

AMCER

ADVANCED MONITORING AND COORDINATION OF EU R&D POLICIES AT REGIONAL LEVEL

Targeted Analysis 2013/2/18

Regional report - FLANDERS
Annex to Final Report | Version 10/12/2012



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List of authors

Dipl. Geogr. Jérôme Stuck (Researcher)
Prof. Dr. Javier Revilla Diez (Component Leader)
Gottfried Wilhelm Leibniz Universität Hannover, Germany

Project Coordinator:

INNOVA Europe sarl, Belgium

G. Avigdor, A. Furlani, S. Pietropaolo, B.Kamp, N. Mielech

Project Partners:

Technopolis, France: M. Doussineau, P. Eparvier, C. Hinojosa

Centro di Risonanze Magnetiche CERM, Italy: K. McGreevy

TASO Desarollos, Spain: B. Lefebre

Vaasan Yliopisto, Finland: A. Vainio

Gottfried Wilhelm Leibniz Universität Hannover, Germany: J. Revilla Diez, J. Jerusel, J. Stuck

University of Sheffield, UK: T Vorley

Fundacion Deusto-Deusto Fundazioa, Spain: E. Magro

Chambre de Commerce et d'Industrie de Paris (CCIP) ESIEE Paris, France:
A. Schoen

Universita della Svizzera Italiana, Switzerland: B. Lepori, M. Seeber

Regional report – FLANDERS

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Territorial and R&D system

The regional GDP per capita is corresponding with the Belgian mean but well above the European average. In Antwerp – the second largest city of Belgium after Brussels – in the north of the region, Flanders hosts a seaport of great international significance, and the second largest harbour in Europe after Rotterdam.

The region is internationally highly interwoven and shaped by firms from various medium-high and high technology sectors. Regarding the region's RTDI characteristics it mostly achieves well above average results compared with the national level and European level.

A major R&D sector in Flanders is the ICT sector, representing the highest share of the overall private sector R&D employment. In general, the Flemish business R&D is very much engaged in high-tech-related R&D processes, e.g. in chemistry, pharmaceuticals, ICT, and mechatronics. These sectors together represent about 80% of the total R&D expenses. Hence, the potentials in high-tech are well developed (cf. RIM 2011f). The RTDI sector in Flanders is clearly business-oriented.

The RTDI-related parameters are not uniform across regional areas within Flanders as indicated through the coefficient of variation of several indicators stated in Tab. 8. There are substantial differences within the region in terms of both innovation capacity and performance, most notably in the density of knowledge-intensive businesses and knowledge outcomes. Some local areas within the region have comparable fewer high-qualified people which limit their capacity for innovation. This seems to be the case for the Provinces Limburg and West-Vlaanderen. In general, the regions Vlaams-Brabant, Antwerp, and Oost Vlaanderen are the leading regions with regard to RTDI aspects ahead of the regions Limburg and West-Vlaanderen (cf. Eurostat 2011). It should be stressed, however, that RTDI-indicators on sub-regional level are much less reliable because of scarcer data, and that these indicators are not actively monitored at sub-regional level as the RTDI-policy in the Flanders region is driven by the NUTS-1 level.

Intra-regional RTDI disparities in Flanders (selected indicators)

Coefficient of variation of high-tech employment (hightech-employment as percentage of total employment) 2009 (in %)	Coefficient of variation of knowledge workers (HRSTC employment of the economically active population) 2009 (in %)	Coefficient of variation of R&D employment (R&D employment as a percentage of total employment) 2007 (in %)	Coefficient of variation of the persons with a tertiary education attainment (as percentage of total population) 2010 (in %)	Coefficient of variation of the patent applications at the EPO per million inhabitants 2004-2007 (in %)
41.68	12.35	n.a.*	17.46	32.58

Remark: disparity calculations based on NUTS-2 level data; * no data below NUTS-1 level available

(Source: own creation and calculations; based on data from EUROSTAT 2011)

The region's innovativeness in relation to the other Belgian regions, measured by the number of patents applied at the EPO, ranks in the 1st place. Moreover, even in European terms the region is a strong player with respect to patenting. In 2007, the employment in R&D (FTE) was equivalent to 61.3% of the overall Belgian R&D personnel. The R&D personnel (FTE) per 1,000 employees amount

to 13.3. This figure is above the national (12.3) and the EU-27 (11.0) average. Regarding the business orientation of both the R&D expenditures and the R&D personnel (FTE) (68.9%, 60.8%), the region's RTDI sector roughly meets the Belgian average (69.5%, 58.7%) but excels the EU-27 mean (63.7%, 52.1%) (cf. EUROSTAT 2011).

In 2007, Flanders' per capita spending on R&D ranks in 2nd place among the Belgian regions. The region's R&D intensity accounts for 1.99%, thus being slightly above both the national average (1.90%) and the EU-27 average (1.85%). Flanders' R&D productivity amounts to 0.27, thus being above the Belgian standard (0.21) and in line with the EU-27 average (0.27) (cf. EUROSTAT 2011).

Impact evaluation

Main findings

The following section analyses the research profile of the region by considering the capability to attract research funding in the Seventh Framework Program and the characteristics of the network generated by the programs. Moreover, we also consider the employment profile of the Region in the period 2004-2009, by paying particular attention to knowledge intensive and research dynamic sectors, as well as the patents produced in the region in the period 2002-2007.

As specified in the methodological section, it is not possible to assess the impact of European funding on the region. Nevertheless, programs, patenting and employment represents different and complementary stages in which research activity is developed and exploited. Thus, by using this data, it is possible to i) assess the coherence existing at the regional level among these different phases and ii) identify the most promising sectors.

Overall, the Flanders region is highly attractive of FP 7 funds, when compared to the national and European average, both in terms of number of projects and the amount of funds attracted. The Vlaams-Brabant is the most attractive area. The participants are mostly Higher Education Institutions (43%), followed by Research organizations (33%) and private for profit (22%). The regional actors are particularly attractive in the themes "ICT", "Food, Agriculture and Biotechnology", "Nanosciences, Nanotechnologies, Materials and new Production Technologies" and "Energy". Most partners are located in Germany (15,6%), United Kingdom (11,1%) and France (10,6%). The most important organizations in the regional FP7 network are the Catholic University of Leuven, the University of Gent and the Interuniversity microelectronic centre VZW.

The region is mostly specialized in medium tech sectors, which sum up 66% of the employed, and which have grown 46 thousands units in the considered period. Although less specialized in High tech sectors than Europe and Belgium, employed have grown considerably, by over 15 thousands units, mostly in Financial services (+6189) and Information Technology (+6874).

The patenting activity is remarkable in all sectors, but particularly in Electrical Engineering, due to the presence of two intensively patenting organizations.

In sum, the region appear to be particularly strong in terms of research potential (e.g. attractiveness of FP 7 funds), and underdeveloped in terms of exploitation, given the relatively small weight of the high tech sectors. Nevertheless, some fields emerge to be very important and promising all across the spectrum of activity considered. First, "information and communication technology" is highly attractive of funds, a remarkable and growing share of people are employed in IT (2,3%), and many patents have been registered in "computer technology" (99), "telecommunication" (123) and "digital communication" (210). Second, the field of "Food, Agriculture and Biotechnology" (in FP7), and the employment sectors of Processed food (7,7%

of regional employers but declining, -1232) and Farming and animal husbandry (1,2%, rapidly growing +4887) show an important potential for interaction.

General statement of the regional participation in the FP7

Headquarter effect

This document presents the results of the analysis of the regional participation in FP7. The analysis is carried out on the basis of figures produced after having neutralized the headquarter effect for regional participations. The headquarter effect analysis revealed 113 ingoing participations in the region, and 17 outgoing participations. No headquarter effect was identified for 92% of regional participations. Most of the ingoing participations (45) were subtracted from BE100. More than half of ingoing participations (58%) came from Research Organisations, and one third from Private Commercial Organisations. Higher of secondary education establishments are not affected by a headquarter effect.

Rate of participation of the region in the FP 7

Regional actors in Flanders accounted for a total of 1433 participations in FP7, 280 coordinations and 514mln€ in EC funding (50.8%, 56.5% and 60.3% respectively of the national total). The weight of the region in total national FP7 funding (60.3%) is equal to its weight in the national gross domestic expenditure on R&D (60%). During the 2007 – 2011 period, Flanders received a yearly average of 103€mln year in FP7 financing, representing approximately 2.5% of Flanders' yearly R&D effort (4.1bn€ in R&D).

Overall, the rate of participation, the leadership rate¹ and the contribution received are superior to the European and Belgian standard (Table 1).

Table 1 –Participation in the FP 7: comparison with country and European average

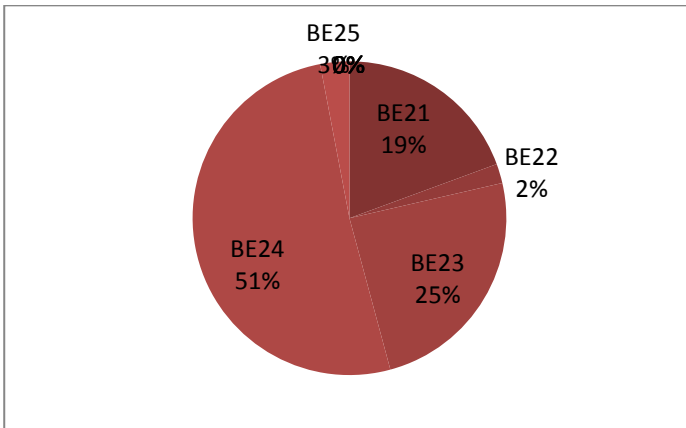
	FLANDERS	BELGIUM	EUROPE
leadership rate	20%	18%	19%
collaborations per 100.000 population	23.11	25.65	13.9
coordination per 100.000 population	4.52	4.51	2.6
€ contribution per inhabitant	82	77	44.4
average funding per project	358655	301071	318255

Distribution of funding at infra-regional level

The majority of regional participations and coordinations are located in Vlaams-Brabant (47% and 55% respectively) and Oost-Vlaanderen (24% and 25%). Antwerpen comes in third with 22% of regional participations and 18% or coordinations. As seen in the following table, the infra-regional distribution of FP7 funding is roughly equal to that of participations and coordinations. Vlaams-Brabant is by far the main beneficiary of FP7 funding in the region (51% of the total regional funding).

¹ It represents an estimation of the strength of the regional actors, it is given by the ratio between the number of projects in which the regional actors play the role of coordinator and the number of projects in which the regional actors are in the position of partner.

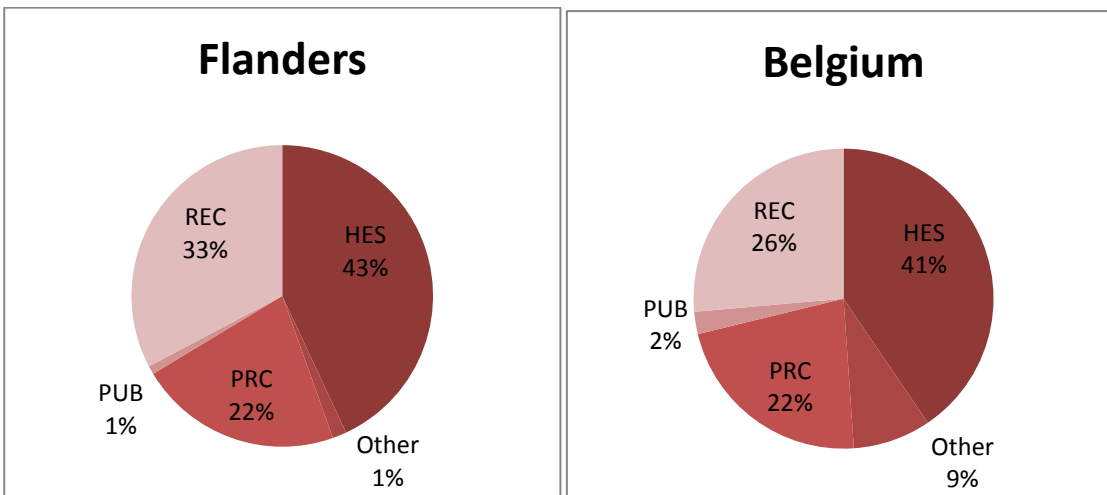
Figure 1: FP7 funding distribution within the region



Distribution of funding by participant type

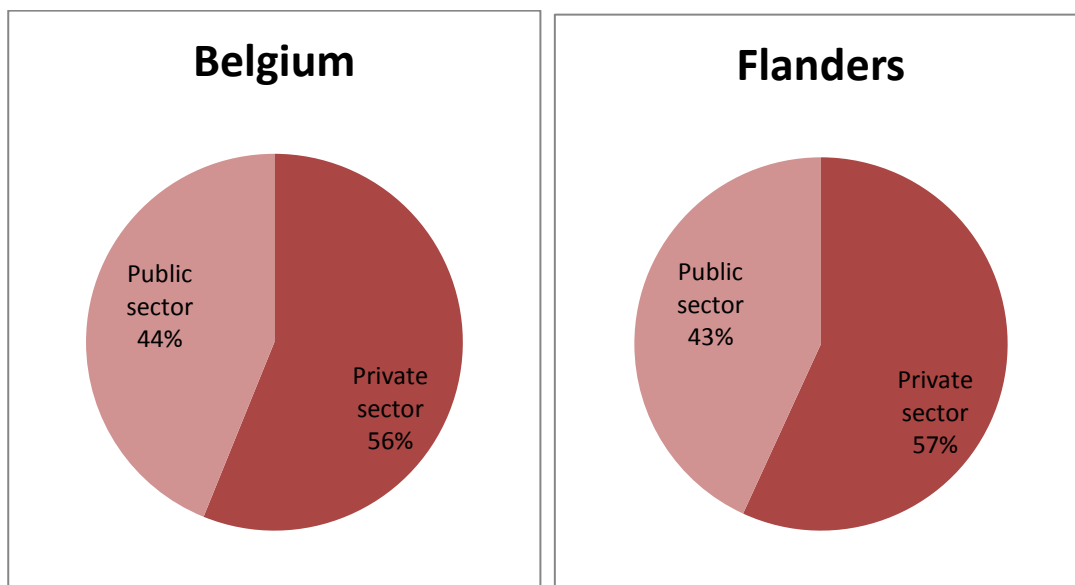
The structure of participation is very similar between the regional and national level as illustrated by the following figures. The share of REC participants is slightly higher in Flanders (33%) than at the national level (26%).

Figure 2: Participation typology: a comparison between regional and national level



At the regional level, the share of participations coming from private organisations (commercial and non-profit) is higher (59%) than for public organisations (40%). The distribution at the regional level is equal to that found at the national level. The following figures present the distribution of FP7 funding among both types of organisations at the national and regional level.

Figure 2: Distribution of participations according to legal type: a comparison between regional and national level

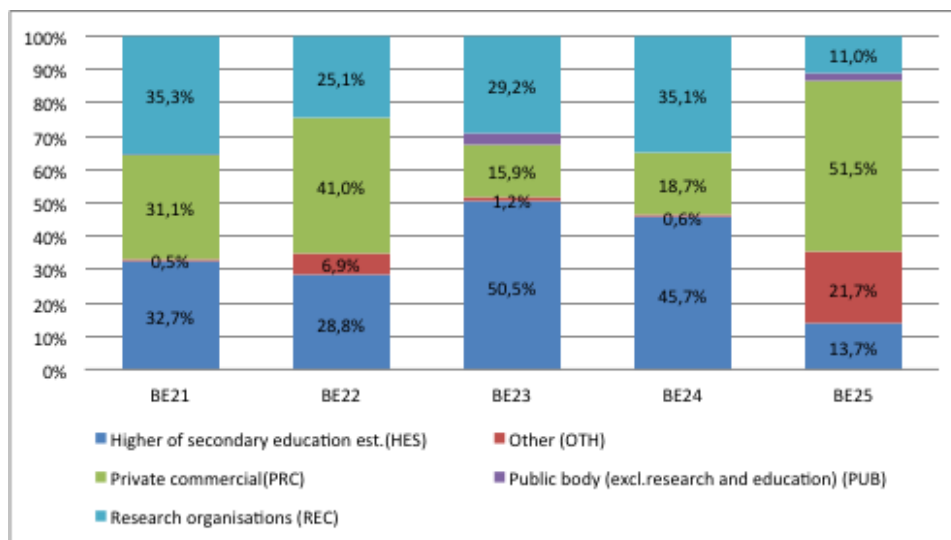


In terms of FP7 funding, private commercial organisations outperform all other types of participants. At the regional level, this group accounted for only 10% of participations, but received 22% of the total FP7 regional funding (2:1 ratio).

2.1 Distribution of funding by participant type at infra-regional level

The distribution of FP7 funding by participant type at the infra-regional level varies considerably. HES in Oost-Vlaanderen receive half of the total funding received in the territory (N-1), while the majority of funding in West-Vlaanderen goes to Private commercial organisations (51.5%).

Figure 4: Distribution of FP7 funding at the infra-regional level by type of participant

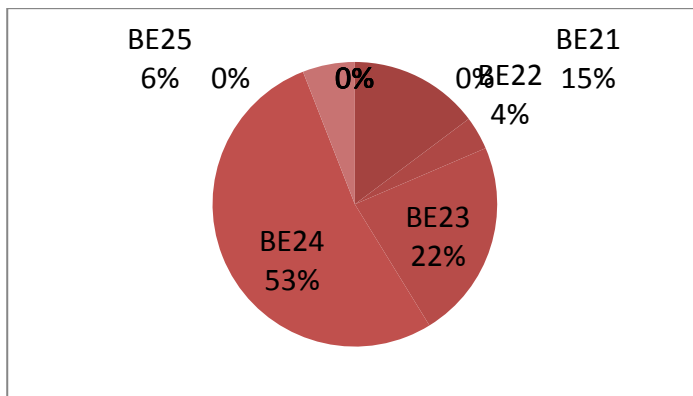


SMES' participation in FP7

During the 2007-2011 period, SMEs in Flanders accounted for 251 participations in FP7 projects and 63mln€ in funding (42% and 43% of the national total respectively). This is considerably lower than the regional share of overall participations in Belgium (50.8% see above). The share of private commercial SME participations is considerably higher than that of private non for profit SMEs (83% vs. 17%). This gap is slightly lower at the national level (72% vs. 28%).

The following figure presents the infra-regional distribution of SME funding in FP7. SMEs in Vlaams-Brabant account for over half of the total SME funding in the region.

Figure 5: EC contribution for SMEs within the region



Distribution of funding by programme and by theme

COOPERATION programs represent the largest share of funding (371mil) and projects (1021), followed by IDEAS (65 mil, 49 projects), PEOPLE - Marie Curie actions (42 mil, 178 projects,) and CAPACITIES (20 mil and 130 projects). In terms of thematic specialization within the COOPERATION program, the themes attracting more funding are *Information and communication technologies* (38%), *Health* (16%) and *Nanosciences* (13%). The relative weight of each thematic area largely reflects the amount of funding pre-allocated by the European Union to each Theme. The comparison with country and European attractiveness of funds per inhabitant provides a better insight as to the regional scientific specialization²: Flanders is more attractive in almost all types of programs, and particularly in Nanoscience, Food, and ICT.

² A ratio above or below 1 points out a higher/lower attractiveness.

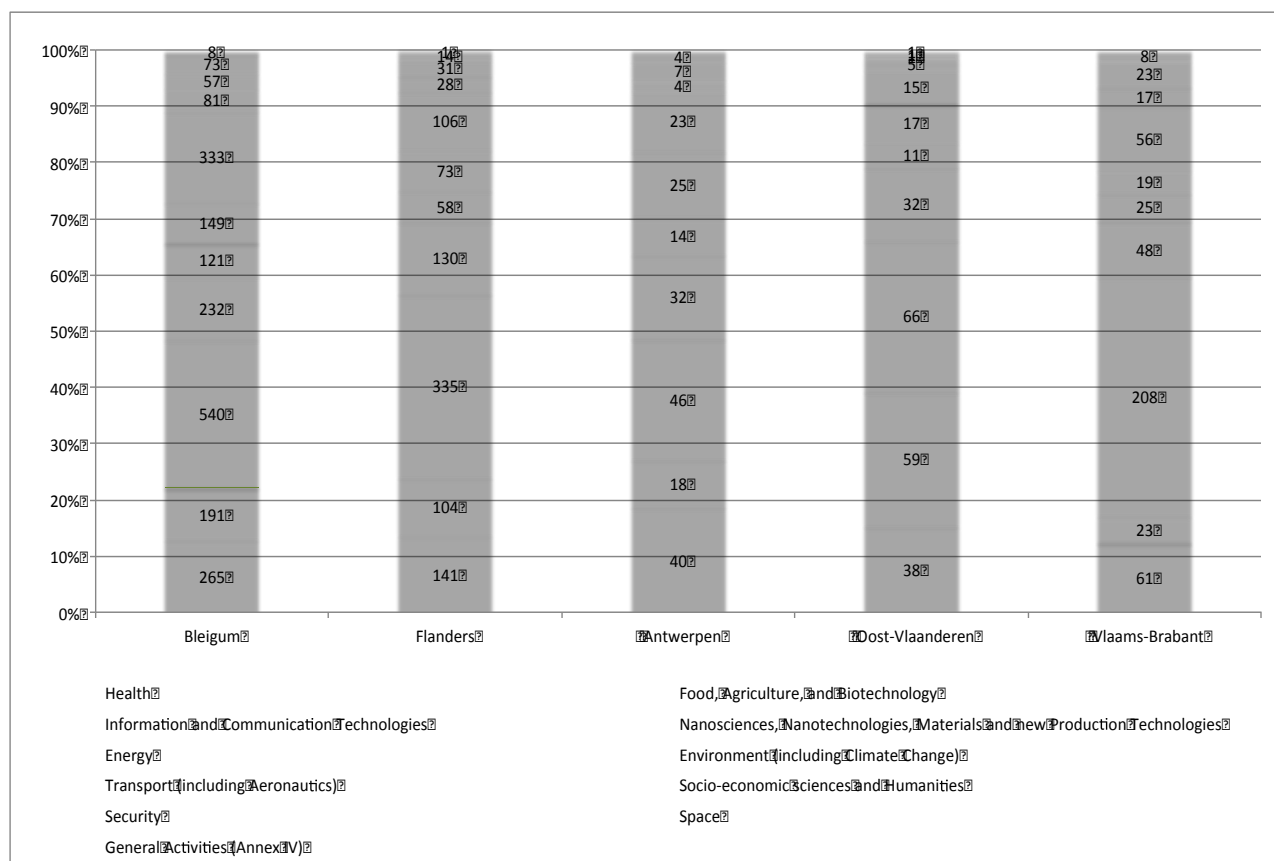
A more detailed description of the thematic specialization in the FP 7 is presented in section 2.4.

Table 2 – Thematic distribution of projects and funding

num	PROG SPEC	Theme	nbr	REGION		Attractiveness compared (contribution)	
				EC contribution	COUNTRY	EU	
1	COOPERATION	Health	141	58'339'840	16%	1.07	1.78
2	COOPERATION	Food, Agriculture, and Biotechnology	104	31'383'840	8%	1.17	2.98
3	COOPERATION	Information and Communication Technologies	335	141'455'770	38%	1.27	2.41
4	COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	130	48'468'635	13%	1.15	2.54
5	COOPERATION	Energy	58	24'433'645	7%	1.01	2.31
6	COOPERATION	Environment (including Climate Change)	73	20'309'779	5%	1.10	1.61
7	COOPERATION	Transport (including Aeronautics)	106	27'246'234	7%	0.66	1.51
8	COOPERATION	Socio-economic sciences and Humanities	28	6'813'859	2%	0.62	1.98
9	COOPERATION	Security	31	9'101'048	2%	1.44	1.42
10	COOPERATION	Space	14	4'011'803	1%	0.39	0.80
11	COOPERATION	General Activities (Annex IV)	1	192'520	0%	0.31	0.07
	COOPERATION	TOTAL	1'021	371'756'972		1.07	2.07
12	IDEAS	European Research Council	49	65'061'897			
13	PEOPLE	Marie-Curie Actions	178	41'943'275			
14	CAPACITIES	Research Infrastructures	36	8'432'208	41%	0.99	0.58
15	CAPACITIES	Research for the benefit of SMEs	82	10'061'256	49%	0.88	1.38
16	CAPACITIES	Regions of Knowledge	4	555'651	3%	0.89	0.82
17	CAPACITIES	Research Potential					
18	CAPACITIES	Science in Society	7	1'365'458	7%	0.19	0.77
19	CAPACITIES	Coherent development of research policies				0.00	0.00
20	CAPACITIES	Activities of International Cooperation	1	41'516	0.2%	0.05	0.05
	CAPACITIES	TOTAL	130	20'456'089		0.70	0.74
21	Euratom	Fusion Energy	2	87'680			
22	Euratom	Nuclear Fission and Radiation Protection	53	14'647'258			
			2'584	906'166'231			

The following figure presents the distribution of participations at the infra-regional level, by FP7 theme (only for COOPERATION); for the top three infra-regional territories. Vlaams Brabant has particularly high level of participations in the field of Information and Communication Technologies, while Oost Vlaanderen stands out for if high number of participations in Food, Agriculture and Biotechnology.

Figure 6: Distribution of infra-regional participations by COOPERATION sub-theme (top three infra-regional participants)



Networking: collaboration in the FP 7

Main partner countries of the region

Regional actors tend to cooperate mostly with other organizations outside the region. Partners in the region count around 10%, nationals 10%, whereas 80% are located in other European regions. The most important countries in terms of collaborations are the main countries cooperating with Flanders are Germany (15.6%), the UK (11.1%), and France (10.6%). The main European regions working with Flanders are Ile de France, Bayern, Baden-Württemberg or Nordrhein Westfalen (Table).

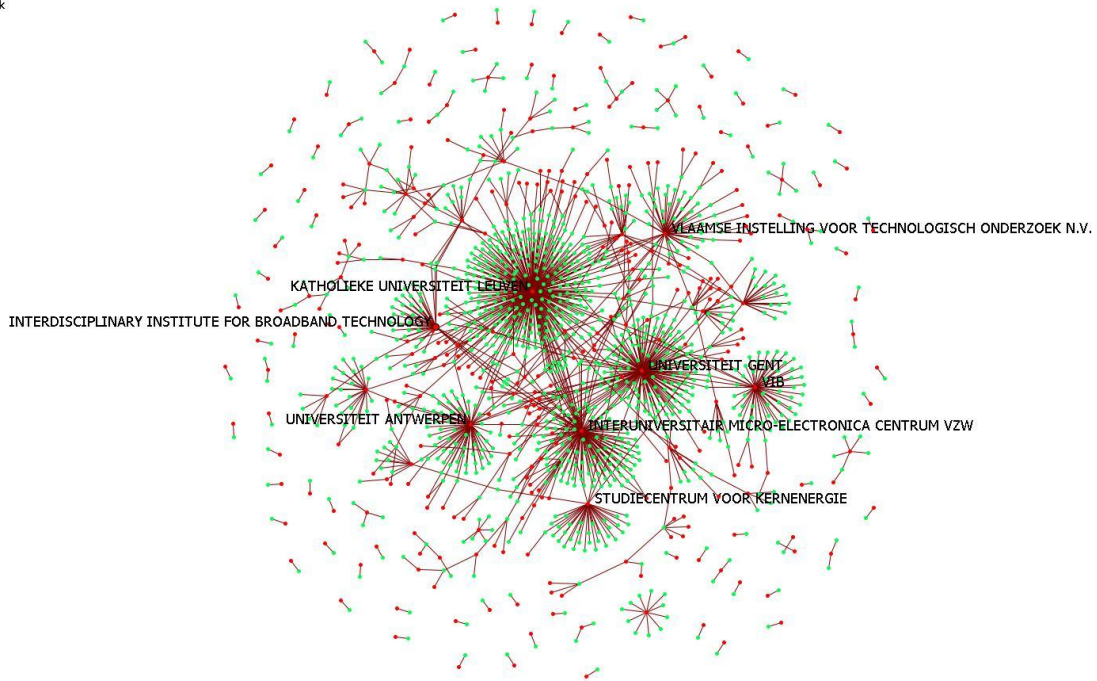
Table 3 – Spatial distribution of collaborations

Partner countries	n	% of total	Partner regions	n	% of total
DE	1886	15.6%	Ile de France	688	5.7%
UK	1337	11.1%	Bayern	409	3.4%
FR	1277	10.6%	Baden-Württemberg	364	3.0%
IT	1107	9.2%	Nordrhein Westfalen	314	2.6%
NL	907	7.5%	Comunidad de Madrid	304	2.5%
ES	836	6.9%	London	290	2.4%
SE	423	3.5%	Région de Bruxelles Capitale	252	2.1%
CH	417	3.5%	Zuid-Holland	250	2.1%
BE	376	3.1%	Lombardia	242	2.0%
EL	308	2.5%	Sout East England	235	1.9%
AT	307	2.5%	Lazio	219	1.8%
DK	246	2.0%	Cataluna	205	1.7%
PL	238	2.0%	Attiki	194	1.6%
FI	219	1.8%	Noord-Brabant	193	1.6%
PT	200	1.7%	Hovedstaden	167	1.4%

Network of the regional collaborations in the FP7

Figure 1 visually represents the network of regional collaborations in the FP 7. The names of the most important actors are shown. The network appears rather dense, and centred around three key actors: the KATHOLIEKE UNIVERSITEIT LEUVEN, UNIVERSITEIT GENT and the INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW.

Figure 7–FP 7 network and its main features



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Measure	Value
number of nodes (organizations)	328
number of egdes (cooperations)	730
Density	0.014
Components of 1 node (isolates)	92
Components of 2 nodes (dyadic isolates)	8
Components of 3 or more nodes	3
Characteristic path length	3.983
Clustering coefficient	0.667
Network levels (diameter)	9
Network fragmentation	0.586
Krackhardt connectedness	0.414
Krackhardt efficiency	0.977

Main regional actors involved in FP7 networks

This chart shows the Agent that is repeatedly top-ranked in a series of centrality measures³. The value shown is the percentage of measures for which the Agent was ranked in the top three. The following table represents three key measures to approximate the importance of the actors in the network⁴.

³ Total degree centrality, In-degree centrality, Out-degree centrality, Eigenvector centrality, Eigenvector centrality per component, Closeness centrality, In-Closeness centrality, Betweenness centrality, Hub centrality, Authority centrality, Information centrality, Clique membership count, Simmelian ties, Clustering coefficient.

⁴ For a definition of these measure see the methodological section.

Figure 8 – More central organizations in the regional FP7 network

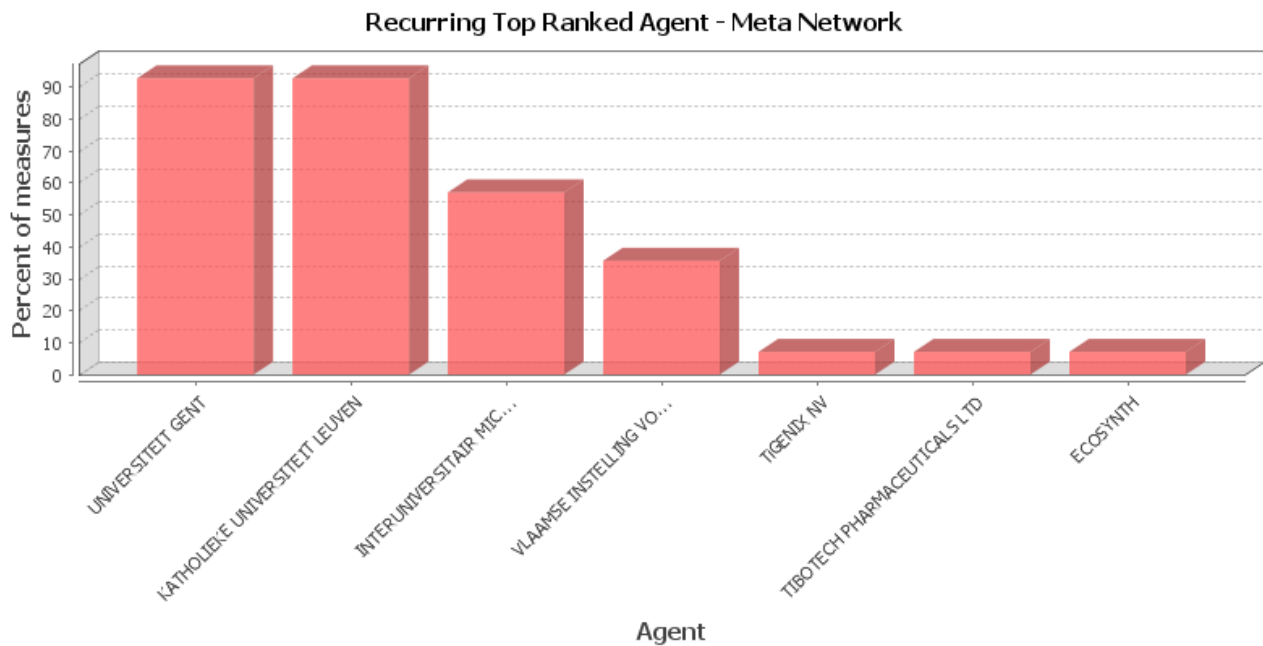


Table 4 – Centrality measures: top actors in the FP 7

Rank	HUB centrality		Betweenness centrality		Total degree centrality	
1	KATHOLIEKE UNIVERSITEIT LEUVEN	1.41	UNIVERSITEIT GENT	12093	KATHOLIEKE UNIVERSITEIT LEUVEN	389
2	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	0.12	KATHOLIEKE UNIVERSITEIT LEUVEN	10877	UNIVERSITEIT GENT	235
3	UNIVERSITEIT GENT	0.06	VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.	6374	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	174
4	LMS INTERNATIONAL NV	0.04	VLAAMS INSTITUUT VOOR DE ZEE VZW	4687	UNIVERSITEIT ANTWERPEN	89
5	VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.	0.02	UNIVERSITEIT ANTWERPEN	2543	VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.	80
6	UNIVERSITEIT ANTWERPEN	0.02	SAPION HANS MILIEU-ADVIES	2145	VIB	66
7	TIBOTEC-VIRCO VIROLOGY	0.02	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	2094	INTERDISCIPLINARY INSTITUTE FOR BROADBAND TECHNOLOGY	46
8	VIB	0.01	PSA ANTWERP NV	2000	STUDIECENTRUM VOOR KERNENERGIE	44
9	AGILENT TECHNOLOGIES BELGIUM NV	0.01	UNIVERSITEIT HASSELT	1744	LMS INTERNATIONAL NV	31
10	CUSTODIX NV	0.01	NXP SEMICONDUCTORS BELGIUM NV	1185	CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE	30

Main actors in the region in terms of leading collaboration

The three main actors in terms of leading collaboration and partnership are the KATHOLIEKE UNIVERSITEIT LEUVEN, UNIVERSITEIT GENT and the INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW, which confirm to be the central actors in region.

Table 5 – Top three organizations for projects led and participation as partner

focus on the top three coordinators

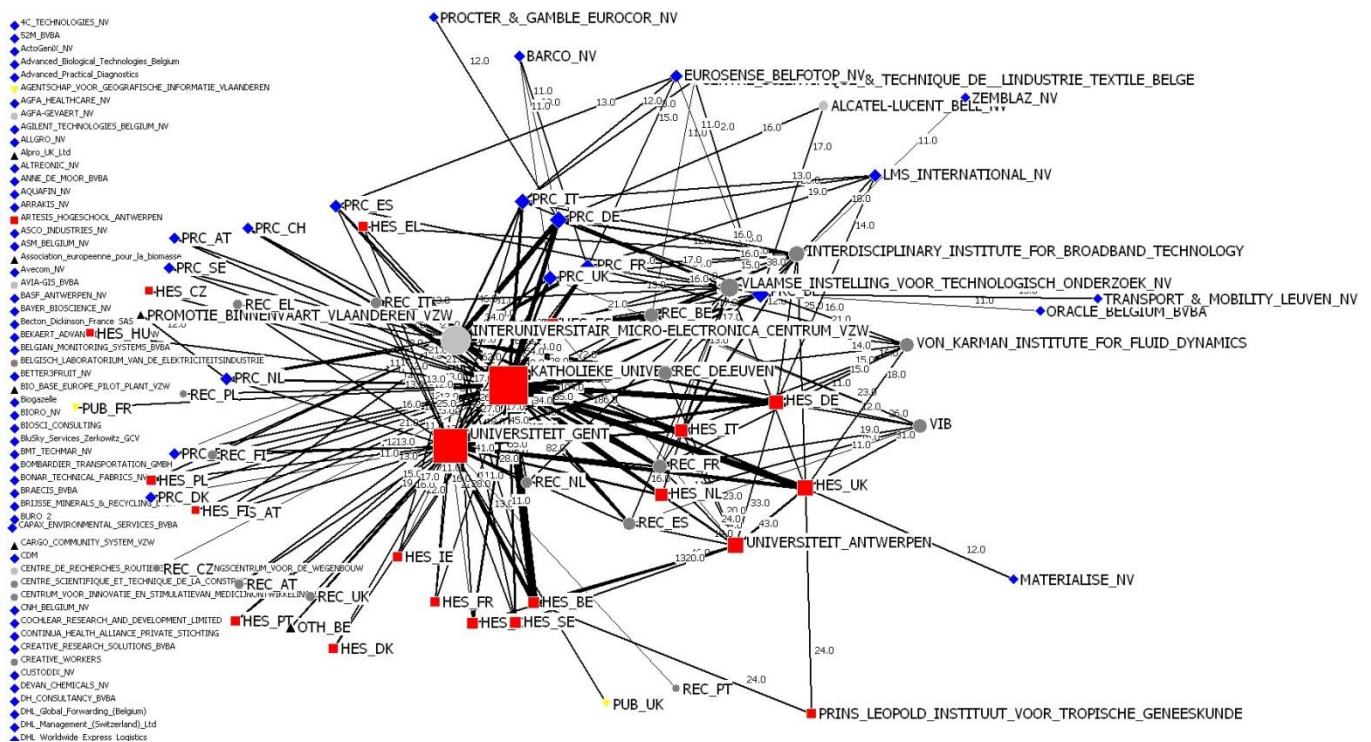
Type	leader	n° as leader	as partner	location of partners		
				region	country	EU
HES	KATHOLIEKE UNIVERSITEIT LEUVEN	84	289	10	6	169
HES	UNIVERSITEIT GENT	47	154	21	12	262
REC	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	34	128	20	2	177

focus on the top three partners

Type	leader	n° as partner	as leader	location of leaders		
				region	country	EU
HES	KATHOLIEKE UNIVERSITEIT LEUVEN	289	84	93	7	189
HES	UNIVERSITEIT GENT	154	47	49	8	97
REC	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	128	34	41	6	81

The following Social Network Analysis reveals the links between the main research players in the region and their partners in Europe. European partners are not displayed individually, but have instead been regrouped by type of organisation and country of origin. The shape of the nodes indicates the type of organisation represented (circles = research organisations, squares = higher education establishments, rhombus = private commercial organisations, triangles = other). The figure only displays the most important collaboration patterns, while excluding collaborations that are too weak to be significant⁵. The size of the nodes indicates the importance of the player in terms of centrality (number of participations linking them to other partners); and the width of lines represents the intensity of collaboration between the partners represented in the figure.

⁵ This has been determined using a minimum value of frequency of collaborations (>6).



Outputs - employment and patenting in the region

Employment

In this section we examine the distribution of employment in the region across sectors with special attention on identifying sectors where the region has a particular specialisation and/or where there are trends of growth and decline in employment. Figure 9 makes a basic breakdown of employment into sectors that can be classified as 'high', 'medium' and 'low' knowledge and technology intensive using the Eurostat and OECD's classification of sectors into technology and knowledge intensive groups (see Annex 1). Further, Table 6 shows figures on employment growth and relative specialisation with respect to Belgium and Europe for each of these broad groupings of sectors.

Figure 9 - Share of regional employment 2009

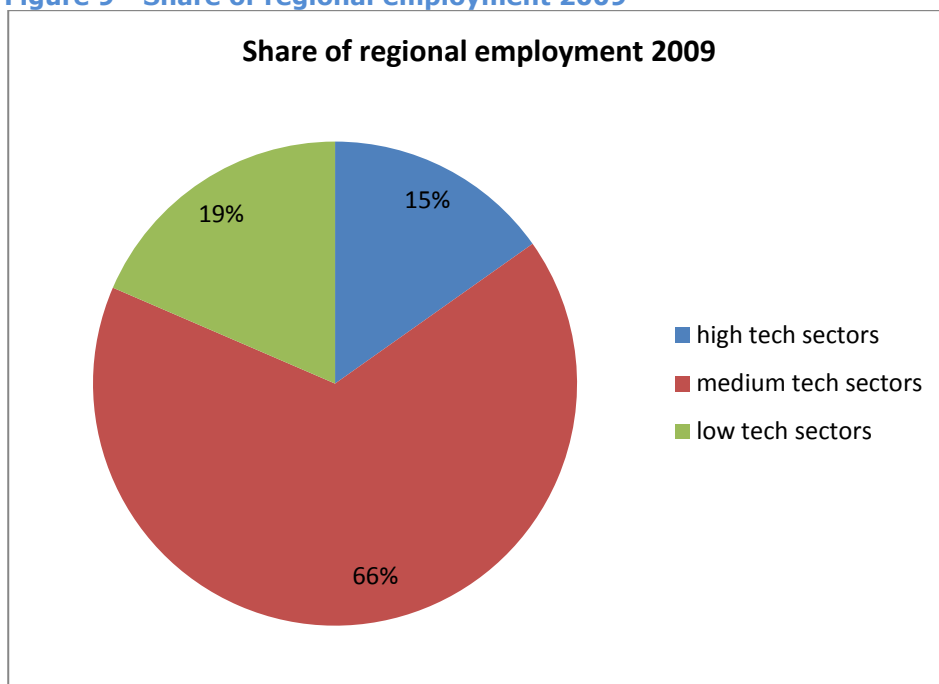


Table 6 –Employment and specialization (2009)

	Share of regional employment 2009	Variation in the share of employment 2009-2004 ⁶	Employment BE2 2009 - 2004	Specialization with respect to Europe ⁷ (2009)	Specialization with respect to Belgium ⁸ (2009)
high tech sectors	15%	14.40%	15608	0.92	0.70
medium tech sectors	66%	9.39%	46435	1.10	1.07
low tech sectors	19%	-1.72%	-2646	0.79	1.15

Employment in Flanders is dominated by medium technology intensive sectors (66%), with low and high technology sectors accounting for 19% and 15% of employment respectively. In terms of trends, employment in medium and high R&D intensive sectors has grown between 2004 and 2009, while employment in low tech sectors has declined. The specialisation figures tell the most interesting story because they show how Flanders is positioned relative to Belgium and Europe. Here we see that Flanders is relatively more specialised in medium tech sectors and relatively less specialised in high tech sectors with respect to both Belgium and Europe. In low R&D intensive sectors Flanders is relatively less specialised than Europe, but relatively more specialised than Belgium. In Table 7 this analysis is continued sector-by-sector, with sectors ranked in terms of their share of regional employment (in 2009).

⁶ The variation in the share employments has been calculated as: $(n^{\circ} \text{ employees in the region in 2009} - n^{\circ} \text{ employees in the region in 2004}) / (n^{\circ} \text{ employees in the region in the year 2004})$

⁷ Specialization index with respect to Europe shows whether the region concentrates more or less employment in a certain sector(s) than the European average being 1 this average.

⁸ *Ibid* with respect to Belgium

Table 7 – Employment specialization by sector and Knowledge intensity (2009)

	Share of regional employment 2009	Employment variation 2009 - 2004	Specialization with respect to Europe	Specialization with respect to Belgium	Technology and knowledge intensity	
Financial services	6.56%	6189	0.83	0.57	HIGH TECHNOLOGY AND KNOWLEDGE INTENSITY	
Education and knowledge creation	4.77%	3785	1.22	0.81		
IT	2.34%	6874	1.06	1.18		
Pharmaceuticals	1.32%	-166	1.40	0.70		
Aerospace	0.11%	-488	0.22	0.28		
Biotech	0.10%	-586	0.67	1.06		
Business services	16.23%	30975	1.87	1.03		MEDIUM TECHNOLOGY AND KNOWLEDGE INTENSITY
Construction materials	8.42%	6528	0.84	1.02		
Processed food	7.72%	-1232	1.26	1.20		
Transportation and logistics	7.66%	4176	1.07	1.01		
Automotive	5.46%	887	1.73	1.39		
Metal manufacturing	4.63%	657	0.91	1.00		
Building fixtures, equipment and services	3.15%	-294	1.08	1.22		
Construction	2.93%	-2281	2.72	1.22		
Plastics	1.99%	-44	1.65	1.33		
Telecom	1.85%	-553	0.65	0.70		
Production technology	1.45%	3136	0.63	0.98		
Entertainment	1.30%	3634	0.83	0.78		
Heavy Machinery	1.24%	1832	1.15	0.94		
Lighting and electrical equipment	0.73%	-2065	1.20	1.23		
Maritime	0.39%	149	0.56	1.26		
Medical devices	0.30%	434	0.45	0.95		
Chemical products	0.30%	-5	0.55	1.05		
Instruments	0.25%	738	0.50	1.38		
Power generation and transmission	0.19%	-42	0.49	0.86		
Sporting, recreational and children's goods	0.09%	-195	0.32	1.19		
Distribution	4.08%	3852	1.35	1.05	LOW TECHNOLOGY AND KNOWLEDGE INTENSITY	
Textiles	3.21%	-4693	2.27	1.51		
Media and publishing	2.30%	-1137	0.82	0.99		
Tourism and hospitality	2.19%	1286	0.52	0.87		
Paper products	2.03%	-184	1.07	1.25		
Farming and animal husbandry	1.16%	4887	0.54	1.51		
Furniture	1.09%	-2570	0.81	1.40		
Agricultural products	0.88%	-1324	0.55	1.07		
Apparel	0.65%	-2064	0.32	1.29		
Oil and gas	0.39%	292	0.91	1.56		
Jewellery and precious metals	0.20%	-588	0.92	1.45		
Tobacco	0.19%	-181	0.65	1.44		
Leather products	0.13%	-129	0.68	1.50		

Footwear	0.02%	-90	0.04	1.44
Stone quarries	0.00%	-3	0.04	0.02

The detail of the previous table can be also found in the following figures, in which we can see the absolute employment growth (y axis), the relative weight on the regional total employed (x axis) and the regional specialization with respects to Europe (the size of the bubbles).

Figure 9 – High tech and knowledge sectors: evolution 2004- 2009

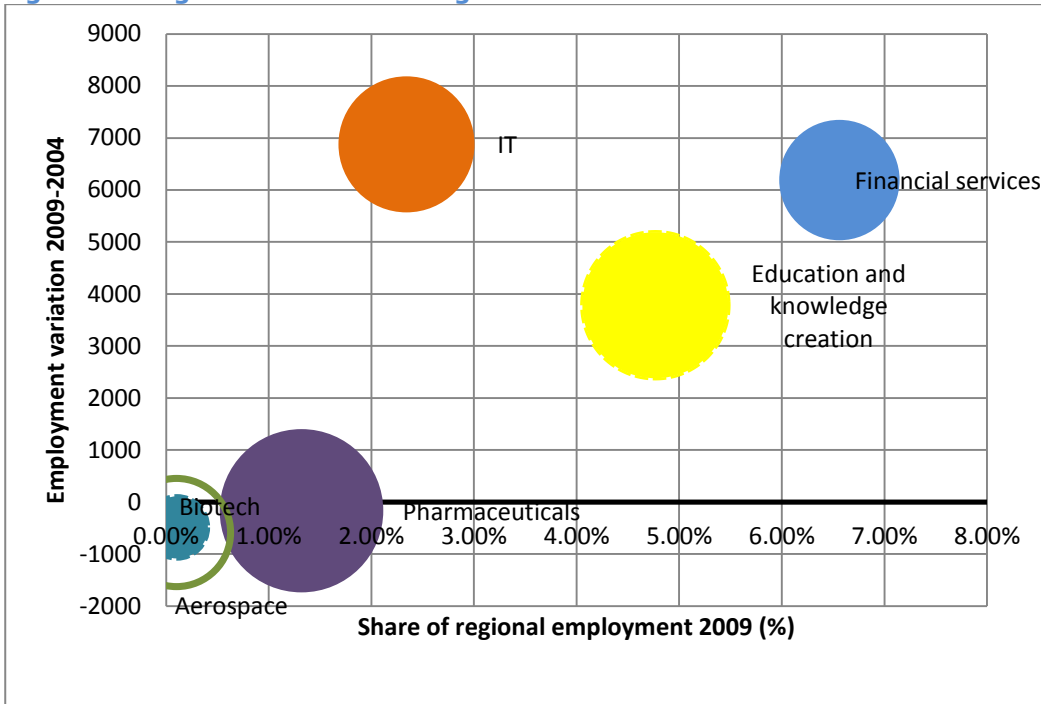
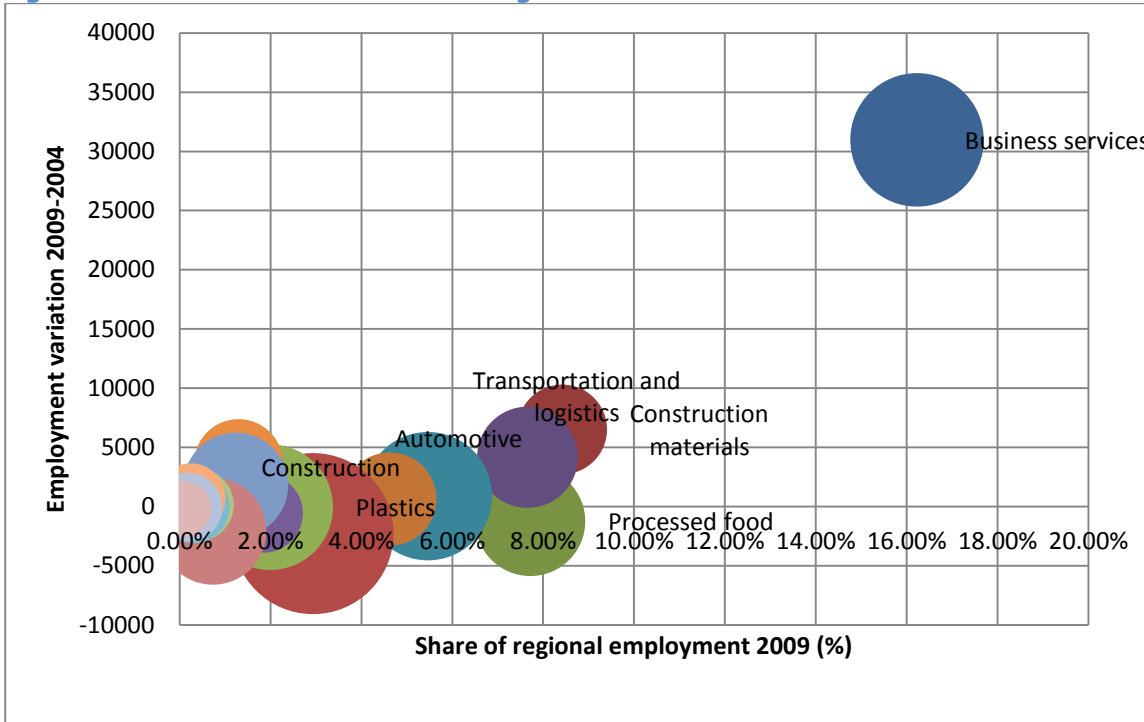


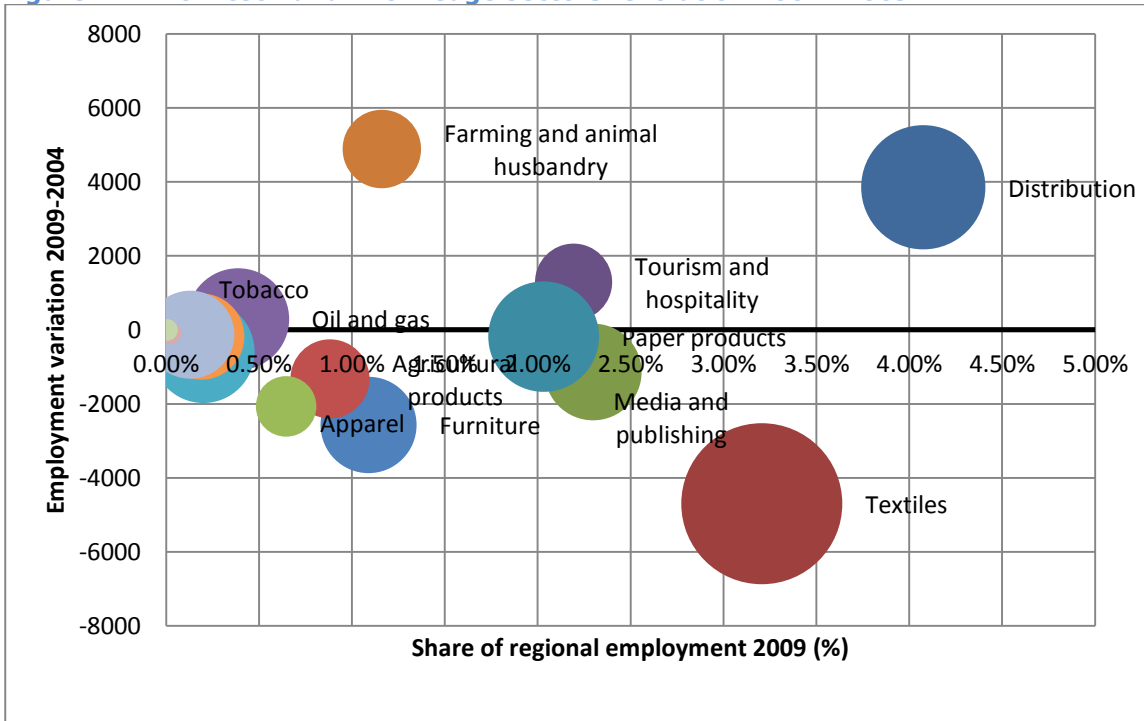
Figure 9 shows three sectors (“IT”, “Financial services” and “Education and knowledge creation”) that are growing in terms of employment. With regards to medium tech sectors, “Business services” is growing and the region is highly specialised. Some other medium tech sectors have grown in employees in the period 2004-2009 . Among them we can highlight sectors as “Construction materials”, “Transportation and Logistics” or “Automotive”. “Plastics” is a sector in which the region is specialized in comparison with the EU average but has not grown in terms of employees.

Figure 10 – Medium tech and knowledge sectors: evolution 2004- 2009



Among low tech sectors “Distribution” and “Farming and husbandry” provide the most in terms of employment growth. Flanders is specialized in “Textiles” and many people are employed in this sector, but it has lost many workers in the considered period.

Figure 11 – Low tech and knowledge sectors: evolution 2004- 2009



Patents

Table 8 and figures 12 and 13 show the degree of specialization by sector of patenting, for EPO applications from 2002 to 2007. Patents are regrouped by domain and sub-field. Fractional counting is used for distributing patents across fields.

Flanders clearly emerges as specialized in Electrical Engineering; also in the other sectors the patenting activity is remarkable. Table 10 shows that Alcatel lucent and Barco are by large the most important patenting subjects.

Table 8 – patents by domain and sub-field

dm	lib_domaines	n	lib_fields	n° patents	field weight*	country weight**	specialisation index ***
1	Electrical engineering	1	Electrical machinery, apparatus, energy	65.65	3.42%	45.61%	1.16
1	Electrical engineering	2	Audio-visual technology	50.29	2.62%	51.99%	1.32
1	Electrical engineering	3	Telecommunications	122.97	6.40%	64.49%	1.63
1	Electrical engineering	4	Digital communication	209.86	10.92%	80.17%	2.03
1	Electrical engineering	5	Basic communication processes	22.01	1.15%	59.11%	1.50
1	Electrical engineering	6	Computer technology	98.85	5.15%	43.28%	1.10
1	Electrical engineering	7	IT methods for management	9.23	0.48%	38.12%	0.97
1	Electrical engineering	8	Semiconductors	59.92	3.12%	47.63%	1.21
2	Instruments	9	Optics	63.91	3.33%	62.11%	1.57
2	Instruments	10	Measurement	45.41	2.36%	31.94%	0.81
2	Instruments	11	Analysis of biological materials	13.70	0.71%	36.63%	0.93
2	Instruments	12	Control	18.17	0.95%	34.23%	0.87
2	Instruments	13	Medical technology	71.73	3.73%	34.93%	0.88
3	Chemistry	14	Organic fine chemistry	47.44	2.47%	32.51%	0.82
3	Chemistry	15	Biotechnology	22.43	1.17%	32.85%	0.83
3	Chemistry	16	Pharmaceuticals	60.25	3.14%	36.74%	0.93
3	Chemistry	17	Macromolecular chemistry, polymers	80.50	4.19%	36.51%	0.92
3	Chemistry	18	Food chemistry	41.33	2.15%	29.20%	0.74
3	Chemistry	19	Basic materials chemistry	106.24	5.53%	55.51%	1.41
3	Chemistry	20	Materials, metallurgy	29.10	1.51%	31.36%	0.79
3	Chemistry	21	Surface technology, coating	50.40	2.62%	36.24%	0.92
3	Chemistry	22	Micro-structural and nano-technology	0.50	0.03%	35.46%	0.90
3	Chemistry	23	Chemical engineering	49.51	2.58%	33.63%	0.85
3	Chemistry	24	Environmental technology	31.04	1.62%	36.87%	0.93
4	Mechanical engineering	25	Handling	70.30	3.66%	35.76%	0.91
4	Mechanical engineering	26	Machine tools	28.12	1.46%	39.50%	1.00
4	Mechanical engineering	27	Engines, pumps, turbines	31.07	1.62%	26.23%	0.66
4	Mechanical engineering	28	Textile and paper machines	102.78	5.35%	53.09%	1.34
4	Mechanical engineering	29	Other special machines	77.29	4.02%	27.28%	0.69
4	Mechanical engineering	30	Thermal processes and apparatus	7.30	0.38%	13.63%	0.35
4	Mechanical engineering	31	Mechanical elements	41.75	2.17%	28.04%	0.71
4	Mechanical engineering	32	Transport	34.66	1.80%	11.65%	0.30
5	Other fields	33	Furniture, games	47.83	2.49%	35.79%	0.91
5	Other fields	34	Other consumer goods	30.85	1.61%	37.31%	0.94
5	Other fields	35	Civil engineering	78.56	4.09%	32.75%	0.83

* ratio: (n° of patents of the region in field x) / (total patents of the region)

** ratio: (n° of patents of the region in field x) / (n° of patents of the country in field x)

*** ratio: (patenting weight of field x in the region) / (patenting weight of field x in the country)

Figure 12 – Patenting by domain: total share

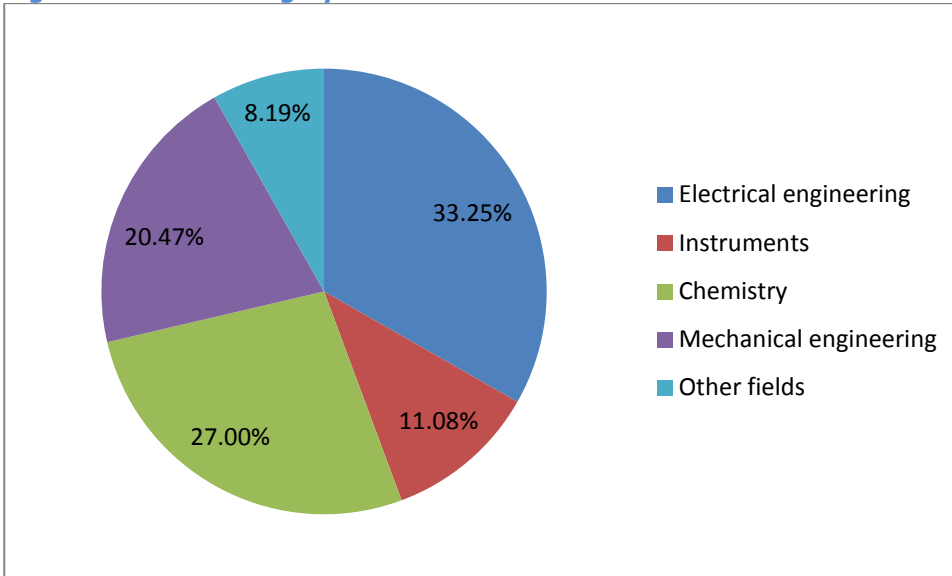


Figure 13 - Patenting by domain: specialization

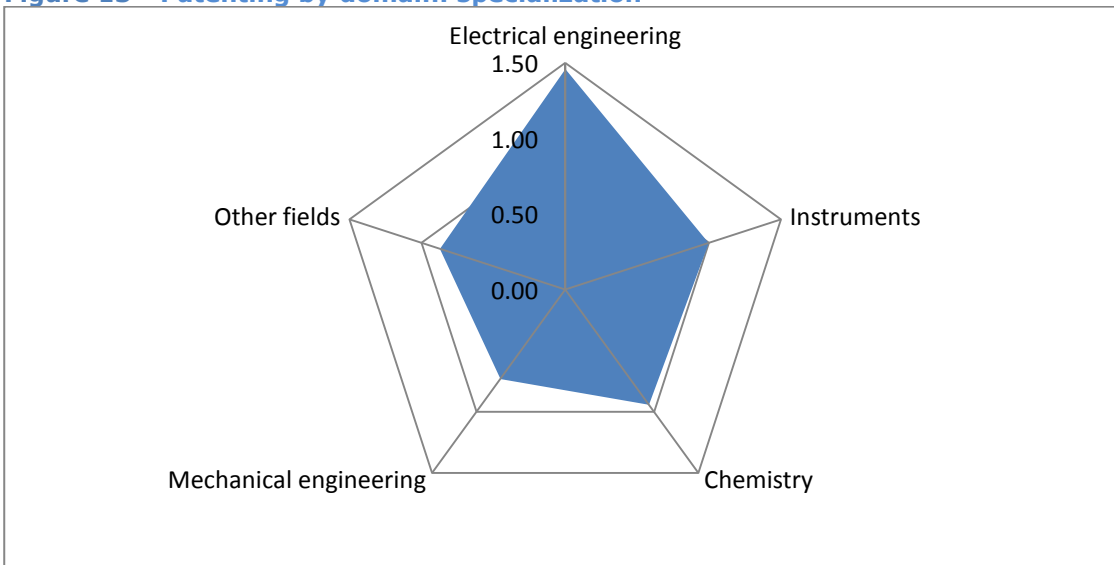


Table 9 shows the most important patenting subjects.

Table 9 – Most important applicants

name	count
ALCATEL LUCENT	243
BARCO GRAPHICS NV	123
INTERUNIVERSITAIRE MICROELEKTR	64
AGFA GEVAERT NV	56
BARCO NV	44
TOTAL PETROCHEMICALS RES FELUY	44
3M INNOVATIVE PROPERTIES CO	36
BOREALIS TECH OY	31
UNIV BRUXELLES	31
PROCTER & GAMBLE	28

Annex 1 - Regional Research and technological specialisation in FP7

Context

FP7 allocates a total of EUR 32 413 million to the Cooperation specific programme. This funding is mainly aimed at supporting cooperation between universities, industry, research centres and public authorities through collaborative research projects. As of October 2011, 3 725 projects were funded through the FP7 cooperation programme representing a total of 14.5€bn.

The FP7 cooperation programme covers 11 themes (Cf. Box 1) which themselves cover a number of research areas. For the purposes of this study, 188 research areas have been selected in order to perform a regional specialization analysis of each theme.

Box 1 The 11 themes of the FP7 cooperation programme (and the number of research areas for each of them)

- Health (13 research areas)
- Food, Agriculture, and Biotechnology (17 research areas)
- Information and Communication Technologies (12 research areas)
- Nanosciences, Nanotechnologies, Materials and new Production Technologies (16 research areas)
- Energy (8 research areas)
- Environment (including Climate Change) (9 research areas)
- Transport
 - Aeronautics (17 research areas)
 - Surface transport (15 research areas)
- Socio-economic sciences and Humanities (18 research areas)
- Space (5 research areas)
- Security (7 research areas)

Methodological aspects

The specialization analysis aims to establish regional profiles based on thematic participation in the cooperation programme of FP7. The principle of the specialization analysis is to compare, within a theme, the budget breakdown into research areas between the European, national and regional levels.

The perimeter of the analysis only concerns research activities. In order to improve the relevance of the specialization analysis, cross-cutting activities, support actions to improve international collaborations, to promote SMEs or for NCP activities are not taken into account.

The specialization analysis is conditioned by the creation of a clean and reliable regional monitoring tool which takes into account headquarter effects. This was done during as part of the second component of the AMCER, which allowed validating the FP participations of each of the nine regions covered by the project.

The specialization analysis has been carried out for each theme of the cooperation programme. As an underlying hypothesis, we consider there is no asymmetry of information within a theme. This means that we consider national and regional stakeholders to be equally informed about all the research areas and funding opportunities covered in the theme.

In order to avoid the appearance of a mass effect of some research areas against others, the share (weight) of the area within the theme is not considered in the specialization profile. Instead, the European profile is considered as the baseline (Base 100) for regional and national comparisons. The specialization profile is established by measuring the spread between the EU baseline and national or regional EC funding distribution among the research areas.

In other words, this methodology allows identifying which research areas are over-represented and under-represented among all research areas. This provides information regarding the preferences of national and regional research communities in terms of priority research areas. It should be taken into account however, that the analysis does not consider the possible existing competition between European, national and regional funding opportunities at the stakeholder level.

Remarks on the specialisation indexes

The analysis does not constitute a performance indicator. Instead, it presents the differences in terms of distribution of funding among research areas at the national and regional level, compared to the FP standard, and regardless of the total funding weight of each research area. A comparison between the national profile and the EU profile illustrates the national and regional specialization trends. A comparison can also be carried out between national and regional specialization profiles, allowing to know if the regional specialization profile follows the national profile. The difference between profiles can be unlighted by national or regional experts aware of the territorial.

In order to identify areas of specialization, readers must identify the specialization index provided for each research area. If the 'specialisation index' is above the European 100 base, it can be stated that the region or country is specialized in that particular research area. On the other hand, if the specialization index stands below 100, the area is underrepresented and there is no indication of specialization in this area.

For each theme covered by the FP7 cooperation programme, the three following sets of information are provided:

- i) The overall EU budget distribution by research area
- ii) The specialisation profile at the national and regional level, providing a picture of specialisation trends for the two levels. A comparison between the two levels can give information on regional specialisation trends (and highlight strategic initiatives taken at regional level).
- iii) The ranking of research areas at the national and regional levels, according their specialisation scores. The table ranks the research areas according to their specialization score (in base 100) at the national and regional level (left and right column respectively). If the score is above 100, the area is over represented in comparison to the European standard, providing an indication on the specialization trend of the country or the region.

Health

Table 1 Budget breakdown in research areas at the FP cooperation specific-programme level

Rk	Research area	%
1	Translational research in other major diseases	21.6%
2	Translational research in major infectious diseases: To confront major threats to public health	19.1%
3	Integrating biological data and processes: large-scale data gathering, systems biology	17.6%
4	Innovative therapeutic approaches and interventions	10.0%
5	Research on the brain and related diseases, human development and ageing	8.3%
6	Detection, diagnosis and monitoring	6.7%
7	High-throughput research	4.0%
8	Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate use of behavioural and organisational interventions and new health therapies and technologies	2.9%
9	International public health & health systems	2.6%
10	Quality, efficiency and solidarity of healthcare systems including transitional health systems	2.6%
11	Health promotion	2.1%
12	Suitability, safety, efficacy of therapies	1.3%
13	Specific international cooperation actions for health system research	1.1%

Figure 3 Specialisation profiles of Belgium and Flanders

The following table ranks the research areas according to their specialization score (in base 100) at the national and regional level (left and right column respectively). If the score is above 100, the area is over represented in comparison to the European standard, providing an indication on the specialization trend of the country or the region.

Table 2 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Innovative therapeutic approaches and interventions	174	1	International public health & health systems	309
2	Specific international cooperation actions for health system research	136	2	Specific international cooperation actions for health system research	279
3	Research on the brain and related diseases, human development and ageing	130	3	Research on the brain and related diseases, human development and ageing	149
4	International public health & health systems	126	4	Translational research in major infectious diseases: To confront major threats to public health	148
5	Translational research in other major diseases	116	5	Health promotion	130
6	Translational research in major infectious diseases: To confront major threats to public health	115	6	Translational research in major infectious diseases: To confront major threats to public health	100

7	<i>Suitability, safety, efficacy of therapies</i>	96	7	<i>Detection, diagnosis and monitoring</i>	90
8	<i>Detection, diagnosis and monitoring</i>	84	8	<i>Innovative therapeutic approaches and interventions</i>	65
9	<i>Health promotion</i>	64	9	<i>Quality, efficiency and solidarity of healthcare systems including transitional health systems</i>	58
10	<i>Quality, efficiency and solidarity of healthcare systems including transitional health systems</i>	56	10	<i>Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate use of behavioural and organisational interventions and new health therapies and technologies</i>	51
11	<i>Integrating biological data and processes: large-scale data gathering, systems biology</i>	54	11	<i>Integrating biological data and processes: large-scale data gathering, systems biology</i>	46
12	<i>High-throughput research</i>	38	12	<i>Suitability, safety, efficacy of therapies</i>	13
13	<i>Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate use of behavioural and organisational interventions and new health therapies and technologies</i>	28			

Food, Agriculture, and Biotechnology

Table 3 Budget breakdown in research areas

Rk	Research area	%
1	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	18.4%
2	Socio-economic research and support to policies	9.8%
3	Nutrition	8.8%
4	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	8.8%
5	Marine and fresh-water biotechnology (blue biotechnology)	8.1%
6	Food processing	7.1%
7	Food quality and safety	6.4%
8	Novel sources of biomass and bioproducts	6.3%
9	Enabling Research	6.0%
10	Industrial biotechnology: novel high added-value bio-products and bio-processes	5.4%
11	Environmental impacts and total food chain	4.2%
12	Consumers	3.3%
13	Environmental biotechnology	3.0%
14	Emerging trends in biotechnology	2.3%
15	The Ocean of Tomorrow	1.5%
16	Biorefinery	0.5%
17	Energy Efficiency in Agriculture	0.1%

Figure 4 Specialisation profiles of Belgium and Flanders

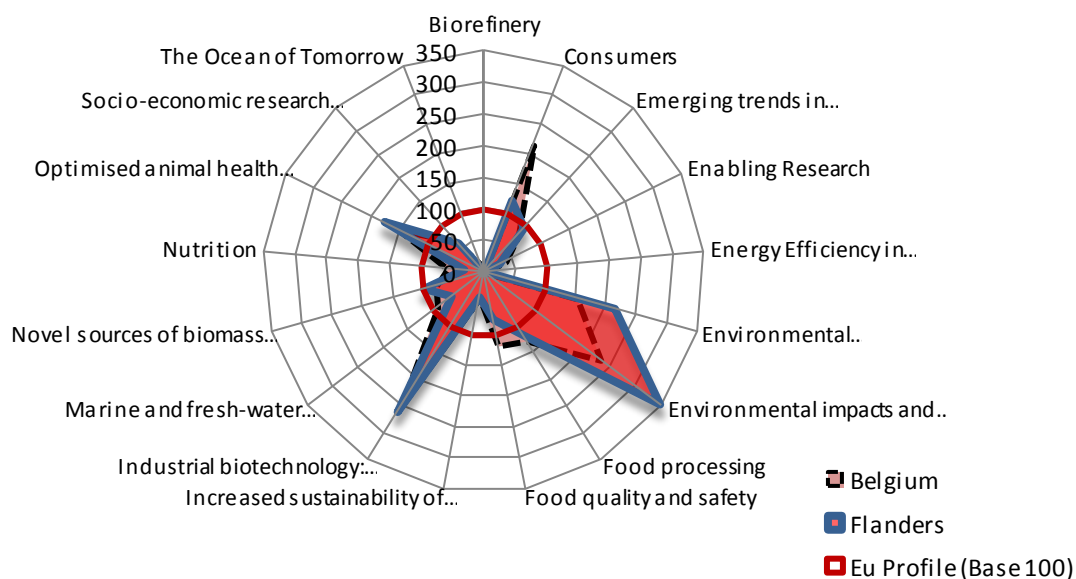


Table 4 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Industrial biotechnology: novel high added-value bio-products and bio-processes	249	1	Environmental impacts and total food chain	349
2	Environmental impacts and total food chain	230	2	Industrial biotechnology: novel high added-value bio-products and bio-processes	262
3	Consumers	216	3	Environmental biotechnology	215
4	Environmental biotechnology	152	4	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	177
5	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	150	5	Consumers	121
6	Food processing	127	6	Food processing	119
7	Food quality and safety	118	7	Novel sources of biomass and bioproducts	100
8	Marine and fresh-water biotechnology (blue biotechnology)	92	8	Emerging trends in biotechnology	93
9	Emerging trends in biotechnology	80	9	Food quality and safety	77
10	Novel sources of biomass and bioproducts	79	10	Marine and fresh-water biotechnology (blue biotechnology)	65
11	Socio-economic research and support to policies	66	11	Socio-economic research and support to policies	61
12	Nutrition	58	12	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	41
13	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	41	13	Nutrition	32
14	Enabling Research	38	14	Enabling Research	27
15	The Ocean of Tomorrow	12			

Information and Communication Technologies

Table 5 Budget breakdown in research areas

Rk	Research area	%
1	Pervasive and Trustworthy network and service infrastructures	26.4%
2	Components, systems, engineering	21.6%
3	Towards sustainable and personalised healthcare	9.2%
4	Cognitive systems, interaction, robotics	9.0%
5	Digital libraries and content	8.8%
6	ICT for mobility, environmental sustainability and energy efficiency	8.5%
7	Future and emerging technologies	8.3%
8	ICT for Independent Living, Inclusion and Governance	3.1%
9	Smart Factories/virtual factories	2.4%
10	Future Internet experimental facility and experimentally-driven research	1.1%
11	ICT for the Fully Electric Vehicle	1.0%
12	Exa-scale computing, software and simulation	0.4%

Figure 5 Specialisation profiles of Belgium and Flanders

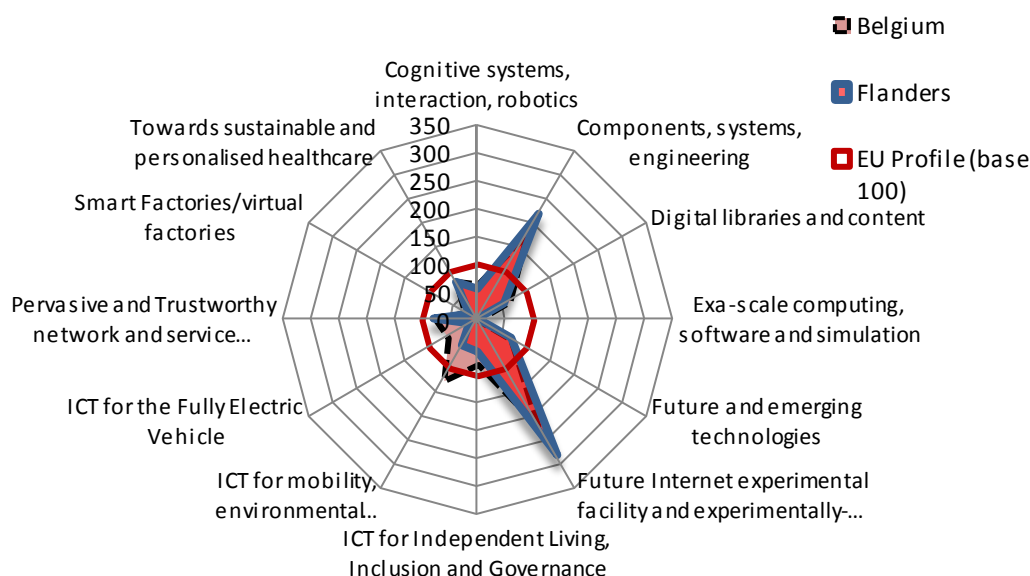


Table 6 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Future Internet experimental facility and experimentally-driven research	217	1	Future Internet experimental facility and experimentally-driven research	283
2	Components, systems, engineering	177	2	Components, systems, engineering	217
3	ICT for mobility, environmental sustainability and energy efficiency	124	3	<i>Pervasive and Trustworthy network and service infrastructures</i>	78
4	<i>Towards sustainable and personalised healthcare</i>	80	4	<i>Towards sustainable and personalised healthcare</i>	76
5	<i>ICT for Independent Living, Inclusion and Governance</i>	79	5	<i>Future and emerging technologies</i>	69

6	<i>Pervasive and Trustworthy network and service infrastructures</i>	77	6	<i>ICT for Independent Living, Inclusion and Governance</i>	59
7	<i>Future and emerging technologies</i>	68	7	<i>ICT for mobility, environmental sustainability and energy efficiency</i>	55
8	<i>Digital libraries and content</i>	67	8	<i>Digital libraries and content</i>	54
9	<i>Cognitive systems, interaction, robotics</i>	65	9	<i>Cognitive systems, interaction, robotics</i>	53
10	<i>ICT for the Fully Electric Vehicle</i>	63	10	<i>ICT for the Fully Electric Vehicle</i>	17
11	<i>Smart Factories/virtual factories</i>	29	11	<i>Smart Factories/virtual factories</i>	17

Nanosciences, Nanotechnologies, Materials and new Production Technologies

Table 7 Budget breakdown in research areas

Rk	Sub theme	Research area	%
1	Nanosciences	Nanotechnology for benefiting environment, energy and health	12.9%
2	New production	Adaptive production systems	12.1%
3	Nanosciences	Maximising the contribution of Nanotechnology on sustainable development	9.4%
4	Materials	Innovative materials for advanced applications	8.5%
5	New production	Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	7.8%
6	Materials	Using engineering to develop high performance knowledge-based materials	7.6%
7	New production	Exploitation of the convergence of technologies	7.6%
8	New production	Development and validation of new industrial models and strategies	6.0%
9	Materials	Enabling R&D in Nanostructured materials	5.8%
10	Materials	Advances in chemical technologies and materials processing	5.7%
11	Materials	Structuring actions/new materials	4.6%
12	Nanosciences	Ensuring the safety of Nanotechnology	4.1%
13	New production	Networked production	3.7%
14	Integration	Substantial innovation in the European medical industry: development of nanotechnology-based systems for in-vivo diagnosis and therapy (in coordination with topic HEALTH-2007-2.4.1-7 and HEALTH-2007-1.2-3 in Theme 1 Health)	2.6%
15	Integration	Smart materials for applications in the sectors of construction and of machinery and production equipment	0.8%
16	Integration	Sustainable new products and markets through bioproduction of green forest-based chemicals and materials	0.7%

Figure 6 Specialisation profiles of Belgium and Flanders

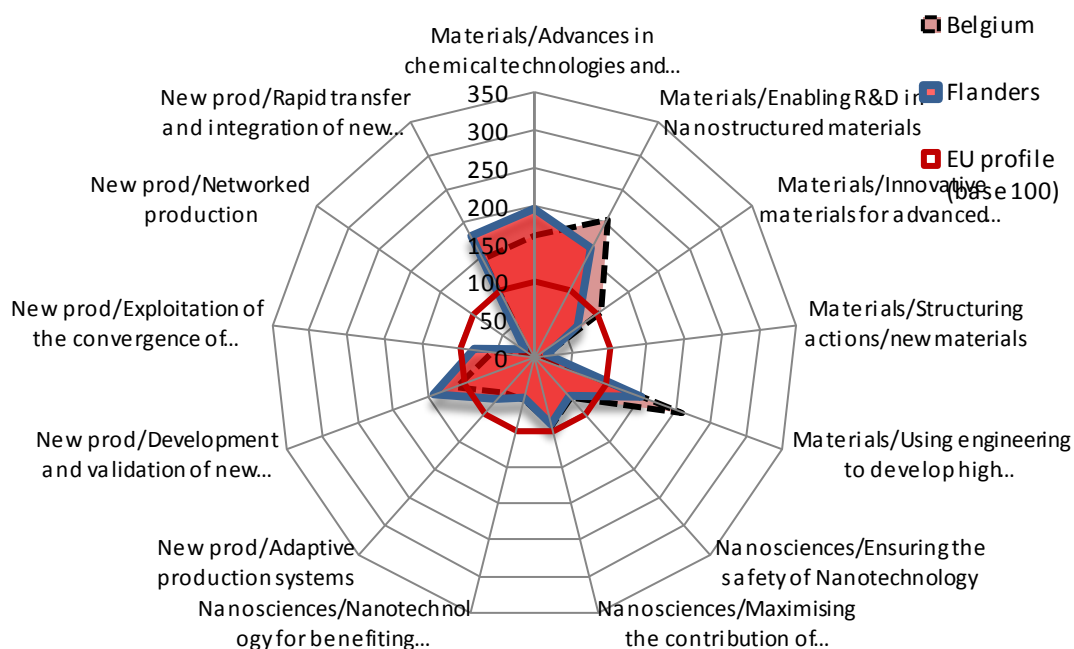


Table 8 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Materials/Using engineering to develop high performance knowledge-based materials	209	1	Materials/Advances in chemical technologies and materials processing	193
2	Materials/Enabling R&D in Nanostructured materials	208	2	New prod/Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	178
3	Materials/Advances in chemical technologies and materials processing	163	3	Materials/Enabling R&D in Nanostructured materials	160
4	New prod/Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	149	4	Integration/Substantial innovation in the European medical industry: development of nanotechnology-based systems for in-vivo diagnosis and therapy (in coordination with topic HEALTH-2007-2.4.1-7 and HEALTH-2007-1.2-3 in Theme 1 Health)	156
5	New prod/Development and validation of new industrial models and strategies	112	5	Materials/Using engineering to develop high performance knowledge-based materials	150
6	Materials/Innovative materials for advanced applications	107	6	New prod/Development and validation of new industrial models and strategies	141
7	Integration/Substantial innovation in the European medical industry: development of nanotechnology-based systems for in-vivo diagnosis and therapy (in coordination with topic HEALTH-2007-2.4.1-7 and HEALTH-2007-1.2-3 in Theme 1 Health)	101	7	Integration/Smart materials for applications in the sectors of construction and of machinery and production equipment	99
8	Nanosciences/Maximising the contribution of Nanotechnology on sustainable development	93	8	Nanosciences/Maximising the contribution of Nanotechnology on sustainable development	92
9	Nanosciences/Ensuring the safety of Nanotechnology	72	9	New prod/Exploitation of the convergence of technologies	79
10	Integration/Smart materials for applications in the sectors of construction and of machinery and production equipment	64	10	New production/Adaptive production systems	75
11	New prod/Adaptive production systems	63	11	Nanosciences/Ensuring the safety of Nanotechnology	70
12	Nanosciences/Nanotechnology for benefiting environment, energy and health	59	12	Materials/Innovative materials for advanced applications	69
13	New prod/Exploitation of the convergence of technologies	58	13	Nanosciences/Nanotechnology for benefiting environment, energy and health	56

14	Materials/Structuring actions/new materials	11	14	Materials/Structuring actions/new materials	17
15	New prod/Networked production	10	15	New prod/Networked production	16

Energy

Table 9 Budget breakdown in research areas

Rk	Research area	%
1	Renewable electricity generation	31.5%
2	Renewable fuel production	21.0%
3	Smart energy networks	13.7%
4	Energy efficiency and savings	13.3%
5	CO2 capture and storage technologies for zero emission power generation	9.4%
6	Clean coal technologies	5.9%
7	Hydrogen and fuel cells	3.1%
8	Knowledge for energy policy making	2.1%

Figure 7 Specialisation profiles of Belgium and Flanders

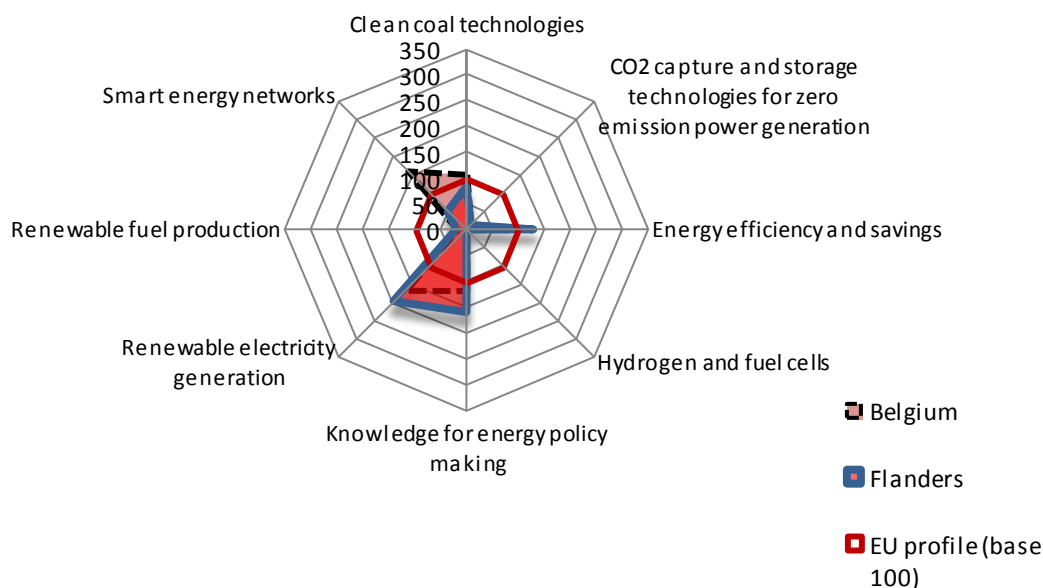


Table 10 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Renewable electricity generation	166	1	Renewable electricity generation	198
2	Smart energy networks	161	2	Knowledge for energy policy making	161
3	Knowledge for energy policy making	118	3	Energy efficiency and savings	128
4	Clean coal technologies	107	4	Clean coal technologies	84
5	Energy efficiency and savings	87	5	Smart energy networks	51
6	Renewable fuel production	19	6	Renewable fuel production	20
7	CO2 capture and storage technologies for zero emission power generation	11	7	CO2 capture and storage technologies for zero emission power generation	12

Environment (including Climate Change)

Table 11 Budget breakdown in research areas

Rk	Sub theme	Research area	%
1	Climate change, pollution, and risks	Pressures on environment and climate	19.5 %
2	Sustainable management of resources	Conservation and sustainable management of natural and man-made resources and biodiversity	17.4 %
3	Environmental technologies	Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment	17.1 %
4	Climate change, pollution, and risks	Environment and Health	10.4 %
5	Earth observation and assessment tools for sustainable development	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	9.7%
6	Sustainable management of resources	Management of marine environments	9.0%
7	Climate change, pollution, and risks	Natural hazards	7.0%
8	Earth observation and assessment tools for sustainable development	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	6.8%
9	Environmental technologies	Protection, conservation and enhancement of cultural heritage, including human habitat	3.2%

Figure 8 Specialisation profiles of Belgium and Flanders

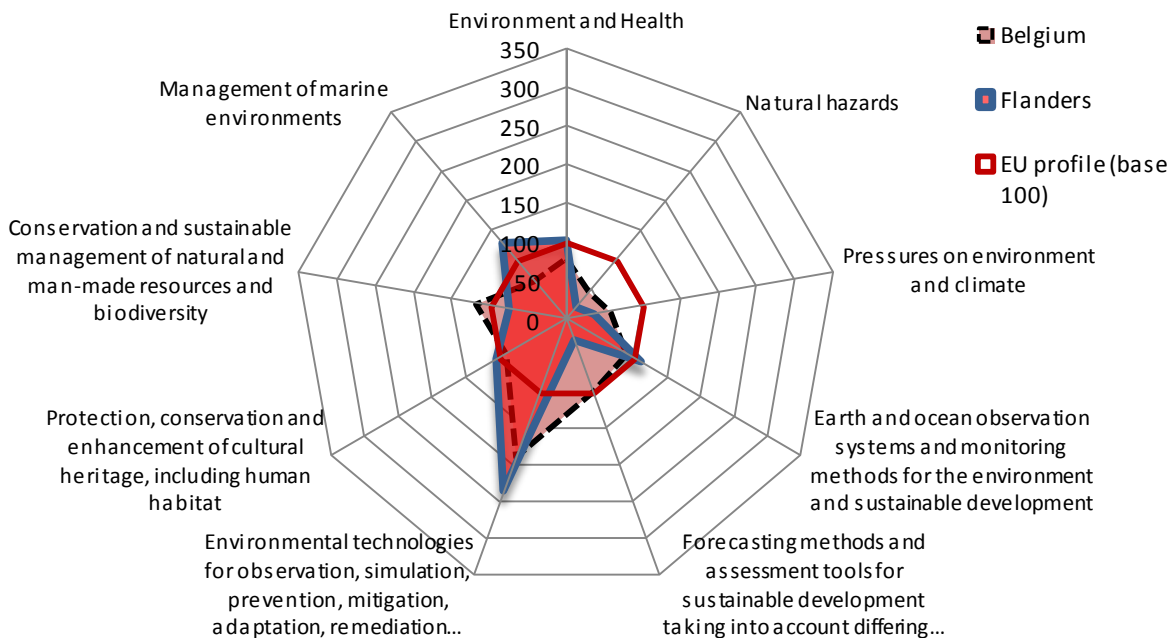


Table 12 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100

1	Environmental technologies	Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment	189	1	Environmental technologies	Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment	237
2	Sustainable management of resources	Conservation and sustainable management of natural and man-made resources and biodiversity	118	2	Sustainable management of resources	Management of marine environments	128
3	Earth observation and assessment tools for sustainable development	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	100	3	Earth observation and assessment tools for sustainable development	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	111
4	Earth observation and assessment tools for sustainable development	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	90	4	Environmental technologies	Protection, conservation and enhancement of cultural heritage, including human habitat	104
5	Environmental technologies	Protection, conservation and enhancement of cultural heritage, including human habitat	89	5	Climate change, pollution, and risks	Environment and Health	102
6	Climate change, pollution, and risks	Environment and Health	80	6	Sustainable management of resources	Conservation and sustainable management of natural and man-made resources and biodiversity	75
7	Sustainable management of resources	Management of marine environments	65	7	Climate change, pollution, and risks	Pressures on environment and climate	36
8	Climate change, pollution, and risks	Pressures on environment and climate	58	8	Earth observation and assessment tools for sustainable development	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	29
9	Climate change, pollution, and risks	Natural hazards	46	9	Climate change, pollution, and risks	Natural hazards	20

Transport (Aeronautics)

Table 13 Budget breakdown in research areas

Rk	Research area	%
1	Propulsion	21.9%
2	Aerostructures	15.1%
3	Design Systems and Tools	8.8%
4	Systems and Equipment	8.6%
5	Production	7.0%
6	Flight Physics	6.5%
7	Avionics	4.2%

8	Maintenance	3.9%
9	Novel Air Transport Vehicles	3.9%
10	Airports	3.8%
11	Human Factors	3.5%
12	Green Air Transport Operations	3.3%
13	Guidance and Control	2.6%
14	Systems	2.3%
15	Personal air transport systems	2.0%
16	Lift	1.7%
17	Interior space	1.0%

Figure 9 Specialisation profiles of Belgium and Flanders

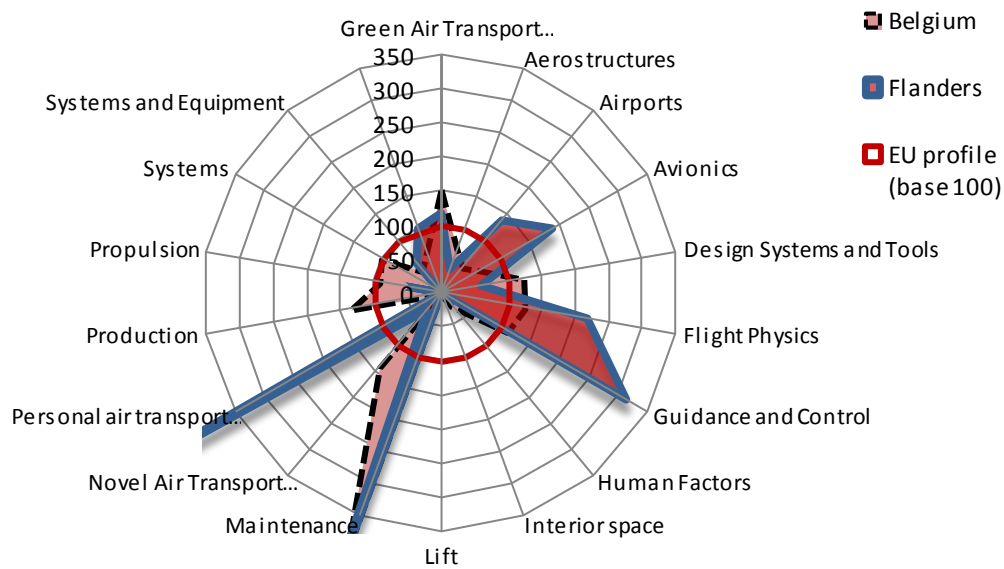


Table 14 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Maintenance	405	1	Personal air transport systems	591
2	Green Air Transport Operations	154	2	Maintenance	515
3	Novel Air Transport Vehicles	141	3	Guidance and Control	314
4	Production	136	4	Flight Physics	218
5	Flight Physics	126	5	Avionics	188
6	Design Systems and Tools	124	6	Airports	139
7	Guidance and Control	113	7	Green Air Transport Operations	117
8	Systems	102	8	Design Systems and Tools	60
9	Propulsion	92	9	Systems and Equipment	56
10	Aerostructures	69	10	Propulsion	55
11	Avionics	68	11	Aerostructures	37
12	Airports	50	12	Novel Air Transport Vehicles	33
13	Systems and Equipment	43			
14	Human Factors	24			

Transport (Surface transport)

Table 15 Budget breakdown in research areas

Rk	Research area	%
1	The greening of products and operations	24.0%
2	Integrated safety and security for surface transport systems	21.2%
3	Competitive surface transport products and services	12.1%
4	Innovative strategies for clean urban transport (CIVITAS Plus II)	10.8%
5	Logistics and intermodal transport	7.7%
6	New transport and mobility concepts	7.4%
7	Interoperability and Safety	4.1%
8	Environment-friendly and efficient industrial processes	3.0%
9	Maritime and inland waterway transport	2.9%
10	High quality public transport	2.7%
11	Policy support	1.6%
12	Integrated electric auxiliaries and on-board systems	1.0%
13	Socio-economic issues	0.8%
14	Electrical machines	0.4%
15	Optimised thermal engine development and integration	0.4%

Figure 10 Specialisation profiles of Belgium and Flanders

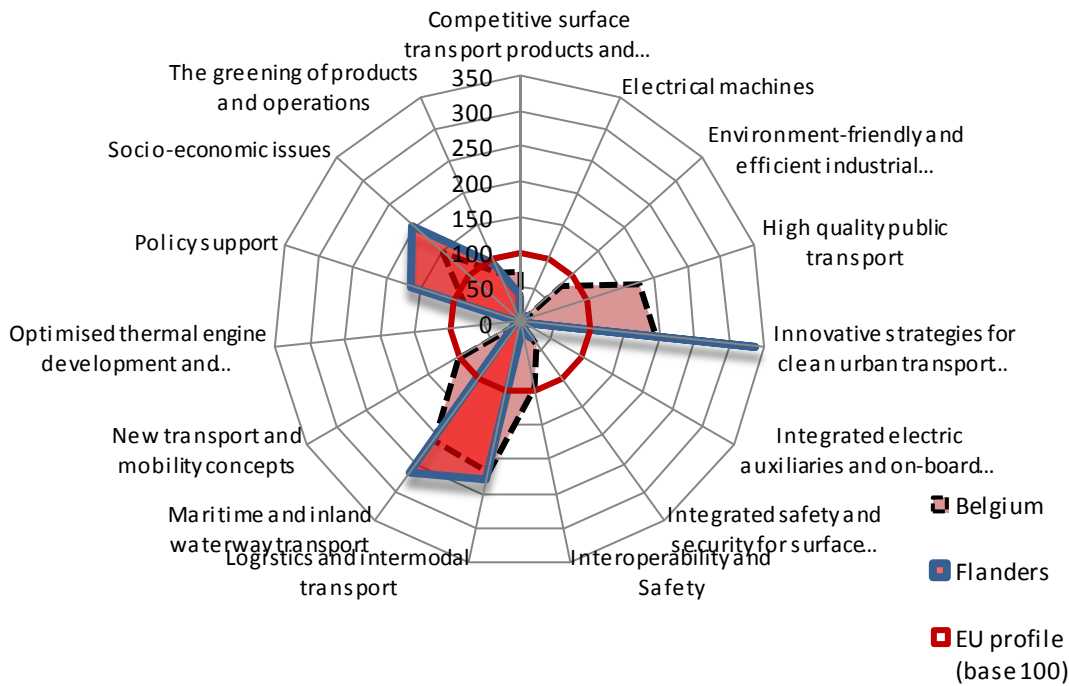


Table 16 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base	Rk	Flanders	Index
----	---------	------------	----	----------	-------

		100			Base 100
1	Logistics and intermodal transport	217	1	Innovative strategies for clean urban transport (CIVITAS Plus II)	335
2	Maritime and inland waterway transport	207	2	Maritime and inland waterway transport	265
3	Innovative strategies for clean urban transport (CIVITAS Plus II)	193	3	Logistics and intermodal transport	229
4	High quality public transport	177	4	Socio-economic issues	205
5	Socio-economic issues	148	5	Policy support	162
6	New transport and mobility concepts	102	6	The greening of products and operations	92
7	Interoperability and Safety	95	7	Competitive surface transport products and services	40
8	Policy support	83	8	Integrated safety and security for surface transport systems	27
9	Environment-friendly and efficient industrial processes	78	9	Interoperability and Safety	14
10	The greening of products and operations	78	10	Environment-friendly and efficient industrial processes	13
11	Competitive surface transport products and services	72	11	New transport and mobility concepts	10
12	Integrated safety and security for surface transport systems	38			

Socio-economic sciences and Humanities

Table 17 Budget breakdown in research areas

Rk	Research area	%
1	Socio-economic development trajectories	16.1%
2	Participation and Citizenship in Europe	9.0%
3	Interactions and interdependences between world regions and their implications	9.0%
4	Societal trends and lifestyles	8.2%
5	Diversities and Commonalities in Europe	7.8%
6	Changing role of knowledge throughout the economy	6.5%
7	Regional, territorial and social cohesion	6.5%
8	Conflicts, peace and human rights	6.1%
9	Structural changes in the European knowledge economy and society	5.9%
10	Cultural interactions in an international perspective	5.2%
11	Demographic changes	3.7%
12	Foresight activities	3.7%
13	Strengthening policy coherence and coordination in Europe	3.0%
14	Europe's changing role in the world	2.8%
15	Developing better indicators for policy	2.5%
16	Provision of underlying official statistics	1.7%
17	Use of indicators and related approaches for the evaluation of research policies and programmes	1.2%
18	Current use of indicators in policy	1.1%

Figure 11 Specialisation profiles of Belgium and Flanders

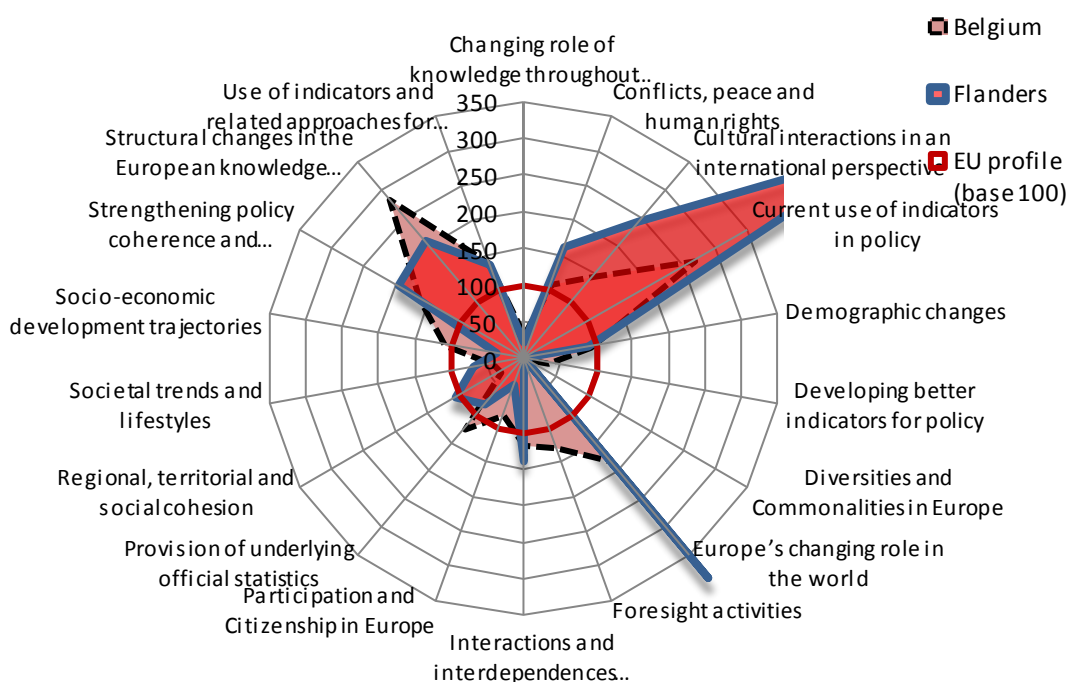


Table 18 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Structural changes in the European knowledge economy and society	284	1	Current use of indicators in policy	563
2	Current use of indicators in policy	268	2	Europe's changing role in the world	390
3	Europe's changing role in the world	181	3	Cultural interactions in an international perspective	242
4	Strengthening policy coherence and coordination in Europe	164	4	Structural changes in the European knowledge economy and society	208
5	Cultural interactions in an international perspective	147	5	Strengthening policy coherence and coordination in Europe	197
6	Use of indicators and related approaches for the evaluation of research policies and programmes	139	6	Conflicts, peace and human rights	160
7	Foresight activities	129	7	Interactions and interdependences between world regions and their implications	141
8	Provision of underlying official statistics	125	8	Use of indicators and related approaches for the evaluation of research policies and programmes	135
9	Interactions and interdependences between world regions and their implications	118	9	Regional, territorial and social cohesion	107
10	Socio-economic development trajectories	109	10	Demographic changes	89
11	Conflicts, peace and human rights	108	11	Provision of underlying official statistics	83
12	Demographic changes	92	12	Societal trends and lifestyles	70
13	Participation and Citizenship in Europe	81	13	Participation and Citizenship in Europe	39
14	Societal trends and lifestyles	42	14	Socio-economic development trajectories	38
15	Regional, territorial and social cohesion	36	15	Changing role of knowledge throughout the economy	21
16	Developing better indicators for policy	34			
17	Changing role of knowledge throughout	33			

Space

Table 19 Budget breakdown in research areas

Rk	Research area	%
1	(Pre-)operational validation of GMES services and products	56.2%
2	Research to support space science and exploration	14.9%
3	Research to support space transportation and key technologies	13.9%
4	Continuity of GMES services in the areas of Marine and Atmosphere	8.0%
5	Research into reducing the vulnerability of space assets	7.0%

Figure 12 Specialisation profiles of Belgium and Flanders

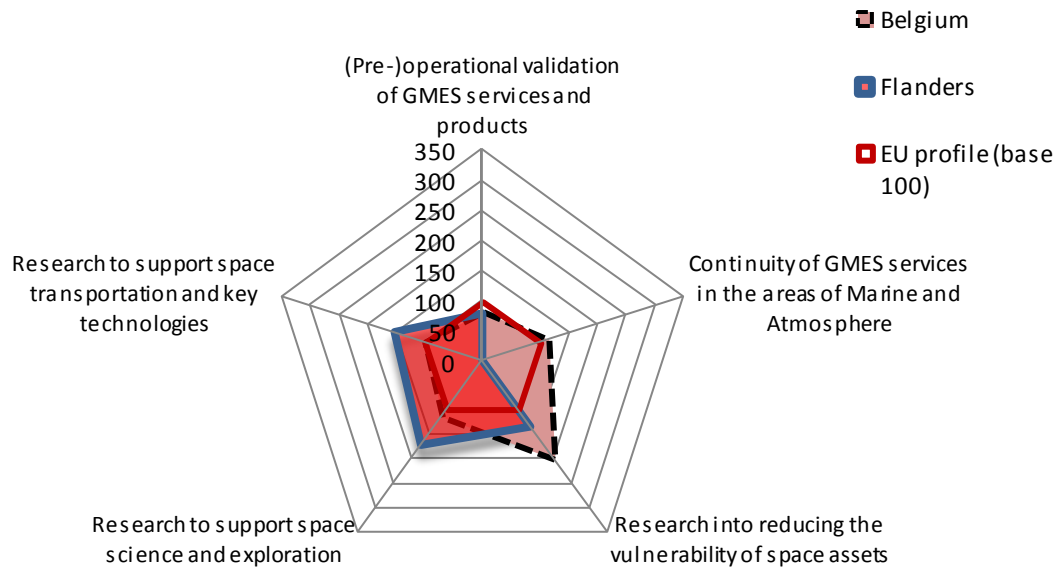


Table 20 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Research into reducing the vulnerability of space assets	201	1	Research to support space science and exploration	172
2	Research to support space science and exploration	115	2	Research to support space transportation and key technologies	152
3	Continuity of GMES services in the areas of Marine and Atmosphere	114	3	Research into reducing the vulnerability of space assets	135
4	Research to support space transportation and key technologies	101	4	(Pre-)operational validation of GMES services and products	78
5	(Pre-)operational validation of GMES services and products	81			

Security

Table 21 Budget breakdown in research areas

Rk	Research area	%
1	Intelligent surveillance and enhancing border security	23.3%
2	Restoring security and safety in case of crisis	22.2%
3	Increasing the Security of citizens	19.4%
4	Increasing the Security of infrastructures and utilities	17.9%
5	Security and society	8.6%
6	Security Research coordination and structuring	4.3%
7	Security systems integration, interconnectivity and Interoperability	4.2%

Figure 13 Specialisation profiles of Belgium and Flanders

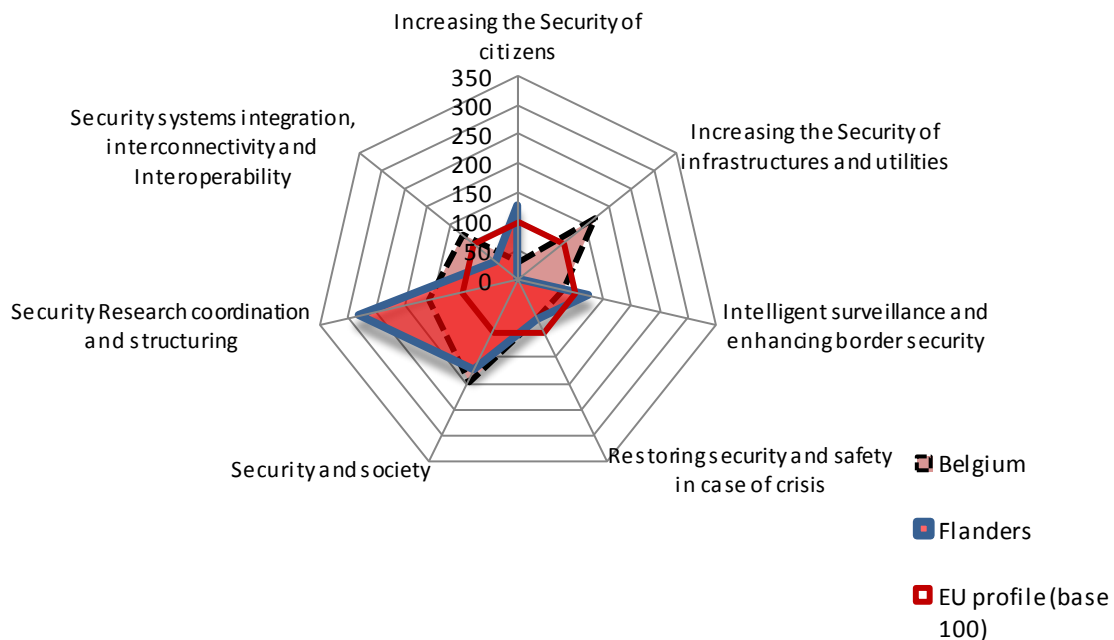


Table 22 Specialisation ranking for Belgium and Flanders

Rk	Belgium	Index Base 100	Rk	Flanders	Index Base 100
1	Security and society	197	1	Security Research coordination and structuring	280
2	Increasing the Security of infrastructures and utilities	169	2	Security and society	173
3	Security Research coordination and structuring	160	3	Increasing the Security of citizens	126
4	Security systems integration, interconnectivity and Interoperability	123	4	Intelligent surveillance and enhancing border security	125
5	Intelligent surveillance and enhancing border security	79	5	Restoring security and safety in case of crisis	77
6	Restoring security and safety in case of crisis	74	6	Security systems integration, interconnectivity and Interoperability	47
7	Increasing the Security of citizens	30			

Annex 2 – FP7 participation scoreboard

This section covers all the indicators produced for the FP7 after validation of the list of participations and contains the following parts:

- i. Headquarter analysis
- ii. Main regional indicators
- iii. Intraregional indicators
- iv. International cooperation

Headquarter analysis

This section presents the results of the headquarter effect analysis for the focused region. The following table presents number of modified participations of the region, after elimination the existing headquarter effect. The total number of participations in the region is estimated by adding the total number of participations with no headquarter effect, to the ingoing participations (participations previously attributed to an outside region⁹, but now attributed to the focused region).

Table 23 Overall result of the Headquarter analysis

Type of participation	Nbr of participations
(1) Nbr of participation with no headquarter effect	1320
(2) Nbr of ingoing participations	113
(3) Nbr of outgoing participations	17
Total nbr of participations (1)+(2)	1433

The following table presents a breakdown of the previous table by geographical origin of participations. The second and third columns indicate the NUTS II territory from which the participation is added or subtracted. In the case of incoming participations, the focused region¹⁰ gains a participation, while the impacted region loses one. The opposite is true of outgoing participations.

Table 24 Participation localisation detail (ingoing participations, outgoing participations and static participations)

Participation flow	Regions with participations to subtract	Regions with participation to add	Number of participations concerned	Total	%
In	BE100	BE21	45	113	7,9%
In	BE310	BE21	1		
In	CH031	BE21	1		
In	EU	BE21	9		
In	IE025	BE21	1		
In	LT00A	BE21	1		
In	UKI11	BE21	1		
In	UKJ23	BE21	2		
In	BE100	BE22	2		
In	ITC46	BE22	1		
In	BE100	BE23	16		
In	FR421	BE23	1		
In	FR714	BE23	1		
In	NL326	BE23	1		
In	NL414	BE23	2		
In	BE100	BE24	12		
In	BE326	BE24	1		
In	BE332	BE24	1		
In	CH013	BE24	1		
In	DE300	BE24	1		
In	NL335	BE24	1		

⁹ Impacted region.

¹⁰ The region being analysed in the current scoreboard.

In	NL411	BE24	1		
In	NL414	BE24	1		
In	UKJ13	BE24	1		
In	BE100	BE25	2		
In	FR101	BE25	1		
In	FR421	BE25	4		
In	UKF23	BE25	1		
Out	BE234	BE10	2		
Out	BE241	BE10	2		
Out	BE242	BE10	1		
Out	BE211	BE21	1		
Out	BE234	CH01	1		
Out	BE234	DE11	1		
Out	BE242	EL23	4		
Out	BE241	FR10	1		
Out	BE242	ITD3	1		
Out	BE212	NL33	1		
Out	BE241	SE11	1		
Out	BE241	UKC2	1	17	1,3%
no Headquarter effect			269	1320	92,1%
Total (after correction)				1433	100,0%

The following table presents the distribution of participations (ingoing, outgoing, no headquarter effect) by participant typology (HES, OTH, PRC, PUB, REC).

Table 25 Typology of Ingoing, Outgoing and Static participations

Organisation type	Ingoing participations		Outgoing participations		Static participations	
HES	1	0,9%	1	5,9%	558	42,3%
OTH	7	6,2%	3	17,6%	24	1,8%
PRC	33	29,2%	10	58,8%	394	29,8%
PUB	6	5,3%	0	0,0%	7	0,5%
REC	66	58,4%	3	17,6%	337	25,5%
	113	100,0%	17	100,0%	1320	100,0%

Regional indicators

This section presents a set of indicators allowing to compare and characterise the participation of the region in FP7, in light of national indicators. It also presents the distribution of EC funding at an infra-regional level (N-1 if the focus region is considered as N).

Flanders in the FP7

The following table gives an overview of the weight of the region at national level in terms of number of participations, number of coordinations and volume of funding received. It allows to compare regional figures (and their weight at the national level), to national figures (and their weight at the European level).

Table 26 Share of the region at national level

	Flanders BE2	BE	FP	% in BE2 in BE	% in BE in FP
Nbr of participations in projects	1433	2821	69719	50,8%	4,0%
Nbr of coordinations	280	496	12929	56,5%	3,8%
EC contribution	513 953 171	849 321 467	22 188 391 959	60,5%	3,8%

Participant Typology

The following table presents the distribution of participations, coordinations and EC contributions according to the different types of participants. A comparison of the distribution of participants between the regional and national level allows to identify the particularities of the focused region.

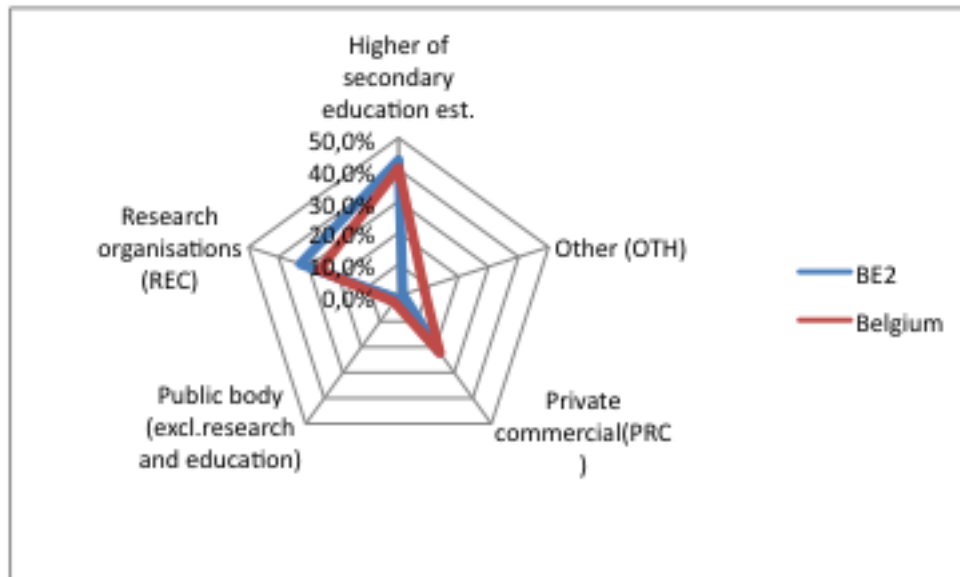
Table 27 Participation typology-comparison between regional and national level

	Flanders				Belgium			
	Nbr of participations in projects	Nbr of coordinations	EC contributions	%	Nbr of participations in projects	Nbr of coordinations	EC contributions	%
Higher of	559	157	221 162	43,	928	237	343 839	40,

secondary education est.(HES)			333	0%			641	5%
Other (OTH)	31	2	7 502 206	1,5 %	385	49	71 469 460	8,4 %
Private commercial(PRC)	427	27	112 159 880	21,8%	765	73	189 445 844	22,3%
Public body (excl.research and education) (PUB)	13		4 830 554	0,9 %	113	19	20 141 486	2,4 %
Research organisations (REC)	403	94	168 298 198	32,7%	630	118	224 425 036	26,4%
Total	1433	280	513 953 171	100 %	2821	496	849 321 467	100 %

The following diagram compares the weight of the different types of participants in the region to the national average.

Figure 14 Participation typology-graphical comparison between national and regional profile (acc. EC contrib. distribution)



The table below presents the distribution of participants by legal type (private/public).

Table 28 Distribution of participations according the legal type - comparison between regional and national level

		Flanders		Belgium	
		nbr	EC contrib	nbr	EC contrib
Private	Private commercial(PRC)	427	112 159 880	781	194 056 706
	Private non profit (PNP)	425	180 033 995	939	282 704 855
	total private	852	292 193 875	1 720	476 761 560
Public	Public commercial(PRC)	3	784 290	7	1 639 683
	public non profit (PNP)	578	220 975 006	1094	370 920 224
	total public	581	221 759 296	1 101	372 559 907
	TOTAL	1433	513 953 171	2 821	849 321 467

SME participation

This section aims to give an overview on the participation of SMEs in the FP7. The following table presents the levels of participation of SMEs at the infra-regional, regional, national and European level.

Table 29 Number of funded SME

	Total Flanders	Total Belgium	Total FP	BE21	BE22	BE23	BE24	BE25
Nbr of participations in projects	251	601	11 545	38	8	61	123	21
EC contribution	63 760 243	148 164 393	2 873 556 998	9 411 753	2 414 955	14 454 144	33 688 717	3 790 673

The table below presents the distribution of SME participations according to their legal status (private profit and non-profit organisations).

Table 30 Distribution of SME among private profit and private non profit organisations

	Flanders		Belgium	
	Nbr	Ec Contrib		
PRC	208	51 697 102	434	106 927 503
PNP	43	12 063 141	167	41 236 889
TOTAL	251	63 760 243	601	148 164 393

Regional participation among themes and activities of the programme

This section aims at providing information regarding the specialisation of the regions according to participations across FP7 themes. The level of specialisation of the region can be measured by comparing the levels of participation for each theme to the national and European averages.

Table 31 Participations among FP7 themes and activities-comparison of the distribution at Programme level, national level and regional level

N°	PROG SPEC	Theme	FP		Belgium		Flanders	
			Nbr	EC contribution	Nbr	EC contribution	Nbr	EC contribution
1	COOPERATION	Health	6 580	38 311 701 807	265	97081362	6 580	38 311 701 807
2	COOPERATION	Food, Agriculture, and Biotechnology	3 611	12 817 896 001	191	47657108	3 611	12 817 896 001
3	COOPERATION	Information and Communication Technologies	13 492	58 405 354 567	540	197836743	13 492	58 405 354 567
4	COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	4 881	23 146 425 481	232	74647468	4 881	23 146 425 481
5	COOPERATION	Energy	2 378	11 337 341 986	121	42738737	2 378	11 337 341 986
6	COOPERATION	Environment (including Climate Change)	4 592	17 622 383 238	149	32763050	4 592	17 622 383 238
7	COOPERATION	Transport (including Aeronautics)	5 445	33 527 717 656	333	72846925	5 445	33 527 717 656
8	COOPERATION	Socio-economic sciences and Humanities	1 515	3 354 155 783	819	19388369	1 515	3 354 155 783
9	COOPERATION	Security	1 590	8 610 533 867	572	11244602	1 590	8 610 533 867
10	COOPERATION	Space	1 449	8 715 567 065	731	18311181	1 449	8 715 567 065
11	COOPERATION	General Activities (Annex IV)	148	518 736 687	88	1093220	148	518 736 687
12	IDEAS	European Research Council	2 269	3 639 388 962	732	89561242	2 269	3 639 388 962
13	PEOPLE	Marie-Curie Actions	9 470	10 482 594 761	299	76554562	9 470	10 482 594 761
14	CAPACITIES	Research Infrastructures	3 921	24 495 071 212	859	15057779	3 921	24 495 071 212
15	CAPACITIES	Research for the benefit of SMEs	4 485	5 835 382 440	147	20256048	4 485	5 835 382 440
16	CAPACITIES	Regions of Knowledge	588	807 707 785	77	1111699	588	807 707 785
17	CAPACITIES	Research Potential	239	263 079 464			239	263 079 464
18	CAPACITIES	Science in Society	1 12	1 997 280	51	1276876	1 12	1 997 280

8	IES		5	671		9	5	671
19	CAPACIT IES	Coherent development of research policies	100	107 921 641	8	921146	100	107 921 641
20	CAPACIT IES	Activities of International Cooperation	584	1 038 085 306	18	1582004	584	1 038 085 306
21	Euratom	Fusion Energy	64	129 596 277	3	139200	64	129 596 277
22	Euratom	Nuclear Fission and Radiation Protection	1 236	4 136 186 414	80	15760252	1 236	4 136 186 414
			69762	22 189 556 770	2821	849 321 467	69762	269 300 109 071

Intraregional indicators

This section presents an overview the participation of infra-regional territories in FP7.

The following table presents a general overview of the distribution of participations, coordinations and EC contribution within the region (at Nuts n-1). The higher concentration of participation within specific territories usually reflects the presence of a stronger number of research organisations.

Table 32 distribution of the funded participations and EC contribution within the territory

Nuts 2 distribution	BE21	%	BE22	%	BE23	%	BE24	%	BE25	%	Total BE2	%
Nbr of participations in projects	316	22,1%	28	2,0%	350	24,4%	668	46,6%	71	5,0%	1433	100,0%
Nbr of coordinations	50	17,9%	3	1,1%	71	25,4%	154	55,0%	2	0,7%	280	100,0%
EC contribution	99 567 856	19,4%	10 287 665	2,0%	125 589 367	24,4%	263 346 581	51,2%	15 161 701	3,0%	513 953 171	100,0%

The following table gives presents a break-down of infra-regional participations according to participant types (HES, OTH, PRC, PUB, REC).

Table 33 Intra regional participations and participation profile according the activity type

BE21				
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	93	24	32 535 848	32,7%
OTH	7		502 848	0,5%
PRC	109	9	31 006 445	31,1%
PUB	4		415 812	0,4%
REC	103	17	35 106 903	35,3%
Total	316	50	99 567 856	100,0%
BE22				
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	10	1	2 908 315	28,8%
OTH	2		696 836	6,9%
PRC	10		4 144 971	41,0%
PUB				0,0%
REC	6	2	2 537 543	25,1%
Total	28	3	10 287 665	100,0%
BE23				
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	160	47	63 411 261	50,5%
OTH	7		1 506 746	1,2%
PRC	83	2	19 956 052	15,9%
PUB	6		4 086 252	3,3%
REC	94	22	36 629 057	29,2%
Total	350	71	125 589 367	100,0%
BE24				
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	287	83	120 237 001	45,7%
OTH	6	2	1 503 212	0,6%
PRC	188	16	49 242 987	18,7%
PUB				0,0%
REC	187	53	92 363 381	35,1%
Total	668	154	263 346 581	100,0%
BE25				
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	9	2	2 069 908	13,7%
OTH	9		3 292 563	21,7%
PRC	37		7 809 425	51,5%
PUB	3		328 490	2,2%
REC	13		1 661 315	11,0%
Total	71	2	15 161 701	100,0%

The following table presents the distribution of infra-regional participations by FP7 themes.

Table 34 Participations among FP7 themes and activities at intra regional level (Nuts n-1)

Num	PROG SPEC	Theme	BE21		BE22		BE23		BE24		BE25	
			nbr	EC contr ib	nbr	EC contr ib	nbr	EC contr ib	nbr	EC contr ib	nbr	EC contr ib
1	COOP	Health	141	58 339 8 40	40	12 941 7 15			38	17 178 2 00	61	27 958 1 89
2	COOP	Food, Agriculture and Fisheries, and Biotechnology	104	31 383 8 40	18	4 479 18 7	2	831 724	59	18 485 4 23	23	7 253 06 6
3	COOP	Information and Communication Technologies	335	141 455 770	46	17 024 6 87	7	2 790 90 6	66	27 836 2 74	208	91 870 7 56
4	COOP	Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	130	48 468 6 35	32	11 401 5 02	6	2 352 31 1	32	11 729 4 13	48	20 076 8 73
5	COOP	Energy	58	24 433 6 45	14	4 200 91 1	4	2 599 48 5	11	3 984 35 6	25	11 140 9 91
6	COOP	Environment (including Climate Change)	73	20 309 7 79	25	8 875 13 0			17	4 061 41 0	19	5 203 44 6
7	COOP	Transport (including Aeronautics)	106	27 246 2 34	23	5 469 63 5	5	1 050 05 5	15	6 138 87 9	56	13 562 2 72
8	COOP	Socio-economic sciences and Humanities	28	6 813 85 9	4	1 373 42 2			5	692 013	17	3 503 32 4
9	COOP	Space	31	9 101 04 8	7	2 530 56 3			1	22 318	23	6 548 16 7
10	COOP	Security	14	4 011 80 3	4	1 383 25 6			1	288 960	8	2 259 10 7
11	COOP	General Activities	1	192 520					1	192 520		
12	CAPACI TIES	Research Infrastructures	49	65 061 8 97	4	6 661 54 0			15	18 425 3 40	30	39 975 0 17
13	CAPACI TIES	Research for the benefit of SMEs	178	41 943 2 75	28	6 185 52 0	2	438 694	47	11 893 4 77	98	23 240 9 84
14	CAPACI TIES	Regions of Knowledge	36	8 432 20 8	7	1 740 50 0			6	2 125 18 5	19	3 989 61 4
15	CAPACI TIES	Research Potential	82	10 061 2 56	17	1 763 26 8	2	224 490	28	1 728 15 2	25	4 793 13 4
16	CAPACI TIES	Science in Society	4	555 651					2	408 526		
17	CAPACI TIES	Support for the coherent development of research policies										
18	CAPACI TIES	Activities of International Cooperation	7	1 365 45 8	4	592 728					2	592 000
20	PEOPLE	Marie-Curie Actions										
21	IDEA	European Research Council	1	41 516							1	41 516
22	EURATOM	Fusion Energy	2	87 680	1	42 800			1	44 880		
23	EURATOM	Nuclear Fission and Radiation Protection	53	14 647 2 58	42	12 901 4 93			5	354 040	5	1 338 12 5
			141	58 339 8 40	40	12 941 7 15			38	17 178 2 00	61	27 958 1 89

International cooperation

This section aims at giving an overview of the main partners and collaboration themes of the focused region at the European level. The following indicators have been calculated on the basis of all projects including at least one participant from the focused region.

The following table presents the partner regions of the focused region.

Table 35 Partner regions

Partner regions	nb participations	% of total
Ile de France	688	5,7%
Bayern	409	3,4%
Baden-Württemberg	364	3,0%
Nordrhein Westfalen	314	2,6%
Comunidad de Madrid	304	2,5%

London	290	2,4%
Région de Bruxelles Capitale	252	2,1%
Zuid-Holland	250	2,1%
Lombardia	242	2,0%
Sout East England	235	1,9%
Lazio	219	1,8%
Cataluna	205	1,7%
Attiki	194	1,6%
Noord-Brabant	193	1,6%
Hovedstaden	167	1,4%

The table below presents the main partner organisations of the focused region.

Table 36 Partner organisations

Partner organisations	nb participations	% of total
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	152	1,3%
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	97	0,8%
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	97	0,8%
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK - TNO	71	0,6%
CONSIGLIO NAZIONALE DELLE RICERCHE	65	0,5%
AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	53	0,4%
TEKNOLOGIAN TUTKIMUSKESKUS VTT	51	0,4%
JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION	51	0,4%
IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	48	0,4%
DANMARKS TEKNISKE UNIVERSITET	47	0,4%
ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	46	0,4%
STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	43	0,4%
Karlsruher Institut fuer Technologie	43	0,4%
UNIVERSITY COLLEGE LONDON	42	0,3%
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	41	0,3%

The following table provides the most frequent European coordinators of participants from the focused region in FP7.

Table 37 The main coordinators of regional participants

FREQUENT COORDINATORS	Nb coordinations
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	23
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	13
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK - TNO	12
INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	10
CONSIGLIO NAZIONALE DELLE RICERCHE	10
STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	9
TEKNOLOGIAN TUTKIMUSKESKUS VTT	9
INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	7
UNIVERSITEIT UTRECHT	6
STICHTING KATHOLIEKE UNIVERSITEIT	6
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	6
FUNDACION TECNALIA RESEARCH & INNOVATION	6
VERENIGING VOOR CHRISTELIJK HOGER ONDERWIJS WETENSCHAPPELIJK ONDERZOEK EN PATIENTENZORG	6
THE UNIVERSITY OF READING	5
UNIVERSITY COLLEGE DUBLIN, NATIONAL UNIVERSITY OF IRELAND, DUBLIN	5
NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS	5

Annex 3 – CIP ICT participation scoreboard

I. BE2 in CIP ICT PSP	BE2	BE	CIP ICT	% of BE2 in BE	% of BE in CIP ICT
Nbr of participations in projects	53	175	2141	30,3%	8,2%
Nbr of coordinations	5	10	128	50,0%	7,8%
EC contribution	6 330 497	16 783 828	304 167 499	37,7%	5,5%

II. Participant Typology/organisation type	BE2				BE				CIP ICT PSP			
	Nbr of participations in projects	Nbr of coordinations	EC contribution	%	Nbr of participations in projects	Nbr of coordinations	EC contribution	%	Nbr of participations in projects	Nbr of coordinations	EC contribution	%
HES	9		321897	5,1 %	10		341 897	2,0 %	345	14	48 931 144	16,1 %
OTH	7		556287	8,8 %	59	3	5 005 472	29,8 %	230	14	33 768 401	11,1 %
PRC	22	3	2515228	39,7 %	62	5	5 299 224	31,6 %	835	78	116 503 789	38,3 %
PUB	5		657782	10,4 %	20		3 190 023	19,0 %	425	26	67 392 659	22,2 %
REC	10	2	2279303	36,0 %	24	2	2 947 212	17,6 %	306	22	37 571 506	12,4 %
Total	53	5	633049	10	175	10	167838	10	2141	154	304167	10

			7	0%			28	0%			499	0%
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III. Participant Typology/Public-Private organisations	BE2			BE			CIP ICT PSP		
	Nbr of participations in projects	EC contribution	%	Nbr of participations in projects	EC contribution	%	Nbr of participations in projects	EC contribution	%
Private commercial (PRC)	22	2 515 228	39,7 %	63	5 319 224	31,7 %	842	117 814 939	38,7 %
Private non Profit (PNP)	15	2 496 341	39,4 %	76	7 216 804	43,0 %	442	56 873 668	18,7 %
Total Private organisations	37	5 011 569	79,2 %	139	12 536 028	74,7 %	1 284	174 688 607	57,4 %
Public Commercial (PUC)	1	114 181	1,8%	4	526 195	3,1%	120	15 166 682	5,0%
Governmental (GOV)	15	1 204 747	19,0 %	32	3 721 605	22,2 %	737	114 312 210	37,6 %
Total Public organisations	16	1 318 928	20,8 %	36	4 247 800	25,3 %	857	129 478 892	42,6 %
Total	53	6 330 497	100,0%	175	16 783 828	100,0%	2 141	304 167 499	100,0%

IV SME/ legal type	BE2			BE			CIP ICT PSP		
Private commercial (PRC)	8	1 231 134	100,0%	28	3 214 607	91,0%	344	49 185 099	76,9%

Private non Profit (PNP)			0,0%	4	318 617	9,0%	59	14 769 538	23,1%
Total	8	1 231 134	100,0%	32	3 533 224	100,0%	403	63 954 637	100,0%

Annex 4 – CIP IEE participation scoreboard

I. BE2 in CIP IEE	BE2	BE	CIP IEE	% of BE2 in BE	% of BE in CIP IEE
Nbr of participations in projects	24	151	2 443	15,9%	6,2%
Nbr of coordinations	2	27	235	7,4%	11,5%
EC contribution	2 793 799	18 293 624	241 453 630	15,3%	7,6%

Annex 5 – ERDF participation scoreboard

I general information			ERDF allocated	ERDF comitted
Total in euros :			200 946 242	171 618 597
Innovation and research axis only (n°1) :			48 227 098	44 198 860
Total projects co-funded :				
Innovation and research axis only (n°1) :				

II Distribution of ErDF fundings within areas related to research and innovation				
Themes	FOI codes	Measures	EC contrib.	EC contrib.
RTDI and linked activities	1	R&TD activities in research centres :	460 000	0
	2	R&TD infrastructure and centres of competence in a specific technology :	10 000 000	11 272 528
	5	Advanced support services for firms and groups of	18 119 484	15 015 515

		firms		
	7	Investment in firms directly linked to research and innovation (...):	2 000 000	820 907
	74	Developing human potential in the field of research and innovation, in particular through post-graduate studies (...):	0	0
Innovation support for SMEs	3	Technology transfer and improvement of cooperation networks (...):	13 060 000	9 916 155
	4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres):	1 038 710	881 483
	6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...):	5 000 000	4 769 909
	9	Other measures to stimulate research and innovation and entrepreneurship in SMEs:	41 637 098	42 230 498
	14	Services and applications for SMEs (e-commerce, education and training, networking, etc.):	1 500 000	1 550 499
	15	Other measures for improving access to and efficient use of ICT by SMEs:	1 518 925	2 104 397
ICT and related services	11	Information and communication technologies (...):	5 000 000	4 959 644
	12	Information and communication technologies (TEN-ICT):	0	0
	13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.):	0	0
Other	8	Other investment in firms:	3 869 484	4 071 656

IV Impact and output (innovation and research only) :				
Unit	Type of indicators		<u>Amount foreseen</u>	<u>Amount realised</u>
	Output	1.1.1 - Aantal sensibiliseringsacties bij bedrijven, organisaties en instellingen	90	77
	Output	1.1.2 - Aantal bereikte bedrijven, organisaties en instellingen door de sensibiliseringsacties rond kennisontwikkeling en kennis toevoering	4300	13,09
	Output	1.2.1 - Aantal begeleidingsacties in bedrijven, organisaties of instellingen rond kennisontwikkeling en kennis toevoering	85	38
	Output	1.2.2 - Aantal begeleide bedrijven, organisaties of instellingen inzake kennisontwikkeling en -toepassing	1500	2,73

Output	1.3.1 - Aantal samenwerkingsacties tussen bedrijven, organisaties en instellingen onderling en met kenniscentra	40	34
Output	1.3.2 - Aantal deelnemende bedrijven, organisaties en instellingen aan samenwerkingsacties rond kennisontwikkeling en -toepassing	200	1,434
Output	1.4.1 - Aantal acties ter stimulering van kennisontwikkeling en -toepassing in een internationale context	30	50
Output	1.4.2 - Aantal deelnemende bedrijven, organisaties en instellingen aan acties ter stimulering van internationale samenwerking	300	2,258
Output	1.5.1 - Aantal vernieuwende projecten inzake kennisvalorisatie	60	60
Output	1.6.1 - Aantal innovatieprojecten gericht op de versterking van de plattelandseconomie	20	13
Output	1.B - Aantal deelnemende bedrijven (KMO en GO), organisaties en instellingen aan de acties ter bevordering van kennis economie en innovatie	2000	6,423
Impact	1.D - Tevredenheid van bedrijven, organisaties en instellingen ten aanzien van dienstverlening ter stimulering van kennisontwikkeling en kennistoepassing	4	0
Impact	1.E - Meerwaarde van het programma voor inspanningen inzake kennisontwikkeling en -toepassing bij deelnemende actoren	4	0
Result	1.1.3 - Aantal bedrijven, organisaties of instellingen die een kennisontwikkeling- en/of kennistoepassingsstrategie ontwikkeld of geactualiseerd hebben	180	1,523
Result	1.2.3 - Aantal kennisontwikkelings en/of kennistoepassingsadviezen die door bedrijven, organisaties en instellingen daadwerkelijk zijn geïmplementeerd	375	472
Result	1.3.3 - Aantal effectief opgezette samenwerkingstrajecten inzake kennisontwikkeling- en toepassing tussen bedrijven, organisaties en instellingen onderling en tussen bedrijven organisaties en kenniscentra	40	129
Result	1.4.3 - Aantal internationale samenwerkingen tussen bedrijven, organisaties en instellingen onderling en met kenniscentra	15	79
Result	1.4.4 - Aantal bedrijven, organisaties en instellingen die een internationale expansie zijn gestart of deze hebben versterkt	7	172
Result	1.5.2 - Aantal bedrijven, organisaties en instellingen die vernieuwende toepassingen en procédés implementeren	65	612
Result	1.6.2 - Hefboomeffect van de ondersteunde projecten op de regio	8	5,45
Result	1.A - Aantal acties ter bevordering van kennis economie en innovatie	325	272

Result	1.C - Aantal effectieve samenwerkingen tussen actoren rond kenniseconomie en innovatie	55	301
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Annex 6 - Cross thematic table

FP 7 - COOPERATION Theme	EC contribution		COUNTRY	EU	EMPLOYMENT sector	% reg. Emp	Empl. Var. 2004-2009	spec. EU	spec. country	PATENT DOMAIN	n	lib_fields	n° patents	field weight*	country weight**	*** spec.	
HEALTH	58'339'840	16%	1.07	1.78	Pharma	1,3%	-166	1,40	0,70	CHEM	16	Pharma	60,25	3,14%	36,74%	0,93	
					Med. devices	0,3%	434	0,45	0,95	Instr.	13	Med. Tech	71,73	3,73%	34,93%	0,88	
FOOD	31'383'840	8%	1.17	2.98	Biotech	0,1%	-586	0,67	1,06	CHEM	15	Biotech	22,43	1,17%	32,85%	0,83	
					Processed food	7,7%	-1232	1,26	1,20	CHEM	18	Food chem.	41,33	2,15%	29,20%	0,74	
					FARMING	1,2%	4887	0,54	1,51								
					Agri PRODUCTS	0,9%	-1324	0,55	1,07								
ICT	141'455'770	38%	1.27	2.41	IT	2,3%	6874	1,06	1,18	Elet.Eng	6	Computer tech.	98,85	5,15%	43,28%	1,10	
											Elet.Eng	7	IT	9,23	0,48%	38,12%	0,97
					Telecom	1,8%	-553	0,65	0,70	Elet.Eng	3	Telecomm.	122,97	6,40%	64,49%	1,63	
										Elet.Eng	4	Digital com.	209,86	10,92%	80,17%	2,03	
									Elet.Eng	5	Basic com.	22,01	1,15%	59,11%	1,50		
NANO	48'468'635	13%	1.15	2.54	Metal man.	4,6%	657	0,91	1,00	CHEM	20	Materials .	29,10	1,51%	31,36%	0,79	
					Plastics	2,0%	-44	1,65	1,33								
					Construction M.	8,4%	6528	0,84	1,02								
					Lighting & e.e	0,7%	-2065	1,20	1,23	Elet.Eng	1	Elec. machinery	65,65	3,42%	45,61%	1,16	
										Elet.Eng	2	Audio-visual	50,29	2,62%	51,99%	1,32	
										Elet.Eng	8	Semiconductors	59,92	3,12%	47,63%	1,21	

					Chemical PR.	0,3%	-5	0,55	1,05								
										CHEM	17	Macromolecular	80,50	4,19%	36,51%	0,92	
										CHEM	14	Organic chem.	47,44	2,47%	32,51%	0,82	
										CHEM	19	Basic materials	106,24	5,53%	55,51%	1,41	
										CHEM	21	Surface tech.	50,40	2,62%	36,24%	0,92	
										CHEM	22	nano- technology	0,50	0,03%	35,46%	0,90	
										CHEM	23	Chemical eng.	49,51	2,58%	33,63%	0,85	
ENERGY	24'433'645	7%	1.01	2.31	Oil and gas	0,4%	292	0,91	1,56								
					Power g & t	0,2%	-42	0,49	0,86								
Environment	20'309'779	5%	1.10	1.61						CHEM	24	Envir. Tech.	31,04	1,62%	36,87%	0,93	
Transport	27'246'234	7%	0.66	1.51	Transp &logistics	7,7%	4176	1,07	1,01	Mech.Eng	32	Transport	34,66	1,80%	11,65%	0,30	
					Automotive	5,5%	887	1,73	1,39								
					Distribution	4,1%	3852	1,35	1,05								
SOCIO	6'813'859	2%	0.62	1.98	Financial services	6,6%	6189	0,83	0,57								
					EDU	4,8%	3785	1,22	0,81								
					Business services	16,2%	30975	1,87	1,03								
Security	9'101'048	2%	1.44	1.42													
Space	4'011'803	1%	0.39	0.80	Aerospace	0,1%	-488	0,22	0,28								
					FIXTURES	3,2%	-294	1,08	1,22								
					Construction	2,9%	-2281	2,72	1,22	Other	35	Civil eng.	78,56	4,09%	32,75%	0,83	
					Prod. TECH	1,5%	3136	0,63	0,98								
					Entertainment	1,3%	3634	0,83	0,78								

Heavy Machinery	1,2%	1832	1,15	0,94	Mech.Eng	25	Handling	70,30	3,66%	35,76%	0,91
					Mech.Eng	26	Machine	28,12	1,46%	39,50%	1,00
					Mech.Eng	27	Engines, ..	31,07	1,62%	26,23%	0,66
					Mech.Eng	29	Other machines	77,29	4,02%	27,28%	0,69
					Mech.Eng	31	Mech. elements	41,75	2,17%	28,04%	0,71
Maritime	0,4%	149	0,56	1,26	Mech.Eng	30	Thermal	7,30	0,38%	13,63%	0,35
Instruments	0,2%	738	0,50	1,38	Instr.	9	Optics	63,91	3,33%	62,11%	1,57
					Instr.	10	Measurement	45,41	2,36%	31,94%	0,81
					Instr.	11	bio. Analysis	13,70	0,71%	36,63%	0,93
					Instr.	12	Control	18,17	0,95%	34,23%	0,87
Sporting, recreational and children's goods	0,1%	-195	0,32	1,19							
Textiles	3,2%	-4693	2,27	1,51	Mech.Eng	28	Textile	102,78	5,35%	53,09%	1,34
Media and publishing	2,3%	-1137	0,82	0,99							
Tourism and hospitality	2,2%	1286		0,87							
Paper products	2,0%	-184	1,07	1,25							
Furniture	1,1%	-2570	0,81	1,40	Other	33	Furniture	47,83	2,49%	35,79%	0,91
Apparel	0,6%	-2064	0,32	1,29							
Jewellery and precious metals	0,2%	-588	0,92	1,45							
Tobacco	0,2%	-181		1,44							
Leather products	0,1%	-129	0,68	1,50							

Footwear	0,0%	-90	0,04	1,44							
Stone quarries	0,0%	-3	0,04	0,02							
					Other	34	Other	30,85	1,61%	37,31%	0,94

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