ESPON

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

Targeted Analysis 2013/2/18

Regional report – CATALUNYA

Annex to Final Report | Version 10/12/2012

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This report presents the interim results of a Targeted Analysis conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

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This basic report exists only in an electronic version.

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Regional report - CATALUNYA

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Synthesis of the territorial and R&D system

Catalunya´s regional GDP per capita is above the national and the European average. The region is traditionally one of the most dynamic, open, industrial and innovative regions in Spain. The Catalunyan economy contributes the most to the Spanish GDP and is very much characterised by industrial activities or production-related services, respectively. The region has a dense community of SMEs, often forming local production systems, but also an active presence of MNEs.

Regarding innovation-related indicators the region is one of the top-performing regions in Spain. However, in comparison to the European level the region often achieves below average values with respect to RTDI indicators.

The Catalonian economy exhibits some intra-regional disparities as indicated through the coefficient of variation of several indicators stated in Tab. 7. The metropolitan area of Barcelona accounts in terms of both population and economy for about three-quarter of the Catalunyan stocks and is simultaneously the most dynamic region. Barcelona successfully went through a phase of transformation with declining industry ('Manchester of Southern Europe'). Nowadays, the metropolitan area acts as a global gateway, creative hub, and science city (e.g. biotechnology) and operates as a magnet for students, researchers and artists from Europe and the rest of the world, with direct impact on the regional economy. However, there is partly also a socio-economically dynamic network of medium-sized cities and small towns spread throughout the other three often more rural shaped provinces (Tarragona, Girona, Lleida). However, together the three provinces account for merely one-quarter of the regional population and economy. Tarragona and Girona, each generating 10% of the regional GDP and Lleida 6%. Moreover, Girona and Tarragona have a population density per km² at 107 and 108, respectively, and Lleida at 32, compared to Barcelona with 657, showing that Lleida is by far the most rural sub-region in Catalunya. In terms of the natural population development Tarragona, Girona, and Lleida are far more dynamic than Barcelona, however, in the end Barcelona strongly profits from high in-migration. The provinces of Lleida and Girona have comparatively lower productivity levels and are more shaped by agriculture and lower-technology industries, whereas Barcelona and Tarragona have higher productivity levels and more medium high-tech and high-tech industries (cf. OECD 2010b, 2010c).

1- Intra-regional socio-economic disparities in Catalunya (selected Indicators)

Coefficient of variation of GDP per capita 2008 (in %)	Coefficient of variation of the yearly average GDP per capita growth rate 1998-08 (in %)	Coefficient of variation of the unemployment rate 2009 (in %)	Coefficient of variation of the population dynamics 2005-09 (in %)
2.29	7.75	18.99	40.36

Remark: disparity calculations based on NUTS-3 level data

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

Catalunya´s current core R&D sectors are logistics, health, optics, agro-industry, ICT, chemicals, sustainable energy, functional alimentation, water, and clean materials and technologies. The RTDI sector in Catalunya is clearly business-oriented. Catalunya´s local production systems contribute in significant proportions to the knowledge and technology production, although they are often active in rather incremental and low-tech oriented activities. Currently, most technologically advanced research and innovation activities are conducted by a small group of firms (often larger enterprises) in only a few sectors. These effects are

especially noted for manufacturing but not necessarily for services (cf. EUROSTAT 2011; OECD 2010b, 2010c).

The region´s innovativeness in relation to the other Spanish regions, measured by the number of patents applied at the EPO, ranks in the first place. However, in European terms the region is rather weak with respect to patenting. In 2007, the employment in R&D (FTE) was equivalent to 21.0% of the overall Spanish R&D personnel. The R&D personnel (FTE) per 1,000 employees amount to 12.3. This figure is well above the national (10.0) and the EU-27 (11.0) average. Regarding the business orientation of both the R&D expenditures and the R&D personnel (FTE) (62.8%, 52.9%), the region exceeds Spain (55.9%, 43.5%) and the EU-27 mean (63.7%, 52.1%) (cf. EUROSTAT 2011).

In 2007, Catalunya´s per capita spending on R&D ranks in the upper third among the Spanish regions. The region´s R&D intensity lies at 1.5%, thus being above the national average (1.27%) but below the EU-27 mean (1.85%). Catalunya´s R&D productivity amounts to 0.21, thus being above the Spanish standard (0.13) but below 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.

Catalunya 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 area of Barcelona attracts the overwhelming majority of the funds. The participants are mostly Research organizations (48%), Higher Education Institutions (31%), followed by and Private for profit organizations (15%). The regional actors are particularly attractive in the themes “Health”, Nanosciences, Nanotechnologies, Materials and new Production Technologies”, “ICT”, “Environment” and “Socio-economic sciences and humanities”. Most partners are located in Germany (14,4%), United Kingdom (12,3%) and France (10,5%). The most important organizations in the regional FP7 network are the Agencia Estatal CSIC, the Universitat Politecnica de Barcelona and the Universitat Autonoma de Barcelona.

The region is mostly specialized in medium knowledge intensive sectors, which sum up 60% of the employees, while high and low knowledge sectors sum up 16% and 24 % of the employees respectively. The region is strongly specialized in Pharmaceuticals and Constructing materials.

The patenting activity is remarkable in the field of Organic fine Chemistry, Pharmaceuticals, Polymers, Basic material chemistry and nanotechnology.

In sum, the region has a strong research potential, which is not fully exploited on the employment side as the knowledge intensive sectors are not large. Nevertheless, there are clearly some fields important and promising all across the spectrum of activity considered. The region is highly specialized and performing: i) in the “Health” theme in research and “Pharmaceuticals” employment sector; ii) in “Nanosciences, Nanotechnologies, Materials and new Production Technologies” theme in research, “Plastics” in employment, and in the related patenting areas as well, suggesting a potential of interaction between different phases from knowledge production to exploitation.

General statement of the regional participation in the FP7

Headquarter effect

The headquarter effect analysis revealed 121 ingoing participations in the region, and 11 outgoing participations. No headquarter effect was identified for 91% of regional participations. Most of the ingoing participations were subtracted from Madrid (105 participations).

The majority of ingoing participations (85%) came from Research Organisations. Outgoing participations on the other hand, came mostly from Private Commercial Organisations (6 participations – 54%). All other types of actors are generally not affected by the headquarter effect.

Rate of participation of the region in the FP 7

Regional actors in Cataluña accounted for a total of 1460 participations in FP7, 449 coordinations and 457mln€ in EC funding (28%, 39% and 31% respectively of the national total). The weight of the region in total national FP7 funding (31%) is considerably higher than its weight in the gross domestic expenditure on R&D (23%). During the 2007 – 2011 period, Andalusia received a yearly average of 91€mln year in FP7 financing, representing approximately 2.8% of the region's yearly R&D effort (3.3bn€ in R&D).

Overall, the rate of participation, the leadership rate[1] and the contribution received are superior to the European and Spanish average (Table 1).

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

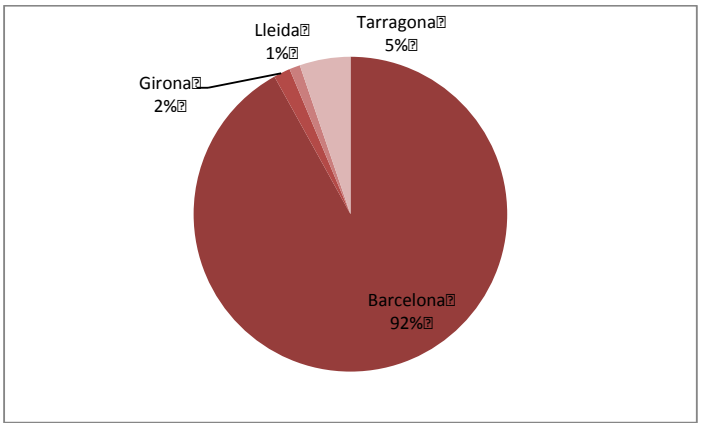
	CATALUNYA	SPAIN	EUROPE
leadership rate	31%	22%	19%
collaborations per 100.000 population	19.5	11.1	13.9
coordination per 100.000 population	6.0	2.4	2.6
€ contribution per inhabitant	61.0	31.5	44.4
average funding per project	313180	285231	318255

Distribution of funding at infra-regional level

The large majority of regional participations and coordinations are located in Barcelona (90% and 87% respectively). As seen in the following table, the infra-regional distribution of FP7 funding is roughly equal to that of participations and coordinations. Barcelona (ES511) is by far the main beneficiary of FP7 funding in the region (92% 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.

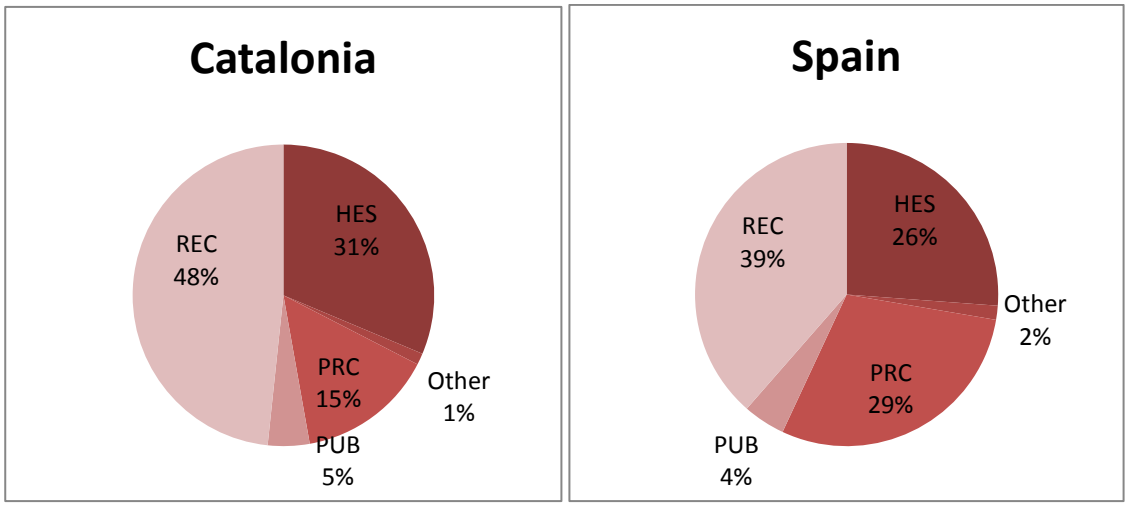
Figure 1: EC contribution distribution within the region



Distribution of funding by participant type

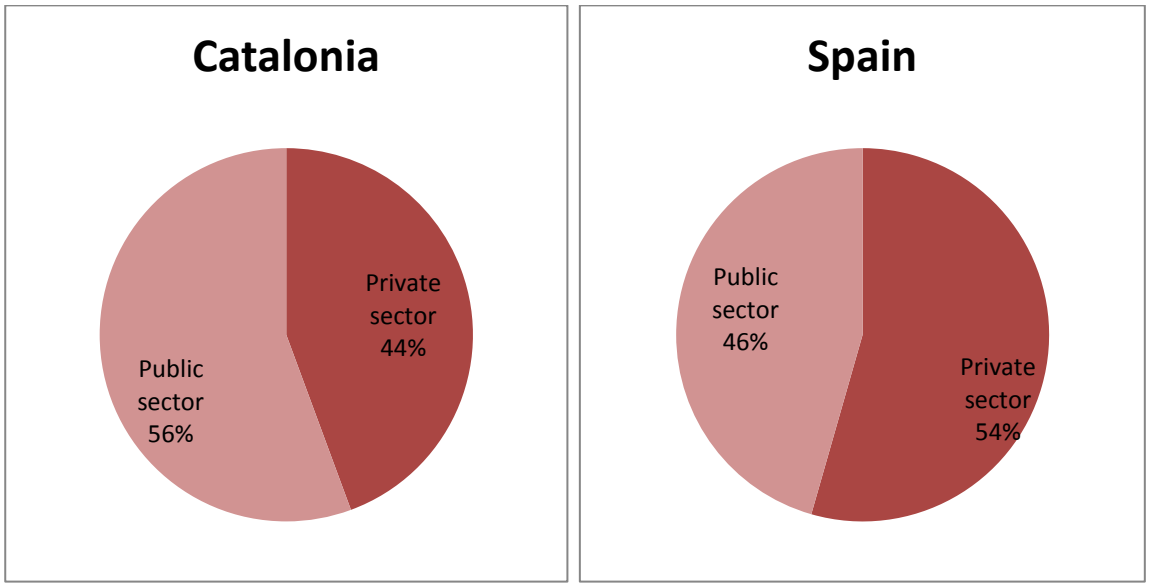
The structure of participation varies to some extent between the regional and national level as illustrated by the following figures. The share of Research organisations is 10 points higher in Cataluña than in the rest of Spain (48% vs 39%). On the other hand, regional Private Commercial Organisations (PRC) are less present in FP7 projects than in the rest of Spain.

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 slightly lower than from public organisations (48% vs. 52%). The relative weight of these two types of participants is thus better balanced at the regional level, than at the national level (54% vs. 46% in Spain). The following figures present the distribution of FP7 funding among both types of organisations at the regional and national level.

Figure 3: Distribution of participations according to legal type: a comparison between regional and national level

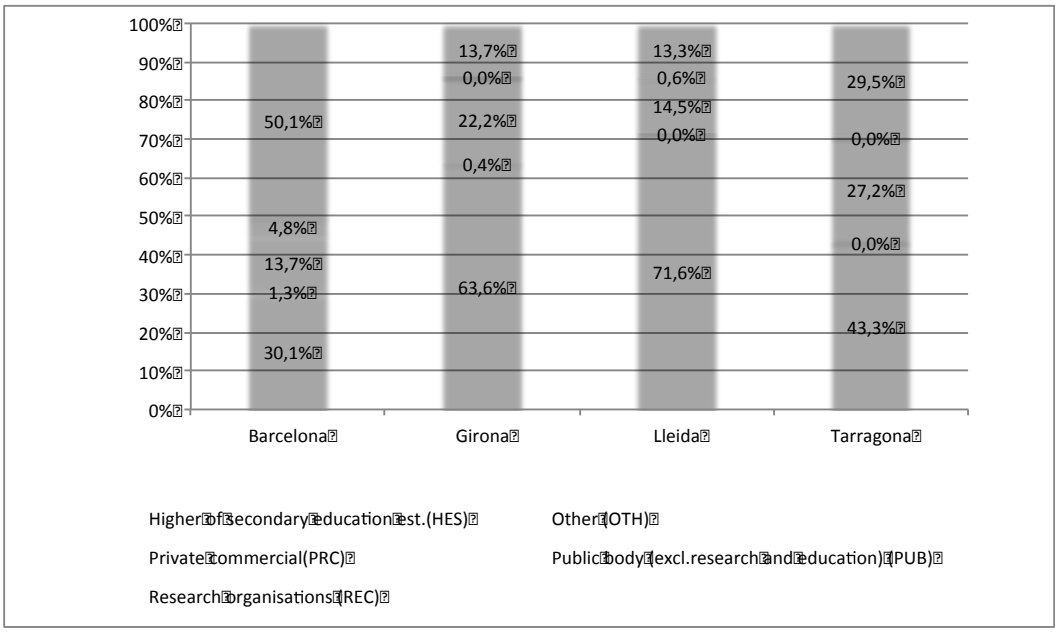


In terms of FP7 funding, Research Organisations tend to outperform other types of participants. At the regional level, this group accounted for 40% of participations, while receiving 48% of the total FP7 regional funding. Private commercial organisations on the other hand account for 21% of participations, while only benefiting from 15% of the total regional FP7 funding.

Distribution of funding by participant type at infra-regional level

The distribution of FP7 funding by participant type at the infra-regional level varies, especially among Barcelona and the three other territories. Barcelona receives a very high share of funding for Research Organisations in comparison to Girona, Lleida and Tarragona (50% vs. 20% in average). Higher of secondary education establishments in Barcelona on the other hand, receive a moderate volume of funding when compared to the rest of the region.

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

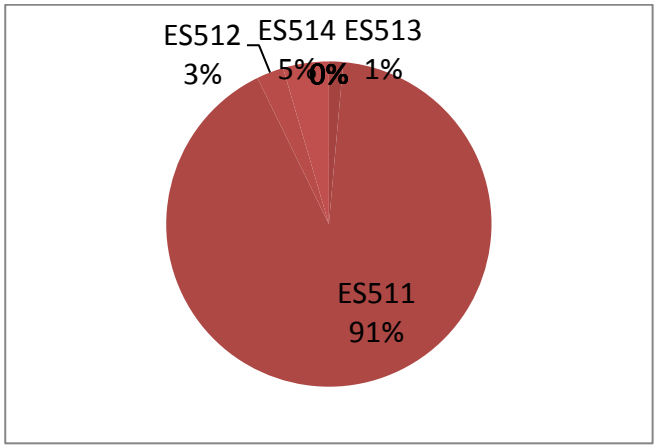


SMES' participation in FP7

During the 2007-2011 period, SMEs in Cataluña accounted for 244 participations in FP7 projects and 51mln€ in funding (23% of the national total). This is slightly below the regional share of overall participations in Spain (28% and 31% - see above). Private commercial SME participations represent 92% of regional SME participations, while public SMEs account for the remaining 8%. This gap is slightly lower at the national level (80% vs. 20%).

The following figure presents the infra-regional distribution of SME funding in FP7. SMEs in Barcelona account the large majority of the total SME funding in the region (91%).

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 (250mil) and projects (776), followed by IDEAS (99 mil, 78 projects), PEOPLE - Marie Curie actions (57 mil, 308 projects,) and CAPACITIES (49.9 mil and 277 projects). In terms of thematic specialization within the COOPERATION program, the themes attracting more funding are *Information and communication technologies* (40%), *Health* (21%) and *Nanosciences* (11%). 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 specialization[2]: Catalunya is more attractive in almost all types of programs, and particularly in Health, Socio-economic sciences, Information Communication Technology, Environment.

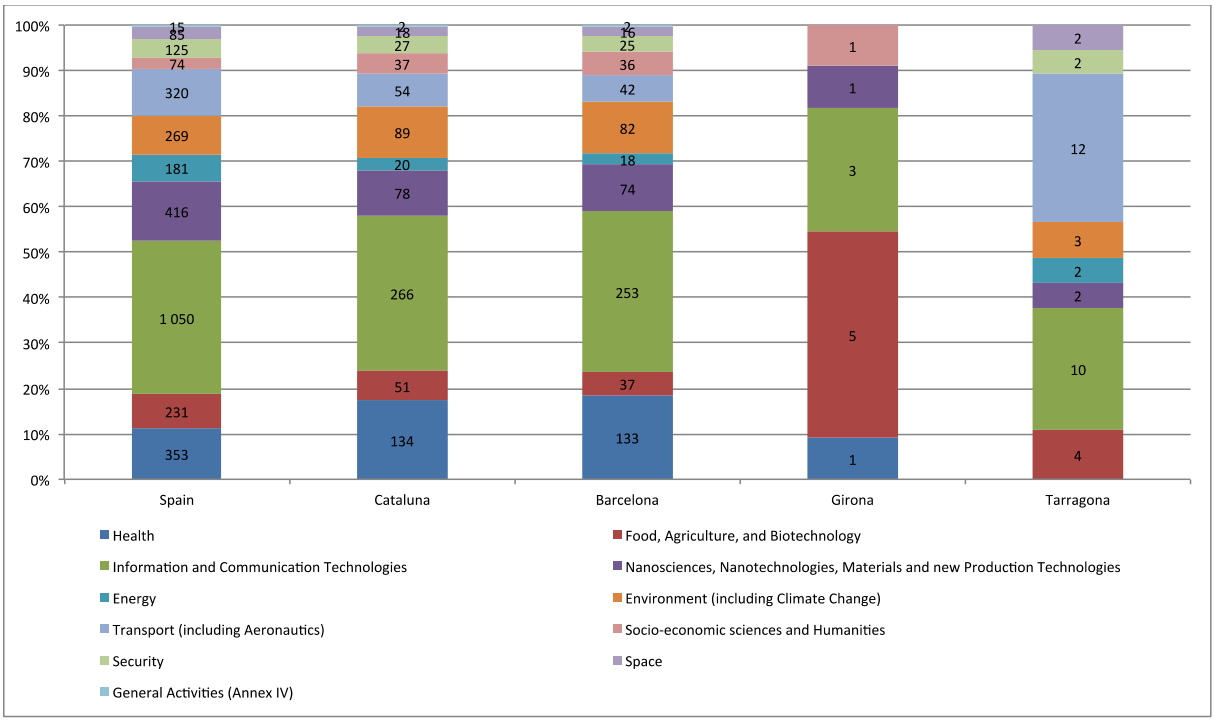
A more detailed description of the thematic specialization in the FP 7 is presented in section 2.4 of the report.

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

Table 2 – Thematic distribution of projects and funding

				REGION		Attractiveness compared (contribution)	
num	PROG SPEC	Theme	nbr	EC contribution		COUNTRY	EU
1	COOPERATION	Health	134	51'448'144	21%	2.53	1.30
2	COOPERATION	Food, Agriculture, and Biotechnology	51	12'698'579	5%	1.52	1.00
3	COOPERATION	Information and Communication Technologies	266	99'506'751	40%	1.78	1.40
4	COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	78	27'248'306	11%	1.28	1.18
5	COOPERATION	Energy	20	6'908'787	3%	0.48	0.54
6	COOPERATION	Environment (including Climate Change)	89	21'359'880	9%	2.30	1.40
7	COOPERATION	Transport (including Aeronautics)	54	12'340'039	5%	1.03	0.57
8	COOPERATION	Socio-economic sciences and Humanities	37	7'087'107	3%	3.72	1.70
9	COOPERATION	Security	27	6'197'291	2%	0.87	0.80
10	COOPERATION	Space	18	5'085'285	2%	1.45	0.84
11	COOPERATION	General Activities (Annex IV)	2	264'986	0%	1.26	0.08
	COOPERATION	TOTAL	776	250'145'155		1.62	1.15
12	IDEAS	European Research Council	78	99'480'811			
13	PEOPLE	Marie-Curie Actions	308	57'315'633			
14	CAPACITIES	Research Infrastructures	75	22'734'749	48%	2.57	1.29
15	CAPACITIES	Research for the benefit of SMEs	154	17'109'916	36%	1.36	1.94
16	CAPACITIES	Regions of Knowledge	10	1'067'739	2%	0.89	1.30
17	CAPACITIES	Research Potential	4	632'046	1%	0.46	0.23
18	CAPACITIES	Science in Society	29	4'887'597	10%	3.31	2.27
19	CAPACITIES	Coherent development of research policies	1	138'996	0%	0.77	0.47
20	CAPACITIES	Activities of International Cooperation	4	341'213	1%	0.81	0.32
	CAPACITIES	TOTAL	277	46'912'256		1.80	1.40
21	Euratom	Fusion Energy					
22	Euratom	Nuclear Fission and Radiation Protection	21	3'388'553			
			2'513	***754'299'819***			

The following figure presents the distribution of participations at the infra-regional level, by FP7 theme (only for COOPERATION). Unsurprisingly, the structure of Barcelona's participations by Cooperation subtheme is very close to the regional average. Tarragona has a lower share of participations in Information and Communication Technologies, and a higher share in Transport than the rest of the region. Figure 4: 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 Germany (14.4%), UK (12.3%) and France (10.5%). Whereas where regions are considered, the most important is the Ile de France (5.4%) (Table 3).

Table 3 – Spatial distribution of collaborations

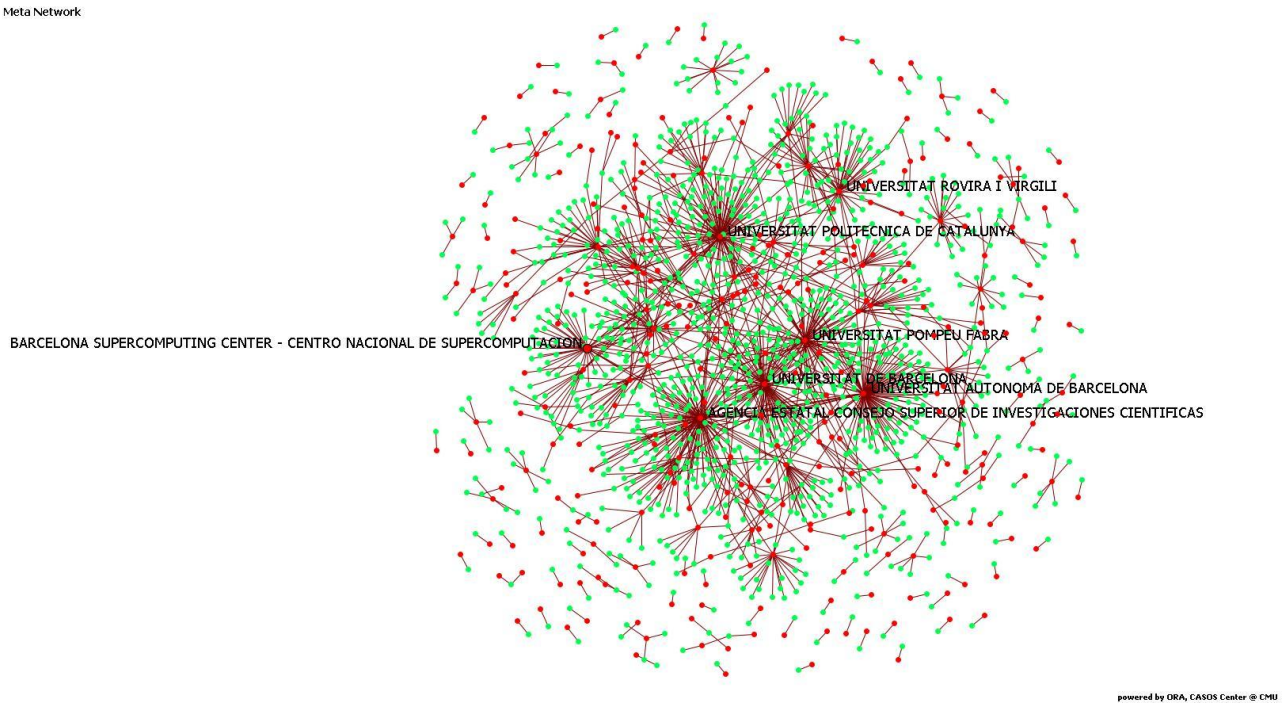
Partner countries	n°	% of total
DE	1525	14.4%
UK	1308	12.3%
FR	1113	10.5%
IT	1049	9.9%
NL	616	5.8%
ES	564	5.3%
BE	444	4.2%
SE	418	3.9%
CH	332	3.1%
EL	298	2.8%
AT	271	2.6%
FI	260	2.5%
DK	233	2.2%
PL	195	1.8%
NO	177	1.7%

Partner regions	n°	% of total
Ile de France	568	5.4%
Baden-Württemberg	287	2.7%
Bayern	270	2.5%
Nordrhein-Westfalen	267	2.5%
London	243	2.3%
South East (England)	243	2.3%
Comunidad de Madrid	243	2.3%
Lazio	228	2.2%
Lombardia	218	2.1%
Vlaams gewest	206	1.9%
Etelä-Suomi	191	1.8%
Zuid-Holland	176	1.7%
Attiki	173	1.6%
East of England	171	1.6%
Stockholm	167	1.6%

Network of the regional collaborations in the FP7

Figure 7 visually represents the network of regional collaborations in the FP 7. The names of the most important actors are underlined. The network appears rather large, dense and solid, as several actors have a bridging position, among them: the University of Barcelona, the Autonoma de Barcelona, University Pompeu Fabra, Universitat Politecnica de Catalunya, the CSIC[3].

Figure 7–FP 7 network and its main features



Measure	Value
number of nodes (organizations)	312
number of egdes (cooperations)	632
Density	0.013
Components of 1 node (isolates)	124
Components of 2 nodes (dyadic isolates)	8
Components of 3 or more nodes	1
Characteristic path length	4.15
Clustering coefficient	0.521
Network levels (diameter)	11
Network fragmentation	0.697
Krackhardt connectedness	0.303
Krackhardt efficiency	0.969

[3] AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS

Main regional actors involved in FP7 networks

The next chart shows which organizations are repeatedly top-ranked in a series of centrality measures[4]. The value shown is the percentage of measures for which it was ranked in the top three. The following table represents three key measures to approximate the importance of the actors in the network[5].

Figure 8 –More central organizations in the regional FP7 network

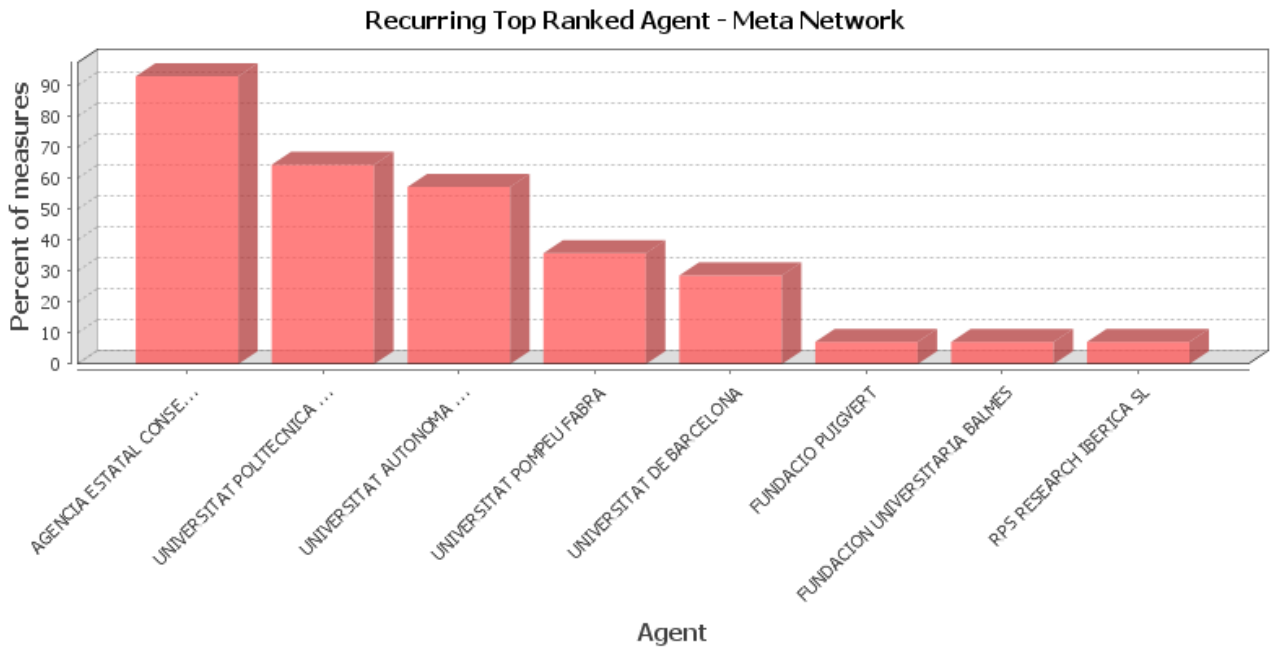


Table 4 – Centrality measures: top actors in the FP 7

Rank	HUB centrality		Betweenness centrality		Total degree centrality	
1	AGENCIA ESTATAL CSIC	1.1	UNIVERSITAT POLITECNICA DE CATALUNYA	5284	UNIVERSITAT POLITECNICA DE CATALUNYA	145
2	UNIVERSITAT DE BARCELONA	0.54	AGENCIA ESTATAL CSIC	4928	AGENCIA ESTATAL CSIC	136
3	UNIVERSITAT AUTONOMA DE BARCELONA	0.49	UNIVERSITAT POMPEU FABRA	3694	UNIVERSITAT AUTONOMA DE BARCELONA	122
4	UNIVERSITAT POLITECNICA DE CATALUNYA	0.48	INNOVACIO I RECERCA INDUSTRIAL I SOSTENIBLE SL	2596	UNIVERSITAT DE BARCELONA	112
5	UNIVERSITAT POMPEU FABRA	0.09	CENTRE DE RECERCA I INNOVACIO DE CATALUNYA S.A.	2043	UNIVERSITAT POMPEU FABRA	102

[4] 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.

[5] For a definition of these measure see the methodological section.

6	UNIVERSITAT ROVIRA I VIRGILI	0.06	UNIVERSITAT AUTONOMA DE BARCELONA	1894	CENTRE DE RECERCA I INNOVACIO DE CATALUNYA S.A.	52
7	CENTRE DE RECERCA I INNOVACIO DE CATALUNYA S.A.	0.04	UNIVERSITAT DE BARCELONA	1208	FUNDACIO PRIVADA CENTRE DE REGULACIO GENOMICA	50
8	STARLAB BARCELONA SL	0.02	ACONDICIONAMIENTO TARRASENSE ASSOCIACION	1101	BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION	48
9	UNIVERSITAT DE GIRONA	0.02	FUNDACIO PRIVADA ASCAMM	1065	UNIVERSITAT ROVIRA I VIRGILI	45
10	FEDERACIO TERRITORIAL DE CONFRARIESDE PESCADORS DE GIRONA	0.02	CENTRE D ESTUDIS DEMOGRAFICS	1003	FUNDACIO PRIVADA CLINIC PER A LA RECERCA BIOMEDICA	35

Main actors in the region in terms of leading collaboration

The three main actors in terms of leading collaboration are the universities of Barcelona and Autonoma de Barcelona, and the CSIC. They tend to cooperate more with regional than national partners; and a similar figure emerge from the focus on the three leading partners.

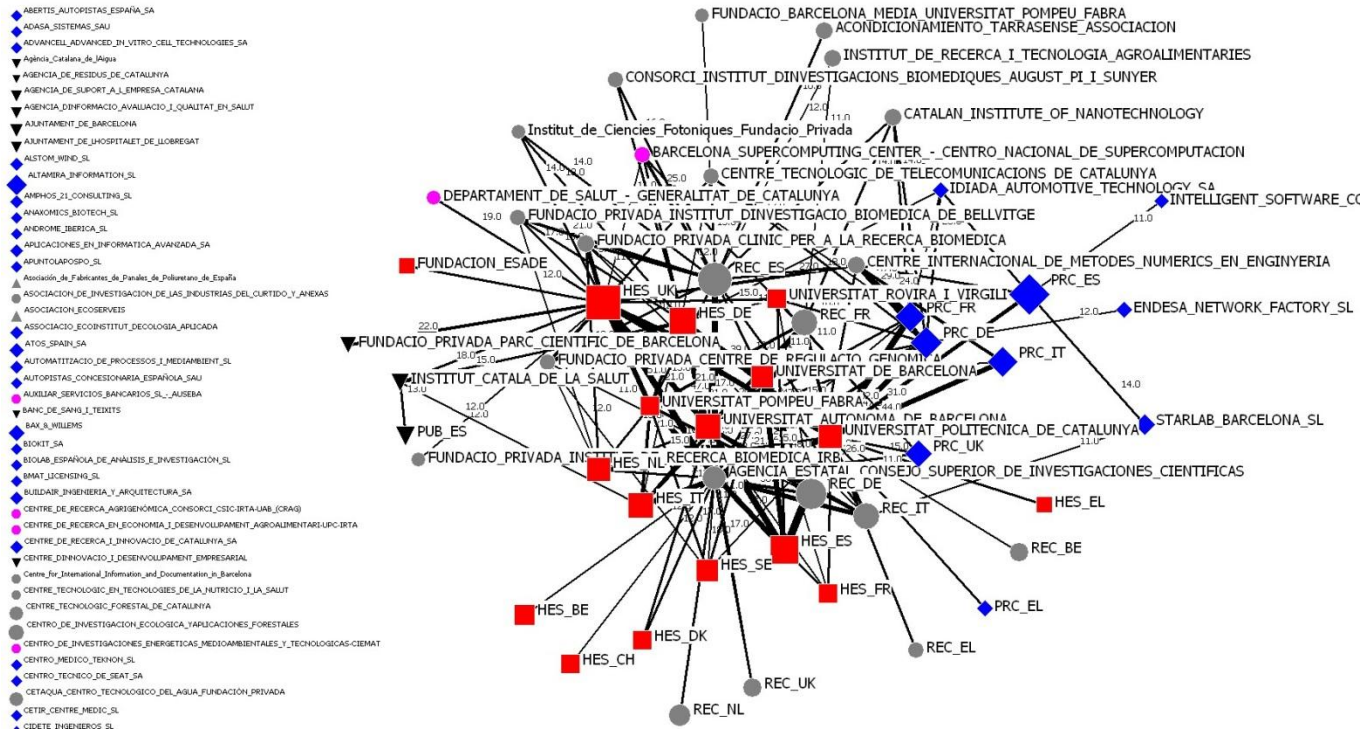
Table 5 – Top three organizations for projects led and participation as partner

	focus on the top three coordinators			location of partners		
Type	leader	n° as leader	as partner	region	country	EU
HES	UNIVERSITAT DE BARCELONA	37	48	5	2	77
HES	UNIVERSITAT AUTONOMA DE BARCELONA	35	59	14	3	110
REC	AGENCIA ESTATAL CSIC	33	63	5	1	25

	focus on the top three partners			location of leaders		
Type	leader	n° as partner	as leader	province	region	country
HES	UNIVERSITAT POLITECNICA DE CATALUNYA	69	24	8	2	59
REC	AGENCIA ESTATAL CSIC	63	33	7	2	54
HES	UNIVERSITAT AUTONOMA DE BARCELONA	59	35	5	1	53

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 significant6. 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.



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 Spain and Europe for each of these broad groupings of sectors.

[6] This has been determined using a minimun value of frequency of collaborations (>6).

Figure 9 - Share of regional employment 2009

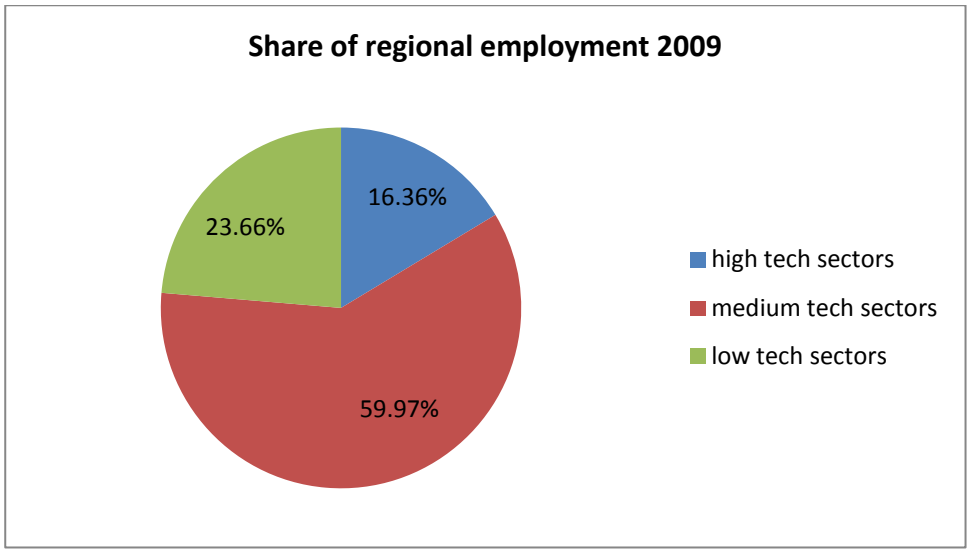


Table 6 –Employment and specialization (2009)

	Share of regional employment 2009	Specialization with respect to Europe[7] (2009)	Specialization with respect to Spain(2009) [8]
high tech sectors	16,36%	0,99	1,19
medium tech sectors	59,97%	1,00	1,01
low tech sectors	23,66%	1,01	0,88

Employment in Catalunya is dominated by medium technology intensive sectors (60%), with low and high technology sectors accounting for 24% and 16% of employment respectively. The specialisation figures tell the most interesting story because they show how Catalunya is positioned with relation to Spain and Europe. In all sectors Catalunya is similarly specialised as Europe. In respect to Spain, it has a stronger orientation toward high tech sectors, similar in medium tech and weaker in low tech. In Table 7 this analysis is continued sector-by-sector.

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

	Share of regional employment 2009	Specialization with respect to Europe	Specialization with respect to Spain	R&D intensity
Financial services	7,79%	0,93	1,08	
Education and knowledge creation	4,19%	1,02	1,03	HIGH TECH AND KNOWLEDGE INTENSITY
Pharmaceuticals	2,29%	2,30	2,92	
IT	1,96%	0,84	1,46	
Biotech	0,09%	0,60	0,83	
Aerospace	0,04%	0,08	0,16	

[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 Spain

Construction materials	15,72%	1,49	0,76	
Transportation and logistics	7,73%	1,02	1,15	
Processed food	6,31%	0,98	1,24	
Business services	5,05%	0,55	0,99	
Metal manufacturing	4,50%	0,84	1,26	
Automotive	3,83%	1,15	1,48	
Building fixtures, equipment and services	2,92%	0,95	0,98	
Telecom	2,76%	0,93	0,83	
Plastics	2,00%	1,56	1,95	
Entertainment	1,76%	1,07	1,02	MEDIUM TECH AND KNOWLEDGE INTENSITY
Construction	1,64%	1,44	2,02	
Production technology	1,36%	0,56	1,23	
Heavy Machinery	1,08%	0,95	1,46	
Maritime	0,80%	1,09	0,49	
Lighting and electrical equipment	0,59%	0,91	1,51	
Chemical products	0,49%	0,84	0,47	
Sporting, recreational and children's goods	0,39%	1,29	2,50	
Medical devices	0,38%	0,53	1,40	
Power generation and transmission	0,37%	0,93	1,33	
Instruments	0,29%	0,54	1,78	
Tourism and hospitality	4,75%	1,08	0,75	
Media and publishing	4,16%	1,41	1,51	
Distribution	3,06%	0,96	0,77	
Paper products	2,36%	1,17	1,44	
Agricultural products	2,26%	1,34	0,71	
Farming and animal husbandry	1,97%	0,87	0,45	
Apparel	1,95%	0,90	1,66	LOW TECH AND KNOWLEDGE INTENSITY
Textiles	1,79%	1,20	2,20	
Furniture	0,71%	0,50	0,56	
Tobacco	0,24%	0,79	0,38	
Jewellery and precious metals	0,14%	0,62	1,03	
Leather products	0,14%	0,70	1,69	
Stone quarries	0,09%	0,70	0,56	
Oil and gas	0,02%	0,04	0,34	
Footwear	0,02%	0,03	0,04	

Data on employment for Catalunya were only available for recent years and no trend could be investigated.

Patents

Table 8 and figures 10 and 11 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.

Catalunya clearly emerges as specialized in Chemistry and some sub-fields of the Electrical Engineering domain. The share of patents on the national aggregate is remarkable.

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	29.57	3.26%	2.51%	0.76
1	Electrical engineering	2	Audio-visual technology	9.98	1.10%	1.74%	0.53
1	Electrical engineering	3	Telecommunications	28.70	3.16%	6.73%	2.04
1	Electrical engineering	4	Digital communication	9.83	1.08%	5.50%	1.67
1	Electrical engineering	5	Basic communication processes	13.37	1.47%	19.79%	6.00
1	Electrical engineering	6	Computer technology	38.54	4.25%	9.75%	2.96
1	Electrical engineering	7	IT methods for management	1.70	0.19%	3.26%	0.99
1	Electrical engineering	8	Semiconductors	4.19	0.46%	5.22%	1.58
2	Instruments	9	Optics	5.58	0.62%	3.40%	1.03
2	Instruments	10	Measurement	15.60	1.72%	2.70%	0.82
2	Instruments	11	Analysis of biological materials	5.08	0.56%	4.69%	1.42
2	Instruments	12	Control	15.22	1.68%	2.47%	0.75
2	Instruments	13	Medical technology	50.16	5.53%	4.22%	1.28
3	Chemistry	14	Organic fine chemistry	73.12	8.06%	25.70%	7.79
3	Chemistry	15	Biotechnology	12.17	1.34%	4.95%	1.50
3	Chemistry	16	Pharmaceuticals	175.87	19.39%	24.42%	7.40
3	Chemistry	17	Macromolecular chemistry, polymers	23.73	2.62%	27.22%	8.25
3	Chemistry	18	Food chemistry	22.97	2.53%	4.89%	1.48
3	Chemistry	19	Basic materials chemistry	38.03	4.19%	13.53%	4.10
3	Chemistry	20	Materials, metallurgy	12.76	1.41%	5.02%	1.52
3	Chemistry	21	Surface technology, coating	12.43	1.37%	5.82%	1.76
3	Chemistry	22	Micro-structural and nano-technology	2.08	0.23%	17.08%	5.18
3	Chemistry	23	Chemical engineering	24.83	2.74%	4.78%	1.45
3	Chemistry	24	Environmental technology	10.34	1.14%	1.82%	0.55
4	Mechanical engineering	25	Handling	44.50	4.91%	1.84%	0.56
4	Mechanical engineering	26	Machine tools	8.89	0.98%	1.32%	0.40
4	Mechanical engineering	27	Engines, pumps, turbines	11.65	1.28%	2.39%	0.73
4	Mechanical engineering	28	Textile and paper machines	33.88	3.74%	9.41%	2.85
4	Mechanical engineering	29	Other special machines	25.92	2.86%	1.47%	0.44
4	Mechanical engineering	30	Thermal processes and apparatus	16.25	1.79%	2.04%	0.62
4	Mechanical engineering	31	Mechanical elements	20.97	2.31%	2.27%	0.69
4	Mechanical engineering	32	Transport	31.91	3.52%	1.60%	0.48
5	Other fields	33	Furniture, games	22.17	2.44%	0.74%	0.23
5	Other fields	34	Other consumer goods	17.73	1.95%	0.95%	0.29
5	Other fields	35	Civil engineering	37.25	4.11%	0.94%	0.28

* 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 10 – Patenting by domain: total share

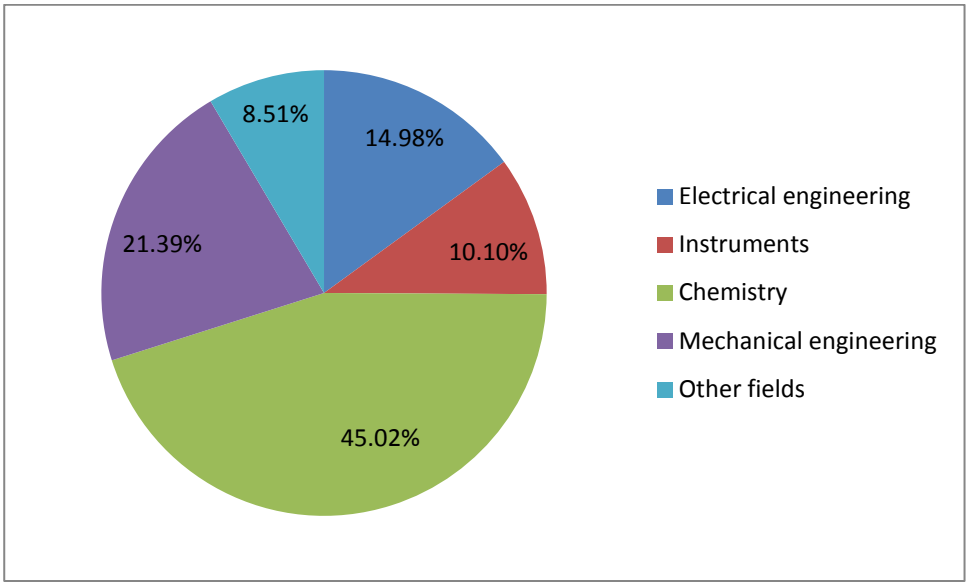


Figure 11 - Patenting by domain: specialization

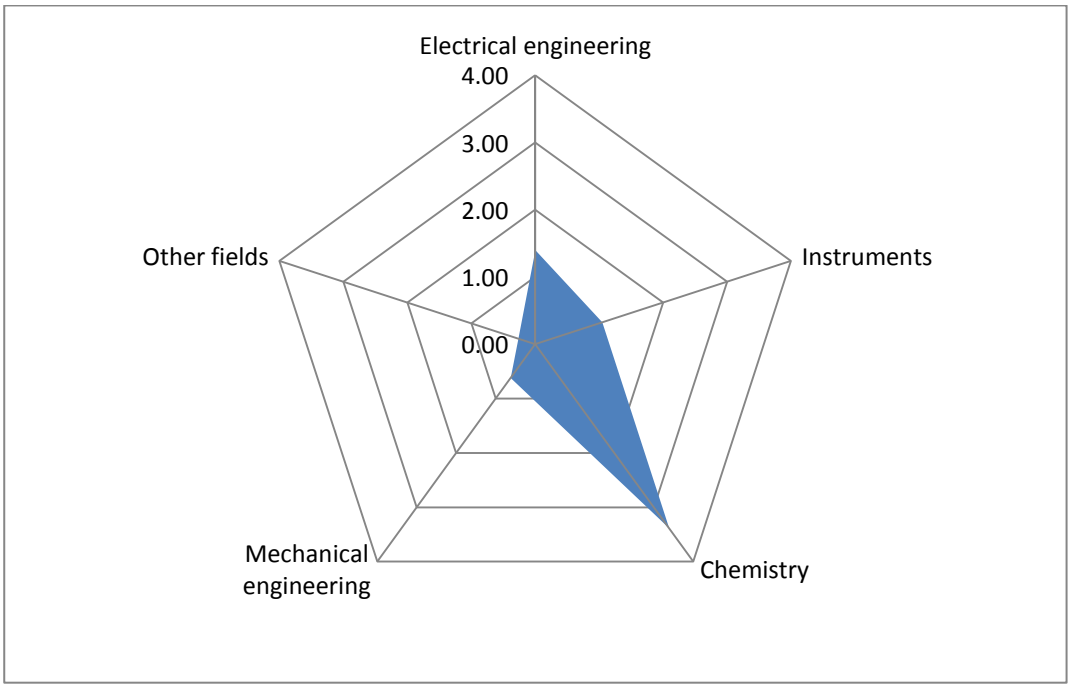


Table 9 shows the most important patenting subjects.

Table 9 – Most important applicants

name	count
ESTEVE LABOR DR	124
COGNIS DEUTSCHLAND GMBH	78
HEWLETT PACKARD DEVELOPMENT CO	41
SEIKO EPSON CORP	29
FERRER INT	16
CASERTA ANDREA	13
FRAPE BEHR SA	13
ZOBELE ESPANA SA	11
GONZALEZ ANTONIO	11
INTEL CORP	11

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).

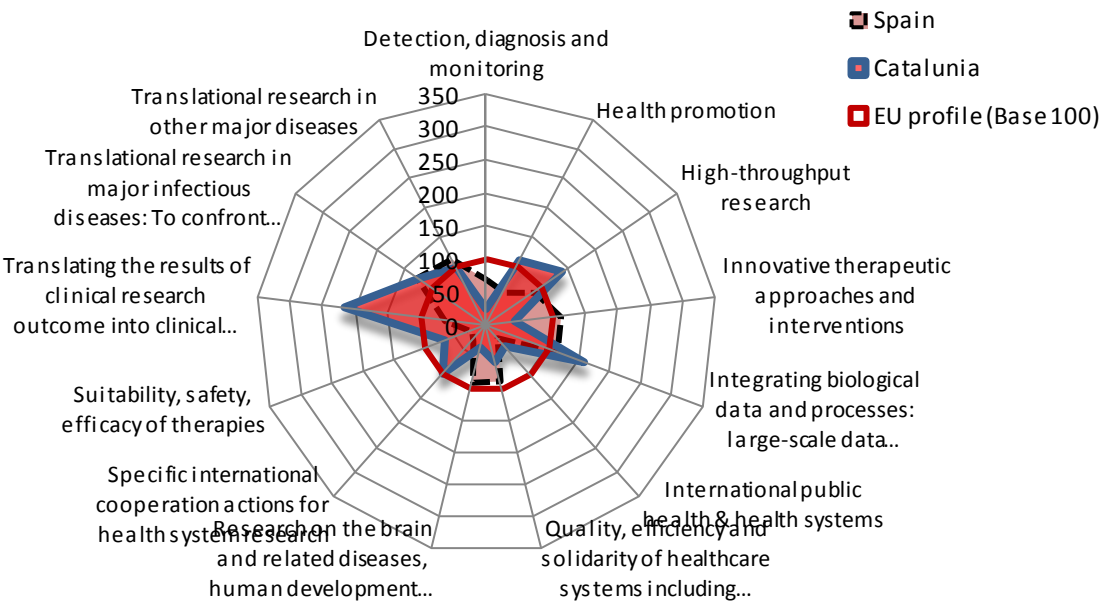
iii) The ranking of research areas at the national and regional levels, according their specialisation scores. The table ranks the research areas according to their specialization score (in base 100) at the national and regional level (left and right column respectively). If the score is above 100, the 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 5 Specialisation profiles of Spain and Catalunya



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 Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Translational research in major infectious diseases: To confront major threats to public health	128	1	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	216
2	Translational research in major infectious diseases: To confront major threats to public health	115	2	Integrating biological data and processes: large-scale data gathering, systems biology	159
3	Integrating biological data and processes: large-scale data gathering, systems biology	115	3	High-throughput research	140
4	Innovative therapeutic approaches and interventions	113	4	Translational research in major infectious diseases: To confront major threats to public health	122
5	High-throughput research	89	5	Health promotion	109
6	Research on the brain and related diseases, human development and ageing	89	6	Specific international cooperation actions for health system research	99
7	Quality, efficiency and solidarity of healthcare systems including transitional health systems	86	7	Translational research in major infectious diseases: To confront major threats to public health	97
8	Detection, diagnosis and monitoring	70	8	Suitability, safety, efficacy of therapies	66
9	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	64	9	Quality, efficiency and solidarity of healthcare systems including transitional health systems	58
10	Health promotion	57	10	Innovative therapeutic approaches and interventions	44
11	Specific international cooperation actions for health system research	31	11	INTERNATIONAL PUBLIC HEALTH & HEALTH SYSTEMS	43
12	INTERNATIONAL PUBLIC HEALTH & HEALTH SYSTEMS	24	12	Research on the brain and related diseases, human development and ageing	35
13	Suitability, safety, efficacy of therapies	24	13	Detection, diagnosis and monitoring	23

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 6 Specialisation profiles of Spain and Catalunya

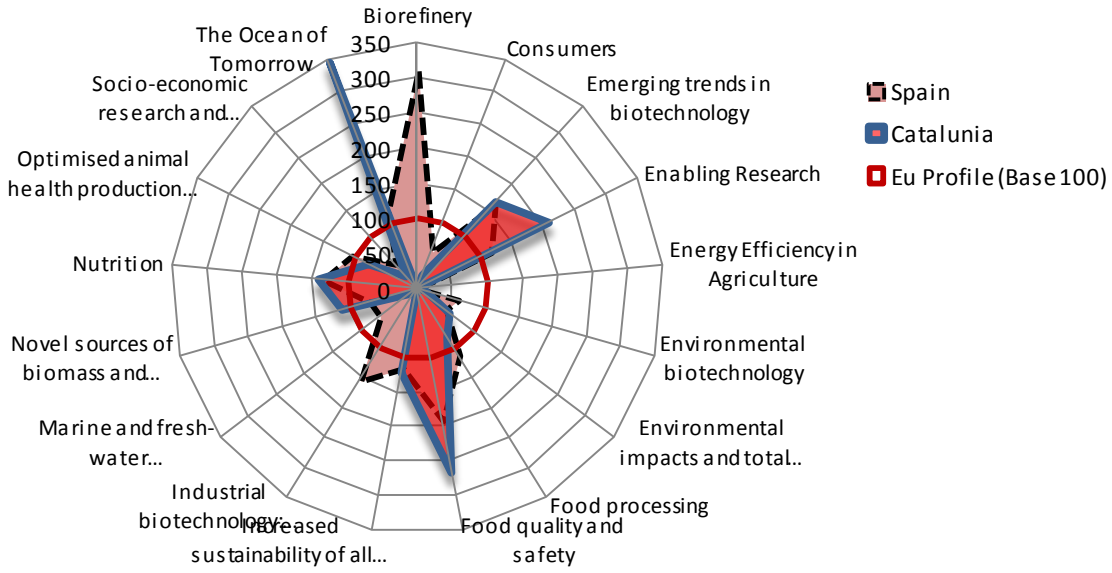


Table 4 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Biorefinery	311	1	The Ocean of Tomorrow	344
2	Food quality and safety	192	2	Food quality and safety	266
3	Emerging trends in biotechnology	162	3	Enabling Research	210
4	Industrial biotechnology: novel high added-value bio-products and bio-processes	155	4	Emerging trends in biotechnology	166
5	Nutrition	136	5	Nutrition	141

6	The Ocean of Tomorrow	118	6	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	121
7	Enabling Research	116	7	Novel sources of biomass and bioproducts	111
8	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	116	8	Food processing	81
9	Food processing	112	9	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	77
10	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	105	10	Environmental impacts and total food chain	58
11	Novel sources of biomass and bioproducts	71	11	Socio-economic research and support to policies	23
12	Marine and fresh-water biotechnology (blue biotechnology)	67	12	Consumers	20
13	Environmental biotechnology	60	13	Environmental biotechnology	13
14	Consumers	56	14	Marine and fresh-water biotechnology (blue biotechnology)	13
15	Environmental impacts and total food chain	50	15	Biorefinery	0
16	Socio-economic research and support to policies	47	16	Energy Efficiency in Agriculture	0
17	Energy Efficiency in Agriculture	0	17	Industrial biotechnology: novel high added-value bio-products and bio-processes	0

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 7 Specialisation profiles of Spain and Catalunya

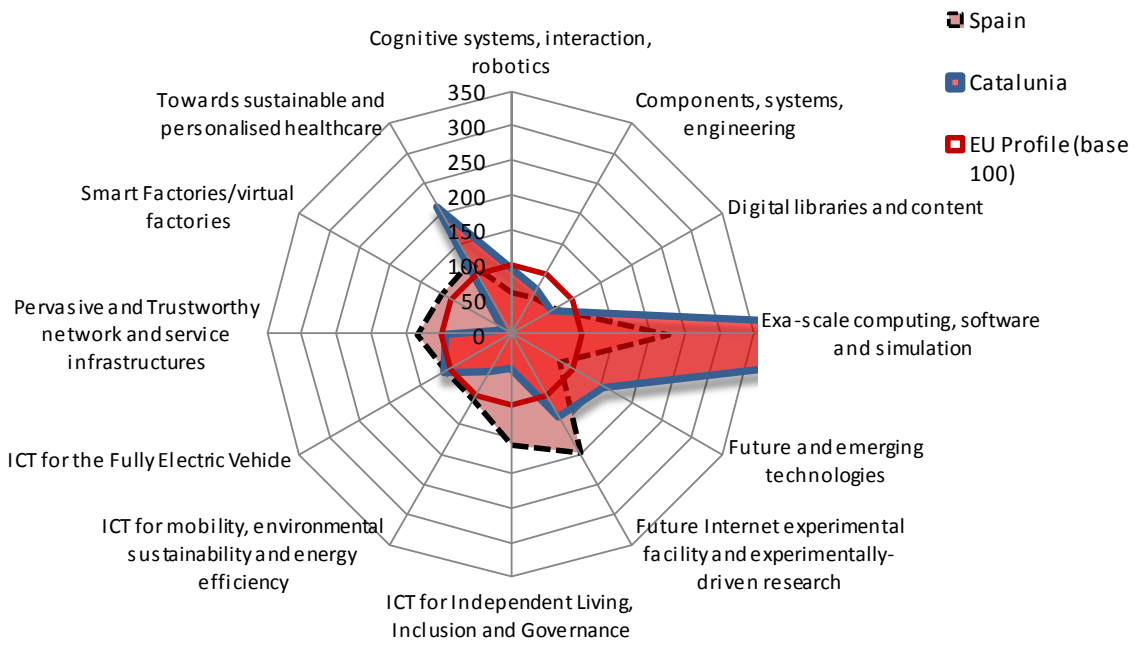


Table 6 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Digital libraries and content	224	1	Exa-scale computing, software and simulation	792
2	Future and emerging technologies	197	2	Towards sustainable and personalised healthcare	211
3	Future Internet experimental facility and experimentally-driven research	160	3	Future and emerging technologies	153
4	ICT for the Fully Electric Vehicle	135	4	Future Internet experimental facility and experimentally-driven research	137
5	Smart Factories/virtual factories	120	5	ICT for the Fully Electric Vehicle	110
6	Pervasive and Trustworthy network and service infrastructures	116	6	Cognitive systems, interaction, robotics	96
7	ICT for Independent Living, Inclusion and Governance	109	7	Pervasive and Trustworthy network and service infrastructures	93
8	ICT for mobility, environmental sustainability and energy efficiency	107	8	Components, systems, engineering	75
9	Towards sustainable and personalised healthcare	100	9	Digital libraries and content	67
10	Exa-scale computing, software and simulation	79	10	ICT for mobility, environmental sustainability and energy efficiency	62
11	Components, systems, engineering	74	11	ICT for Independent Living, Inclusion and Governance	49
12	Cognitive systems, interaction, robotics	62	12	Smart Factories/virtual factories	12

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 8 Specialisation profiles of Spain and Catalunya

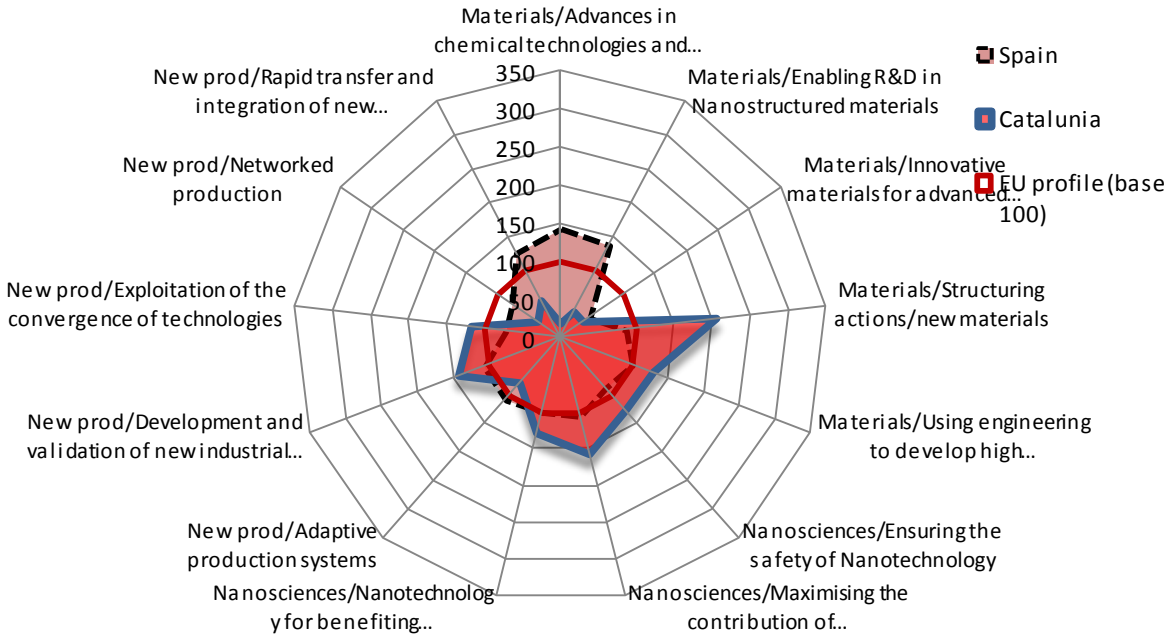


Table 8 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Materials/Advances in chemical technologies and materials processing	144	1	Materials/Structuring actions/new materials	207
2	Materials/Enabling R&D in Nanostructured materials	137	2	Nanosciences/Maximising the contribution of Nanotechnology on sustainable development	159
3	New prod/Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	126	3	New prod/Development and validation of new industrial models and strategies	143
4	New prod/Adaptive production systems	108	4	Nanosciences/Nanotechnology for benefiting environment, energy and health	131
5	New prod/Development and validation of new industrial models and strategies	107	5	Materials/Using engineering to develop high performance knowledge-based materials	131
6	Nanosciences/Maximising the contribution of Nanotechnology on sustainable development	106	6	Nanosciences/Ensuring the safety of Nanotechnology	129
7	Nanosciences/Nanotechnology for benefiting environment, energy and health	100	7	New prod/Exploitation of the convergence of technologies	118
8	Materials/Using engineering to develop high performance knowledge-based materials	100	8	New prod/Adaptive production systems	81
9	Nanosciences/Ensuring the safety of Nanotechnology	88	9	New prod/Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	54
10	Materials/Structuring actions/new materials	86	10	Materials/Enabling R&D in Nanostructured materials	38
11	New prod/Networked production	78	11	Materials/Innovative materials for advanced applications	36
12	New prod/Exploitation of the convergence of technologies	73	12	New prod/Networked production	36
13	Materials/Innovative materials for advanced applications	46	13	Materials/Advances in chemical technologies and materials processing	18

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 9 Specialisation profiles of Spain and Catalunya

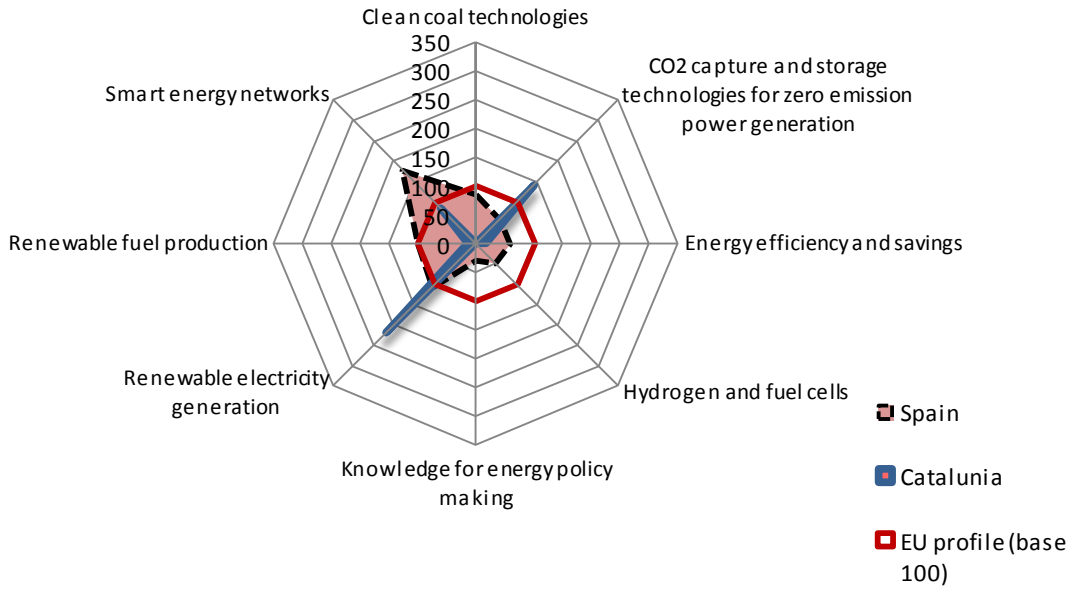


Table 10 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Smart energy networks	180	1	Renewable electricity generation	220
2	Renewable electricity generation	107	2	CO2 capture and storage technologies for zero emission power generation	143
3	Renewable fuel production	101	3	Smart energy networks	86
4	Clean coal technologies	86	4	Energy efficiency and savings	18
5	CO2 capture and storage technologies for zero emission power generation	59	5	Renewable fuel production	14
6	Energy efficiency and savings	59	6	Clean coal technologies	0
7	Hydrogen and fuel cells	47	7	Hydrogen and fuel cells	0
8	Knowledge for energy policy making	29	8	Knowledge for energy policy making	0

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 10 Specialisation profiles of Spain and Catalunya

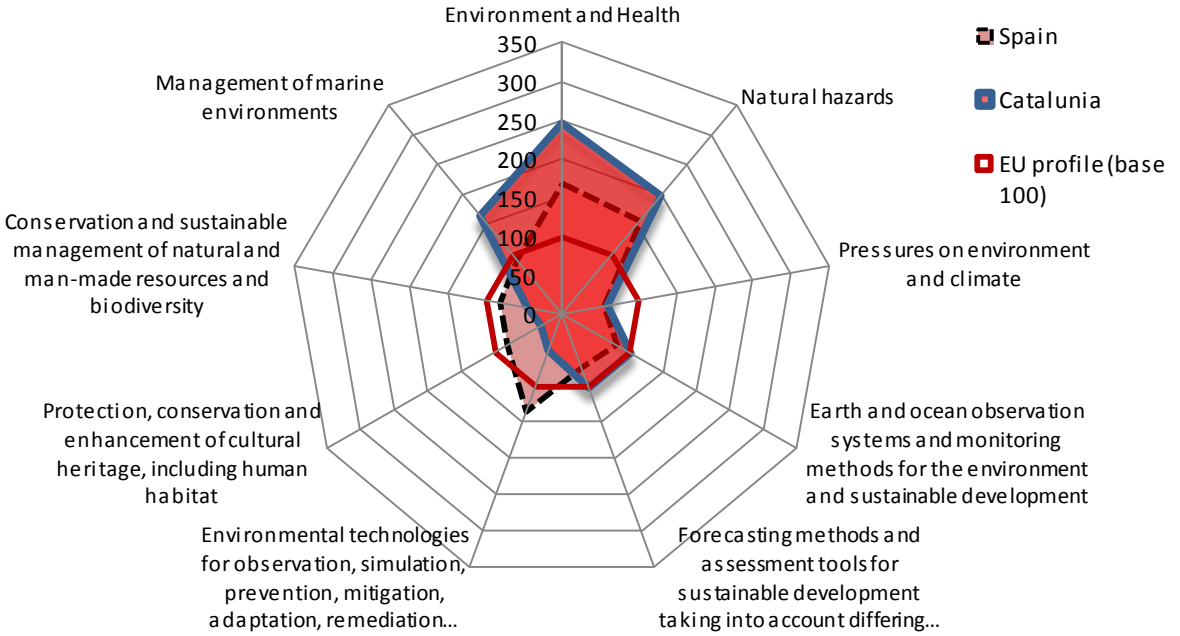


Table 12 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Environment and Health	169	1	Environment and Health	245
2	Natural hazards	156	2	Natural hazards	198
3	Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and	136	3	Management of marine environments	164

	man-made environment				
4	Management of marine environments	91	4	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	102
5	Protection, conservation and enhancement of cultural heritage, including human habitat	82	5	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	102
6	Conservation and sustainable management of natural and man-made resources and biodiversity	81	6	Pressures on environment and climate	60
7	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	81	7	Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment	51
8	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	75	8	Conservation and sustainable management of natural and man-made resources and biodiversity	45
9	Pressures on environment and climate	54	9	Protection, conservation and enhancement of cultural heritage, including human habitat	31

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 11 Specialisation profiles of Spain and Catalunya

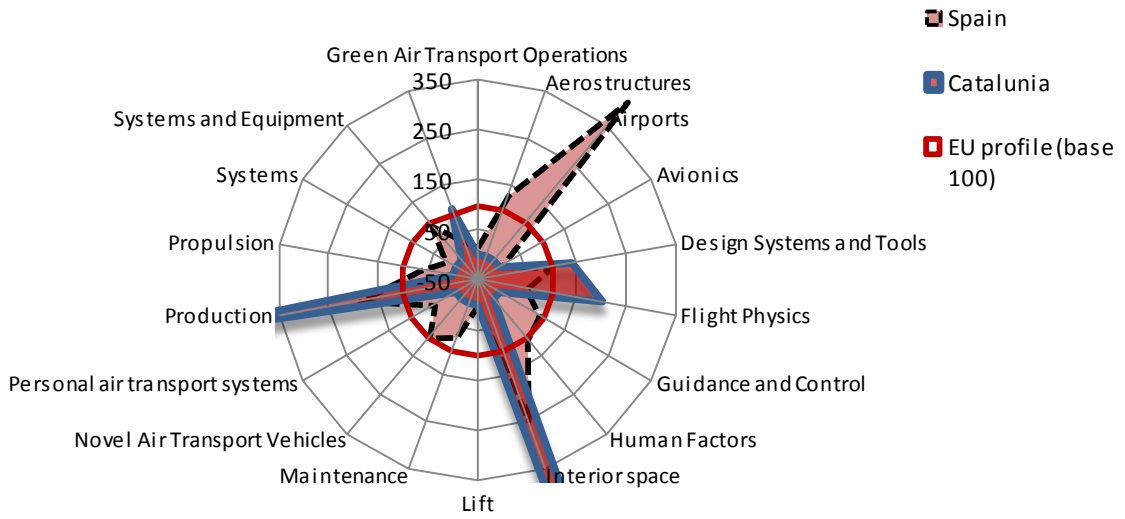


Table 14 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Airports	414	1	Interior space	2866
2	Interior space	246	2	Production	650
3	Production	187	3	Flight Physics	202
4	Aerostructures	131	4	Design Systems and Tools	141
5	Human Factors	104			
6	Design Systems and Tools	100			
7	Novel Air Transport Vehicles	99			
8	Guidance and Control	92			
9	Systems and Equipment	92			
10	Maintenance	70			
11	Propulsion	66			
12	Flight Physics	49			
13	Personal air transport systems	48			
14	Systems	23			
15	Green Air Transport Operations	16			
16	Avionics	5			

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 12 Specialisation profiles of Spain and Catalunya

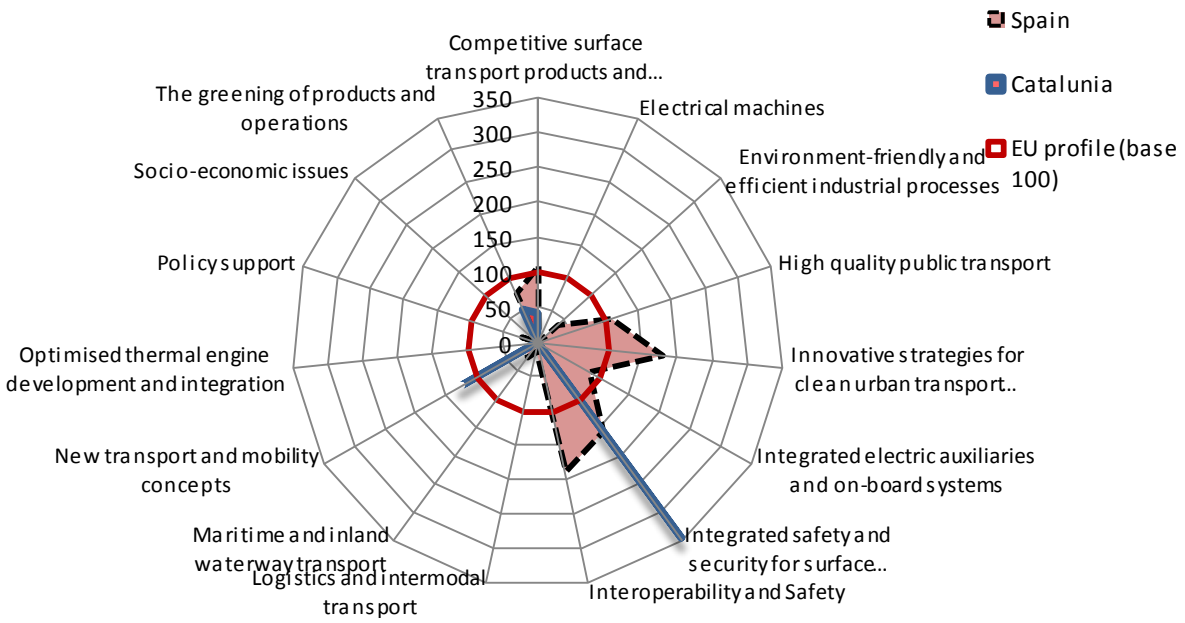


Table 16 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Interoperability and Safety	188	1	Integrated safety and security for surface transport systems	346
2	Innovative strategies for clean urban transport	178	2	New transport and mobility concepts	124

	(CIVITAS Plus II)				
3	Integrated safety and security for surface transport systems	156	3	The greening of products and operations	51
4	High quality public transport	109	4	Competitive surface transport products and services	42
5	Competitive surface transport products and services	109	5	Electrical machines	0
6	Integrated electric auxiliaries and on-board systems	84	6	Environment-friendly and efficient industrial processes	0
7	The greening of products and operations	77	7	High quality public transport	0
8	Environment-friendly and efficient industrial processes	37	8	Innovative strategies for clean urban transport (CIVITAS Plus II)	0
9	Maritime and inland waterway transport	26	9	Integrated electric auxiliaries and on-board systems	0
10	Policy support	25	10	Interoperability and Safety	0
11	New transport and mobility concepts	19	11	Logistics and intermodal transport	0
12	Logistics and intermodal transport	13	12	Maritime and inland waterway transport	0
13	Electrical machines	0	13	Optimised thermal engine development and integration	0
14	Optimised thermal engine development and integration	0	14	Policy support	0
15	Socio-economic issues	0	15	Socio-economic issues	0

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 13 Specialisation profiles of Spain and Catalunya

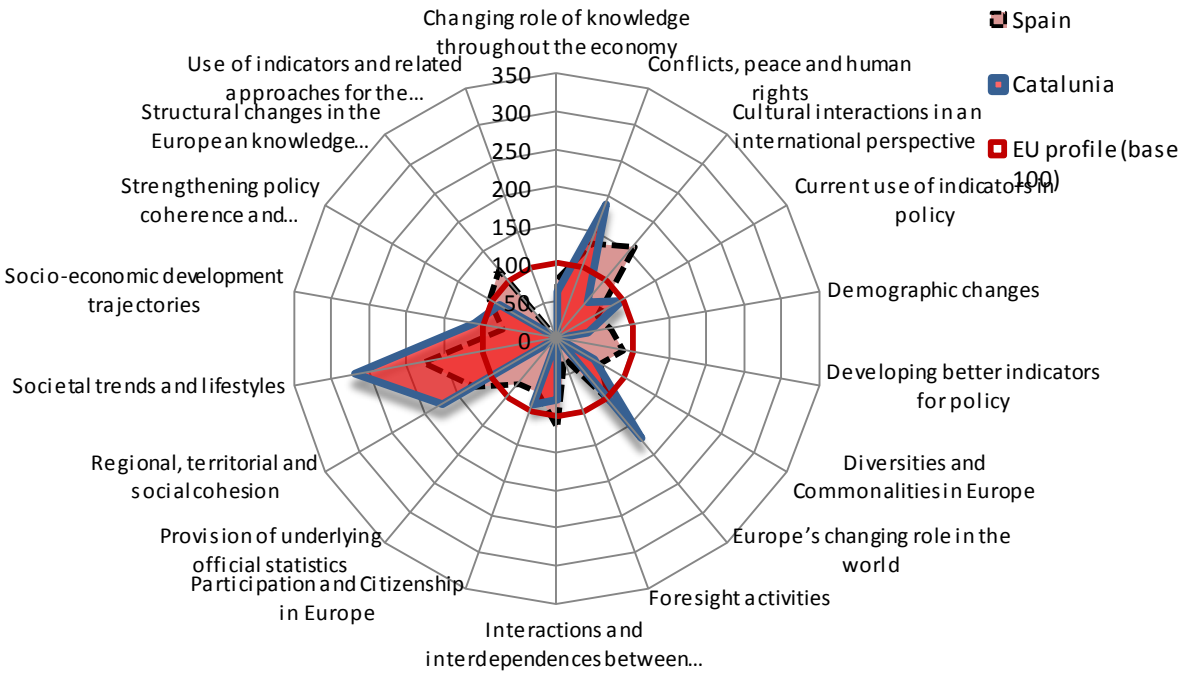


Table 18 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Societal trends and lifestyles	180	1	Societal trends and lifestyles	270
2	Cultural interactions in an international perspective	159	2	Conflicts, peace and human rights	187
3	Conflicts, peace and human rights	135	3	Regional, territorial and social cohesion	174
4	Regional, territorial and social cohesion	127	4	Europe's changing role in the world	172
5	Structural changes in the European knowledge economy and society	120	5	Socio-economic development trajectories	111
6	Interactions and interdependences between world regions and their implications	117	6	Current use of indicators in policy	98
7	Europe's changing role in the world	108	7	Participation and Citizenship in Europe	93
8	Strengthening policy coherence and coordination in Europe	104	8	Strengthening policy coherence and coordination in Europe	87
9	Developing better indicators for policy	89	9	Interactions and interdependences between world regions and their implications	81
10	Changing role of knowledge throughout the economy	80	10	Cultural interactions in an international perspective	62
11	Provision of underlying official statistics	78	11	Changing role of knowledge throughout the economy	61

12	Participation and Citizenship in Europe	75	12	Diversities and Commonalities in Europe	56
13	Socio-economic development trajectories	73	13	Demographic changes	41
14	Demographic changes	73	14	Developing better indicators for policy	0
15	Diversities and Commonalities in Europe	65	15	Foresight activities	0
16	Current use of indicators in policy	61	16	Provision of underlying official statistics	0
17	Foresight activities	27	17	Structural changes in the European knowledge economy and society	0
18	Use of indicators and related approaches for the evaluation of research policies and programmes	0	18	Use of indicators and related approaches for the evaluation of research policies and programmes	0

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 14 Specialisation profiles of Spain and Catalunya

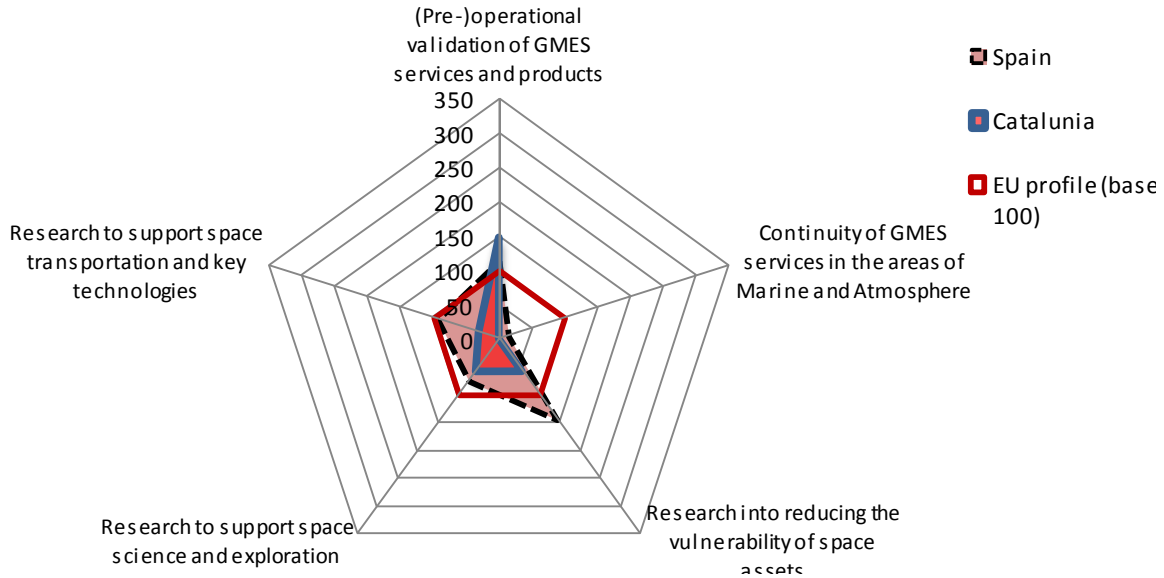


Table 20 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Research into reducing the vulnerability of space assets	144	1	(Pre-)operational validation of GMES services and products	147
2	(Pre-)operational validation of GMES services and products	115	2	Research to support space science and exploration	58
3	Research to support space transportation and key technologies	94	3	Research into reducing the vulnerability of space assets	58
4	Research to support space science and exploration	75	4	Research to support space transportation and key technologies	32
5	Continuity of GMES services in the areas of Marine and Atmosphere	15	5	Continuity of GMES services in the areas of Marine and Atmosphere	0

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 15 Specialisation profiles of Spain and Catalunya

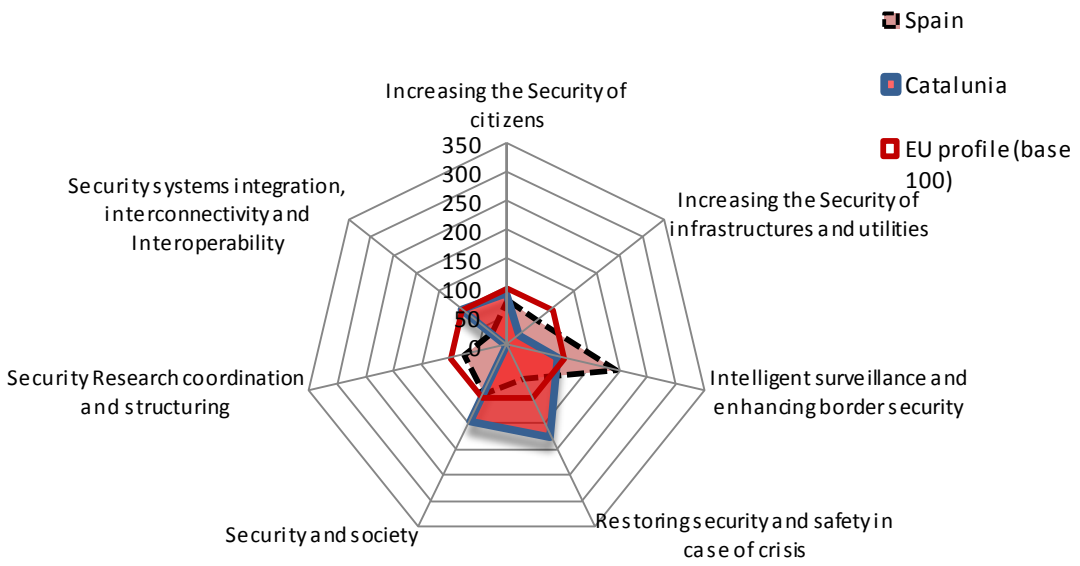


Table 22 Specialisation ranking for Spain and Catalunya

Rk	Spain	Index base 100	Rk	Catalunya	Index base 100
1	Intelligent surveillance and enhancing border security	194	1	Restoring security and safety in case of crisis	176
2	Security and society	94	2	Security and society	146
3	Increasing the Security of citizens	79	3	Security systems integration, interconnectivity and Interoperability	100
4	Security Research coordination and structuring	77	4	Intelligent surveillance and enhancing border security	92
5	Increasing the Security of infrastructures and utilities	68	5	Increasing the Security of citizens	91
6	Restoring security and safety in case of crisis	65	6	Increasing the Security of infrastructures and utilities	29
7	Security systems integration, interconnectivity and Interoperability	34	7	Security Research coordination and structuring	0

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 of 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	***1339***
(2) Nbr of ingoing participations	***121***
(3) Nbr of outgoing participations	***11***
Total nbr of participations (1)+(2)	***1460***

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 region[10] gains 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	BE332	ES511	1		
In	CH070	ES511	1		
In	ES	ES511	1		
In	ES220	ES511	6		
In	ES30	ES511	1		
In	ES300	ES511	105		
In	FI133	ES511	3		
In	US	ES511	2		
In	ES213	ES514	1	121	8,3%
out	ES51	BE100	1	11	0,8%

[9] Impacted region.

[10] The region being analysed in the current scoreboard.

out	ES51	DEA2C	1		
out	ES51	ES300	5		
out	ES51	ES532	1		
out	ES51	NL332	2		
out	ES51	ES518	1		
no Headquarter effect			1339	1339	91,7%
Total (after correction)				1460	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	7	5,8%	2	18,2%	446	33,3%
OTH	3	2,5%	1	9,1%	39	2,9%
PRC	7	5,8%	6	54,5%	303	22,6%
PUB	1	0,8%		0,0%	74	5,5%
REC	103	85,1%	2	18,2%	477	35,6%
	121	100,0%	11	100,0%	1339	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).

Catalunya 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

	Catalunya	ES	FP	% in ES51 in ES	% in ES in FP
Nbr of participations in projects	1460	5194	69719	28,1%	7,4%
Nbr of coordinations	449	1136	12929	39,5%	8,8%
EC contribution	457 242 408	1 481 492 021	22 188 391 959	30,9%	6,7%

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.

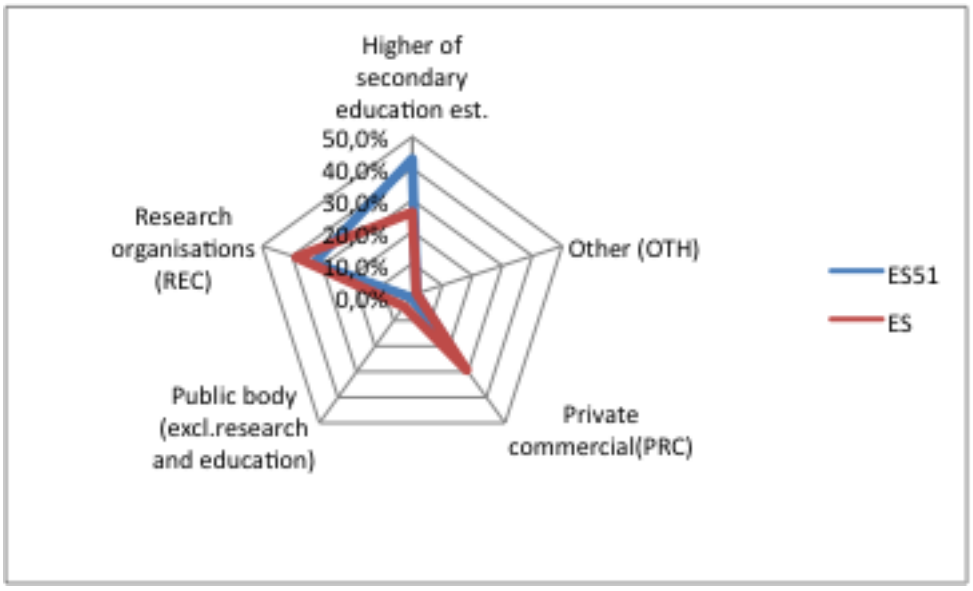
Table 27 Participation typology-comparison between regional and national level

	Catalunya				Spain			
	Nbr of participations in projects	Nbr of coordinations	EC contribution	%	Nbr of participations in projects	Nbr of coordinations	EC contribution	%
Higher of secondary education est.(HES)	453	176	145 315 774	31.7 %	1348	394	387 560 796	26,2 %
Other (OTH)	42	3	5 600 252	1.2%	140	13	21 699 400	1,5

								%
Private commercial(PRC)	310	38	66 474 129	14.5 %	1576	169	434 389 194	29,3 %
Public body (excl.research and education) (PUB)	75	7	20 318 240	4.4%	304	24	66 142 040	4,5 %
Research organisations (REC)	580	225	219 534 013	48%	1819	536	571 700 592	38,6 %
Total	1460	449	457 242 408	100 %	5187	1136	1 481 492 021	100 %

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

Figure 16 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

		Catalunya		Spain	
	Private organisations	Nbr	EC contrib	nbr	EC contrib
Private	PRC	310	66 474 129	1578	434724166,59
	PNP	390	136 392 383	1243	371733814,96
	total private	700	202 866 512	2 821	806 457 982
Public	Commercial	10	1 173 381	46	8376225,44
	PNP	750	253 202 515	2327	666657814,43
	total public	760	254 375 896	2 373	675 034 040
	TOTAL	1460	457 242 408	5 194	1 481 492 021

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 Catalunya	Total Spain	Total FP	ES511	ES512	ES513	ES514
Nbr of participations in projects	244	1 050	11 545	222	9	4	9
EC contribution	51 022 839	231 491 203	2 873 556 998	46 604 474	1 372 263	723 243	2 322 859

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

	Catalunya		Spain	
	Nbr	Ec Contrib		
PRC	225	46 605 672	848	183 468 592
PNP	19	4 417 167	202	48 022 610
TOTAL	244	51022839	1050	231491202,7

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

			FP		Spain		Catalunya	
N°	PROG SPEC	Theme	nbr	EC contrib	nbr	EC contrib	nbr	EC contrib
1	COOPERATION	Health	6 580	38 311 701 807	353	127 292 782	134	51 448 144
2	COOPERATION	Food, Agriculture, and Biotechnology	3 611	12 817 896 001	231	52 201 925	51	12 698 579
3	COOPERATION	Information and Communication Technologies	13 492	58 405 354 567	1 050	351 240 031	266	99 506 751
4	COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	4 881	23 146 425 481	416	133 457 580	78	27 248 306
5	COOPERATION	Energy	2 378	11 337 341 986	181	91 113 192	20	6 908 787
6	COOPERATION	Environment (including Climate Change)	4 592	17 622 383 238	269	58 213 751	89	21 359 880
7	COOPERATION	Transport (including Aeronautics)	5 445	33 527 717 656	320	75 424 663	54	12 340 039
8	COOPERATION	Socio-economic sciences and Humanities	1 515	3 354 155 783	74	11 947 708	37	7 087 107
9	COOPERATION	Security	1 590	8 610 533 867	125	44 459 241	27	6 197 291
10	COOPERATION	Space	1 449	8 715 567 065	85	21 915 018	18	5 085 285
11	COOPERATION	General Activities (Annex IV)	148	518 736 687	15	1 316 238	2	264 986
12	IDEAS	European Research Council	2 269	3 639 388 962	136	180 228 979	78	99 480 811

13	PEOPLE	Marie-Curie Actions	9 470	10 482 594 761	766	154 651 108	308	57 315 633
14	CAPACITIES	Research Infrastructures	3 921	24 495 071 212	245	55 512 032	75	22 734 749
15	CAPACITIES	Research for the benefit of SMEs	4 485	5 835 382 440	639	78 604 055	154	17 109 916
16	CAPACITIES	Regions of Knowledge	588	807 707 785	77	7 532 333	10	1 067 739
17	CAPACITIES	Research Potential	239	263 079 464	11	8 638 301	4	632 046
18	CAPACITIES	Science in Society	1 125	1 997 280 671	71	9 253 396	29	4 887 597
19	CAPACITIES	Coherent development of research policies	100	107 921 641	9	1 133 134	1	138 996
20	CAPACITIES	Activities of International Cooperation	584	1 038 085 306	20	2 627 529	4	341 213
21	Euratom	Fusion Energy	64	129 596 277	5	184 409		
22	Euratom	Nuclear Fission and Radiation Protection	1 236	4 136 186 414	96	14 544 616	21	3 388 553
			69 762	22 189 556 770	5 194	1 481 492 021	1 460	457 242 408

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

	ES511	%	ES512	%	ES513	%	ES514	%	Total ES51	%
Nbr of participations in projects	1315	90,1%	46	3,2%	26	1,8%	73	5,0%	1460	100,0%
Nbr of coordinations	392	87,3%	22	4,9%	9	2,0%	26	5,8%	449	100,0%
EC contribution	420 391 766	91,9%	7 833 340	1,7%	5 061 777	1,1%	23 955 526	5,2%	457242408,1	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

	ES511			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	381	136	126 334 742	30,1%
OTH	38	3	5 556 152	1,3%
PRC	267	35	57 488 666	13,7%
PUB	74	7	20 285 980	4,8%
REC	555	211	210 726 226	50,1%
Total	1315	392	420 391 766	100,0%
	ES512			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	23	18	4 984 839	63,6%
OTH	3		34 320	0,4%
PRC	14		1 742 824	22,2%
PUB				0,0%
REC	6	4	1 071 356	13,7%
Total	46	22	7 833 340	100,0%
	ES513			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	13	5	3 621 959	71,6%
OTH				0,0%
PRC	5	1	732 873	14,5%
PUB	1		32 261	0,6%
REC	7	3	674 685	13,3%
Total	26	9	5 061 777	100,0%
	ES514			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	36	17	10 374 234	43,3%
OTH	1		9 780	0,0%
PRC	24	2	6 509 766	27,2%
PUB				0,0%
REC	12	7	7 061 746	29,5%
Total	73	26	23 955 526	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)

			ES511		ES512		ES513		ES514	
Num	PROG SPEC	Theme	nbr	EC contrib	nbr	EC contrib	nbr	EC contrib	nbr	EC contrib
1	COOP	Health	133	50 925 494	1	522 650				
2	COOP	Food, Agriculture and Fisheries, and Biotechnology	37	10 395 396	5	571 867	5	603 101	4	1 128 215
3	COOP	Information and Communication Technologies	253	93 757 418	3	872 030			10	4 877 303
4	COOP	Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	74	25 894 128	1	59 200	1	237 029	2	1 057 949
5	COOP	Energy	18	6 431 697					2	477 090
6	COOP	Environment (including Climate Change)	82	20 509 574			4	340 957	3	509 349
7	COOP	Transport (including Aeronautics)	42	8 981 339					12	3 358 700
8	COOP	Socio-economic sciences and Humanities	36	6 911 191	1	175 916				
9	COOP	Space	25	5 859 676					2	337 615
10	COOP	Security	16	3 940 338					2	1 144 947
11	COOP	General Activities	2	264 986						
12	CAPACITIES	Research Infrastructures	69	87 810 632	2	2 789 778	2	2 439 004	5	6 441 398
13	CAPACITIES	Research for the benefit of SMEs	257	51 522 114	22	1 892 186	8	633 535	21	3 267 798
14	CAPACITIES	Regions of Knowledge	74	22 627 659					1	107 090
15	CAPACITIES	Research Potential	138	15 012 385	8	926 922	4	662 043	4	508 566
16	CAPACITIES	Science in Society	8	921 631			2	146 109		
17	CAPACITIES	Support for the coherent development of research policies	4	632 046						
18	CAPACITIES	Activities of International Cooperation	25	4 667 871	2	0			2	219 727
20	PEOPLE	Marie-Curie Actions	1	138 996						
21	IDEA	European Research Council	4	341 213						
22	EURATOM	Fusion Energy								
23	EURATOM	Nuclear Fission and Radiation Protection	17	2 845 982	1	22 791			3	519 780
			1 315	420 391 766	46	7 833 340	26	5 061 777	73	23 955 526

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	568	5,4%
Baden-Württemberg	287	2,7%
Bayern	270	2,5%
Nordrhein-Westfalen	267	2,5%
London	243	2,3%
South East (England)	243	2,3%
Comunidad de Madrid	243	2,3%
Lazio	228	2,2%
Lombardia	218	2,1%
Vlaams gewest	206	1,9%
Etelä-Suomi	191	1,8%
Zuid-Holland	176	1,7%
Attiki	173	1,6%
East of England	171	1,6%
Stockholm	167	1,6%

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

Table 36 Partner organisations

Partner organisations	nb participations	% of total
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	110	1,0%
COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	76	0,7%
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	70	0,7%
CONSIGLIO NAZIONALE DELLE RICERCHE	69	0,7%
MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	65	0,6%
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	54	0,5%
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	44	0,4%
Eidgenössische Technische Hochschule Zürich	44	0,4%
KATHOLIEKE UNIVERSITEIT LEUVEN	43	0,4%
INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	43	0,4%
DANMARKS TEKNISKE UNIVERSITET	42	0,4%
STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	39	0,4%
TEKNOLOGIAN TUTKIMUSKESKUS VTT	38	0,4%
LUNDS UNIVERSITET	37	0,3%
KUNGLIGA TEKNISKA HOEGSKOLAN	35	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
CONSIGLIO NAZIONALE DELLE RICERCHE	15
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V	13
MFKK FELTALALOI ES KUTATO KOZPONT SZOLGALTATO KFT * MFKK INVENTION AND RESEARCH CENTER SERVICES COMPANY LIMITED	10
RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN	7
TEKNOLOGIAN TUTKIMUSKESKUS VTT	7
STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	7
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	7
INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	7
MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	7
STICHTING KATHOLIEKE UNIVERSITEIT	6
INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	5
THE UNIVERSITY OF BIRMINGHAM	5
THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS	5
EUROPEAN MOLECULAR BIOLOGY LABORATORY	5
UNIVERSITA DEGLI STUDI DI GENOVA	5
UNIVERSITY COLLEGE LONDON	5

Annex 3 – CIP ICT participation scoreboard

I. ES51 in CIP ICT PSP	ES51	ES	CIP ICT	% of ES51 in ES	% of ES in CIP ICT
Nbr of participations in projects	70	246	2141	28,5%	11,5%
Nbr of coordinations	6	25	128	24,0%	19,5%
EC contribution	10 299 766	35 677 799	304 167 499	28,9%	11,7%

II. Participant Typology/organisation type	ES51				ES				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	15	3	3376084	32,8%	40	5	6 760 482	18,9%	345	14	48 931 144	16,1%
OTH	7		1148349	11,1%	18	1	2 855 015	8,0%	230	14	33 768 401	11,1%
PRC	25	2	3488849	33,9%	97	15	16 413 774	46,0%	835	78	116 503 789	38,3%
PUB	14		935525	9,1%	50	1	5 807 554	16,3%	425	26	67 392 659	22,2%
REC	9	1	1350959	13,1%	41	3	3 840 974	10,8%	306	22	37 571 506	12,4%
Total	70	6	10299766	100%	246	25	35677799	100%	2141	154	304167499	100%

III. Participant Typology/Public-Private organisations	ES51			ES			CIP ICT PSP		
	Nbr of participations in projects	EC contribution	%	Nbr of participations in projects	EC contributio n	%	Nbr of participations in projects	EC contribution	%
Private commercial (PRC)	25	3 488 849	33,9%	97	16 413 774	46,0%	842	117 814 939	38,7%
Private non Profit (PNP)	17	2 689 613	26,1%	55	6 600 228	18,5%	442	56 873 668	18,7%
Total Private organisations	42	6178462	60,0%	152	23 014 002	64,5%	1 284	174 688 607	57,4%
Public Commercial (PUC)	3	198 297	1,9%	10	776 727	2,2%	120	15 166 682	5,0%
Governmental (GOV)	25	3 923 007	38,1%	84	11 887 070	33,3%	737	114 312 210	37,6%
Total Public organisations	28	4121304	40,0%	94	12 663 797	35,5%	857	129 478 892	42,6%
Total	70	10299766	100,0%	246	35 677 799	100,0 %	2 141	304 167 499	100,0%

IV SME/ legal type									
	ES51			ES			CIP ICT PSP		
Private commercial (PRC)	9	988 087	87,6%	26	3 475 543	68,3%	344	49 185 099	76,9%
Private non Profit (PNP)	1	140 460	12,4%	12	1 612 259	31,7%	59	14 769 538	23,1%
Total	10	1 128 547	100,0%	38	5 087 802	100,0%	403	63 954 637	100,0%

Annex 4 – CIP IEE participation scoreboard

I. ES51 in CIP IEE	ES51	ES	CIP IEE	% of ES51 in ES	% of ES in CIP IEE
Nbr of participations in projects	35	152	2443	23,0%	6,2%
Nbr of coordinations	6	12	235	50,0%	5,1%
EC contribution	3 555 201	15 159 024	241 453 630	23,5%	6,3%

Annex 5 – ERDF participation scoreboard

I general information		
	ERDF allocated	**ERDF comitted**
Total in euros :	1 398 231 845	111 646 453
Innovation and research axis only (n°1) :	1 225 238 979	92 455 236
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 :	84 009 526	23 973 159
	2	R&TD infrastructure and centres of competence in a specific technology :	320 911 618	104 457 500
	5	Advanced support services for firms and groups of firms	35 800 000	17 784 478
	7	Investment in firms directly linked to research and	39 578 668	14 641 172

		innovation (...) :		
	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 (…) :	86 431 616	23 409 143
	4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres) :	0	0
	6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...) :	0	0
	9	Other measures to stimulate research and innovation and entrepreneurship in SMEs :	6 361 240	4 105 950
	14	Services and applications for SMEs (e-commerce, education and training, networking, etc.) :	0	0
	15	Other measures for improving access to and efficient use of ICT by SMEs :	0	0
ICT and related services	11	Information and communication technologies (...) :	42 937 894	19 218 947
	12	Information and communication technologies (TEN-ICT) :	0	0
	13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.) :	59 847 114	30 737 897
Other	8	Other investment in firms :	89 448 658	30 474 123

IV Impact and output (innovation and research only) :				
Unit	Type of indicators		Amount foreseen	Amount realised
	Output	OP10 - Actuaciones desarrolladas en zonas Red Natura 2000	3,00	10,00
	Output	OP108 - Número de proyectos de carácter medioambiental	184,00	3,00
	Output	OP127 - Empleo asociado. Nº de personas participantes en los proyectos	3126,00	0,00
	Output	OP128 - Empleo asociado. Nº de mujeres participantes en los proyectos	1375,00	0,00
	Output	OP13 - Actuaciones de control y gestión desarrolladas	136,00	45,00
	Output	OP140 - Superficie recuperada y/o defendida	59.23	58.43
	Output	OP15 - Actuaciones de evaluación y de estudios desarrolladas	127	20
	Output	OP17 - Actuaciones de promoción y fomento de uso del transporte público	1	0
	Output	OP171 - Nº de proyectos [Tema prioritario 06]	0	0
	Output	OP172 - Nº de proyectos [Tema prioritario 09]	21	8

	Output	OP177 - Nº de proyectos [Tema prioritario 43]	481	0
	Output	OP180 - Nº de proyectos [Tema prioritario 58]	98	5
	Output	OP39 - Infraestructuras multimodales creadas	2	1
	Output	OP60 - Nº centros de I+D+i beneficiados	129	11
	Output	OP68 - Nº Empresas beneficiadas	7000	157
	Output	OP7 - Nº de proyectos de regeneración urbana y rural	302	4
	Output	OP70 - Número de agrupaciones de entidades o estructuras de cooperación creadas	1	0
	Output	OP85 - Superficie afectada	590,31	6.35
	Impact	ST1 - Gasto I+D / PIB	3	0
	Impact	ST11 - Mujeres que han utilizado internet en los últimos 3 meses/ Población total	62	0
	Impact	ST12 - Gasto I+D del sector empresas e IPSFL / Gastos I+D	78,64	0
	Impact	ST20 - Empresas Exportadoras /Total empresas	5,9	0
	Impact	ST22 - Gastos corrientes de las empresas destinados a la protección ambiental / nº empresas	1149,9	0
	Impact	ST35 - Superficie media quemada por incendios forestales / Superficie Total	0,01	0
	Impact	ST42 - Km de líneas férreas/1000 Km2	66,7	0
	Impact	ST44 - Potencia en energías renovables (sin incluir hidráulica) / potencia instalada	14,9	0
	Impact	ST47 - Viajeros de transporte regular urbano	681560	0
	Impact	ST50 - Plazas hoteleras / 1000 habitantes	30,3	0
	Impact	ST51 - Densidad del hecho urbano (número de habitantes en municipios de más de 10.000 habitantes respecto a la superficie)	210,9	0
	Core	10 - Investment induced (million €)	490170000	76001359,7
	Core	11 - Number of information society projects	14	2
	Core	12 - Number of additional population covered by broadband access	19193	466
	Core	13 - Number of transport projects	1	0
	Core	23 - Number of renewable energy projects	627	0
	Core	29 - Area rehabilitated (km2)	6,17	0
	Core	31 - Number of risk prevention projects	96	12
	Core	34 - Number of tourism projects	89	42
	Core	39 - Number of projects ensuring sustainability and improving the attractiveness of towns and cities	10	0
	Core	4 - Number of RTD projects	1485	88
	Core	40 - Number of projects seeking to promote businesses, entrepreneurship, new technology	18	0
	Core	41 - Number of projects offering services to promote equal opportunities and social inclusion for minorities and young people	34	0
	Core	5 - Number of cooperation project enterprises-research institutions	145	0
	Core	7 - Number of direct investment aid projects to SME	9204	73
	Core	8 - Number of start-ups supported	700	49

	Core	9 - Jobs created (gross, full time equivalent)	399	0

Annex 6 – Cross thematic table

FP 7 - COOPERATION Theme	EC contribution		COUNTRY	EU	EMPLOYMENT sector	% reg. Emp	spec. EU	spec country	PATENT DOMAIN	n	lib_fields	n° patents	field weight*	country weight**	spec. ***
HEALTH	51.448.144	21%	2,53	1,30	Pharma	2,3%	2,30	2,92	CHEM	16	Pharma	175,87	19,39%	24,42%	7,40
					Med. devices	0,4%	0,53	1,40	Instr.	13	Med. Tech	50,16	5,53%	4,22%	1,28
FOOD	12.698.579	5%	1,52	1,00	Biotech	0,1%	0,60	0,83	CHEM	15	Biotech	12,17	1,34%	4,95%	1,50
					Processed food	6,3%	0,98	1,24	CHEM	18	Food chem.	22,97	2,53%	4,89%	1,48
					FARMING	2,0%	0,87	0,45							
					Agri PRODUCTS	2,3%	1,34	0,71							
ICT	99.506.751	40%	1,78	1,40	IT	2,0%	0,84	1,46	Elet.Eng	6	Computer tech.	38,54	4,25%	9,75%	2,96
									Elet.Eng	7	IT	1,70	0,19%	3,26%	0,99
					Telecom	2,8%	0,93	0,83	Elet.Eng	3	Telecomm.	28,70	3,16%	6,73%	2,04
									Elet.Eng	4	Digital com.	9,83	1,08%	5,50%	1,67
									Elet.Eng	5	Basic com.	13,37	1,47%	19,79%	6,00
NANO	27.248.306	11%	1,28	1,18	Metal man.	4,5%	0,84	1,26	CHEM	20	Materials .	12,76	1,41%	5,02%	1,52
					Plastics	2,0%	1,56	1,95							
					Construction M.	15,7%	1,49	0,76							
					Lighting & e.e	0,6%	0,91	1,51	Elet.Eng	1	Elec. machinery	29,57	3,26%	2,51%	0,76
									Elet.Eng	2	Audio-visual	9,98	1,10%	1,74%	0,53
									Elet.Eng	8	Semiconductors	4,19	0,46%	5,22%	1,58
					Chemical PR.	0,5%	0,84	0,47	CHEM	17	Macromolecular	23,73	2,62%	27,22%	8,25

									CHEM	14	Organic chem.	73,12	8,06%	25,70%	7,79
									CHEM	19	Basic materials	38,03	4,19%	13,53%	4,10
									CHEM	21	Surface tech.	12,43	1,37%	5,82%	1,76
									CHEM	22	nano-technology	2,08	0,23%	17,08%	5,18
									CHEM	23	Chemical eng.	24,83	2,74%	4,78%	1,45
ENERGY	6.908.787	3%	0,48	0,54	Oil and gas	0,0%		0,34							
					Power g & t	0,4%	0,93	1,33							
Environment	21.359.880	9%	2,30	1,40					CHEM	24	Envir. Tech.	10,34	1,14%	1,82%	0,55
Transport	12.340.039	5%	1,03	0,57	Transp &logistics	7,7%	1,02	1,15	Mech.Eng	32	Transport	31,91	3,52%	1,60%	0,48
					Automotive	3,8%	1,15	1,48							
					Distribution	3,1%	0,96	0,77							
SOCIO	7.087.107	3%	3,72	1,70	Financial services	7,8%	0,93	1,08							
					EDU	4,2%	1,02	1,03							
					Business services	5,1%	0,55	0,99							
Security	6.197.291	2%	0,87	0,80											
Space	5.085.285	2%	1,45	0,84	Aerospace	0,0%	0,08	0,16							
					FIXTURES	2,9%	0,95	0,98							
					Construction	1,6%	1,44	2,02	Other	35	Civil eng.	37,25	4,11%	0,94%	0,28
					Prod. TECH	1,4%	0,56	1,23							
					Entertainment	1,8%	1,07	1,02							
					Heavy Machinery	1,1%	0,95	1,46	Mech.Eng	25	Handling	44,50	4,91%	1,84%	0,56
									Mech.Eng	26	Machine	8,89	0,98%	1,32%	0,40
									Mech.Eng	27	Engines, ..	11,65	1,28%	2,39%	0,73
									Mech.Eng	29	Other machines	25,92	2,86%	1,47%	0,44
									Mech.Eng	31	Mech. elements	20,97	2,31%	2,27%	0,69

Maritime	0,8%	1,09	0,49	Mech.Eng	30	Thermal	16,25	1,79%	2,04%	0,62
Instruments	0,3%	0,54	1,78	Instr.	9	Optics	5,58	0,62%	3,40%	1,03
				Instr.	10	Measurement	15,60	1,72%	2,70%	0,82
				Instr.	11	bio. Analysis	5,08	0,56%	4,69%	1,42
				Instr.	12	Control	15,22	1,68%	2,47%	0,75
Sporting, recreational and children's goods	0,4%	1,29	2,50							
Textiles	1,8%	1,20	2,20	Mech.Eng	28	Textile	33,88	3,74%	9,41%	2,85
Media and publishing	4,2%	1,41	1,51							
Tourism and hospitality	4,8%	1,08	0,75							
Paper products	2,4%	1,17	1,44							
Furniture	0,7%	0,50	0,56	Other	33	Furniture	22,17	2,44%	0,74%	0,23
Apparel	2,0%	0,90	1,66							
Jewellery and precious metals	0,1%	0,62	1,03							
Tobacco	0,2%	0,79	0,38							
Leather products	0,1%	0,70	1,69							
Footwear	0,0%		0,04							
Stone quarries	0,1%	0,70	0,56							
				Other	34	Other	17,73	1,95%	0,95%	0,29

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