03	0.24	0.24	0.24	0.22	0.27	0.27	0.45	0.41	0.56	0.44	0.39	0.43	0.54	0.69	0.71	0.54	0.28	0.35
CZ04	0.22	0.22	0.22	0.18	0.22	0.20	0.40	0.31	0.48	0.40	0.40	0.55	0.45	0.47	0.49	0.42	0.35	0.69
CZ05	0.38	0.38	0.38	0.35	0.33	0.35	0.40	0.39	0.67	0.39	0.32	0.63	0.60	0.67	0.70	0.51	0.68	0.55
CZ06	0.34	0.34	0.34	0.27	0.32	0.36	0.53	0.49	0.56	0.52	0.42	0.60	0.53	0.64	0.61	0.60	0.70	0.52
CZ07	0.35	0.35	0.35	0.28	0.32	0.33	0.56	0.48	0.43	0.52	0.40	0.56	0.51	0.53	0.52	0.57	0.92	0.55
CZ08	0.20	0.20	0.20	0.29	0.26	0.28	0.50	0.30	0.50	0.46	0.43	0.47	0.40	0.46	0.52	0.50	0.47	0.41
DK																		
DK01	0.97	0.97	0.97	0.75	0.71	0.71	0.79	0.90	0.63	0.75	0.65	0.56	0.69	0.72	0.70	0.53	0.55	0.58
DK02	0.42	0.42	0.42	0.61	0.62	0.60	0.57	0.51	0.45	0.57	0.48	0.41	0.47	0.49	0.50	0.40	0.41	0.43
DK03	0.38	0.38	0.38	0.58	0.57	0.55	0.64	0.50	0.44	0.64	0.48	0.40	0.42	0.44	0.44	0.39	0.41	0.42
DK04	0.40	0.40	0.40	0.58	0.60	0.68	0.64	0.70	0.50	0.62	0.53	0.46	0.45	0.47	0.47	0.44	0.46	0.47
DK05	0.35	0.35	0.35	0.53	0.53	0.55	0.64	0.50	0.47	0.63	0.51	0.43	0.41	0.43	0.42	0.42	0.43	0.45
DE																		
DE1	0.54	0.54	0.54	0.90	0.88	0.85	0.58	0.76	0.95	0.58	0.96	0.96	0.93	1.00	0.96	0.76	0.74	0.72
DE2	0.56	0.56	0.56	0.80	0.80	0.79	0.62	0.77	0.92	0.61	0.93	0.93	0.82	0.85	0.84	0.74	0.72	0.70
DE3	0.68	0.68	0.68	0.67	0.69	0.68	0.53	0.77	1.00	0.52	1.00	1.00	0.88	0.84	0.82	0.80	0.78	0.76
DE4	0.44	0.44	0.44	0.56	0.59	0.60	0.48	0.51	0.54	0.49	0.60	0.60	0.45	0.51	0.45	0.46	0.45	0.43
DE5	0.60	0.60	0.60	0.47	0.49	0.43	0.57	0.67	0.76	0.57	0.80	0.80	0.67	0.79	0.77	0.62	0.61	0.59
DE6	0.60	0.60	0.60	0.56	0.55	0.54	0.64	0.79	0.94	0.68	0.95	0.95	0.86	0.91	0.89	0.75	0.73	0.71
DE7	0.61	0.61	0.61	0.72	0.70	0.70	0.57	0.75	0.92	0.57	0.93	0.94	0.82	0.77	0.81	0.74	0.72	0.70
DE8	0.29	0.29	0.29	0.48	0.48	0.48	0.49	0.56	0.63	0.50	0.69	0.69	0.36	0.43	0.43	0.53	0.51	0.50
DE9	0.39	0.39	0.39	0.66	0.63	0.63	0.53	0.64	0.76	0.53	0.80	0.80	0.67	0.67	0.70	0.62	0.60	0.59
DEA	0.45	0.45	0.45	0.72	0.69	0.67	0.52	0.63	0.74	0.52	0.78	0.79	0.64	0.68	0.64	0.61	0.59	0.58
DEB	0.57	0.57	0.57	0.78	0.75	0.75	0.55	0.67	0.78	0.55	0.82	0.82	0.58	0.69	0.77	0.64	0.62	0.60
DEC	0.40	0.40	0.40	0.61	0.59	0.58	0.57	0.69	0.81	0.56	0.85	0.85	0.55	0.78	0.76	0.66	0.64	0.63
DED	0.36	0.36	0.36	0.54	0.56	0.56	0.48	0.55	0.63	0.49	0.68	0.68	0.70	0.60	0.59	0.52	0.51	0.50
DEE	0.37	0.37	0.37	0.41	0.45	0.44	0.47	0.50	0.54	0.48	0.60	0.60	0.36	0.43	0.43	0.46	0.45	0.43
DEF	0.41	0.41	0.41	0.62	0.61	0.61	0.54	0.63	0.72	0.52	0.76	0.77	0.50	0.59	0.59	0.59	0.58	0.56
DEG	0.47	0.47	0.47	0.62	0.60	0.58	0.47	0.56	0.65	0.47	0.71	0.71	0.48	0.59	0.63	0.54	0.53	0.52
IE																		
IE01	0.30	0.30	0.30	0.47	0.49	0.48	0.43	0.43	0.29	0.46	0.57	0.45	0.30	0.35	0.35	0.33	0.49	0.50

	Public-private co-publications				EPO patents				Technological (product or process) innovators				Non-technological (marketing or organisational) innovators				Employment in medium-high/tech manufacturing & knowledge-intensive services				Sales of new-to-market and new-to-firm products			
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011
IE02 Southern and Eastern	0.33	0.33	0.33	0.41	0.38	0.38	0.52	0.40	0.35	0.54	0.65	0.52	0.53	0.53	0.38	0.56	0.57							
GR																								
GR1 Voreia Ellada	0.18	0.18	0.18	0.23	0.24	0.28	0.37	0.30	0.34	0.39	0.46	0.37	0.13	0.14	0.14	0.35	0.50	0.42						
GR2 Kentriki Ellada	0.24	0.24	0.24	0.23	0.23	0.28	0.38	0.30	0.28	0.41	0.40	0.32	0.09	0.07	0.05	0.30	0.44	0.37						
GR3 Attiki	0.37	0.37	0.37	0.33	0.33	0.36	0.38	0.34	0.69	0.40	0.82	0.69	0.44	0.48	0.63	0.89	0.75							
GR4 Nisia Aigaiou, Kriti	0.14	0.14	0.14	0.21	0.21	0.26	0.39	0.30	0.35	0.41	0.48	0.39	0.06	0.14	0.16	0.36	0.52	0.44						
ES																								
ES11 Galicia	0.17	0.17	0.17	0.27	0.28	0.25	0.31	0.29	0.31	0.16	0.27	0.29	0.31	0.30	0.32	0.65	0.45							
ES12 Principado de Asturias	0.10	0.10	0.10	0.30	0.29	0.30	0.46	0.36	0.31	0.28	0.37	0.27	0.27	0.36	0.33	0.41	0.87	1.00						
ES13 Cantabria	0.15	0.15	0.15	0.24	0.32	0.22	0.39	0.42	0.35	0.26	0.29	0.28	0.39	0.40	0.34	0.27	0.42	0.40						
ES21 País Vasco	0.39	0.39	0.39	0.41	0.42	0.41	0.53	0.45	0.49	0.33	0.34	0.32	0.64	0.71	0.73	0.55	0.67	0.88						
ES22 Comunidad Foral de Navarra	0.22	0.22	0.22	0.52	0.45	0.48	0.39	0.54	0.60	0.39	0.37	0.42	0.56	0.53	0.52	0.60	0.80	0.82						
ES23 La Rioja	0.00	0.00	0.00	0.39	0.32	0.39	0.32	0.42	0.43	0.17	0.34	0.32	0.36	0.45	0.44	0.51	0.56	0.62						
ES24 Aragón	0.26	0.26	0.26	0.35	0.37	0.42	0.39	0.42	0.45	0.39	0.35	0.39	0.54	0.54	0.56	0.62	0.59	0.75						
ES3 Comunidad de Madrid	0.53	0.53	0.53	0.36	0.36	0.35	0.49	0.36	0.33	0.44	0.41	0.40	0.71	0.82	0.82	0.22	0.49	0.81						
ES41 Castilla y León	0.26	0.26	0.26	0.32	0.28	0.28	0.39	0.34	0.36	0.35	0.32	0.29	0.30	0.38	0.38	0.75	0.56	0.84						
ES42 Castilla-la Mancha	0.19	0.19	0.19	0.27	0.27	0.25	0.38	0.32	0.27	0.25	0.27	0.28	0.20	0.23	0.24	0.42	0.50	0.54						
ES43 Extremadura	0.00	0.00	0.00	0.19	0.18	0.14	0.28	0.22	0.24	0.31	0.31	0.30	0.13	0.17	0.19	0.42	0.29	0.25						
ES51 Cataluña	0.39	0.39	0.39	0.46	0.45	0.44	0.49	0.50	0.42	0.38	0.42	0.41	0.63	0.71	0.70	0.54	0.66	0.52						
ES52 Comunidad Valenciana	0.23	0.23	0.23	0.36	0.31	0.32	0.41	0.40	0.31	0.28	0.36	0.30	0.35	0.33	0.33	0.78	0.73	0.52						
ES53 Illes Balears	0.16	0.16	0.16	0.19	0.20	0.22	0.40	0.20	0.18	0.30	0.24	0.30	0.29	0.37	0.37	0.02	0.16	0.29						
ES61 Andalucía	0.20	0.20	0.20	0.23	0.26	0.22	0.39	0.33	0.27	0.22	0.34	0.32	0.27	0.31	0.30	0.39	0.50	0.51						
ES62 Región de Murcia	0.27	0.27	0.27	0.25	0.28	0.30	0.59	0.29	0.24	0.42	0.32	0.22	0.26	0.29	0.29	0.48	0.27	0.48						
ES63 Ciudad Autónoma de Ceuta (ES)	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.25	0.10	0.16	0.31	0.05	0.23	0.26	0.27	0.00	0.07	0.16						
ES64 Ciudad Autónoma de Melilla (ES)	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.15	0.13	0.22	0.13	0.11	0.13	0.15	0.16	0.24	0.31	0.37						
ES7 Canarias (ES)	0.27	0.27	0.27	0.20	0.19	0.17	0.34	0.23	0.22	0.23	0.32	0.24	0.25	0.25	0.26	0.02	0.14	0.22						
FR																								
FR1 Île de France	0.63	0.63	0.63	0.66	0.63	0.60	0.25	0.26	0.47	0.51	0.51	0.50	0.85	0.83	0.78	0.25	0.47	0.71						
FR2 Bassin Parisien	0.34	0.34	0.34	0.53	0.52	0.51	0.18	0.20	0.40	0.41	0.43	0.43	0.48	0.45	0.45	0.19	0.39	0.57						
FR3 Nord - Pas-de-Calais	0.24	0.24	0.24	0.44	0.42	0.40	0.24	0.25	0.43	0.45	0.46	0.43	0.45	0.45	0.42	0.19	0.40	0.37						
FR4 Est (FR)	0.34	0.34	0.34	0.57	0.59	0.58	0.34	0.33	0.39	0.51	0.51	0.44	0.58	0.66	0.64	0.23	0.33	0.41						
FR5 Ouest (FR)	0.34	0.34	0.34	0.52	0.52	0.51	0.28	0.28	0.44	0.45	0.46	0.44	0.36	0.46	0.46	0.26	0.48	0.54						
FR6 Sud-Ouest (FR)	0.41	0.41	0.41	0.52	0.51	0.51	0.36	0.35	0.46	0.48	0.49	0.47	0.46	0.51	0.50	0.26	0.44	0.43						
FR7 Centre-Est (FR)	0.51	0.51	0.51	0.68	0.68	0.68	0.24	0.25	0.48	0.49	0.49	0.47	0.50	0.52	0.51	0.27	0.43	0.56						
FR8 Méditerranée	0.34	0.34	0.34	0.52	0.51	0.52	0.22	0.24	0.39	0.44	0.46	0.48	0.46	0.47	0.49	0.24	0.46	0.57						
FR9 French overseas departments (FR)	0.00	0.00	0.00	0.22	0.20	0.23	0.35	0.34	0.25	0.58	0.56	0.50	0.44	0.45	0.45	0.14	0.19	0.02						
IT																								
ITC1 Piemonte	0.35	0.35	0.35	0.53	0.52	0.56	0.64	0.59	0.61	0.52	0.52	0.48	0.80	0.78	0.76	0.61	0.52	0.76						
ITC2 Valle d'Aosta/Vallée d'Aoste	0.35	0.35	0.35	0.32	0.32	0.31	0.45	0.43	0.47	0.73	0.67	0.44	0.70	0.71	0.69	0.48	0.41	0.60						
ITC3 Liguria	0.36	0.36	0.36	0.45	0.45	0.48	0.55	0.51	0.30	0.47	0.48	0.38	0.61	0.66	0.60	0.51	0.43	0.64						
ITC4 Lombardia	0.49	0.49	0.49	0.54	0.53	0.54	0.56	0.51	0.63	0.51	0.51	0.53	0.82	0.82	0.84	0.60	0.51	0.75						
ITD1 Provincia Autonoma Bolzano/Bozen	0.22	0.22	0.22	0.50	0.49	0.49	0.68	0.62	0.58	0.59	0.57	0.56	0.28	0.24	0.25	0.38	0.32	0.47						
ITD2 Provincia Autonoma Trento	0.18	0.18	0.18	0.42	0.42	0.43	0.72	0.66	0.63	0.62	0.59	0.53	0.44	0.47	0.47	0.49	0.42	0.62						
ITD3 Veneto	0.36	0.36	0.36	0.53	0.53	0.55	0.55	0.51	0.60	0.42	0.44	0.55	0.65	0.67	0.60	0.49	0.42	0.62						

	Public-private co-publications			EPO patents			Technological innovators (product or process) innovators			Non-technological (marketing or organisational) innovators			Employment in medium-high-tech manufacturing & knowledge-intensive services			Sales of new-to-market and new-to-firm products		
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011
ITD4	0.39	0.39	0.39	0.53	0.52	0.55	0.45	0.43	0.59	0.45	0.46	0.48	0.68	0.68	0.67	0.57	0.48	0.71
ITD5	0.36	0.36	0.36	0.58	0.57	0.59	0.60	0.55	0.59	0.44	0.46	0.55	0.71	0.68	0.68	0.62	0.53	0.77
ITE1	0.47	0.47	0.47	0.44	0.44	0.46	0.37	0.36	0.36	0.38	0.41	0.41	0.49	0.48	0.48	0.49	0.42	0.62
ITE2	0.13	0.13	0.13	0.40	0.39	0.43	0.47	0.45	0.47	0.52	0.51	0.54	0.52	0.51	0.53	0.49	0.42	0.62
ITE3	0.19	0.19	0.19	0.46	0.45	0.49	0.43	0.41	0.45	0.31	0.36	0.47	0.54	0.58	0.57	0.45	0.38	0.56
ITE4	0.47	0.47	0.47	0.36	0.36	0.36	0.37	0.36	0.53	0.51	0.51	0.54	0.70	0.70	0.69	0.58	0.49	0.72
ITF1	0.31	0.31	0.31	0.39	0.38	0.43	0.35	0.34	0.32	0.34	0.38	0.38	0.45	0.53	0.51	0.41	0.34	0.51
ITF2	0.00	0.00	0.00	0.23	0.24	0.23	0.18	0.20	0.22	0.32	0.36	0.29	0.50	0.49	0.49	0.27	0.22	0.34
ITF3	0.33	0.33	0.33	0.27	0.27	0.31	0.27	0.28	0.30	0.39	0.42	0.52	0.44	0.48	0.42	0.39	0.33	0.49
ITF4	0.15	0.15	0.15	0.28	0.28	0.31	0.27	0.27	0.56	0.41	0.43	0.50	0.34	0.38	0.38	0.37	0.31	0.47
ITF5	0.25	0.25	0.25	0.25	0.25	0.27	0.19	0.21	0.44	0.46	0.47	0.38	0.44	0.47	0.32	0.27	0.41	0.41
ITF6	0.15	0.15	0.15	0.24	0.24	0.25	0.25	0.26	0.23	0.33	0.38	0.37	0.24	0.31	0.31	0.30	0.25	0.38
ITG1	0.28	0.28	0.28	0.24	0.25	0.26	0.23	0.25	0.35	0.42	0.44	0.35	0.30	0.32	0.33	0.38	0.32	0.49
ITG2	0.26	0.26	0.26	0.26	0.26	0.28	0.23	0.24	0.47	0.36	0.40	0.38	0.27	0.38	0.40	0.32	0.27	0.41
HU																		
HU1	0.37	0.37	0.37	0.44	0.44	0.38	0.25	0.21	0.24	0.29	0.35	0.25	0.71	0.72	0.69	0.31	0.32	0.24
HU21	0.21	0.21	0.21	0.24	0.24	0.27	0.24	0.20	0.14	0.24	0.27	0.15	0.59	0.73	0.72	0.26	0.26	0.34
HU22	0.14	0.14	0.14	0.25	0.25	0.28	0.14	0.09	0.07	0.17	0.25	0.14	0.57	0.63	0.59	0.34	0.23	0.40
HU23	0.26	0.26	0.26	0.26	0.26	0.34	0.14	0.09	0.10	0.16	0.20	0.15	0.35	0.40	0.36	0.28	0.38	0.18
HU31	0.11	0.11	0.11	0.26	0.26	0.35	0.11	0.05	0.10	0.17	0.28	0.17	0.45	0.52	0.46	0.25	0.19	0.19
HU32	0.19	0.19	0.19	0.25	0.25	0.32	0.13	0.07	0.10	0.17	0.16	0.08	0.32	0.38	0.34	0.19	0.16	0.07
HU33	0.22	0.22	0.22	0.27	0.27	0.36	0.18	0.13	0.08	0.18	0.24	0.08	0.24	0.29	0.31	0.22	0.21	0.10
NL																		
NL11	0.56	0.56	0.56	0.44	0.43	0.43	0.56	0.44	0.41	0.56	0.30	0.30	0.44	0.40	0.40	0.35	0.41	0.36
NL12	0.40	0.40	0.40	0.46	0.42	0.42	0.50	0.38	0.32	0.51	0.23	0.22	0.36	0.38	0.31	0.29	0.34	0.30
NL13	0.43	0.43	0.43	0.54	0.52	0.47	0.49	0.41	0.33	0.50	0.24	0.23	0.31	0.47	0.40	0.30	0.35	0.30
NL21	0.49	0.49	0.49	0.55	0.54	0.55	0.51	0.51	0.36	0.52	0.27	0.26	0.41	0.47	0.35	0.32	0.37	0.33
NL22	0.68	0.68	0.68	0.61	0.58	0.55	0.51	0.50	0.38	0.52	0.28	0.27	0.38	0.45	0.45	0.33	0.39	0.34
NL23	0.67	0.67	0.67	0.50	0.44	0.46	0.53	0.41	0.38	0.56	0.28	0.27	0.53	0.64	0.59	0.33	0.38	0.34
NL31	0.73	0.73	0.73	0.55	0.56	0.54	0.63	0.57	0.55	0.62	0.41	0.41	0.55	0.62	0.60	0.45	0.52	0.46
NL32	0.65	0.65	0.65	0.52	0.52	0.50	0.61	0.51	0.48	0.60	0.36	0.35	0.61	0.62	0.65	0.40	0.47	0.41
NL33	0.63	0.63	0.63	0.55	0.54	0.54	0.58	0.53	0.48	0.58	0.36	0.35	0.57	0.61	0.67	0.40	0.47	0.41
NL34	0.63	0.63	0.63	0.47	0.43	0.46	0.53	0.43	0.40	0.54	0.30	0.29	0.49	0.55	0.55	0.35	0.40	0.35
NL41	0.75	0.75	0.75	1.00	0.95	0.85	0.55	0.55	0.55	0.55	0.41	0.41	0.49	0.57	0.65	0.45	0.52	0.46
NL42	0.69	0.69	0.69	0.66	0.66	0.63	0.51	0.63	0.51	0.51	0.38	0.37	0.43	0.53	0.55	0.42	0.49	0.43
AT																		
AT1	0.66	0.66	0.66	0.57	0.56	0.57	0.75	0.75	0.60	0.71	0.71	0.57	0.60	0.55	0.57	0.43	0.48	0.34
AT2	0.56	0.56	0.56	0.56	0.55	0.60	0.74	0.71	0.54	0.59	0.73	0.51	0.45	0.43	0.45	0.50	0.55	0.55
AT3	0.45	0.45	0.45	0.65	0.64	0.67	0.81	0.75	0.58	0.70	0.69	0.51	0.43	0.45	0.48	0.49	0.55	0.51
PL																		
PL11	0.10	0.10	0.10	0.22	0.26	0.26	0.20	0.12	0.04	0.27	0.19	0.06	0.28	0.24	0.24	0.48	0.22	0.29
PL12	0.19	0.19	0.19	0.26	0.22	0.24	0.25	0.24	0.24	0.26	0.39	0.24	0.38	0.51	0.51	0.37	0.26	0.45
PL21	0.15	0.15	0.15	0.27	0.28	0.29	0.28	0.18	0.16	0.30	0.34	0.16	0.24	0.28	0.28	0.13	0.30	0.18
PL22	0.08	0.08	0.08	0.18	0.22	0.19	0.33	0.25	0.17	0.25	0.38	0.13	0.41	0.43	0.43	0.53	0.44	0.21

	Public-private co-publications		EPO patents		Technological (product or process) innovators		Non-technological (marketing or organisational) innovators		Employment in medium-high/tech manufacturing & knowledge-intensive services		Sales of new-to-market and new-to-firm products							
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011						
PL31 Lubelskie	0.09	0.09	0.09	0.11	0.17	0.25	0.26	0.28	0.13	0.25	0.29	0.05	0.10	0.14	0.14	0.49	0.21	0.14
PL32 Podkarpackie	0.08	0.08	0.08	0.20	0.26	0.26	0.25	0.27	0.17	0.28	0.38	0.09	0.19	0.17	0.18	0.30	0.27	0.38
PL33 Swietokrzyskie	0.00	0.00	0.00	0.10	0.15	0.21	0.30	0.22	0.13	0.31	0.21	0.08	0.06	0.11	0.12	0.50	0.80	0.30
PL34 Podlaskie	0.00	0.00	0.00	0.11	0.12	0.22	0.24	0.26	0.13	0.27	0.33	0.01	0.11	0.13	0.14	0.42	0.09	0.04
PL41 Wielkopolskie	0.16	0.16	0.16	0.20	0.20	0.24	0.20	0.14	0.10	0.21	0.25	0.12	0.32	0.32	0.26	0.24	0.30	0.30
PL42 Zachodniopomorskie	0.00	0.00	0.00	0.19	0.22	0.20	0.13	0.14	0.06	0.24	0.28	0.08	0.43	0.36	0.35	0.06	0.07	0.21
PL43 Lubuskie	0.00	0.00	0.00	0.33	0.25	0.24	0.08	0.09	0.10	0.23	0.17	0.11	0.18	0.23	0.23	0.35	0.17	0.21
PL51 Dolnoslaskie	0.18	0.18	0.18	0.21	0.23	0.26	0.22	0.27	0.22	0.34	0.33	0.12	0.45	0.43	0.50	0.42	0.52	0.52
PL52 Opolskie	0.00	0.00	0.00	0.19	0.24	0.21	0.24	0.25	0.13	0.24	0.35	0.07	0.32	0.42	0.42	0.68	0.31	0.43
PL61 Kujawsko-Pomorskie	0.00	0.00	0.00	0.21	0.19	0.26	0.25	0.10	0.14	0.30	0.30	0.10	0.23	0.25	0.26	0.29	0.19	0.27
PL62 Warmińsko-Mazurskie	0.00	0.00	0.00	0.11	0.17	0.17	0.28	0.20	0.10	0.14	0.25	0.00	0.14	0.19	0.19	0.52	0.41	0.34
PL63 Pomorskie	0.18	0.18	0.18	0.19	0.15	0.27	0.25	0.30	0.21	0.21	0.38	0.18	0.46	0.47	0.45	0.32	0.26	0.26
PT																		
Portugal																		
PT11 Norte	0.27	0.27	0.27	0.25	0.29	0.30	0.49	0.48	0.63	0.51	0.57	0.47	0.14	0.19	0.19	0.33	0.52	0.63
PT15 Algarve	0.28	0.28	0.28	0.11	0.17	0.28	0.41	0.55	0.89	0.45	0.61	0.61	0.30	0.32	0.32	0.27	0.76	0.69
PT16 Centro (PT)	0.21	0.21	0.21	0.24	0.28	0.26	0.63	0.68	0.83	0.55	0.79	0.62	0.10	0.14	0.15	0.65	0.24	0.72
PT17 Lisboa	0.30	0.30	0.30	0.30	0.22	0.27	0.29	0.66	0.65	0.88	0.71	0.81	0.66	0.57	0.53	0.82	0.72	0.91
PT18 Alentejo	0.15	0.15	0.15	0.21	0.25	0.17	0.55	0.51	0.63	0.69	0.68	0.45	0.29	0.30	0.30	0.43	0.73	0.61
PT2 Região Autónoma dos Açores (PT)	0.00	0.00	0.00	0.14	0.14	0.20	0.68	0.63	0.62	0.52	0.72	0.57	0.12	0.29	0.29	0.18	0.09	0.29
PT3 Região Autónoma da Madeira (PT)	0.00	0.00	0.00	0.18	0.18	0.07	0.41	0.35	0.73	0.54	0.60	0.47	0.16	0.25	0.22	0.16	0.11	0.11
RO																		
Romania																		
RO11 Nord-Vest	0.10	0.10	0.10	0.20	0.14	0.14	0.12	0.20	0.10	0.23	0.33	0.20	0.05	0.08	0.08	0.48	0.65	0.36
RO12 Centru	0.07	0.07	0.07	0.00	0.13	0.19	0.16	0.17	0.20	0.22	0.31	0.22	0.18	0.20	0.21	0.46	0.40	0.65
RO21 Nord-Est	0.08	0.08	0.08	0.14	0.19	0.13	0.21	0.29	0.26	0.34	0.47	0.47	0.01	0.00	0.01	0.45	0.75	0.48
RO22 Sud-Est	0.12	0.12	0.12	0.00	0.17	0.00	0.43	0.46	0.50	0.43	0.51	0.30	0.13	0.14	0.15	0.48	0.57	0.62
RO31 Sud - Muntenia	0.08	0.08	0.08	0.11	0.08	0.10	0.12	0.16	0.13	0.20	0.29	0.20	0.24	0.26	0.28	0.42	0.50	0.50
RO32 Bucuresti - Ilfov	0.38	0.38	0.38	0.24	0.18	0.20	0.14	0.07	0.09	0.38	0.66	0.36	0.49	0.46	0.53	0.56	0.41	0.40
RO41 Sud-Vest Oltenia	0.14	0.14	0.14	0.17	0.11	0.17	0.05	0.04	0.00	0.21	0.30	0.13	0.14	0.15	0.11	0.55	0.20	0.14
RO42 Vest	0.17	0.17	0.17	0.17	0.11	0.20	0.04	0.01	0.06	0.33	0.16	0.00	0.38	0.51	0.47	0.57	0.40	0.50
SI																		
Slovenia																		
SI01 Vzhodna Slovenija	0.45	0.45	0.45	0.49	0.44	0.46	0.26	0.39	0.37	0.48	0.48	0.41	0.48	0.49	0.49	0.50	0.55	0.49
SI02 Zahodna Slovenija	0.45	0.45	0.45	0.46	0.44	0.45	0.29	0.46	0.45	0.45	0.47	0.54	0.52	0.53	0.53	0.59	0.37	0.68
SK																		
Slovakia																		
SK01 Bratislavský kraj	0.47	0.47	0.47	0.26	0.30	0.27	0.24	0.32	0.17	0.24	0.42	0.47	0.65	0.76	0.79	0.59	0.48	0.27
SK02 Západné Slovensko	0.29	0.29	0.29	0.21	0.23	0.25	0.24	0.19	0.14	0.16	0.33	0.14	0.59	0.63	0.60	0.26	0.15	0.21
SK03 Stredné Slovensko	0.21	0.21	0.21	0.11	0.24	0.18	0.15	0.26	0.31	0.15	0.32	0.37	0.35	0.44	0.38	0.36	0.26	0.27
SK04 Východné Slovensko	0.15	0.15	0.15	0.25	0.27	0.24	0.10	0.18	0.12	0.18	0.33	0.33	0.33	0.40	0.41	0.30	0.31	0.21
FI																		
Finland																		
FI13 Itä-Suomi	0.53	0.53	0.53	0.49	0.54	0.46	0.56	0.59	0.55	0.65	0.48	0.30	0.41	0.39	0.38	0.31	0.40	0.41
FI18 Etelä-Suomi	0.70	0.70	0.70	0.74	0.71	0.68	0.54	0.69	0.62	0.64	0.50	0.41	0.75	0.77	0.79	0.38	0.48	0.50
FI19 Länsi-Suomi	0.54	0.54	0.54	0.77	0.71	0.64	0.57	0.70	0.71	0.62	0.47	0.30	0.61	0.66	0.69	0.36	0.47	0.48
FI1A Pohjois-Suomi	0.53	0.53	0.53	0.64	0.66	0.66	0.36	0.67	0.57	0.52	0.53	0.30	0.51	0.47	0.45	0.36	0.46	0.47
FI2 Åland	0.00	0.00	0.00	0.50	0.44	0.37	0.38	0.67	0.62	0.78	0.20	0.43	0.75	0.75	0.74	0.30	0.39	0.40

	Public-private co-publications			EPO patents			Technological (product or process) innovators			Non-technological (marketing or organisational) innovators			Employment in medium-high/high-tech manufacturing & knowledge-intensive services			Sales of new-to-market and new-to-firm products		
	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011	2007	2009	2011
SE																		
SE11	0.75	0.75	0.75	0.69	0.72	0.72	0.54	0.61	0.61	0.58	0.53	0.50	0.92	0.94	0.92	0.42	0.44	0.45
SE12	0.70	0.70	0.70	0.69	0.74	0.74	0.53	0.64	0.61	0.60	0.49	0.44	0.69	0.71	0.70	0.41	0.44	0.56
SE21	0.36	0.36	0.36	0.54	0.56	0.54	0.49	0.61	0.54	0.58	0.51	0.47	0.53	0.52	0.52	0.37	0.39	0.44
SE22	0.64	0.64	0.64	0.79	0.81	0.80	0.50	0.57	0.56	0.55	0.48	0.42	0.66	0.65	0.64	0.56	0.62	0.62
SE23	0.79	0.79	0.79	0.73	0.72	0.70	0.51	0.58	0.57	0.56	0.49	0.43	0.75	0.71	0.70	0.31	0.32	0.19
SE31	0.52	0.52	0.52	0.60	0.59	0.53	0.33	0.40	0.31	0.41	0.43	0.35	0.45	0.47	0.47	0.24	0.25	0.13
SE32	0.43	0.43	0.43	0.44	0.52	0.49	0.45	0.52	0.48	0.50	0.47	0.41	0.49	0.44	0.44	0.30	0.31	0.19
SE33	0.56	0.56	0.56	0.55	0.58	0.57	0.39	0.51	0.40	0.50	0.43	0.36	0.42	0.45	0.45	0.40	0.43	0.36
UK																		
UKC	0.38	0.38	0.38	0.47	0.47	0.43	0.55	0.47	0.51	0.41	0.48	0.40	0.54	0.49	0.48	0.50	0.20	0.38
UKD	0.65	0.65	0.65	0.47	0.46	0.43	0.55	0.49	0.54	0.49	0.41	0.33	0.56	0.50	0.45	0.54	0.22	0.41
UKE	0.43	0.43	0.43	0.44	0.43	0.45	0.63	0.41	0.46	0.46	0.42	0.34	0.41	0.45	0.47	0.49	0.19	0.37
UKF	0.44	0.44	0.44	0.49	0.51	0.50	0.59	0.54	0.58	0.46	0.47	0.38	0.55	0.51	0.44	0.57	0.23	0.43
UKG	0.39	0.39	0.39	0.48	0.45	0.43	0.54	0.50	0.55	0.40	0.42	0.34	0.63	0.58	0.52	0.51	0.20	0.38
UKH	0.67	0.67	0.67	0.62	0.60	0.59	0.58	0.58	0.61	0.43	0.51	0.42	0.62	0.61	0.60	0.63	0.26	0.48
UKI	0.53	0.53	0.53	0.38	0.37	0.37	0.60	0.33	0.37	0.45	0.32	0.26	0.71	0.72	0.67	0.55	0.22	0.42
UKJ	0.62	0.62	0.62	0.60	0.58	0.57	0.61	0.49	0.53	0.51	0.54	0.44	0.73	0.75	0.88	0.65	0.27	0.50
UKK	0.40	0.40	0.40	0.52	0.52	0.51	0.57	0.53	0.55	0.51	0.46	0.37	0.55	0.51	0.37	0.58	0.24	0.44
UKL	0.39	0.39	0.39	0.42	0.42	0.41	0.56	0.52	0.55	0.41	0.45	0.37	0.45	0.43	0.43	0.54	0.22	0.41
UKM	0.41	0.41	0.41	0.45	0.46	0.46	0.56	0.42	0.46	0.49	0.49	0.40	0.42	0.43	0.48	0.53	0.22	0.40
UKN	0.21	0.21	0.21	0.39	0.40	0.38	0.65	0.37	0.31	0.41	0.34	0.27	0.33	0.30	0.33	0.45	0.18	0.34
CH																		
CH01	0.68	0.68	0.68	0.65	0.63	0.64	0.69	0.61	0.66	0.64	0.75	0.63	0.53	0.54	0.53	0.65	0.57	0.72
CH02	0.48	0.48	0.48	0.62	0.61	0.62	0.60	0.53	0.57	0.57	0.67	0.67	0.61	0.63	0.64	0.58	0.50	0.64
CH03	1.00	1.00	1.00	0.66	0.65	0.66	0.75	0.67	0.72	0.69	0.81	0.69	0.77	0.80	0.80	0.71	0.62	0.78
CH04	0.57	0.57	0.57	0.69	0.68	0.68	0.88	0.78	0.84	0.79	0.92	0.78	0.76	0.76	0.78	0.81	0.71	0.89
CH05	0.32	0.32	0.32	0.61	0.60	0.61	0.55	0.48	0.52	0.52	0.63	0.52	0.57	0.56	0.55	0.54	0.47	0.59
CH06	0.44	0.44	0.44	0.63	0.62	0.63	0.64	0.56	0.60	0.60	0.71	0.59	0.57	0.65	0.63	0.61	0.53	0.67
CH07	0.35	0.35	0.35	0.63	0.62	0.63	0.64	0.56	0.61	0.60	0.71	0.59	0.52	0.53	0.53	0.61	0.53	0.67
NO																		
N001	0.51	0.51	0.51	0.38	0.38	0.40	0.36	0.39	0.44	0.35	0.39	0.40	0.70	0.73	0.72	0.42	0.25	0.25
N002	0.23	0.23	0.23	0.22	0.23	0.27	0.22	0.24	0.35	0.27	0.33	0.29	0.19	0.21	0.21	0.16	0.18	0.56
N003	0.34	0.34	0.34	0.32	0.32	0.34	0.30	0.33	0.38	0.24	0.31	0.34	0.57	0.50	0.49	0.23	0.24	0.42
N004	0.45	0.45	0.45	0.30	0.30	0.33	0.31	0.24	0.37	0.26	0.32	0.30	0.57	0.58	0.57	0.23	0.26	0.21
N005	0.43	0.43	0.43	0.31	0.31	0.34	0.34	0.27	0.36	0.25	0.32	0.32	0.52	0.51	0.51	0.22	0.39	0.23
N006	0.85	0.85	0.85	0.30	0.30	0.33	0.30	0.22	0.34	0.23	0.30	0.41	0.44	0.42	0.42	0.26	0.17	0.30
N007	0.45	0.45	0.45	0.19	0.20	0.26	0.19	0.17	0.17	0.23	0.30	0.28	0.33	0.26	0.26	0.42	0.18	0.08
HR																		
HR01	0.29	0.29	0.29	0.48	0.47	0.48	0.48	0.39	0.50	0.46	0.51	0.44	0.33	0.34	0.34	0.42	0.42	0.67
HR02	0.18	0.18	0.18	0.33	0.32	0.35	0.14	0.28	0.15	0.13	0.16	0.11	0.11	0.11	0.11	0.17	0.17	0.29
HR03	0.09	0.09	0.09	0.35	0.35	0.37	0.39	0.29	0.40	0.38	0.42	0.36	0.38	0.39	0.39	0.35	0.35	0.57

Annex 6: Use/absorption of EU funding and regional innovation performance: 2000–2006 vs. RIS2007

RIS group membership at NUTS 2 for AT, BE, BG, FR, DE, GR and UK reflects the respective region's group membership at the higher aggregated NUTS 1 level.

RIS2007	Follower		Leader		Moderate	Modest		
FP leading absorber	Prov. Brabant Wallon	BE31	Bruxelles-Capitale	BE10		La Rioja	ES23	
	Köln	DEA2	Vlaams-Brabant	BE24				
	Attiki	GR30	Praha	CZ01				
	País Vasco	ES21	Stuttgart	DE11				
	Comunidad de Madrid	ES30	Karlsruhe	DE12				
	Midi-Pyrénées	FR62	Oberbayern	DE21				
	Liguria	ITC3	Bremen	DE50				
	Provincia Autonoma Trento	ITD2	Hamburg	DE60				
	Lazio	ITE4	Darmstadt	DE71				
	Luxembourg (Grand-Duché)	LU00	Île de France	FR10				
	Gelderland	NL22	Utrecht	NL31				
	Flevoland	NL23	Noord-Holland	NL32				
	Steiermark	AT22	Zuid-Holland	NL33				
	Tirol	AT33	Noord-Brabant	NL41				
	Småland med öarna	SE21	Wien	AT13				
	Övre Norrland	SE33	Etelä-Suomi	FI18				
	Gloucestershire, Wiltshire and Bristol/Bath area	UKK1	Stockholm	SE11				
			Östra Mellansverige	SE12				
			East Anglia	UKH1				
			Inner London	UKI1				
		Berkshire, Buckinghamshire and Oxfordshire	UKJ1					
Low absorber / user	Prov. Liège	BE33	Prov. Antwerpen	BE21	Jihozápad	CZ03	Severozápaden	BG31
	Prov. Luxembourg	BE34	Prov. Limburg (B)	BE22	Severovýchod	CZ05	Severozápaden	BG32
	Prov. Namur	BE35	Oost-Vlaanderen	BE23	Střední Morava	CZ07	Severozápaden	BG33
	Střední Čechy	CZ02	Prov. West-Vlaanderen	BE25	Moravskoslezsko	CZ08	Yugoiztochen	BG34
	Jihovýchod	CZ06	Hovedstaden	DK01	Aragón	ES24	Yugozápaden	BG41
	Sjælland	DK02	Midtjylland	DK04	Champagne-Ardenne	FR21	Yuzhen tsentralen	BG42
	Syddanmark	DK03	Freiburg	DE13	Picardie	FR22	Severozápad	CZ04
	Nordjylland	DK05	Tübingen	DE14	Haute-Normandie	FR23	Eesti	EE00
	Mecklenburg-Vorpommern	DE80	Niederbayern	DE22	Centre	FR24	Notio Aigaio	GR42
	Braunschweig	DE91	Oberpfalz	DE23	Basse-Normandie	FR25	Cantabria	ES13
	Hannover	DE92	Oberfranken	DE24	Bourgogne	FR26	Illes Balears	ES53
	Lüneburg	DE93	Mittelfranken	DE25	Lorraine	FR41	Ciudad Autónoma de Ceuta	ES63
	Weser-Ems	DE94	Unterfranken	DE26	Alsace	FR42	Ciudad Autónoma de Melilla	ES64
	Düsseldorf	DEA1	Schwaben	DE27	Franche-Comté	FR43	Nord - Pas-de-Calais	FR30
	Münster	DEA3	Berlin	DE30	Pays de la Loire	FR51	Provincia Autonoma Bolzano/Bozen	ITD1
	Detmold	DEA4	Gießen	DE72	Bretagne	FR52	Molise	ITF2
	Arnsberg	DEA5	Kassel	DE73	Poitou-Charentes	FR53	Puglia	ITF4
	Koblenz	DEB1	Niederösterreich	AT12	Languedoc-Roussillon	FR81	Basilicata	ITF5
	Trier	DEB2	Länsi-Suomi	FI19	Provence-Alpes-Côte d'Azur	FR82	Calabria	ITF6
	Rheinhesen-Pfalz	DEB3	Sydsverige	SE22	Corse	FR83	Sardegna	ITG2
	Saarland	DECO	Västssverige	SE23	Guadeloupe	FR91	Cyprus	CY00
	Schleswig-Holstein	DEF0	Bedfordshire and Hertfordshire	UKH2	Martinique	FR92	Latvija	LV00
	Southern and Eastern	IE02	Essex	UKH3	Guyane	FR93	Lietuva	LT00
	Cataluña	ES51	Outer London	UKI2	Réunion	FR94	Közép-Dunántúl	HU21
	Aquitaine	FR61	Surrey, East and West Sussex	UKJ2	Valle d'Aosta/Vallée d'Aoste	ITC2	Nyugat-Dunántúl	HU22
	Limousin	FR63	Hampshire and Isle of Wight	UKJ3	Veneto	ITD3	Dél-Dunántúl	HU23
	Rhône-Alpes	FR71	Kent	UKJ4	Toscana	ITE1	Észak-Magyarország	HU31
	Auvergne	FR72			Umbria	ITE2	Észak-Alföld	HU32
	Piemonte	ITC1			Marche	ITE3	Dél-Alföld	HU33
	Lombardia	ITC4			Abruzzo	ITF1	Malta	MT00
	Friuli-Venezia Giulia	ITD4			Campania	ITF3	Lódzkie	PL11
	Emilia-Romagna	ITD5			Friesland (NL)	NL12	Malopolskie	PL21
	Közép-Magyarország	HU10			Drenthe	NL13	Slaskie	PL22
	Groningen	NL11			Zeeland	NL34	Lubelskie	PL31
	Overijssel	NL21			Mazowieckie	PL12	Podkarpackie	PL32
	Limburg (NL)	NL42			Bucuresti - Ilfov	RO32	Świętokrzyskie	PL33
	Kärnten	AT21			Vzhodna Slovenija	SI01	Podlaskie	PL34

RIS2007	Follower		Leader		Moderate		Modest				
	Oberösterreich	AT31			Bratislavský kraj	SK01	Wielkopolskie	PL41			
	Salzburg	AT32			Åland	FI20	Zachodniopomorskie	PL42			
	Vorarlberg	AT34			Norra Mellansverige	SE31	Lubuskie	PL43			
	Lisboa	PT17					Dolnośląskie	PL51			
	Zahodna Slovenija	SI02					Opolskie	PL52			
	Tees Valley and Durham	UKC1					Kujawsko-Pomorskie	PL61			
	Northumberland and Tyne and Wear	UKC2					Warminsko-Mazurskie	PL62			
	Cumbria	UKD1					Pomorskie	PL63			
	Cheshire	UKD2					Região Autónoma dos Açores	PT20			
	Greater Manchester	UKD3					Nord-Vest	RO11			
	Lancashire	UKD4					Centru	RO12			
	East Yorkshire and Northern Lincolnshire	UKE1					Nord-Est	RO21			
	North Yorkshire	UKE2					Sud-Est	RO22			
	South Yorkshire	UKE3					Sud - Muntenia	RO31			
	West Yorkshire	UKE4					Sud-Vest Oltenia	RO41			
	Derbyshire and Nottinghamshire	UKF1					Vest	RO42			
	Leicestershire, Rutland and Northamptonshire	UKF2					Západné Slovensko	SK02			
	Lincolnshire	UKF3					Stredné Slovensko	SK03			
	Herefordshire, Worcestershire and Warwickshire	UKG1					Východné Slovensko	SK04			
	Shropshire and Staffordshire	UKG2									
	West Midlands	UKG3									
	Dorset and Somerset	UKK2									
	Devon	UKK4									
	East Wales	UKL2									
	Eastern Scotland	UKM2									
	South Western Scotland	UKM3									
	North Eastern Scotland	UKM5									
	Highlands and Islands	UKM6									
	SF leading user	Merseyside			UKD5					Anatoliki Makedonia, Thraki	GR11
		Cornwall and Isles of Scilly			UKK3					Kentriki Makedonia	GR12
										Dytiki Makedonia	GR13
										Thessalia	GR14
							Ipeiros	GR21			
							Ionia Nisia	GR22			
							Dytiki Ellada	GR23			
							Stereia Ellada	GR24			
							Peloponnisos	GR25			
							Voreio Aigaio	GR41			
				Kriti	GR43						
				Sicilia	ITG1						
				Região da Madeira	PT30						
Full absorber / User	Prov. Hainaut	BE32	Chemnitz	DED1	Sachsen-Anhalt	DEE0	Galicia	ES11			
	Brandenburg - Nordost	DE41	Dresden	DED2	Border, Midland and Western	IE01	Castilla-La Mancha	ES42			
	Brandenburg - Südwest	DE42	Leipzig	DED3	Principado de Asturias	ES12	Extremadura	ES43			
	Thüringen	DEG0	Burgenland (A)	AT11	Castilla y León	ES41	Andalucía	ES61			
	Comunidad Foral de Navarra	ES22	Itä-Suomi	FI13	Comunidad Valenciana	ES52	Canarias	ES70			
	Mellersta Norrland	SE32	Pohjois-Suomi	FI1A	Región de Murcia	ES62	Norte	PT11			
	West Wales and Valleys	UKL1			Centro (P)	PT16	Algarve	PT15			
					Alentejo	PT18					
				Northern Ireland	UKNO						

Annex 7: Use/absorption of EU funding and regional innovation performance: 2000–2006 vs. RIS2012

RIS group membership at NUTS 2 for AT, BE, BG, FR, DE, GR and UK reflects the respective region's group membership at the higher aggregated NUTS 1 level.

RIS2011	Follower		Leader		Moderate		Modest	
FP leading absorber	Prov. Brabant Wallon	BE31	Région Bruxelles-Capitale	BE10	La Rioja	ES23		
	Attiki	GR30	Prov. Vlaams-Brabant	BE24	Liguria	ITC3		
	País Vasco	ES21	Praha	CZ01				
	Comunidad de Madrid	ES30	Stuttgart	DE11				
	Midi-Pyrénées	FR62	Karlsruhe	DE12				
	Provincia Autonoma Trento	ITD2	Oberbayern	DE21				
	Lazio	ITE4	Bremen	DE50				
	Luxembourg (Grand-Duché)	LU00	Hamburg	DE60				
	Gelderland	NL22	Darmstadt	DE71				
	Flevoland	NL23	Köln	DEA2				
	Steiermark	AT22	Île de France	FR10				
	Tirol	AT33	Utrecht	NL31				
	Småland med öarna	SE21	Noord-Holland	NL32				
	Inner London	UK11	Zuid-Holland	NL33				
	Gloucestershire, Wiltshire and Bristol/Bath area	UKK1	Noord-Brabant	NL41				
			Wien	AT13				
			Etelä-Suomi	FI18				
			Stockholm	SE11				
			Östra Mellansverige	SE12				
			Övre Norrland	SE33				
		East Anglia	UKH1					
		Berkshire, Buckinghamshire and Oxfordshire	UKJ1					
Low absorbers / users	Prov. Liège	BE33	Prov. Antwerpen	BE21	Jihozápad	CZ03	Severozapaden	BG31
	Prov. Luxembourg (B)	BE34	Prov. Limburg (B)	BE22	Severozápad	CZ04	Severen tsentralen	BG32
	Prov. Namur	BE35	Prov. Oost-Vlaanderen	BE23	Střední Morava	CZ07	Severoiztochen	BG33
	Střední Čechy	CZ02	Prov. West-Vlaanderen	BE25	Moravskoslezsko	CZ08	Yugoiztochen	BG34
	Severovýchod	CZ05	Hovedstaden	DK01	Cantabria	ES13	Yugozapaden	BG41
	Jihovýchod	CZ06	Midtjylland	DK04	Illes Balears	ES53	Yuzhen tsentralen	BG42
	Sjælland	DK02	Freiburg	DE13	Champagne-Ardenne	FR21	Notio Aigaio	GR42
	Syddanmark	DK03	Tübingen	DE14	Picardie	FR22	Ciudad Autónoma de Ceuta	ES63
	Nordjylland	DK05	Niederbayern	DE22	Haute-Normandie	FR23	Ciudad Autónoma de Melilla	ES64
	Mecklenburg-Vorpommern	DE80	Oberpfalz	DE23	Centre	FR24	Guadeloupe	FR91
	Schleswig-Holstein	DEF0	Oberfranken	DE24	Basse-Normandie	FR25	Martinique	FR92
	Eesti	EE00	Mittelfranken	DE25	Bourgogne	FR26	Guyane	FR93
	Southern and Eastern	IE02	Unterfranken	DE26	Nord - Pas-de-Calais	FR30	Réunion	FR94
	Aragón	ES24	Schwaben	DE27	Valle d'Aosta/Vallée d'Aoste	ITC2	Molise	ITF2
	Cataluña	ES51	Berlin	DE30	Provincia Autonoma Bolzano/Bozen	ITD1	Calabria	ITF6
	Lorraine	FR41	Gießen	DE72	Toscana	ITE1	Latvija	LV00
	Alsace	FR42	Kassel	DE73	Umbria	ITE2	Lietuva	LT00
	Franche-Comté	FR43	Braunschweig	DE91	Marche	ITE3	Közép-Dunántúl	HU21
	Pays de la Loire	FR51	Hannover	DE92	Abruzzo	ITF1	Nyugat-Dunántúl	HU22
	Bretagne	FR52	Lüneburg	DE93	Campania	ITF3	Dél-Dunántúl	HU23
	Poitou-Charentes	FR53	Weser-Ems	DE94	Puglia	ITF4	Észak-Magyarország	HU31
	Aquitaine	FR61	Düsseldorf	DEA1	Basilicata	ITF5	Észak-Alföld	HU32
	Limousin	FR63	Münster	DEA3	Sardegna	ITG2	Dél-Alföld	HU33
	Rhône-Alpes	FR71	Detmold	DEA4	Közép-Magyarország	HU10	Lódzkie	PL11
	Auvergne	FR72	Arnsberg	DEA5	Malta	MT00	Malopolskie	PL21
	Languedoc-Roussillon	FR81	Koblenz	DEB1	Friesland (NL)	NL12	Slaskie	PL22
	Provence-Alpes-Côte d'Azur	FR82	Trier	DEB2	Drenthe	NL13	Lubelskie	PL31
	Corse	FR83	Rheinessen-Pfalz	DEB3	Zeeland	NL34	Podkarpackie	PL32
	Piemonte	ITC1	Saarland	DEC0	Mazowieckie	PL12	Świętokrzyskie	PL33
	Lombardia	ITC4	Niederösterreich	AT12	Bucuresti - Ilfov	RO32	Podlaskie	PL34
Veneto	ITD3	Lisboa	PT17	Vzhodna Slovenija	SI01	Wielkopolskie	PL41	

RIS2011	Follower		Leader		Moderate		Modest	
	Friuli-Venezia Giulia	ITD4	Länsi-Suomi	FI19	Bratislavský kraj	SK01	Zachodniopomorskie	PL42
	Emilia-Romagna	ITD5	Sydsverige	SE22	Åland	FI20	Lubuskie	PL43
	Cyprus	CY00	Västsverige	SE23	Norra Mellansverige	SE31	Dolnośląskie	PL51
	Groningen	NL11	Bedfordshire and Hertfordshire	UKH2			Opolskie	PL52
	Overijssel	NL21	Essex	UKH3			Kujawsko-Pomorskie	PL61
	Limburg (NL)	NL42	Surrey, East and West Sussex	UKJ2			Warmińsko-Mazurskie	PL62
	Kärnten	AT21	Hampshire and Isle of Wight	UKJ3			Pomorskie	PL63
	Oberösterreich	AT31	Kent	UKJ4			Região dos Açores	PT20
	Salzburg	AT32					Nord-Vest	RO11
	Vorarlberg	AT34					Centru	RO12
	Zahodna Slovenija	SI02					Nord-Est	RO21
	Tees Valley and Durham	UKC1					Sud-Est	RO22
	Northumberland and Tyne and Wear	UKC2					Sud - Muntenia	RO31
	Cumbria	UKD1					Sud-Vest Oltenia	RO41
	Cheshire	UKD2					Vest	RO42
	Greater Manchester	UKD3					Západné Slovensko	SK02
	Lancashire	UKD4					Stredné Slovensko	SK03
	East Yorkshire and Northern Lincolnshire	UKE1					Východné Slovensko	SK04
	North Yorkshire	UKE2						
	South Yorkshire	UKE3						
	West Yorkshire	UKE4						
	Derbyshire and Nottinghamshire	UKF1						
	Leicestershire, Rutland and Northamptonshire	UKF2						
	Lincolnshire	UKF3						
	Herefordshire, Worcestershire and Warwickshire	UKG1						
	Shropshire and Staffordshire	UKG2						
	West Midlands	UKG3						
	Outer London	UKI2						
	Dorset and Somerset	UKK2						
	Devon	UKK4						
	East Wales	UKL2						
	Eastern Scotland	UKM2						
	South Western Scotland	UKM3						
North Eastern Scotland	UKM5							
Highlands and Islands	UKM6							
Merseyside	UKD5				Sicilia	ITG1	Anatoliki Makedonia, Thraki	GR11
SF leading users	Cornwall and Isles of Scilly	UKK3					Kentriki Makedonia	GR12
							Dytiki Makedonia	GR13
							Thessalia	GR14
							Ipeiros	GR21
							Ionia Nisia	GR22
							Dytiki Ellada	GR23
							Stereia Ellada	GR24
							Peloponnisos	GR25
							Voreio Aigaio	GR41
							Kriti	GR43
				Região Autónoma da Madeira	PT30			
Full absorbers / users	Prov. Hainaut	BE32	Chemnitz	DED1	Galicia	ES11	Castilla-La Mancha	ES42
	Brandenburg - Nordost	DE41	Dresden	DED2	Principado de Asturias	ES12	Extremadura	ES43
	Brandenburg - Südwest	DE42	Leipzig	DED3	Castilla y León	ES41	Comunidad Valenciana	ES52
	Sachsen-Anhalt	DEE0	Thüringen	DEG0	Norte	PT11	Andalucía	ES61
	Border, Midland and Western	IE01	Burgenland (A)	AT11	Algarve	PT15	Región de Murcia	ES62
	Comunidad Foral de Navarra	ES22	Pohjois-Suomi	FI1A	Alentejo	PT18	Canarias	ES70
	Centro (P)	PT16			Northern Ireland	UKN0		
	Itä-Suomi	FI13						
	Mellersta Norrland	SE32						
	West Wales and The Valleys	UKL1						

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