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

Targeted Analysis 2013/2/18

Regional report - BRITTANY

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.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

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This basic report exists only in an electronic version.

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Regional report - BRITTANY

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Synthesis of the territorial and R&D system

Brittany´s regional GDP per capita is below the French but above the European average. In the early 1960s, Brittany was one of the poorest regions of the country and among the most rural ones. Although the situation improved in the following decades thanks to the efforts of the government aimed at industrialisation and modernisation, the region still belongs to some extent to the structurally weaker French regions. Brittany is one of the major agricultural regions, agrofood is the most important industrial sector, and the services sector has been growing strongly in the recent years.

There are some intra-regional disparities in Brittany as indicated through the coefficient of variation of several indicators stated in Tab. 10. Although Brittany is generally attractive in terms of population migrations, this is particularly true of the département of Ille-et-Vilaine where the regional capital and major city Rennes (demographic growth: +1.2% p.a. against a regional average of +0.9%) is located. Ille-et-Vilaine's population is also the largest and the less aged (population over 60: 20.2% against a regional average of 24.4%) of all Brittany departments. The recent upsurge in unemployment has been less important in Ille-et-Vilaine. In 2007, 71.5% of the regional population were living in predominantly urban areas. Brittany is characterised by a network of mid-sized cities, most of them located on the seaside, with the exception of the regional capital, Rennes. The capital benefits from a strong demographic dynamism and higher average wages and salaries, whereas the highly rural area of central Brittany is experiencing a population exodus with the associated socio-economic effects (e.g.: reduction of the basic services to the population, lower income and wages). The economic development of the recent decades has particularly favoured the south-eastern part of Brittany, especially the urban areas of Rennes and Vannes, where industrial and service activities are concentrated. The north-western part (from Lannion to Brest) is lagging behind the regional average economic growth, well-known tourist sites like Auray (south-east) and Saint-Malo (north-east) have grown significantly, while the south-west part has an intermediate position (cf. Insee 2011; Por 2004e).

1- Intra-regional socio-economic Disparities in Brittany (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 2000-09 (in %)
11.51	5.42	6.86	37.27

Remark: disparity calculations based on NUTS-3 level data

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

Despite its economic weaknesses, it is important to stress that the region benefits from a highly skilled labour force, a well-developed training policy as well as strong public research resources. As a result, employment in high-tech industries and knowledge-intensive services is significant in some innovative fields. Nonetheless, regarding RTDI aspects in comparison to the national and European level the region generally achieves rather below average values.

The four current main R&D fields in Brittany are ICT, marine-related sciences and tech-nologies, agriculture and the food industry, and healthcare-related sciences and technologies. R&D activities in the health and environmental fields have grown significantly in the recent years. Furthermore, chemistry and human and

social sciences are considered as research fields with great potential. In 2008, Brittany was ranking 3rd among the French regions with respect to scientific production in electronics, ICT, agro-food, and marine biology/ecology as well as the applications for patents in electronics and electricity. The RTDI sector in Brittany is business-oriented, although public actors also play an important role within the research and innovation system. However, RTDI activities in Brittany are characterised by some lack of diversity, with business research and innovation efforts mainly concentrating on ICT and electronics and, simultaneously, showing a limited participation of the service sector.

Brittany´s innovativeness in relation to the other French regions, measured by the number of patents applied at the EPO, ranks in the fourth place. In European terms the region achieves slightly above average values. In 2007, the employment in R&D (FTE) was 3.9% of the over-all French R&D personnel. The R&D personnel (FTE) per 1,000 employees amount to 12.0. This figure is well below the French (14.6) but above the EU-27 (11.0) average. Regarding the business orientation of both the R&D expenditures and the R&D personnel (FTE) (63.6%, 58.5%), the region has higher values than both France (63.0%, 57.0%) and the EU-27 (63.7%, 52.1%) (cf. EUROSTAT 2011).

In 2007, Brittany´s per capita spending on R&D ranks in the midfield compared to the other French regions. The region´s R&D intensity accounts for 1.65%, thus being below the national (2.07%) and the EU-27 average (1.85%). The region´s R&D productivity amounts to 0.35, thus being well above-average compared to the French standard (0.23) and the EU-27 average (0.27) (cf. EUROSTAT 2011).

Impact evaluation

Main findings

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

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

Overall, the Brittany region is less 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. Ile-et-Vilaine and Finistère territories account for the large majority of the funds and projects. The participants are mostly by Research organizations (51%), followed by Higher Education Institutions (29%), and private for profit (17%). The regional actors are particularly attractive in the themes “Food, Agriculture and Biotechnology” and “Environment”, when compared to the national average attractiveness in the same fields, whereas it is less attractive in the rest of the sectors. Most partners are located in Germany (13%), United Kingdom (12%) and France (12%). The most important organizations in the regional FP7 network are the University of Rennes, Sopab Brest SA and University of Western Brittany.

The region is mostly specialized in medium tech sectors, which sum up 66% of the employed, and which have grown by 11.5 thousands units in the considered period (+7%). Although the Region is less specialized in High tech sectors than France, employed have grown considerably, by almost 6 thousands units (22%), mostly in “Financial services” (+3’141), “Education and knowledge creation” (+1’793) and “Aerospace” (+848).

The patenting activity is remarkable in Electrical Engineering, due to the presence of a few intensively patenting organizations: Mitzubishi, France Telecom and Thompson, while it is rather modest in the other fields.

In sum, only in few sectors the region appear to be particularly strong in terms of research potential; in terms of employment, the most relevant high tech sectors are indeed knowledge intensive, but R&D plays a minor role. Nevertheless, one field emerge to be very important and promising both in terms of research activity and employment relevance. In fact, the Region is highly attractive of funds in “Food, Agriculture and Biotechnology”, and is strongly specialized in “Processed food”, which sum up 20% of the regional employees and grew by 1’855 units, and “Farming and animal husbandry” (3,1% and + 4’272), showing an important potential of collaborations.

General statement of the regional participation in the FP7

Headquarter effect

The headquarter effect analysis revealed 101 ingoing participations in the region, and no outgoing participations. No headquarter effect was identified for 57% of regional participations. Most of the ingoing participations were subtracted from Ile de France (54 participations).

The majority of ingoing participations (87%) came from Research Organisations, while 10 came from Higher of secondary educations establishments. All other types of actors are generally not affected.

Rate of participation of the region in the FP 7

Regional actors in Brittany accounted for a total of 237 participations in FP7, 43 coordination and 71mln€ in EC funding (3.2%, 3% and 2.7% respectively of the national total). The weight of the region in total national FP7 funding (2.7%) is slightly lower than its weight in the gross domestic expenditure on R&D (3%). During the 2007 – 2011 period, Brittany received a yearly average of 14€mln year in FP7 funding, representing approximately 1% of the region's yearly average R&D effort (1.4bn€ in R&D).

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

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

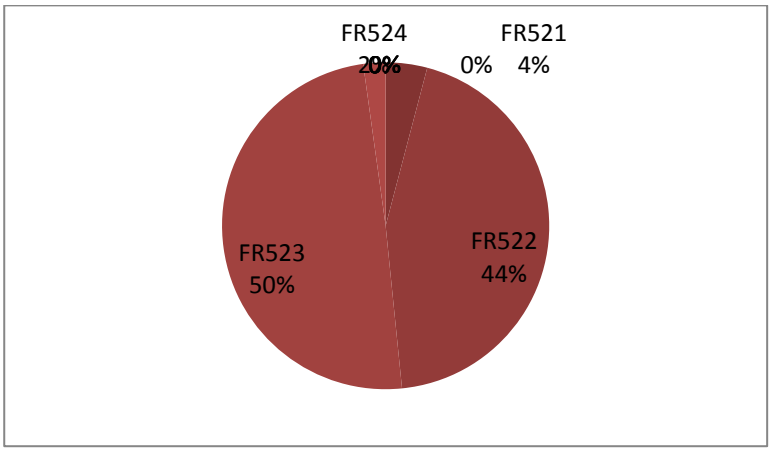
	BRITTANY	France	EUROPE
leadership rate	18%	21%	19%
collaborations per 100.000 population	7.4	14.4	13.9
coordination per 100.000 population	1.3	3.0	2.6
€ contribution per inhabitant	22.3	40.8	44.4
average funding per project	301202	390228	318255

Distribution of funding at infra-regional level

The large majority of regional participations and coordination are located in Ile-et-Vilaine (46%) and Finistère (42% and 51%). As seen in the following table, the infra-regional distribution of FP7 funding is equal to that of participations and coordination. The majority of funding is split between Finistère (44%) and Ile-et-Villaine (50%). Together, both territories account for 94% of the total FP7 funding in Brittany.

[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.

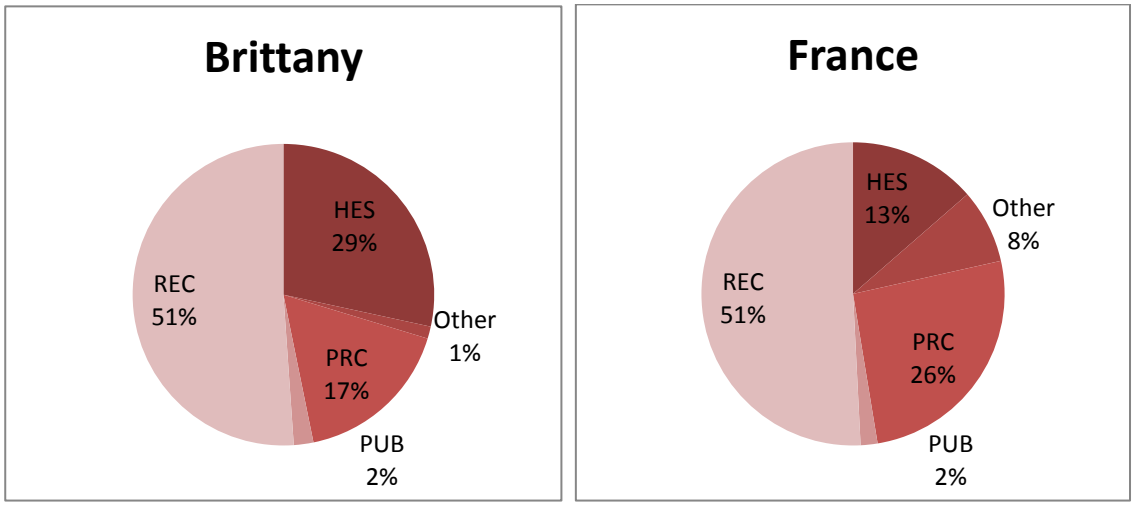
Figure 1: EC contribution distribution within the region



Distribution of funding by participant type

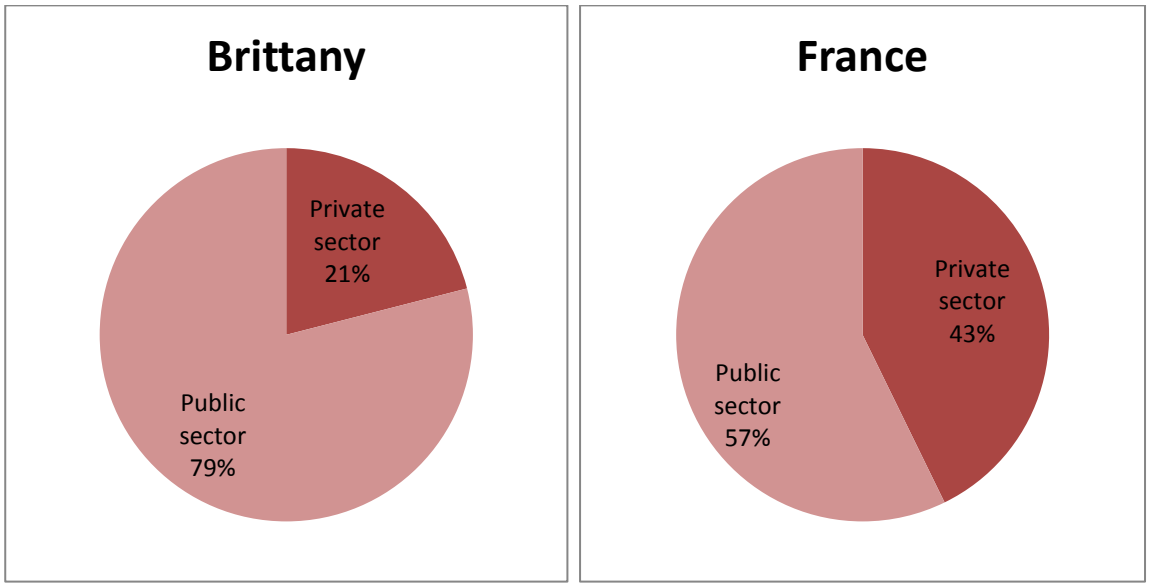
The structure of participation varies to some extent between the regional and national level as illustrated by the following figures. While the share of Research organisations similar at the regional and national level, Brittany has a considerably higher share of Higher of secondary educations establishments that participate in FP7 projects (29% vs. 13% at the national level). However, Brittany has a deficit in the number of Private commercial organisations when compared to the rest of France.

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 considerably lower than from public organisations (32% vs. 68%). This gap is wider when taking into account the funding received by both types of players (18% vs. 82%). At the national level, the distribution of participations between public and private organisations stands at 46% and 54% respectively. The following figures present the distribution of FP7 funding among both types of organisations.

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

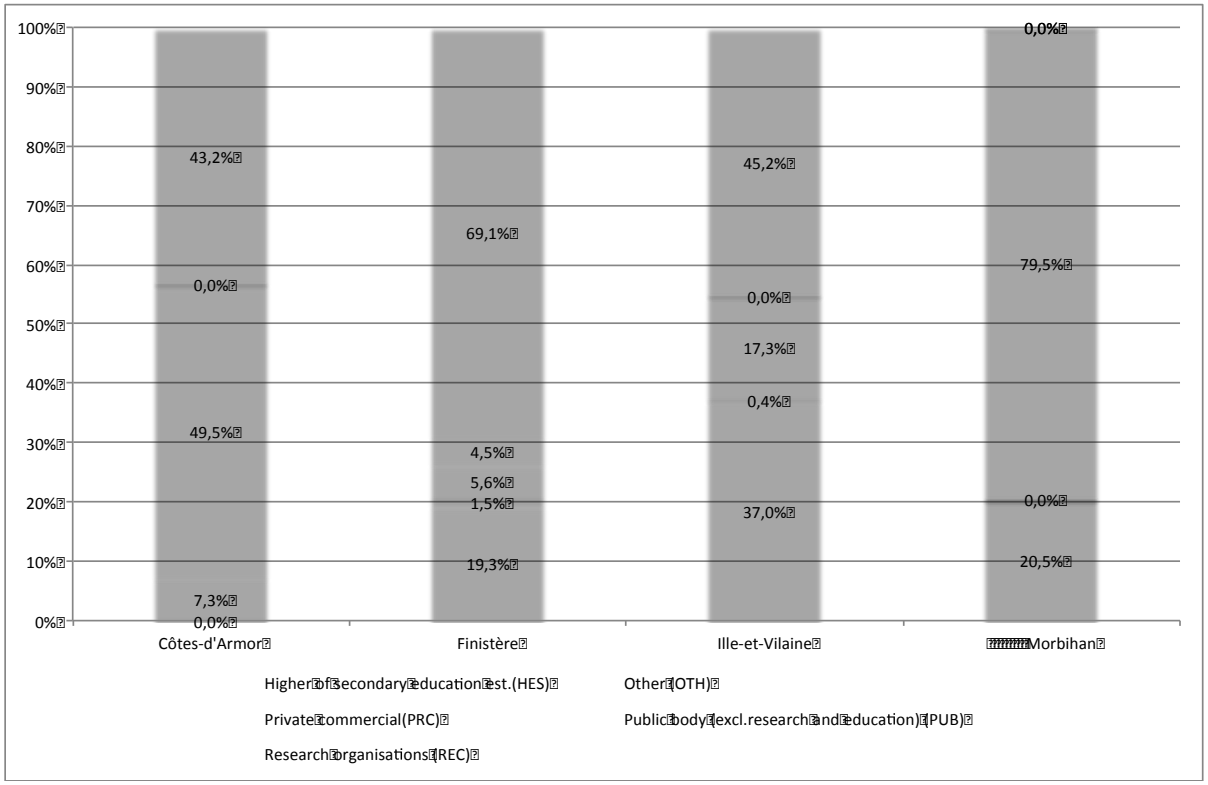


In terms of FP7 funding, Research Organisations tend to outperform other types of participants. At the regional level, this group accounted for 41% of participations, while receiving 56% of the total FP7 regional funding. Private commercial organisations on the other hand account for 23% of participations, while only benefiting from 14% 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 considerably. Funding in Côtes d'Armor is evenly split between Research and Private Commercial organisations (43% and 49% respectively). Finistère has a higher share of funding allocated to Research organisations (69%); while Ile-et-Vilaine has a stronger share of funding for Higher of secondary educations establishments than the regional average (37% vs. 10%).

Figure 3 Distribution of funding by type of participant at the infra-regional level

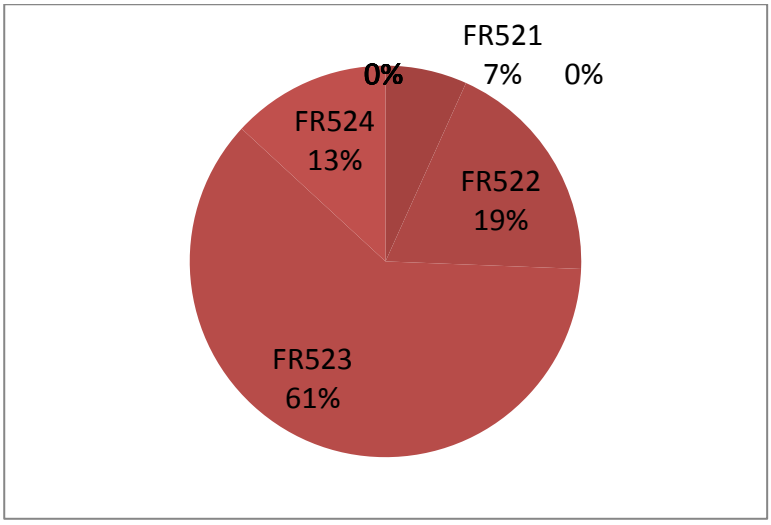


SMES' participation in FP7

During the 2007-2011 period, SMEs in Brittany accounted for 39 participations in FP7 projects and 8mln€ in funding (4% of the national total). This is slightly below the regional share of overall participations in France (3.5 - see above). Private commercial SME participations represent 87% of regional SME participations, while public SMEs account for the remaining 13%. This gap is slightly higher at the national level (94% vs 6%).

The following figure presents the infra-regional distribution of SME funding in FP7. SMEs in Ile-et-Vailaine account for 61% of the total SME funding in the region, followed by Finistère (19%) and Morbihan (13%).

Figure 4: EC contribution for SMEs within the region



Distribution of funding by programme and by theme

COOPERATION programs represent the largest share of funding (37mil) and projects (139), followed by PEOPLE - Marie Curie actions (14,9 mil, 51 projects), CAPACITIES (14,3 mil and 44 projects) and IDEAS (4,7 mil, 3 projects). In terms of specialization, the themes attracting more funding within the COOPERATION program are *Information and communication technologies* (35%), *Food* (23%) and *Environment* (16%).

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]: Brittany is more attractive in "Food, Agriculture and Biotechnology" and "Environment", and less attractive in the other areas.

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

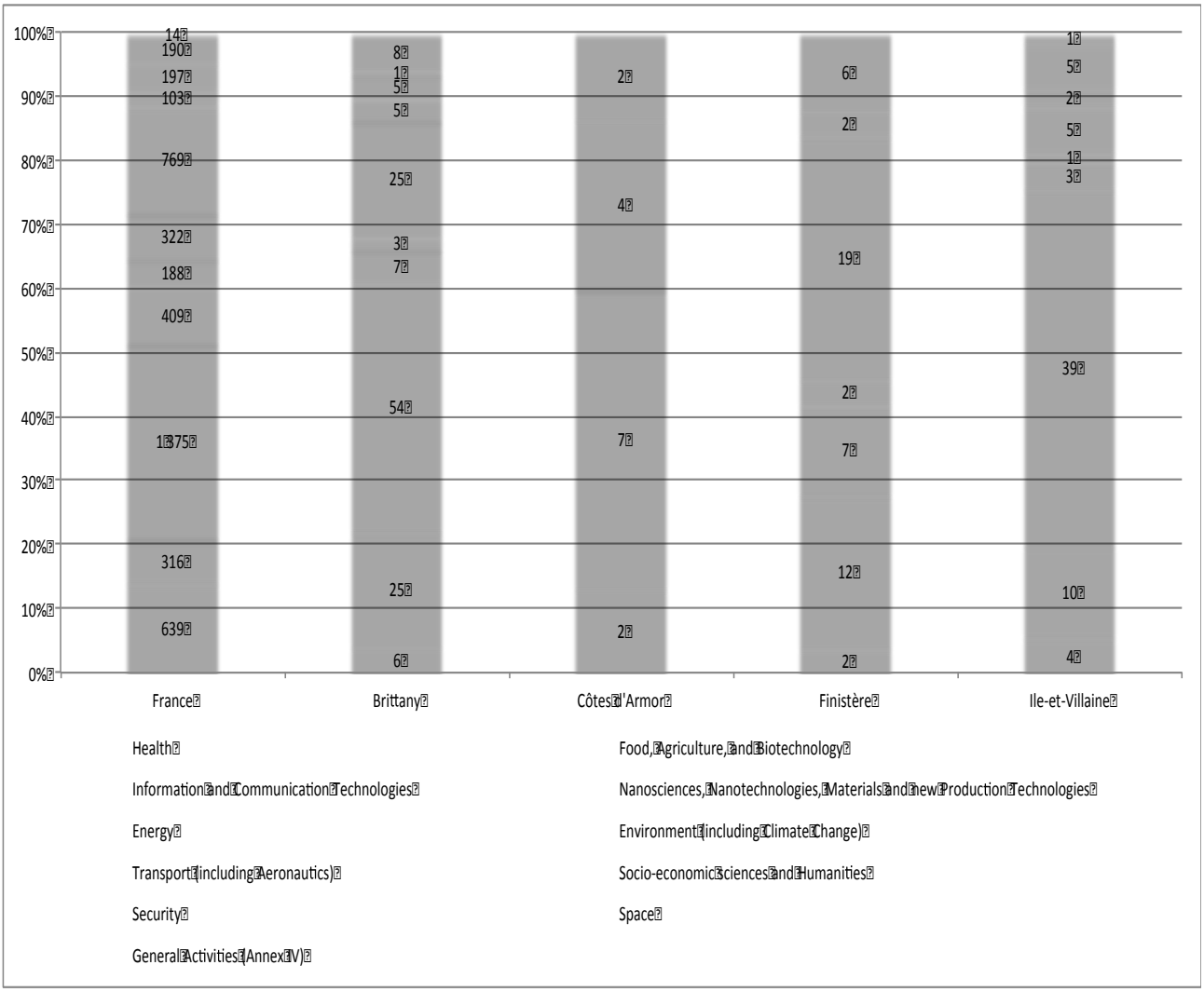
Table 2 – Thematic distribution of projects and funding

				REGION		Attractiveness compared (contribution)	
num	PROG SPEC	Theme	nbr	EC contribution		COUNTRY	EU
1	COOPERATION	Health	6	1'447'846	4%	0.07	0.06
2	COOPERATION	Food, Agriculture, and Biotechnology	25	8'759'635	23%	1.52	1.20
3	COOPERATION	Information and Communication Technologies	54	13'191'101	35%	0.41	0.32
4	COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	7	2'128'777	6%	0.24	0.16
5	COOPERATION	Energy	3	685'717	2%	0.16	0.09
6	COOPERATION	Environment (including Climate Change)	25	6'029'632	16%	1.15	0.69
7	COOPERATION	Transport (including Aeronautics)	5	1'264'597	3%	0.08	0.10
8	COOPERATION	Socio-economic sciences and Humanities	5	494'315	1%	0.40	0.21
9	COOPERATION	Security	1	103'937	0%	0.02	0.02
10	COOPERATION	Space	8	3'290'690	9%	0.42	0.94
11	COOPERATION	General Activities (Annex IV)			0%	0.00	0.00
	COOPERATION	TOTAL	139	37'396'246		0.32	0.30
12	IDEAS	European Research Council	3	4'747'582			
13	PEOPLE	Marie-Curie Actions	51	14'928'475			
14	CAPACITIES	Research Infrastructures	22	12'059'702	84%	1.18	1.20
15	CAPACITIES	Research for the benefit of SMEs	12	1'535'442	11%	0.61	0.30
16	CAPACITIES	Regions of Knowledge	3	357'960	3%	1.06	0.76
17	CAPACITIES	Research Potential			0%	0.00	0.00
18	CAPACITIES	Science in Society	7	359'375	3%	0.65	0.29
19	CAPACITIES	Coherent development of research policies			0%	0.00	0.00
20	CAPACITIES	Activities of International Cooperation			0%	0.00	0.00
	CAPACITIES	TOTAL	44	14'312'479		0.97	0.74
21	Euratom	Fusion Energy					
22	Euratom	Nuclear Fission and Radiation Protection					
			420	***123'093'508***			

The following figure presents the distribution of participations at the infra-regional level, by FP7 theme (only for COOPERATION). Finistère has a high number of participations in the environment sub-theme; while Ile-et-Vilaine concentrates a high number of participations in Information and Communication Technologies, compared to the regional average.

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

2- Figure 5: Infra-regional distribution of participations by COOPERATION sub-theme (top three 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 (13%), United Kingdom and France (both 12%). If regions are considered, the most important is the Ile de France (6%) (Table 3).

Table 3 – Spatial distribution of collaborations

Partner countries	N	% of total
DE	262	13%
UK	240	12%
FR	235	12%
IT	158	8%
ES	150	8%
NL	111	6%

Partner Regions	N	% of total
Ile de France	108	6%
SOUTH EAST (ENGLAND)	49	2%
Lazio	48	2%
Cataluña	48	2%
SOUTH WEST (ENGLAND)	42	2%
NORDRHEIN-WESTFALEN	41	2%

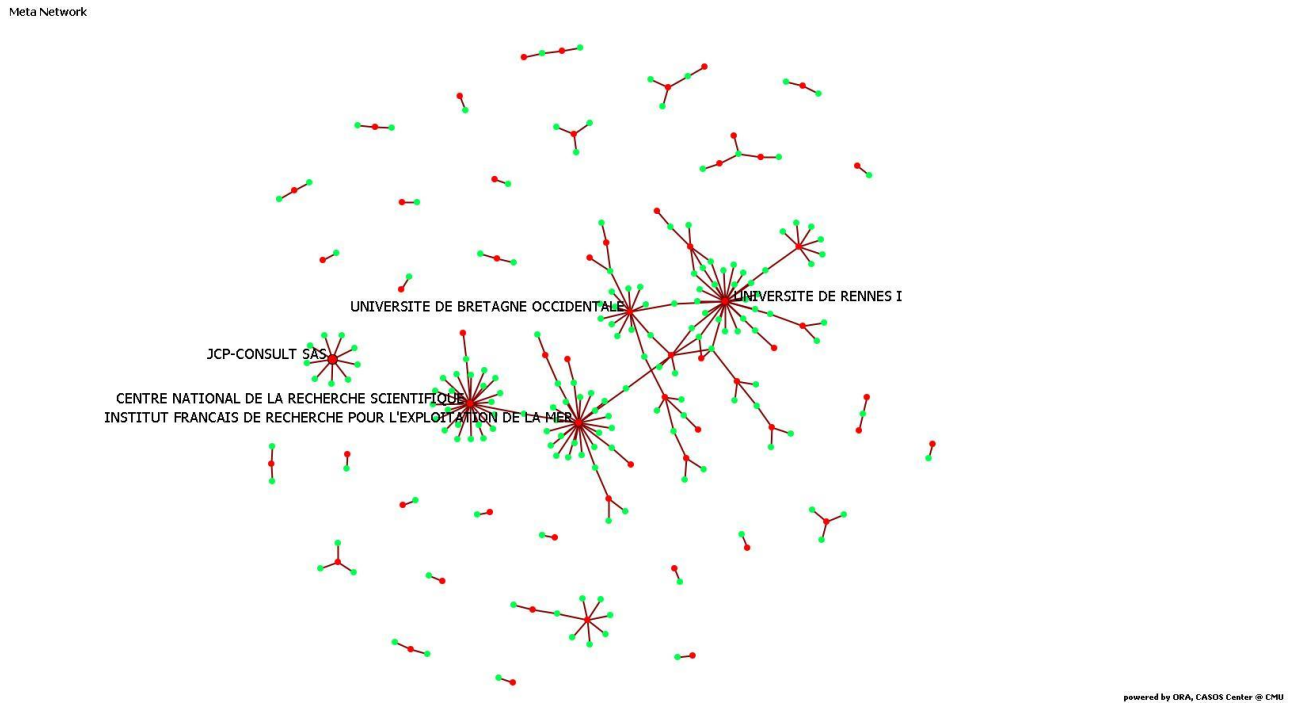
NO	76	4%
SE	66	3%
DK	62	3%
EL	61	3%

SCOTLAND	41	2%
Hovedstaden	38	2%
BAYERN	37	2%
Zuid-Holland	36	2%

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 basic characteristics of the network are shown in Table . The network appears rather dispersed, which is in part comprehensible because we only consider collaboration in one type of project, and centred around e few central actors directly or indirectly connected with each other: University of Rennes, University of western Brittany, CNRS, INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER.

Figure 7–FP 7 network and its main features



Measure	Value
number of nodes (organizations)	60
number of egdes (cooperations)	94
Density	0.051
Components of 1 node (isolates)	26
Components of 2 nodes (dyadic isolates)	4
Components of 3 or more nodes	2
Characteristic path length	3.592
Clustering coefficient	0.504
Network levels (diameter)	9
Network fragmentation	0.853
Krackhardt connectedness	0.147
Krackhardt efficiency	0.716

Main regional actors involved in FP7 networks

The next chart shows which organizations are repeatedly top-ranked in a series of centrality measures[3]. 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.

Figure 8 –More central organizations in the regional FP7 network

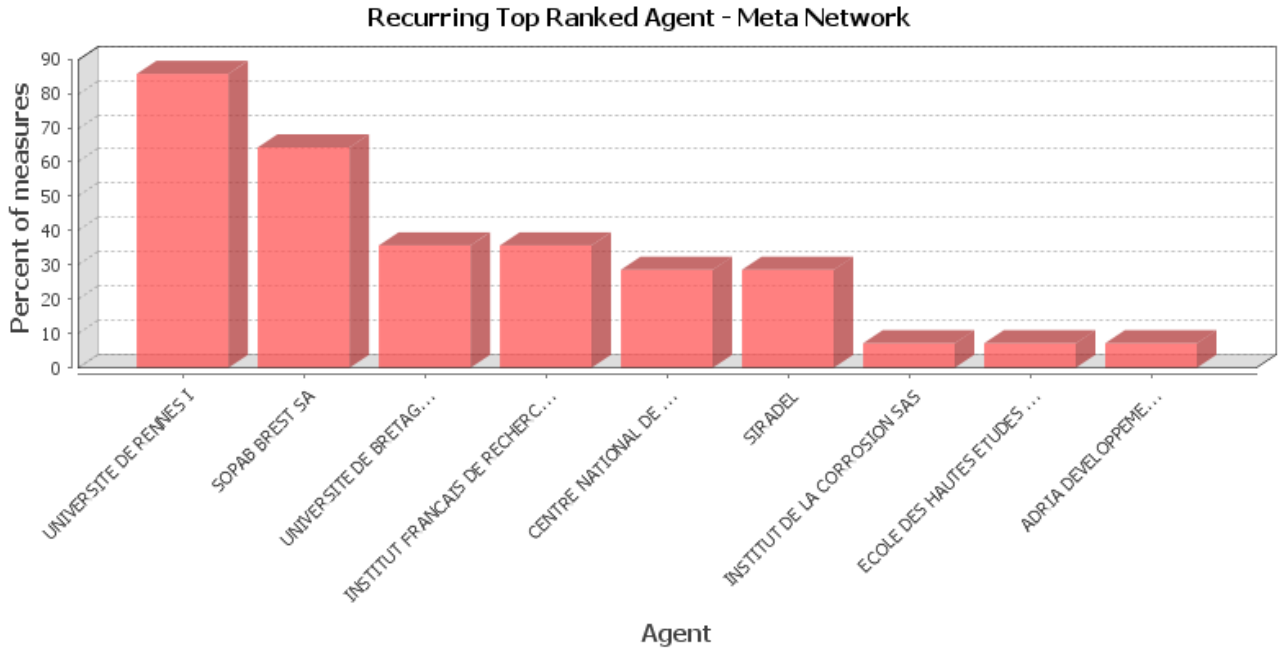


Table 4 – Centrality measures: top actors in the FP 7

Rank	HUB centrality		Betweenness centrality		Total degree centrality	
1	UNIVERSITE DE RENNES I	1.36	UNIVERSITE DE BRITTANY OCCIDENTALE	115	UNIVERSITE DE RENNES I	39
2	SOPAB BREST SA	0.23	SOPAB BREST SA	114	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	30
3	SIRADEL	0.18	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	110	CNRS	25
4	Espace des Sciences	0.13	UNIVERSITE DE RENNES I	103	UNIVERSITE DE BRITTANY OCCIDENTALE	19
5	UNIVERSITE DE BRITTANY OCCIDENTALE	0.12	UNIVERSITE RENNES 2-HAUTE BRITTANY	55	SOPAB BREST SA	15
6	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	0.08	INSTITUT SUPERIEUR DES SCIENCES AGRONOMIQUES, AGROALIMENTAIRES, HORTICOLES ET DU PAYSAGE	41	JCP-CONSULT SAS	9
7	UNIVERSITE RENNES 2-HAUTE BRITTANY	0.07	CNRS	21	SIRADEL	9
8	INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	0.07	SIRADEL	21	INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	8

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

9	AUTOCRUISE S.A.S.	0.06			INSTITUT SUPERIEUR DES SCIENCES AGRONOMIQUES, AGROALIMENTAIRES, HORTICOLES ET DU PAYSAGE	8
10	ManRos Therapeutics	0.05			INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	8

Main actors in the region in terms of leading collaboration

The three main actors in terms of leading collaboration are the CNRS, the INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER and the UNIVERSITE DE BRITTANY OCCIDENTALE. None of these have lead a project in which another regional actor is involved. Similarly, the three main actors in the role of partners are never led by a regional organization. Of course, it must be taken into consideration that FP7 program has an orientation to international collaboration; even though such data confirm the low level of regional collaboration in the FP7 compared to the overall involvement rate.

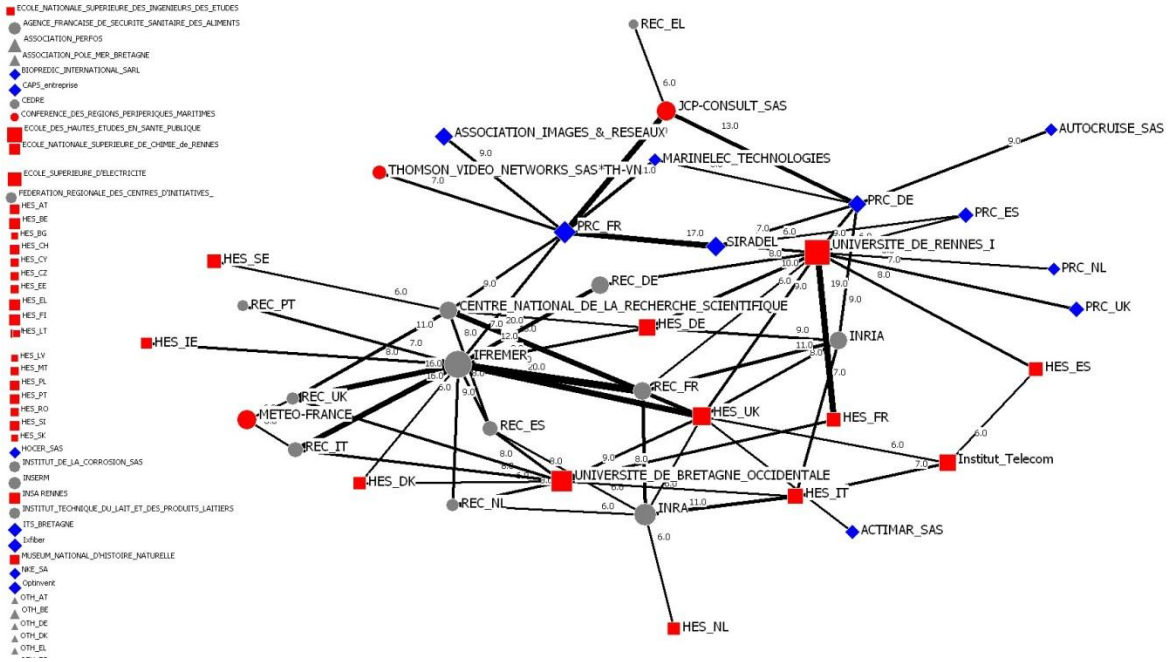
Table 5 – Top three organizations for projects led and participation as partner

	focus on the top three coordinators			location of partners		
Type	leader	n° as leader	as partner	region	country	EU
REC	CNRS	9	14		2	14
REC	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	8	16		4	27
HES	UNIVERSITE DE BRITTANY OCCIDENTALE	5	9		0	8

	focus on the top three partners			location of leaders		
Type	partner	n° as partner	as leader	region	country	EU
HES	UNIVERSITE DE RENNES I	22	4		4	18
REC	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	16	8		2	14
REC	CNRS	14	9		2	12

- 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 significant[4]. 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.

[4] This has been determined using a minimun value of frequency of collaborations.



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

Figure 9 - Share of regional employment 2009

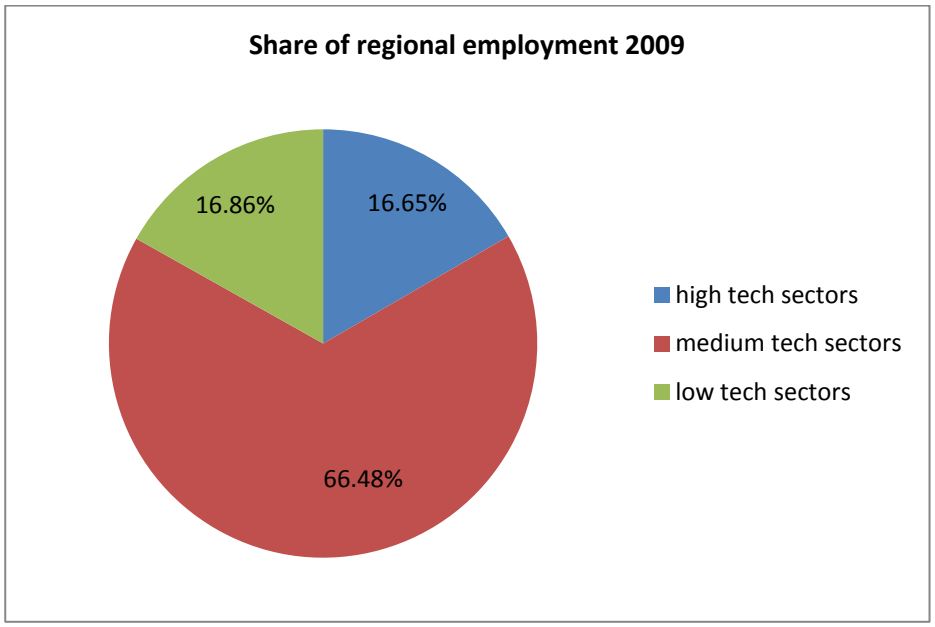


Table 6 –Employment and specialization (2009)

	Share of regional employment 2009	Variation in the share of employment 2009-2004[5]	Employment FR52 2009 - 2004	Specialization with respect to Europe[6] (2009)	Specialization with respect to FRANCE[7] (2009)
high tech sectors	16.65%	21.48%	5833	1.01	0.75
medium tech sectors	66.48%	6.86%	11498	1.11	1.11
low tech sectors	16.86%	4.48%	4580	0.72	0.94

Employment in Brittany is dominated by medium tech sectors (66%), with low and high technology sectors accounting both for 17% of employment. In terms of trends, employment in low, medium and high tech sectors has grown. The specialisation figures tell the most interesting story because they show how Brittany is positioned relative to France and Europe. Here we see that Brittany in high tech sectors the region is more specialised than Europe and less than France. In medium tech sectors the region is more specialised with respect to both France and Europe. In low tech sectors Brittany is relatively less specialised than Europe, but relatively more specialised than France. In Table 7 this analysis is continued sector-by-sector, with sectors ranked in terms of their share of regional employment (in 2009).

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

	Share of regional employment 2009	Employment 2009 - 2004	Specialization with respect to Europe 2009	Specialization with respect to FR 2009	Technology and Knowledge intensity
Financial services	10,8%	3141	1,29	0,79	HIGH TECHNOLOGY AND KNOWLEDGE INTENSITY
IT	2,0%	242	0,87	0,91	
Education and knowledge creation	2,0%	1793	0,49	0,67	
Pharmaceuticals	1,2%	96	1,23	0,68	
Aerospace	0,5%	848	0,91	0,35	
Biotech	0,1%	-287	0,55	0,88	
Processed food	20,1%	1855	3,12	2,53	MEDIUM TECHNOLOGY AND KNOWLEDGE INTENSITY
Business services	8,0%	11418	0,88	0,72	
Transportation and logistics	7,6%	-3473	1,00	0,84	
Construction materials	6,6%	1729	0,63	1,06	
Telecom	4,5%	276	1,51	1,41	
Automotive	4,2%	-1404	1,27	1,02	
Maritime	3,1%	55	4,21	4,98	
Building fixtures, equipment and services	2,8%	1564	0,90	1,24	
Metal manufacturing	2,5%	-104	0,46	0,48	
Entertainment	1,6%	1729	0,97	0,74	

[5] The variation in the share employments has been calculated as: (n° employees in the region in 2009 – n° employees in the region in 2004)/ (n° employees in the region in the year 2004)

[6] 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.

[7] *Ibid* with respect to France

Plastics	0,9%	-289	0,71	0,67	
Production technology	0,9%	-870	0,37	0,66	
Instruments	0,9%	-4	1,62	1,25	
Heavy Machinery	0,7%	-416	0,61	0,63	
Medical devices	0,6%	108	0,87	0,88	
Chemical products	0,5%	-314	0,89	1,16	
Construction	0,5%	59	0,44	0,40	
Power generation and transmission	0,3%	-29	0,64	0,90	
Lighting and electrical equipment	0,2%	-177	0,25	0,24	
Sporting, recreational and children's goods	0,1%	-215	0,31	0,55	
Tourism and hospitality	3,6%	297	0,82	0,86	LOW TECHNOLOGY AND KNOWLEDGE INTENSITY
Farming and animal husbandry	3,1%	4272	1,38	2,42	
Distribution	2,7%	-45	0,84	0,85	
Media and publishing	2,1%	1467	0,72	0,68	
Paper products	1,8%	-180	0,89	1,01	
Agricultural products	1,7%	229	1,00	1,27	
Furniture	0,6%	-647	0,39	0,84	
Apparel	0,4%	-370	0,19	0,62	
Textiles	0,4%	-142	0,27	0,46	
Footwear	0,2%	-100	0,30	1,32	
Stone quarries	0,1%	-103	1,12	1,84	
Leather products	0,1%	-31	0,60	0,50	
Oil and gas	0,0%	24	0,04	0,07	
Jewellery and precious metals	0,0%	-13	0,07	0,09	
Tobacco	0,0%	-78	0,00	0,00	

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

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

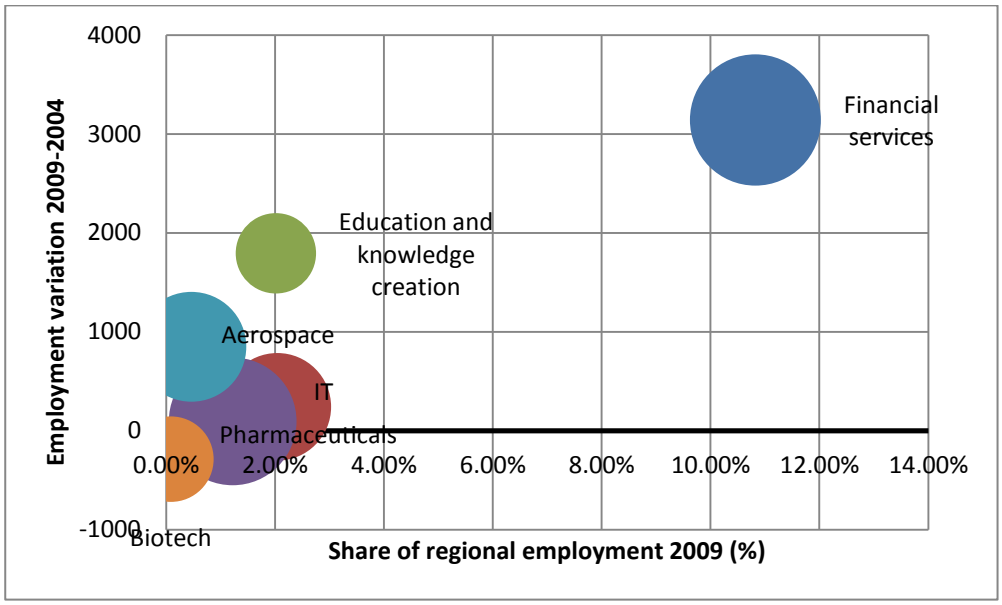
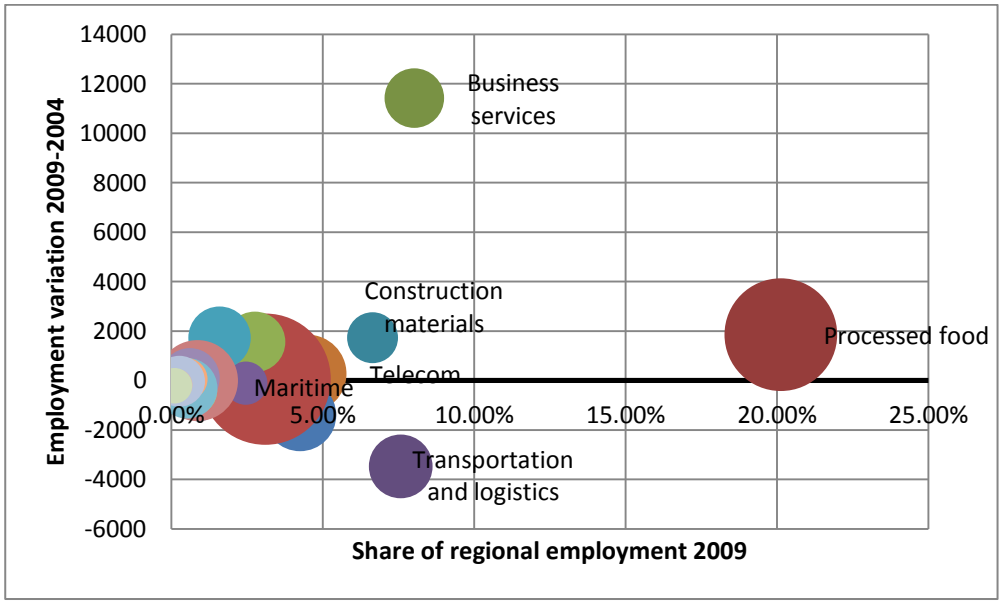


Figure 9 shows that "Education and knowledge creation" is a growing sector in the region in terms of employment and in which the region is quite specialised with respect to Europe. "Education and knowledge creation" is another sector that has grown in the period 2004-2009. "Aerospace", "IT" or "Pharmaceuticals" have not grown in terms of employment in the period analysed.

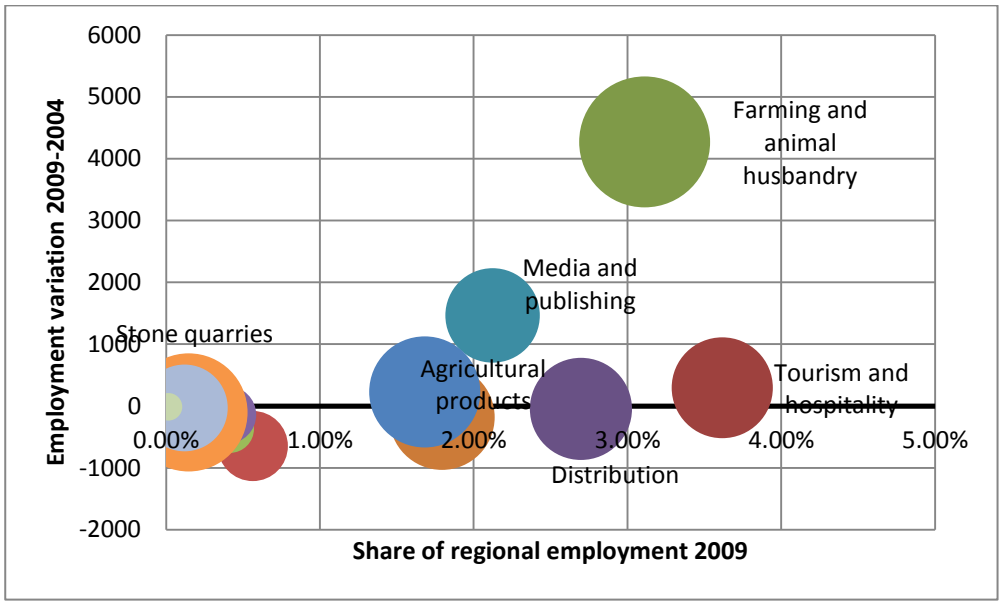
With regards to medium tech sectors we see that "Business services" is a growing, although the region is not specialised with respect to Europe. The region is highly specialized "Processed food" and concentrates a high number of employees. The figure also shows that the sector "Transportation and logistics" is declining.

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



With regards to low tech sectors, "Farming and animal husbandry" is growing and the region is highly specialised. Some important sectors ("Distribution", "Tourism and hospitality", etc..) have not grown in terms of employees in the period 2004-2009.

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



Patents

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

Bretagne clearly emerges as specialized in Electrical Engineering, whereas in the other sector the patenting activity is rather modest. Table 10 shows that this specialization is due to few important actors: Mitsubishi, France Telecom and Thompson.

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	12,17	2,57%	0,31%	0,48
1	Electrical engineering	2	Audio-visual technology	24,32	5,14%	1,64%	2,53
1	Electrical engineering	3	Telecommunications	154,41	32,65%	4,93%	7,61
1	Electrical engineering	4	Digital communication	121,16	25,62%	5,66%	8,74
1	Electrical engineering	5	Basic communication processes	6,06	1,28%	1,07%	1,65
1	Electrical engineering	6	Computer technology	51,92	10,98%	1,57%	2,42
1	Electrical engineering	7	IT methods for management	0,00	0,00%	0,00%	0,00
1	Electrical engineering	8	Semiconductors	6,65	1,41%	0,60%	0,92
2	Instruments	9	Optics	8,97	1,90%	0,76%	1,17
2	Instruments	10	Measurement	4,67	0,99%	0,15%	0,23
2	Instruments	11	Analysis of biological materials	0,25	0,05%	0,06%	0,10
2	Instruments	12	Control	2,50	0,53%	0,19%	0,29
2	Instruments	13	Medical technology	3,67	0,78%	0,13%	0,20
3	Chemistry	14	Organic fine chemistry	7,17	1,52%	0,28%	0,43
3	Chemistry	15	Biotechnology	5,20	1,10%	0,82%	1,26
3	Chemistry	16	Pharmaceuticals	11,08	2,34%	0,47%	0,73
3	Chemistry	17	Macromolecular chemistry, polymers	11,78	2,49%	1,94%	3,00
3	Chemistry	18	Food chemistry	3,31	0,70%	0,46%	0,72
3	Chemistry	19	Basic materials chemistry	2,40	0,51%	0,27%	0,41
3	Chemistry	20	Materials, metallurgy	0,00	0,00%	0,00%	0,00
3	Chemistry	21	Surface technology, coating	1,00	0,21%	0,15%	0,22
3	Chemistry	22	Micro-structural and nano-technology	0,00	0,00%	0,00%	0,00
3	Chemistry	23	Chemical engineering	1,35	0,29%	0,09%	0,14
3	Chemistry	24	Environmental technology	1,92	0,41%	0,13%	0,20
4	Mechanical engineering	25	Handling	3,07	0,65%	0,10%	0,15
4	Mechanical engineering	26	Machine tools	1,75	0,37%	0,11%	0,17
4	Mechanical engineering	27	Engines, pumps, turbines	4,00	0,85%	0,11%	0,17
4	Mechanical engineering	28	Textile and paper machines	0,00	0,00%	0,00%	0,00
4	Mechanical engineering	29	Other special machines	3,20	0,68%	0,11%	0,17
4	Mechanical engineering	30	Thermal processes and apparatus	1,83	0,39%	0,16%	0,24
4	Mechanical engineering	31	Mechanical elements	1,50	0,32%	0,04%	0,07
4	Mechanical engineering	32	Transport	8,93	1,89%	0,09%	0,15
5	Other fields	33	Furniture, games	0,00	0,00%	0,00%	0,00
5	Other fields	34	Other consumer goods	3,00	0,63%	0,12%	0,19
5	Other fields	35	Civil engineering	3,75	0,79%	0,08%	0,13

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

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

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

Figure 12 – Patenting by domain: total share

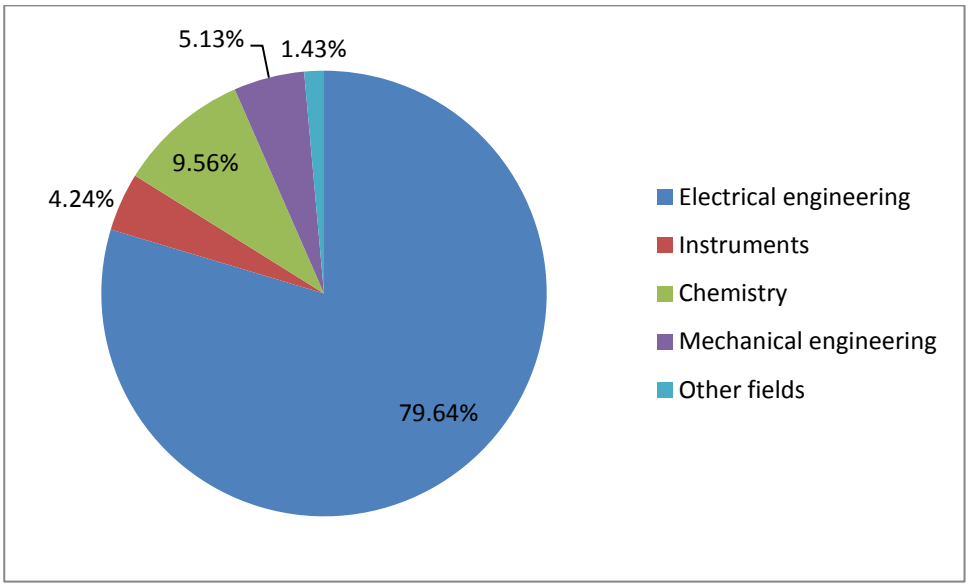


Figure 13 - Patenting by domain: specialization

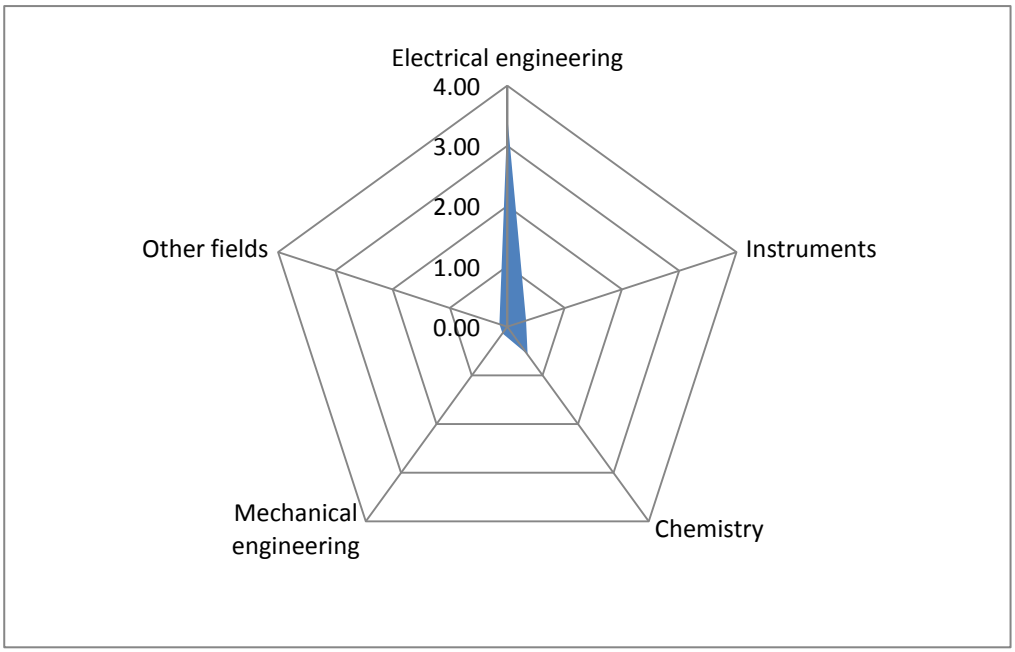


Table 9 shows the most important patenting subjects.

Table 9 – Most important applicants

name	count
MITSUBISHI ELECTRIC INF TECH	134
MITSUBISHI ELECTRIC CORP	133
THOMSON LICENSING SA	79
FRANCE TELECOM	66
THOMSON BRANDT GMBH	36
ALCATEL LUCENT	22
TOTAL PETROCHEMICALS RES FELUY	19
CENTRE NAT RECH SCIENT	16

CIT ALCATEL	9
THOMSON LICENSING	9

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:

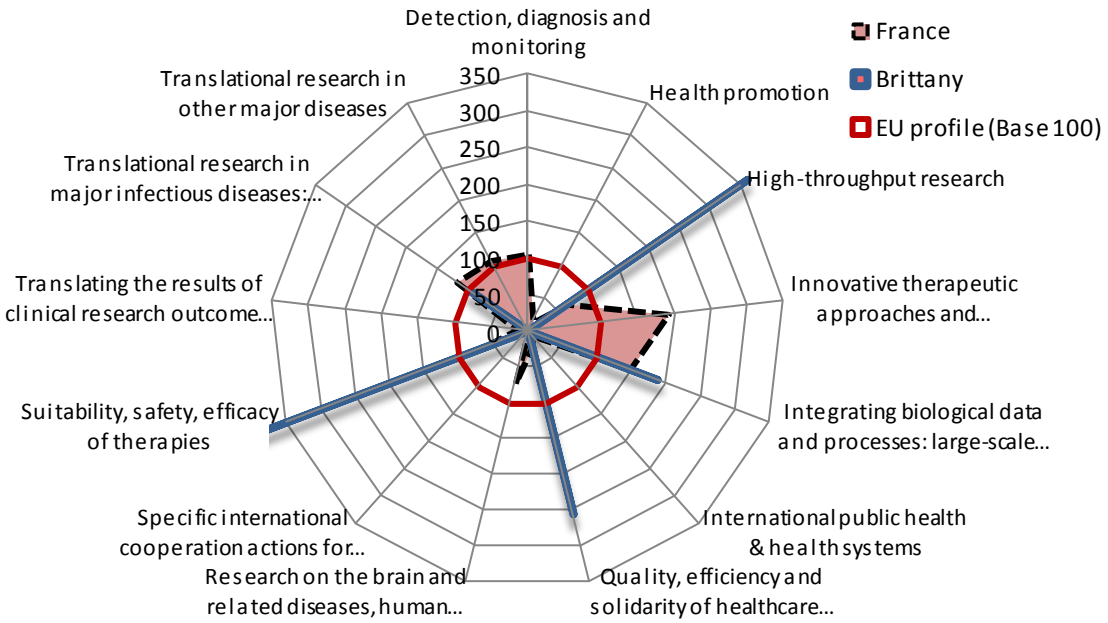
i) The overall EU budget distribution by research area
ii) The specialisation profile at the national and regional level, providing a picture of specialisation trends for the two levels. A comparison between the two levels can give information on regional specialisation trends (and highlight strategic 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 6 Specialisation profiles of France and Brittany



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 France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Innovative therapeutic approaches and interventions	192	1	Suitability, safety, efficacy of therapies	2098
2	Integrating biological data and processes: large-scale data gathering, systems biology	148	2	High-throughput research	361
3	Translational research in major infectious diseases: To confront major threats to public health	118	3	Quality, efficiency and solidarity of healthcare systems including transitional health systems	256
4	Translational research in major infectious diseases: To confront major threats to public health	109	4	Integrating biological data and processes: large-scale data gathering, systems biology	188
5	Detection, diagnosis and monitoring	106	5	Translational research in major infectious diseases: To confront major threats to public health	97
6	Suitability, safety, efficacy of therapies	75			
7	Research on the brain and related diseases, human development and ageing	74			
8	High-throughput research	65			
9	Quality, efficiency and solidarity of healthcare systems including transitional health systems	21			
10	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	16			
11	Health promotion	14			
12	INTERNATIONAL PUBLIC HEALTH & HEALTH SYSTEMS	8			

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 7 Specialisation profiles of France and Brittany

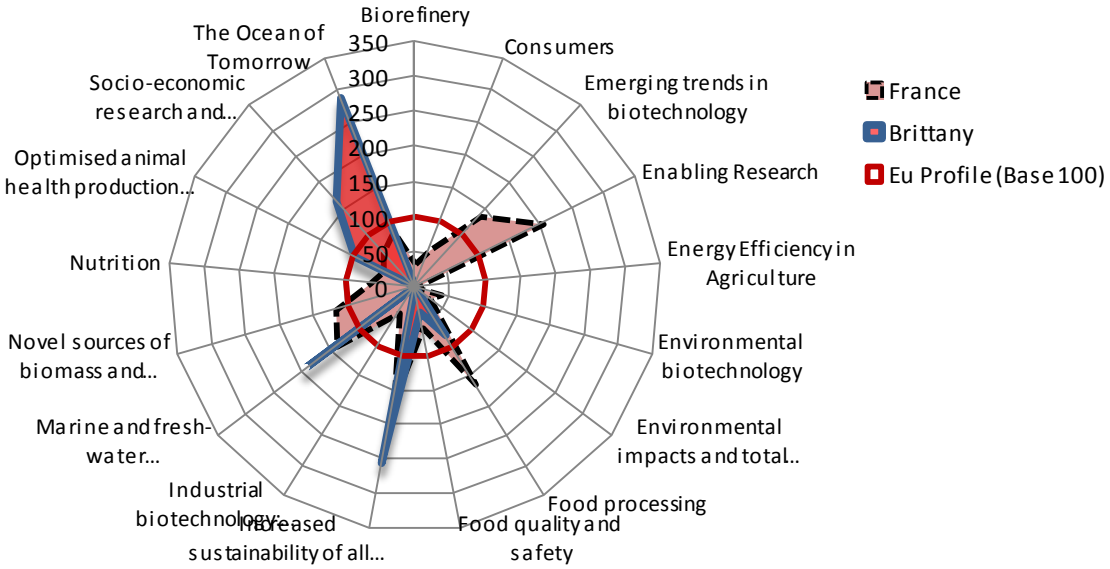


Table 4 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Enabling Research	203	1	The Ocean of Tomorrow	290
2	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	163	2	Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	257
3	Food processing	163	3	Marine and fresh-water biotechnology (blue biotechnology)	193
4	Marine and fresh-water biotechnology (blue biotechnology)	139	4	Socio-economic research and support to policies	165
5	Emerging trends in biotechnology	137	5	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	95
6	Novel sources of biomass and bioproducts	117	6	Food processing	82

7	The Ocean of Tomorrow	86
8	Socio-economic research and support to policies	67
9	Nutrition	64
10	Food quality and safety	59
11	Consumers	57
12	Optimised animal health production and welfare across agriculture, fisheries and aquaculture	51
13	Industrial biotechnology: novel high added-value bio-products and bio-processes	43
14	Environmental biotechnology	39
15	Biorefinery	34

7	Food quality and safety	38

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 8 Specialisation profiles of France and Brittany

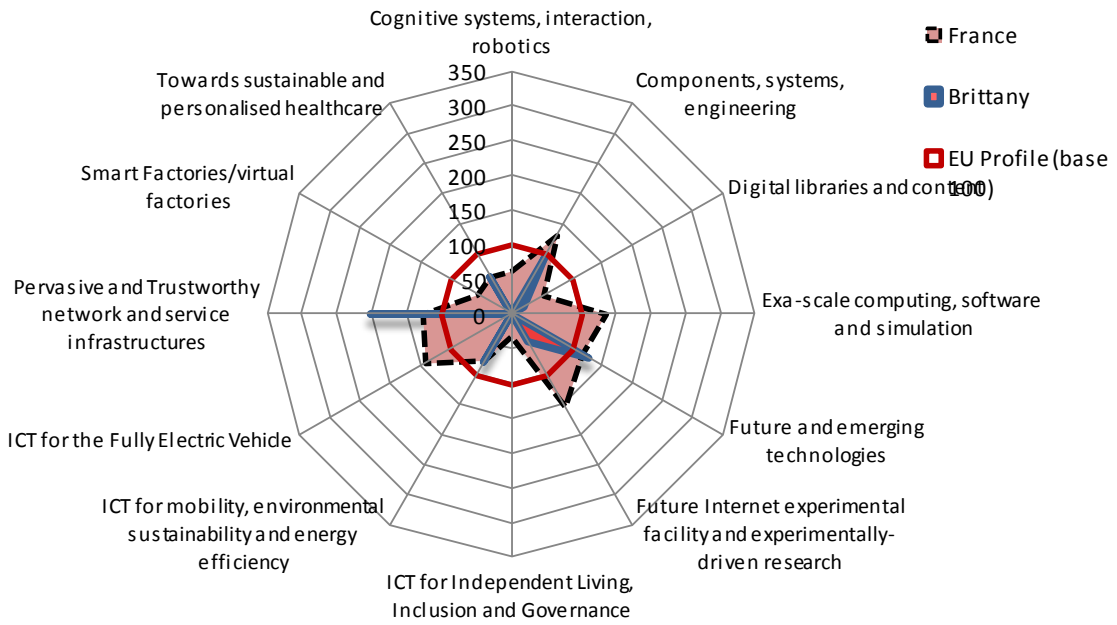


Table 6 Specialisation ranking for France and Brittany

Rk	France		Rk	Brittany	
1	Future and emerging technologies	154	1	Pervasive and Trustworthy network and service infrastructures	203
2	ICT for mobility, environmental sustainability and energy efficiency	142	2	Future and emerging technologies	128
3	Digital libraries and content	136	*3*	Components, systems, engineering	96
4	Cognitive systems, interaction, robotics	131	*4*	ICT for mobility, environmental sustainability and energy efficiency	81
5	ICT for the Fully Electric Vehicle	126	*5*	Towards sustainable and personalised healthcare	62
6	Exa-scale computing, software and simulation	117	*6*	Future Internet experimental facility and experimentally-driven research	46
7	Towards sustainable and personalised healthcare	100	*7*	Digital libraries and content	20
8	ICT for Independent Living, Inclusion and Governance	77			
9	Smart Factories/virtual factories	62			
10	Pervasive and Trustworthy network and service infrastructures	56			
11	Components, systems, engineering	53			
	Future Internet experimental facility and experimentally-driven research	32			

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 9 Specialisation profiles of France and Brittany

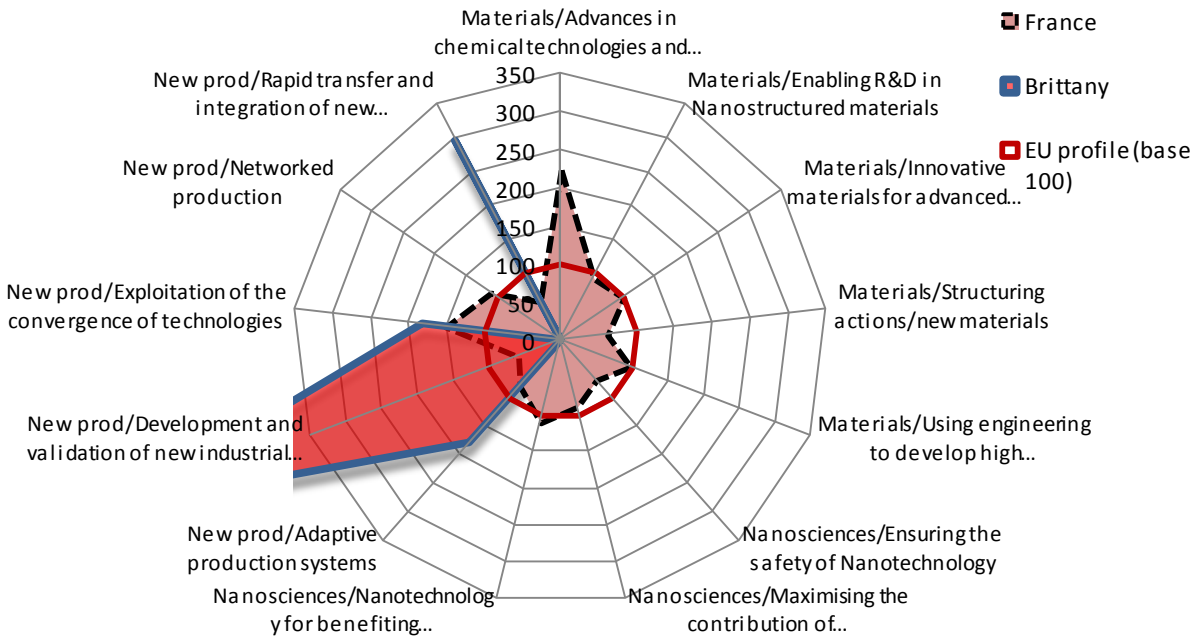


Table 8 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Materials/Advances in chemical technologies and materials processing	225	1	New prod/Development and validation of new industrial models and strategies	621
2	New prod/Exploitation of the convergence of technologies	151	2	New prod/Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	297
3	New prod/Networked production	111	3	New prod/Exploitation of the convergence of technologies	182
4	Nanosciences/Nanotechnology for benefiting environment, energy and health	111	4	New prod/Adaptive production systems	181
5	Materials/Innovative materials for advanced applications	99			
6	Materials/Using engineering to develop high performance knowledge-based materials	97			
7	Materials/Enabling R&D in Nanostructured materials	92			
8	Nanosciences/Maximising the contribution of Nanotechnology on sustainable development	89			
9	New prod/Adaptive production systems	81			
10	Nanosciences/Ensuring the safety of Nanotechnology	69			
11	Materials/Structuring actions/new materials	61			
12	New prod/Development and validation of new	59			

	industrial models and strategies	
13	New prod/Rapid transfer and integration of new technologies into the design and operation of manufacturing processes	58

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 10 Specialisation profiles of France and Brittany

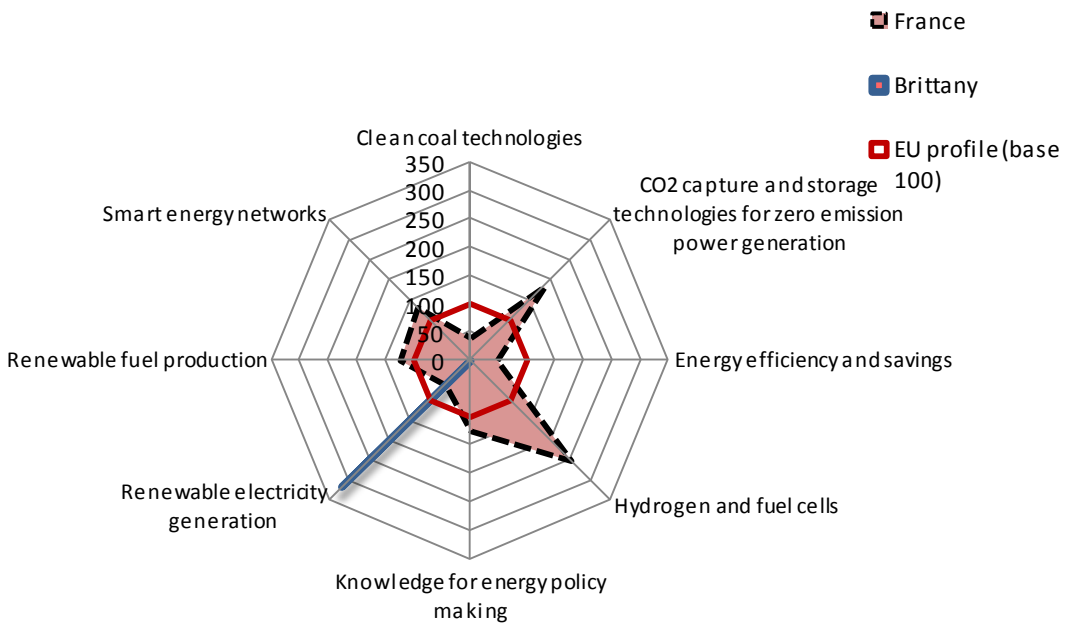


Table 10 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Hydrogen and fuel cells	250	1	Renewable electricity generation	317
2	CO2 capture and storage technologies for zero emission power generation	185			

3	Smart energy networks	132
4	Knowledge for energy policy making	124
5	Renewable fuel production	124
6	Renewable electricity generation	62
7	Energy efficiency and savings	47
8	Clean coal technologies	40

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 11 Specialisation profiles of France and Brittany

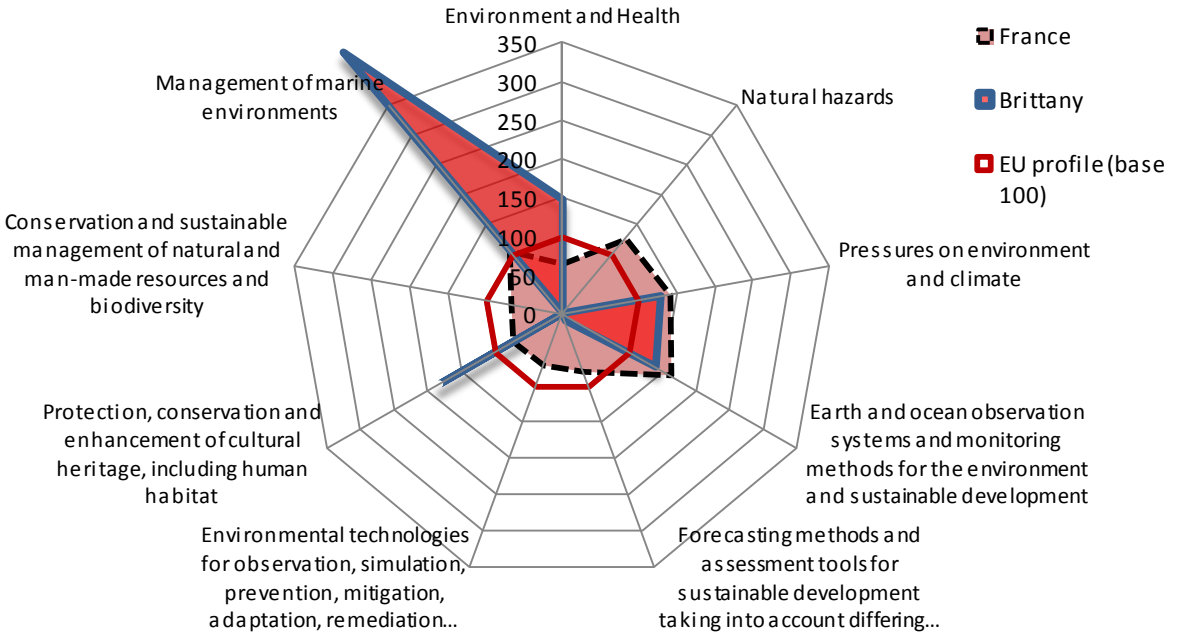


Table 12 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	161	1	Management of marine environments	440
2	Pressures on environment and climate	140	2	Protection, conservation and enhancement of cultural heritage, including human habitat	183
3	Natural hazards	127	3	Environment and Health	147
4	Management of marine environments	106	4	Earth and ocean observation systems and monitoring methods for the environment and sustainable development	139
5	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	81	5	Pressures on environment and climate	128
6	Protection, conservation and enhancement of cultural heritage, including human habitat	74	6	Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation	10
7	Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment	72			
8	Conservation and sustainable management of natural and man-made resources and biodiversity	67			

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 12 Specialisation profiles of France and Brittany

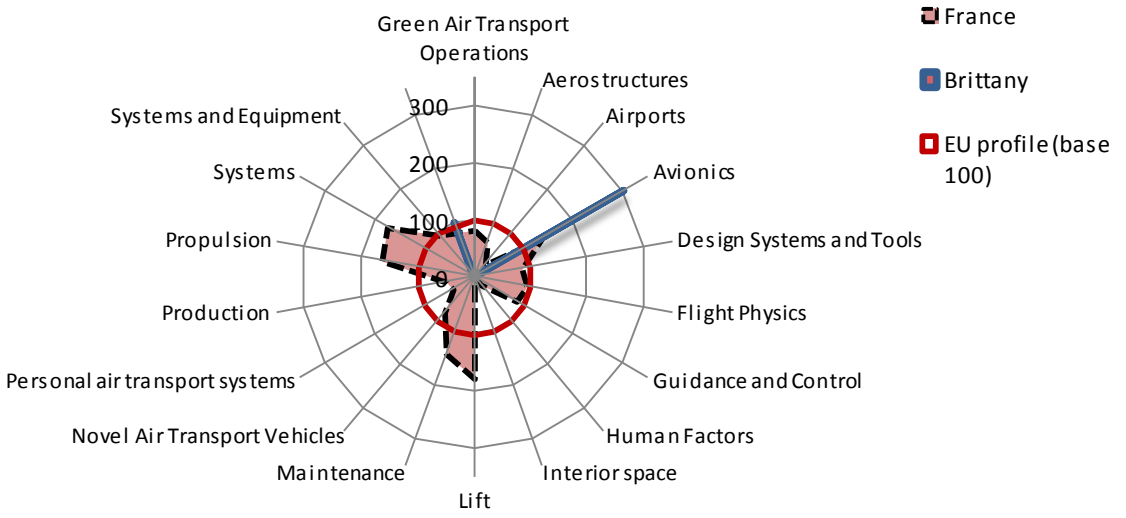


Table 14 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Lift	179	1	Avionics	2363
2	Systems	175			
3	Propulsion	164			
4	Maintenance	144			
5	Avionics	135			
6	Systems and Equipment	97			
7	Flight Physics	93			
8	Guidance and Control	85			
9	Design Systems and Tools	84			
10	Green Air Transport Operations	83			
11	Novel Air Transport Vehicles	81			
12	Aerostructures	66			
13	Production	50			
14	Personal air transport systems	43			
	Airports	30			
	Human Factors	18			
	Interior space	0			

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 13 Specialisation profiles of France and Brittany

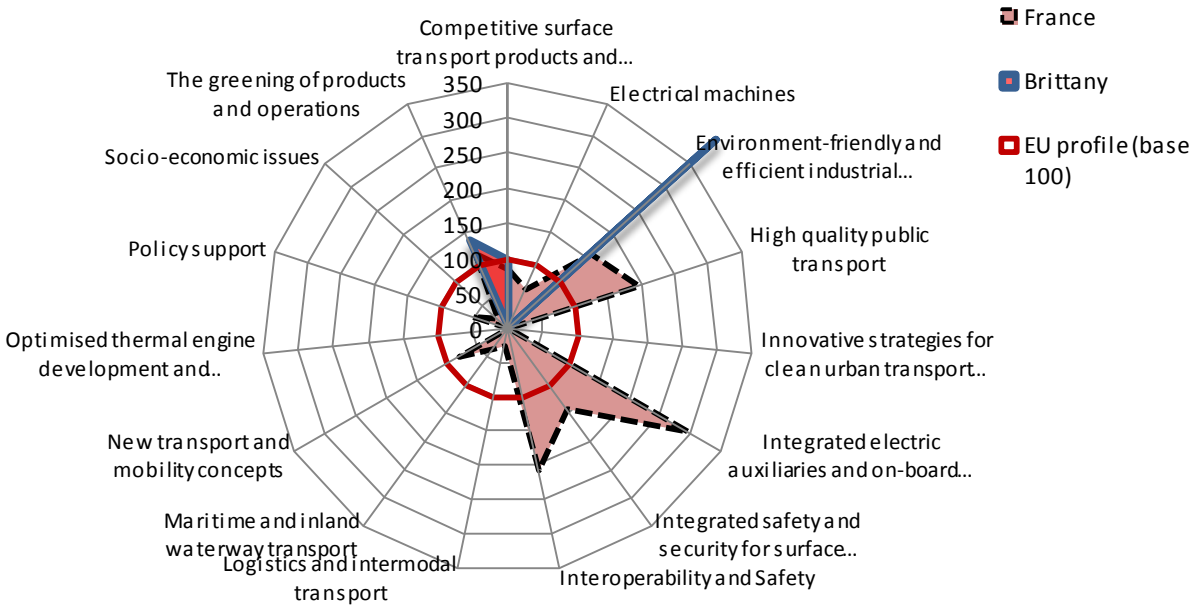


Table 16 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Integrated electric auxiliaries and on-board systems	295	1	Environment-friendly and efficient industrial	1861
2	Interoperability and Safety	207	2	The greening of products and operations	136
3	High quality public transport	195	3	Competitive surface transport products and services	96
4	Environment-friendly and efficient industrial	158			
5	Integrated safety and security for surface transport	143			
6	The greening of products and operations	117			
7	Competitive surface transport products and services	84			
8	New transport and mobility concepts	81			
9	Electrical machines	61			
10	Policy support	54			
11	Maritime and inland waterway transport	36			
12	Logistics and intermodal transport	26			
13	Socio-economic issues	21			

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 14 Specialisation profiles of France and Brittany

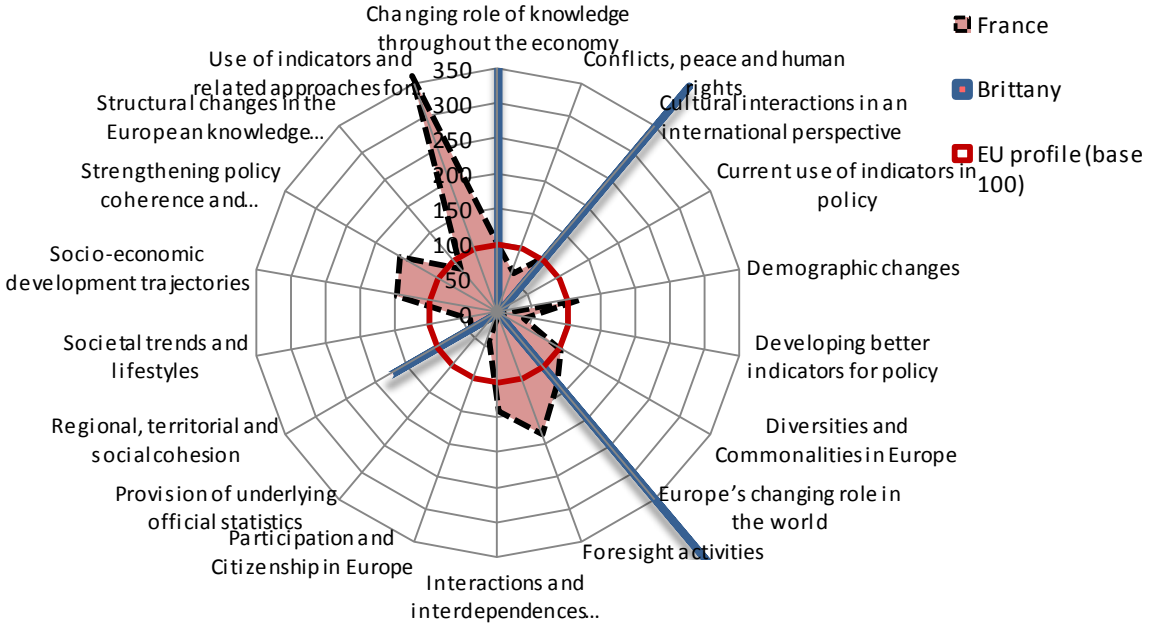


Table 18 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Use of indicators and related approaches for the evaluation of research policies and programmes	363	1	Changing role of knowledge throughout the economy	803
2	Foresight activities	183	2	Europe's changing role in the world	516

3	Strengthening policy coherence and coordination in Europe	163	3	Cultural interactions in an international perspective	424
4	Socio-economic development trajectories	148	4	Regional, territorial and social cohesion	179
5	Interactions and interdependences between world regions and their implications	139			
6	Europe's changing role in the world	130			
7	Demographic changes	117			
8	Cultural interactions in an international perspective	111			
9	Diversities and Commonalities in Europe	103			
10	Changing role of knowledge throughout the economy	97			
11	Structural changes in the European knowledge economy and society	85			
12	Conflicts, peace and human rights	62			
13	Regional, territorial and social cohesion	45			
14	Societal trends and lifestyles	41			
15	Participation and Citizenship in Europe	40			
16	Developing better indicators for policy	37			

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 15 Specialisation profiles of France and Brittany

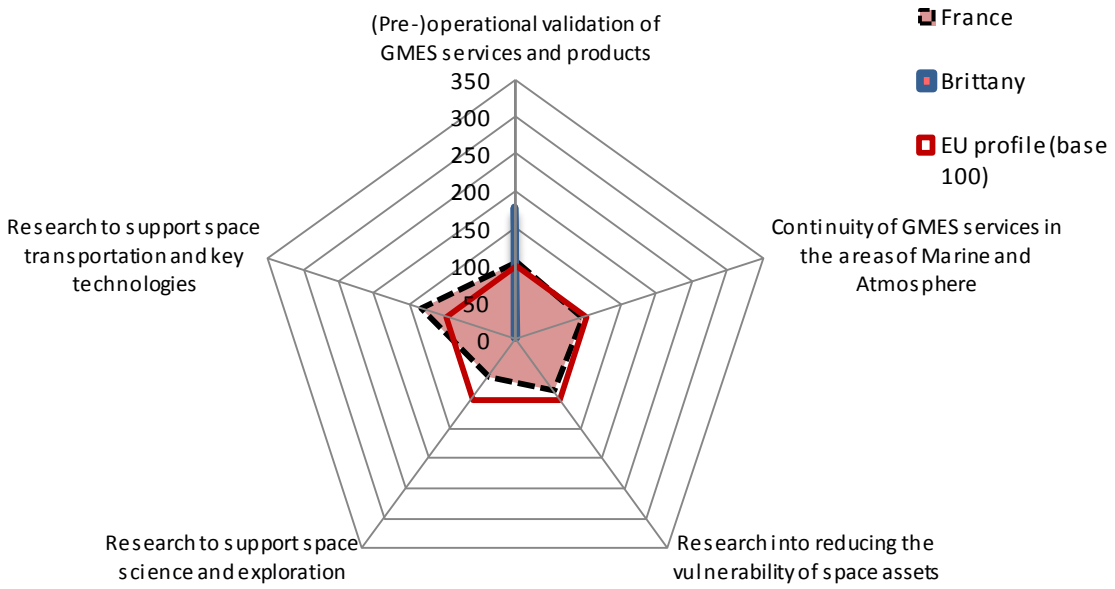


Table 20 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Research to support space transportation and key technologies	135	1	(Pre-)operational validation of GMES services and products	178
2	(Pre-)operational validation of GMES services and products	104			
3	Continuity of GMES services in the areas of Marine and Atmosphere	93			
4	Research into reducing the vulnerability of space assets	85			
5	Research to support space science and exploration	63			

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 16 Specialisation profiles of France and Brittany

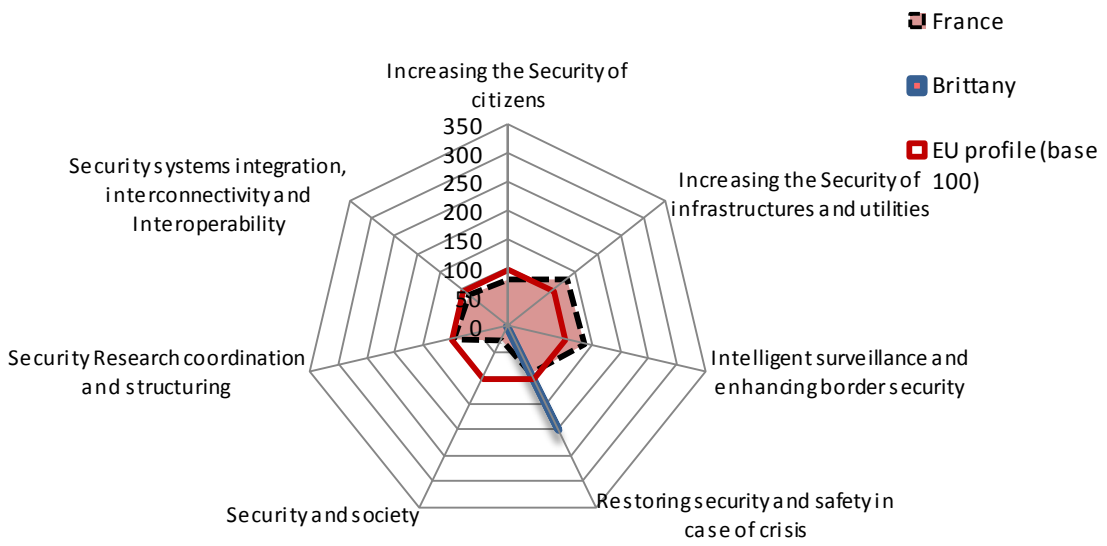


Table 22 Specialisation ranking for France and Brittany

Rk	France	Index base 100	Rk	Brittany	Index base 100
1	Intelligent surveillance and enhancing border security	135	1	Restoring security and safety in case of crisis	200
2	Increasing the Security of infrastructures and utilities	129	2	Intelligent surveillance and enhancing border security	1
3	Security Research coordination and structuring	97			
4	Restoring security and safety in case of crisis	88			
5	Security systems integration, interconnectivity and Interoperability	87			
6	Increasing the Security of citizens	81			
7	Security and society	26			

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. Regional participant typology

iv. Regional thematic specialisation

v. International cooperation

Headquarter analysis

This section presents the results of the headquarter effect analysis for the focussed 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 region[8], but now attributed to the focussed region).

Table 23 Overall result of the Headquarter analysis

Type of participation	***Nbr of participations***
(1) Nbr of participation with no headquarter effect	136
(2) Nbr of ingoing participations	73
(3) Nbr of outgoing participations	0
Total nbr of participations (1)+(2)	209

The following table gives the detail of the geographical origin of participation. In case of ingoing or outgoing participation regions impacted by the transfer of participation is indicated by a nuts code.

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	FR10	FR521	3		
In	FR10	FR522	42		
In	FR51	FR522	1		
In	FR10	FR523	27	***73***	***34,9%***
Out			0	***0***	
no Headquarter effect				***136***	***65,1%***
Total (after correction)				***209***	***100,0%***

[8] Impacted region.

In order to proceed to a comparative analysis between regions, the following table the participant typology according if participation are Ingoing, Outgoing or not affected by headquarter effect. A comparison between regions could feed the methodology with empirical evidences.

Table 25 Typology of Ingoing, Outgoing and Static participations

Organisation type	Ingoing participations		Outgoing participations		Static participations	
HES	4	5,5%			59	43,4%
OTH	1	1,4%			10	7,4%
PRC	2	2,7%			52	38,2%
PUB		0,0%			7	5,1%
REC	66	90,4%			8	5,9%
	73	100,0%	0		136	100,0%

Main regional indicators

This section gives positioning indicators in order to qualify and characterize the participation of region at national level. The section gives also elements to know the distribution of EC funding within the regional territory (nuts n-1 in we consider the focused as nut n).

Bretagne in the FP7

The following table gives an overview of the weight of the region at national level. The regional share in national participation can be easily comparable to the national share in the FP.

Table 26 Share of the region at national level

	Brittany	FR	FP	% in FR52 in FR	% in FR in FP
Nbr of participations in projects	209	6785	69719	3,1%	9,7%
Nbr of coordinations	38	1433	12929	2,7%	11,1%
EC contribution	60 740 997	2 485 507 163	22 188 391 959	2,4%	11,2%

Participant Typology

The following table shows the distribution of participations, coordinations and EC contributions among participants according their activity types. A comparison between regional and national level gives the opportunity to detect particularities of the participation of the region.

Table 27 Participation typology-comparison between regional and national level

	Brittany				France			
	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)	63	10	17,270	28,4 %	1121	317	361,242	13,6 %
Other (OTH)	11		0,803	1,3 %	227	24	208,206	7,9 %
Private commercial(PRC)	54	6	10,386	17,1 %	2334	212	686,064	25,9 %
Public body (excl.research and education) (PUB)	7		1,256	2,1 %	253	27	47,568	1,8 %

Research organisations (REC)	74	22	31,025	51,1 %	2853	853	1 345,789	50,8 %
Total	209	38	60,741	100 %	6788	1433	2 648,869	100 %

Figure 17 Participation typology-graphical comparison between national and regional profile (acc. EC contrib. distribution)

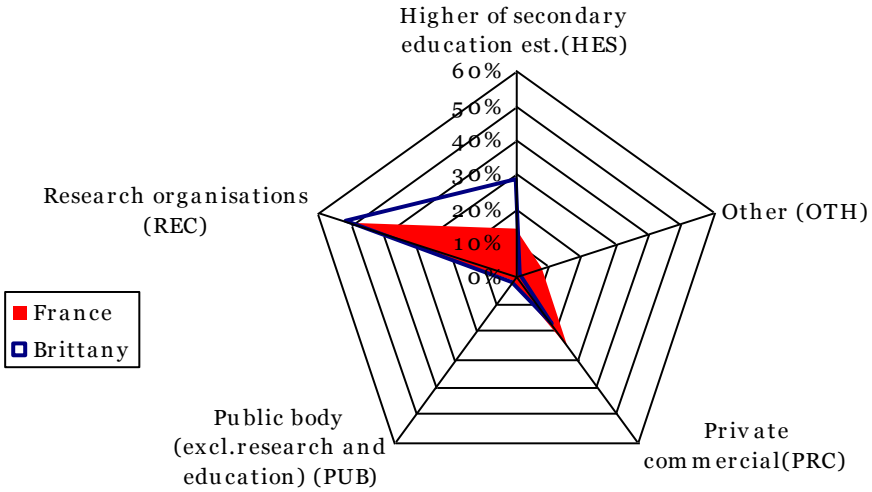


Table 28 Distribution of participations according the legal type-comparison between regional and national level

		Brittany		France	
	Private organisations	nbr	EC contrib	nbr	EC contrib
Private	PRC	54	10,39	2367	694,19
	PNP	21	2,37	730	438,48
	total private	*75*	*12,76*	*3097*	*1 132,67*
Public	Commercial		0,00	125	31,07
	PNP	134	47,98	3566	1 485,12
	total public	*134*	*47,98*	*3691*	*1 516,20*
	TOTAL	**209**	**60,74**	**6788**	**2 648,87**

SME participation

This section aims at giving an overview about the participation of SME in the programme.

Table 29 Number of funded SME

	Total Bretagne	Total France	Total FP	FR521	FR522	FR523	FR524
Nbr of participations in projects	39	1 077	11 545	4	9	20	6
EC contribution	8 169 640	289 167 995	2 873 556 998	551 328	1 541 251	5 003 404	1 073 657

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

	Brittany		France	
	Nbr	Ec Contrib		
PRC	34	7,21	1008	273,42
PNP	5	0,96	69	15,74
TOTAL	**39**	8,17	**1077**	289,17

Regional participation among themes and activities of the programme

This section aims at giving information about the specialisation of region according to participations of the organisation in FP7 themes. This specialisation information would be given by a comparison of the distribution of EC Funding at programme level (European average) at national level and regional level.

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

			FP		France		Brittany	
N°	PROG SPEC	Theme	nbr	EC contrib	nbr	EC contrib	nbr	EC contrib
1	COOPERATION	Health	6.580	2.637,32	639	293,75	6	1,45
2	COOPERATION	Food, Agriculture, and Biotechnology	3.611	848,58	316	86,99	20	7,05
3	COOPERATION	Information and Communication Technologies	13.492	4.733,80	1.375	481,65	41	8,73
4	COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	4.881	1.536,17	409	132,58	7	2,13
5	COOPERATION	Energy	2.378	853,38	188	66,40	3	0,69
6	COOPERATION	Environment (including Climate Change)	4.592	1.017,28	322	79,43	22	4,42
7	COOPERATION	Transport (including Aeronautics)	5.445	1.451,90	769	231,15	5	1,26
8	COOPERATION	Socio-economic sciences and Humanities	1.515	277,19	103	18,85	5	0,49
9	COOPERATION	Security	1.590	516,41	197	76,55	8	3,29
10	COOPERATION	Space	1.449	405,09	190	117,98	1	0,10
11	COOPERATION	General Activities (Annex IV)	148	218,28	14	165,85		0,00
12	IDEAS	European Research Council	2.269	3.225,21	286	406,47	3	4,75
13	PEOPLE	Marie-Curie Actions	9.470	2.003,62	977	220,13	50	14,72
14	CAPACITIES	Research Infrastructures	3.921	1.171,19	364	154,76	17	9,40
15	CAPACITIES	Research for the benefit of SMEs	4.485	587,96	249	37,88	11	1,54
16	CAPACITIES	Regions of Knowledge	588	54,87	47	5,08	3	0,36

17	CAPACITIES	Research Potential	239	185,87	11	7,74		0,00
18	CAPACITIES	Science in Society	1.125	143,83	70	8,40	7	0,36
19	CAPACITIES	Coherent development of research policies	100	19,65	9	1,66		0,00
20	CAPACITIES	Activities of International Cooperation	584	70,78	50	6,41		0,00
21	Euratom	Fusion Energy	64	5,00	5	0,93		0,00
22	Euratom	Nuclear Fission and Radiation Protection	1.236	226,10	198	48,22		0,00
			69.762	22.189,48	6.788	2.648,87	209	60,74

Intraregional indicators

The following table aims at giving a general overview of the distribution of participations, coordinations and EC contribution within the territory (at Nuts n-1). The table gives a clearer view of the concentration of research organisations in the region

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

	FR521 Côtes-d'Armor	%	FR522 Finistère	%	FR523 Ille-et-Vilaine	%	FR524 Morbihan	%	Total Brittany	%
Nbr of participations in projects	13	6,2%	89	42,6%	98	46,9%	9	4,3%	209	100%
Nbr of coordinations	0	0,0%	18	47,4%	19	50,0%	1	2,6%	38	100%
EC contribution (€Mln)	2, 475	4,1%	26,902	44,3%	30, 013	49,4%	1, 350	2,2%	60, 740	100%

The following table gives in more details the distribution of participations according to the activity type at intra regional level.

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

	FR521 Côtes-d'Armor			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES			0,000	0,0%
OTH	2		0,248	10,0%
PRC	9		1,681	67,9%
PUB			0,000	0,0%
REC	2		0,546	22,1%
Total	13	0	2,475	100,0%
	FR522 Finistère			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	17	5	4,359	16,2%
OTH	5		0,408	1,5%
PRC	17		1,576	5,9%
PUB	7		1,256	4,7%
REC	43	13	19,303	71,8%
Total	89	18	26,902	100,0%
	FR523 Ille-et-Vilaine			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	43	5	12,634	42,1%
OTH	4		0,147	0,5%
PRC	22	5	6,056	20,2%
PUB		9	0,000	0,0%
REC	29		11,176	37,2%
Total	98	19	30,013	100,0%
	FR524 Morbihan			
Participant type	Nbr of participations in projects	Nbr of coordinations	EC contribution (in €Mln)	%
HES	3		0,277	20,5%
OTH			0,000	0,0%
PRC	6	1	1,074	79,5%
PUB			0,000	0,0%
REC			0,000	0,0%
Total	9	1	1,350	100,0%

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

			FR521		FR522		FR523		FR524	
Num	PROG SPEC	Theme	nbr	EC contrib	nbr	EC contrib	nbr	EC contrib	nbr	EC contrib
1	COOP	Health			2	0,42	4	1,03		
2	COOP	Food, Agriculture and Fisheries, and Biotechnology			11	4,00	9	3,05		
3	COOP	Information and Communication Technologies	7	0,52	4	0,64	29	7,33	1	0,24
4	COOP	Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	4	1,41			3	0,72		
5	COOP	Energy			2	0,31	1	0,37		
6	COOP	Environment (including Climate Change)			17	3,31	4	0,96	1	0,15
7	COOP	Transport (including Aeronautics)			2	0,32	2	0,88	1	0,06
8	COOP	Socio-economic sciences and Humanities					5	0,49		
9	COOP	Space	2	0,55	6	2,74				
10	COOP	Security					1	0,10		
11	COOP	General Activities								
12	CAPACITIES	Research Infrastructures			13	8,00	4	1,40		
13	CAPACITIES	Research for the benefit of SMEs			6	0,86	1		4	0,68
14	CAPACITIES	Regions of Knowledge			2	0,30	1	0,06		
15	CAPACITIES	Research Potential								
16	CAPACITIES	Science in Society			2		5	0,36		
17	CAPACITIES	Support for the coherent development of research policies								
18	CAPACITIES	Activities of International Cooperation								
20	PEOPLE	Marie-Curie Actions			21	4,90	27	9,60	2	0,21
21	IDEA	European Research Council			1	1,10	2	3,65		
22	EURATOM	Fusion Energy								
23	EURATOM	Nuclear Fission and Radiation Protection								
			13	2,48	***89***	26,90	***98***	30,01	***9***	1,35

International cooperation

This section aims at giving a clear overview of the main collaboration axis of the focussed region (the main European regions working with the focussed region, the main organisations, etc.)

Table 35 Partner regions

Partner region	NUTSname	Nb of participations	% of total
Île de France	FR10	108	6%
SOUTH EAST (ENGLAND)	UKJ	49	3%
Lazio	ITE4	48	3%
Cataluña	ES51	48	3%
SOUTH WEST (ENGLAND)	UKK	42	2%
NORDRHEIN-WESTFALEN	DEA	41	2%
SCOTLAND	UKM	41	2%
Hovedstaden	DK01	38	2%
BAYERN	DE2	37	2%
Zuid-Holland	NL33	36	2%

Table 36 Partner organisations

Partner organisation	Region	NUTSname	Nb of participations

DANMARKS TEKNISKE UNIVERSITET	Hovedstaden	DK01	15
ALFRED-WEGENER-INSTITUT FUER POLAR- UND MEERESFORSCHUNG	BREMEN	DE5	13
NATURAL ENVIRONMENT RESEARCH COUNCIL	SOUTH EAST (ENGLAND)	UKJ	13
AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Cataluña	ES51	12
HAVFORSKNINGSINSTITUTTET	Vestlandet	NO05	12
GOETEBORGS UNIVERSITET	Västsverige	SE23	12
UNIVERSITY COLLEGE CORK, NATIONAL UNIVERSITY OF IRELAND, CORK	Southern and Eastern	IE02	11
CONSIGLIO NAZIONALE DELLE RICERCHE	Lazio	ITE4	10
HELLENIC CENTRE FOR MARINE RESEARCH	Attiki	EL30	9
MARINE INSTITUTE	Border, Midland and Western	IE01	9

Table 37 European collaboration themes

Theme	Nb of participations	% of total
Information and Communication Technologies	347	18,6%
Research Infrastructures	292	15,7%
Environment (including Climate Change)	267	14,3%
Food, Agriculture, and Biotechnology	219	11,7%
Marie-Curie Actions	147	7,9%
Science in Society	113	6,1%
Space	91	4,9%
Nanosciences, Nanotechnologies, Materials and new Production Technologies	89	4,8%
Health	73	3,9%
Research for the benefit of SMEs	69	3,7%
Transport (including Aeronautics)	66	3,5%
Socio-economic sciences and Humanities	37	2,0%
Energy	30	1,6%
Security	17	0,9%
Regions of Knowledge	8	0,4%
TOTAL	**1865**	**100%**

Table 38 The main coordinators of regional participants

NUTS name	Region	Participant	Coordinations
SE23	Västsverige	GOETEBORGS UNIVERSITET	3
NO05	Vestlandet	STIFTELSEN NANSEN SENTER FOR FJERNMAALING	3
EL12	Kentriki Makedonia	CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS	2
EL30	Attiki	AGRICULTURAL UNIVERSITY OF ATHENS	2
ITD5	Emilia-Romagna	ALMA MATER STUDIORUM-UNIVERSITA DI BOLOGNA	2
ITE1	Toscana	I.D.S. - INGEGNERIA DEI SISTEMI - S.P.A.	2
FR81	Languedoc-Roussillon	CONNAISCIENCES LANGUEDOC ROUSSILONASSOCIATION DE PREFIGURATION DU CENTRE REGIONAL DE CULTURE SCIENTIFIQUE TECHNIQUE ET INDUSTRIELLE DU LANG	2
DEA	NORDRHEIN-WESTFALEN	DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV	2
NL22	Gelderland	WAGENINGEN UNIVERSITEIT	2
FR10	Île de France	POLE DE DIFFUSION DE LA CULTURE SCIENTIFIQUE ILE DE FRANCE	2

UKK	SOUTH WEST (ENGLAND)	PLYMOUTH MARINE LABORATORY	2
BE1	RÉGION DE BRUXELLES-CAPITALE / BRUSSELS HOOFDSTEDE	EUROPEAN ROAD TRANSPORT TELEMATICS IMPLEMENTATION COORDINATION ORGANISATION S.C.R.L.	2
UKH	EAST OF ENGLAND	THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS	2
UKJ	SOUTH EAST (ENGLAND)	NATURAL ENVIRONMENT RESEARCH COUNCIL	2
FR10	Île de France	TECHNICOLOR R&D FRANCE SNC	2
DE1	BADEN-WÜRTTEMBERG	ROBERT BOSCH GMBH	2
DE1	BADEN-WÜRTTEMBERG	Karlsruher Institut fuer Technologie	2
UKM	SCOTLAND	THE UNIVERSITY OF EDINBURGH	2
FR10	Île de France	INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	2
ES51	Cataluña	UNIVERSITAT POLITECNICA DE CATALUNYA	2

Table 39 The participations coordinated by the region

Brittany's regional coordinators	Coordinations
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	9
INSTITUT FRANCAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER	8
UNIVERSITE DE BRETAGNE OCCIDENTALE	5
JCP-CONSULT SAS	5
UNIVERSITE DE RENNES I	4
INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	2
INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	2
NEOTEK PONSEL SA	1
POLE DE RECHERCHE ET D'ENSEIGNEMENTSUPERIEUR UNIVERSITE EUROPEENNE DEBRETAGNE	1
INSTITUT DE LA CORROSION SAS	1

Annex 3 – CIP ICT participation scoreboard

I. FR52 in CIP ICT PSP	FR52	FR	CIP ICT	% of FR52 in FR	% of FR in CIP ICT
Nbr of participations in projects	1	154	2141	0,6%	7,2%
Nbr of coordinations	0	10	128	0,0%	7,8%
EC contribution	159 781	19 991 259	304 167 499	0,8%	6,6%

II. Participant Typology/organisation type	FR52				FR				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				0,0 %	14	1	2 025 336	10,1%	345	14	48 931 144	16,1%
OTH				0,0 %	14	1	1 110 550	5,6 %	230	14	33 768 401	11,1%
PRC	1		159 781	100,0%	78	6	9 100 453	45,5%	835	78	116 503 789	38,3%
PUB				0,0 %	26		4 848 061	24,3%	425	26	67 392 659	22,2%
REC				0,0 %	22	2	2 906 859	14,5%	306	22	37 571 506	12,4%
Total	1	0	159 781	100 %	154	10	19991259	100%	2141	154	304167 499	100%

III. Participant Typology/Public-Private organisations	FR52			FR			CIP ICT PSP		
	Nbr of participations in projects	EC contribution	%	Nbr of participations in projects	EC contribution	%	Nbr of participations in projects	EC contribution	%
Private commercial (PRC)	1	159 781	100,0%	78	9 100 453	45,5%	842	117 814 939	38,7%
Private non Profit (PNP)			0,0%	22	1 754 141	8,8%	442	56 873 668	18,7%
Total Private organisations	1	159781	100,0%	100	10 854 594	54,3%	1 284	174 688 607	57,4%
Public Commercial (PUC)			0,0%	8	1 562 261	7,8%	120	15 166 682	5,0%
Governmental (GOV)			0,0%	46	7 574 404	37,9%	737	114 312 210	37,6%
Total Public organisations	0	0	0,0%	54	9 136 665	45,7%	857	129 478 892	42,6%
Total	1	159781	100,0%	154	19 991 259	100,0%	2 141	304 167 499	100,0%

V SME/ legal type									
	FR52			FR			CIP ICT PSP		
Private commercial (PRC)	1	159 781	100,0%	30	4 109 124	91,1%	344	49 185 099	76,9%
Private non Profit (PNP)			0,0%	3	402 025	8,9%	59	14 769 538	23,1%
Total	1	159 781	100,0%	33	4 511 149	100,0%	403	63 954 637	100,0%

Annex 4 – CIP IEE participation scoreboard

I. FR52 in CIP IEE	FR52	FR	CIP IEE	% of FR52 in FR	% of FR in CIP IEE
Nbr of participations in projects	6	143	2443	4,2%	5,9%
Nbr of coordinations	1	17	235	5,9%	7,2%
EC contribution	513 336	15 422 342	241 453 630	3,3%	6,4%

Annex 5 – ERDF participation scoreboard

I general information			
		ERDF allocated	**ERDF comitted**
	Total in euros :	301 693 854	164 126 600
	Innovation and research axis only (n°1) :	103 950 000	46 755 480
	Total projects co-funded :		356
	Innovation and research axis only (n°1) :		133

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 :	6 435 000	13 564 835
	2	R&TD infrastructure and centres of competence in a specific technology :	61 915 000	22 526 865

	5	Advanced support services for firms and groups of firms	0	0
	7	Investment in firms directly linked to research and innovation (...) :	0	0
	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 (…) :	19 650 000	4 635 774
	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 (...) :	4 150 000	1 322 386
	9	Other measures to stimulate research and innovation and entrepreneurship in SMEs :	16 700 000	5 164 220
	14	Services and applications for SMEs (e-commerce, education and training, networking, etc.) :	5 666 000	700 000
	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 (...) :	6 866 000	12 250 000
	12	Information and communication technologies (TEN-ICT) :	0	0
	13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.) :	5 666 000	19 000
Other	8	Other investment in firms :	0	0

IV Impact and output (innovation and research only) :				
Unit	Type of indicators		Amount foreseen	Amount realised
-	Output	21_02 - Mise en place et diffusion du tableau de bord régional	1	1
-	Output	22_03 - Mise en place de l'Université européenne de Bretagne : signature commune de recherche	1	1
Number	Output	22_04 - Nb de projets (promotion des métiers de la recherche vers les jeunes générations)	5	1
Number	Output	22_05 - Nb de projets (développement des maisons internationales pour l'accueil des chercheurs en résidence)	2	0
Number	Output	23_06 - Nb d'actions collectives réalisées par filières, par thématiques, ou par territoire géographique	150	9

Number	Output	23_07 - Nb d'actions collectives réalisées (actions de diffusion de l'innovation notamment dans les TPE)	80	7
Number	Output	23_08 - Nb d'actions collectives réalisées (aide à la gestion des déchets des entreprises et management environnemental)	30	2
-	Output	24_02 - Réalisation du projet RENATER	1	1
-	Impact	20_01 - Positionnement de la région sur le tableau de bord européen de l'innovation	50	N/A
-	Impact	20_02 - DIRD/PIB	3	1,69
Number	Impact	20_03 - Nb de brevets déposés par an / millions d'actifs	350	N/A
-	Impact	20_04 - Positionnement de la Bretagne (parmi les régions européennes) en nb de brevets TIC / nb millions d'actifs	10	8
%	Impact	20_05 - Part de l'emploi dans les secteurs de haute et moyenne haute technologie et à haut niveau de savoir	10	N/A
%	Impact	20_06 - Part de CA à l'export des PME bretonnes (industrie-services aux entreprises < 250 salariés)	12	N/A
%	Impact	20_07 - % de la population connectée à internet	100	55
Number	Impact	21_01 - Nb de projets de recherche émargeant au 7ème PCRDT	150	N/A
Number	Impact	22_01 - Nb de chercheurs dans les entreprises	8500	6031
Number	Impact	22_02 - Nb de chercheurs dans l'administration	6600	6628
%	Impact	23_01 - Part de cadres dans les PME : Industrie	10	N/A
%	Impact	23_02 - Part de cadres dans les PME : Industrie et services aux entreprises	N/A	N/A
N/A	Impact	23_03 - Quantité de Déchets Industriels Banals & Déchets Industriels dangereux produite	1800	N/A
Number	Impact	23_04 - Nb d'entreprises engagées dans une démarche « d'éco management » (ISO 14001)	300	N/A
%	Impact	23_05 - % des entreprises connectées à internet	100	100
N/A	Impact	24_01 - Débit du réseau RENATER en Bretagne	2000	10
Number	Core	1 - Jobs created	1200	131
Number	Core	11 - Number of information society projects	30	5
Number	Core	12 - Number of additional population covered by broadband access	240000	14000
Number	Core	4 - Number of RTD projects	300	128
Number	Core	5 - Number of cooperation project enterprises-research institutions	200	57
Number	Core	7 - Number of direct investment aid projects to SME	75	7

Annex 6 – Cross thematic table

FP 7 - COOPERATION Theme	EC contribution		COUNTRY	EU	EMPLOYMENT sector	% reg. Emp	Empl. Var. 2004-2009	spec. EU	spec. country	PATENT DOMAIN	n	lib_fields	n° patents	field weight*	country weight**	spec. ***
HEALTH	1.447.846	4%	0,07	0,06	Pharma	1,2%	96	1,23	0,68	CHEM	16	Pharma	11,08	2,34%	0,47%	0,73
					Med. devices	0,6%	108	0,87	0,88	Instr.	13	Med. Tech	3,67	0,78%	0,13%	0,20
FOOD	8.759.635	23%	1,52	1,20	Biotech	0,1%	-287	0,55	0,88	CHEM	15	Biotech	5,20	1,10%	0,82%	1,26
					Processed food	20,1%	1855	3,12	2,53	CHEM	18	Food chem.	3,31	0,70%	0,46%	0,72
					FARMING	3,1%	4272	1,38	2,42							
					Agri PRODUCTS	1,7%	229	1,00	1,27							
ICT	13.191.101	35%	0,41	0,32	IT	2,0%	242	0,87	0,91	Elet.Eng	6	Computer tech.	51,92	10,98%	1,57%	2,42
										Elet.Eng	7	IT				
					Telecom	4,5%	276	1,51	1,41	Elet.Eng	3	Telecomm.	154,41	32,65%	4,93%	7,61
										Elet.Eng	4	Digital com.	121,16	25,62%	5,66%	8,74
										Elet.Eng	5	Basic com.	6,06	1,28%	1,07%	1,65
NANO	2.128.777	6%	0,24	0,16	Metal man.	2,5%	-104	0,46	0,48	CHEM	20	Materials .				
					Plastics	0,9%	-289	0,71	0,67							

					Construction M.	6,6%	1729	0,63	1,06								
					Lighting & e.e	0,2%	-177	0,25	0,24	Elet.Eng	1	Elec. machinery	12,17	2,57%	0,31%	0,48
										Elet.Eng	2	Audio-visual	24,32	5,14%	1,64%	2,53
										Elet.Eng	8	Semiconductors	6,65	1,41%	0,60%	0,92
					Chemical PR.	0,5%	-314	0,89	1,16	CHEM	17	Macromolecular	11,78	2,49%	1,94%	3,00
										CHEM	14	Organic chem.	7,17	1,52%	0,28%	0,43
										CHEM	19	Basic materials	2,40	0,51%	0,27%	0,41
										CHEM	21	Surface tech.	1,00	0,21%	0,15%	0,22
										CHEM	22	nano-technology				
										CHEM	23	Chemical eng.	1,35	0,29%	0,09%	0,14
ENERGY	685.717	2%	0,16	0,09	Oil and gas	0,0%	24	0,04	0,07								
					Power g & t	0,3%	-29	0,64	0,90								
Environment	6.029.632	16%	1,15	0,69						CHEM	24	Envir. Tech.	1,92	0,41%	0,13%	0,20
Transport	1.264.597	3%	0,08	0,10	Transp &logistics	7,6%	-3473	1,00	0,84	Mech.Eng	32	Transport	8,93	1,89%	0,09%	0,15
					Automotive	4,2%	-1404	1,27	1,02								
					Distribution	2,7%	-45	0,84	0,85								

SOCIO	494.315	1%	0,40	0,21	Financial services	10,8%	3141	1,29	0,79							
					EDU	2,0%	1793	0,49	0,67							
					Business services	8,0%	11418	0,88	0,72							
Security	103.937	0%	0,02	0,02												
Space	3.290.690	9%	0,42	0,94	Aerospace	0,5%	848	0,91	0,35							
					FIXTURES	2,8%	1564	0,90	1,24							
					Construction	0,5%	59	0,44	0,40	Other	35	Civil eng.	3,75	0,79%	0,08%	0,13
					Prod. TECH	0,9%	-870	0,37	0,66							
					Entertainment	1,6%	1729	0,97	0,74							
					Heavy Machinery	0,7%	-416	0,61	0,63	Mech.Eng	25	Handling	3,07	0,65%	0,10%	0,15
										Mech.Eng	26	Machine	1,75	0,37%	0,11%	0,17
										Mech.Eng	27	Engines, ..	4,00	0,85%	0,11%	0,17
										Mech.Eng	29	Other machines	3,20	0,68%	0,11%	0,17
										Mech.Eng	31	Mech. elements	1,50	0,32%	0,04%	0,07
					Maritime	3,1%	55	4,21	4,98	Mech.Eng	30	Thermal	1,83	0,39%	0,16%	0,24
					Instruments	0,9%	-4	1,62	1,25	Instr.	9	Optics	8,97	1,90%	0,76%	1,17

					Instr.	10	Measurement	4,67	0,99%	0,15 %	0,23
					Instr.	11	bio. Analysis	0,25	0,05%	0,06 %	0,10
					Instr.	12	Control	2,50	0,53%	0,19 %	0,29
Sporting, recreational and children's goods	0,1%	-215	0,31	0,55							
Textiles	0,4%	-142	0,27	0,46	Mech.Eng	28	Textile				
Media and publishing	2,1%	1467	0,72	0,68							
Tourism and hospitality	3,6%	297	0,82	0,86							
Paper products	1,8%	-180	0,89	1,01							
Furniture	0,6%	-647	0,39	0,84	Other	33	Furniture				
Apparel	0,4%	-370	0,19	0,62							
Jewellery and precious metals	0,0%	-13		0,09							
Tobacco		-78									
Leather products	0,1%	-31	0,60	0,50							
Footwear	0,2%	-100	0,30	1,32							
Stone quarries	0,1%	-103	1,12	1,84							
					Other	34	Other	3,00	0,63%	0,12 %	0,19

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