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**COMMISSION STAFF WORKING PAPER**

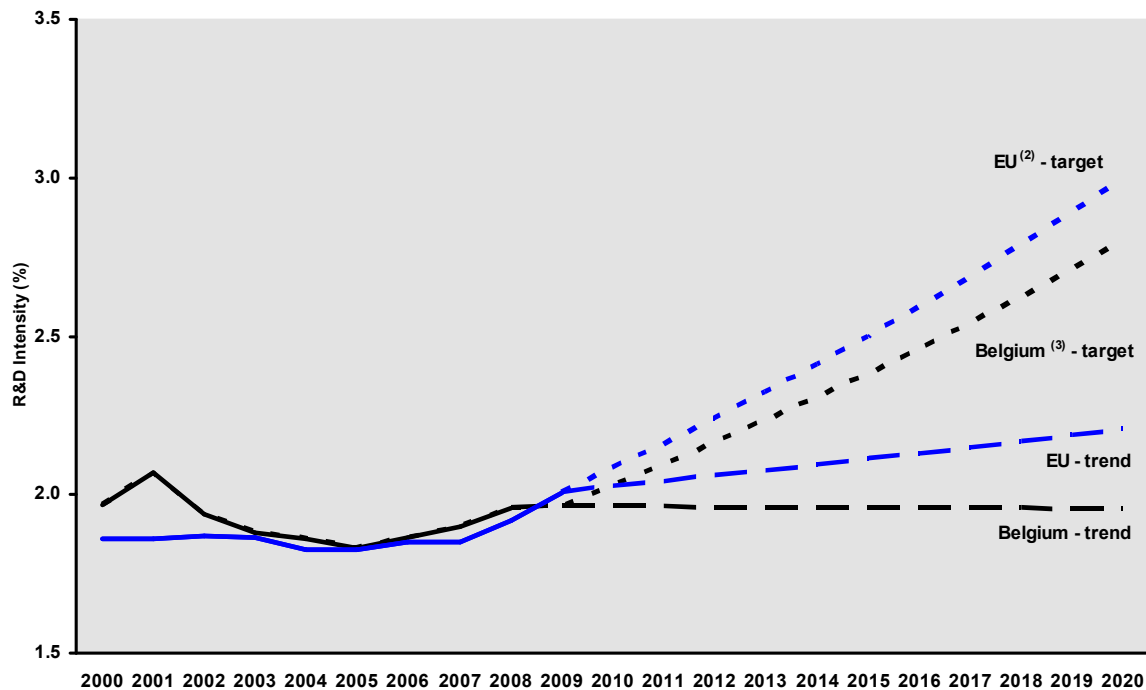
**Innovation Union Competitiveness report 2011**

**COUNTRY PROFILE**  
**BE - Belgium**

**Progress towards meeting the Europe 2020 R&D intensity target**

The R&D intensity in Belgium remained close to 2% during the period 2000-2009, passing from 1.97% of GDP in 2000 to 1.96% of GDP in 2009 as the result of two opposite trends. While the R&D intensity of the private sector decreased from 1.45% to 1.32%, the public R&D intensity increased from 0.52% to 0.62%. Belgium set an R&D intensity target to be achieved by 2020 between 2.6% and 3% of GDP. This target is ambitious with regard to recent trends but is within reach given the current structure of the Belgium economy. Compared to other countries, Belgium has the potential to increase the R&D intensity in existing sectors, both in the high-tech and medium high-tech sectors.

**Belgium - R&D Intensity projections, 2000-2020 <sup>(1)</sup>**



Source: DG Research and Innovation

Innovation Union Competitiveness report 2011

Data: DG Research and Innovation, Eurostat

Notes: (1) The R&D Intensity projections based on trends are derived from the average annual growth in R&D Intensity 2000-2009.

(2) EU: This projection is based on the R&D Intensity target of 3.0% for 2020.

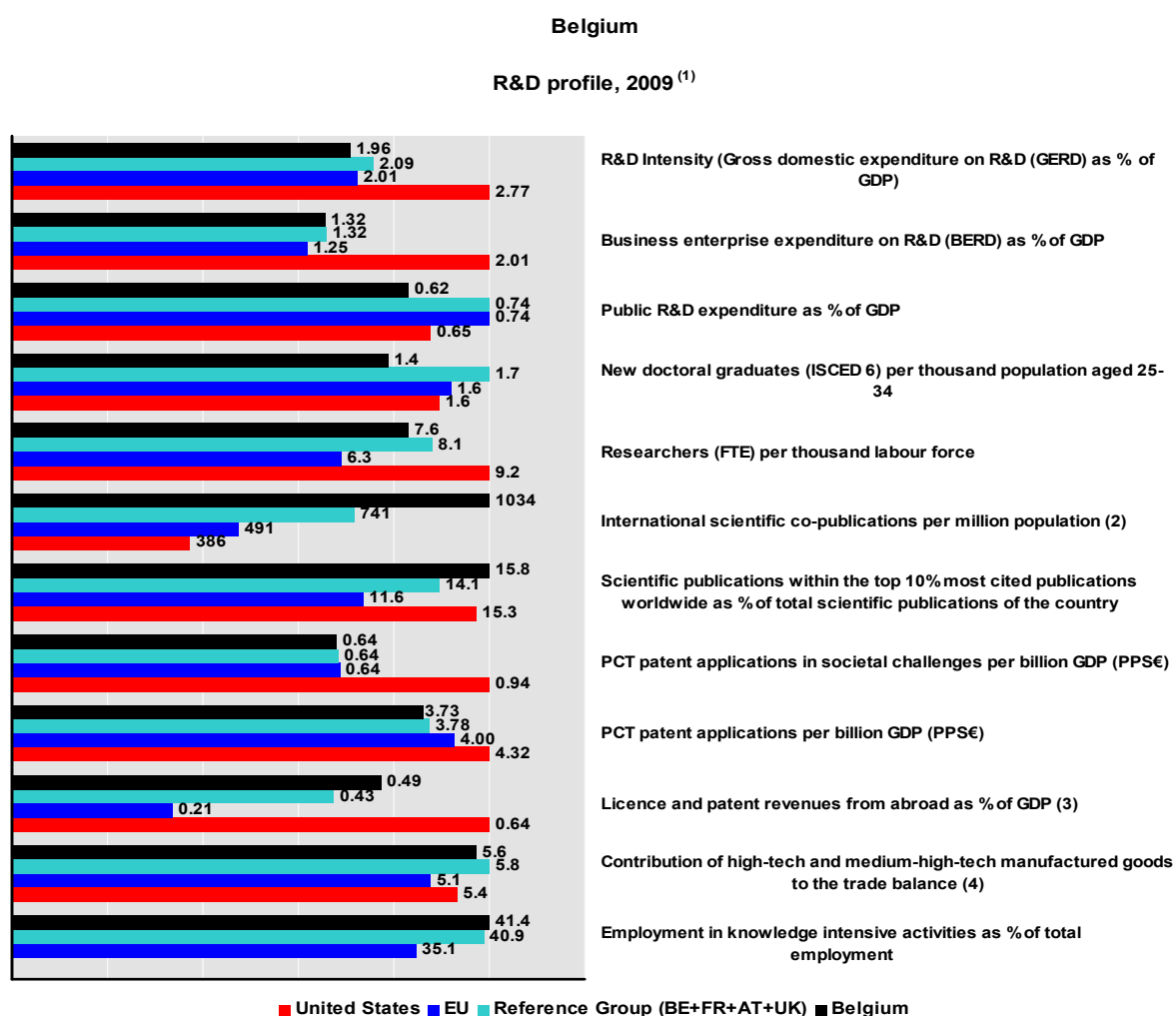
(3) BE: This projection is based on a tentative R&D Intensity target of 2.8% for 2020.

**Research and Innovation Performance**

As set out in the 2010 Innovation Union Scoreboard, Belgium is an innovation follower, with a performance above the EU average<sup>1</sup>. Relative strengths are in Human resources, Open, excellent and attractive research systems and Linkages & entrepreneurship. Relative weaknesses are in Firm investments, Intellectual assets and Outputs.

<sup>1</sup> IUS 2010

Overall, the research and innovation system of Belgium displays a set of very strong indicators. The number of researchers per thousand labour force is 7.6, well above the EU average of 6.3 researchers. The international scientific co-publications per million population is more than double that of the EU average of the United States, giving evidence of the degree of openness of the Belgian research and innovation system. Moreover, the quality of the scientific production is evidenced by the number of scientific publications within the top 10% most cited publications worldwide, as % of the total publications of Belgium (15.8%, well above EU average and also higher than the 15.3% of the United States). For these two indicators as well as for the proportion of its work force employed in knowledge intensive activities, Belgium leads the basket of countries of reference indicated in the R&D profile below. Finally, 38.3% of all innovative SMEs in Belgium introduced a new or a significantly improved product new to the market<sup>2</sup>, a figure only surpassed in Sweden.



Source: DG Research and Innovation

Innovation Union Competitiveness report 2011

Data: Eurostat, OECD, Science Metrix / Scopus (Elsevier)

Notes: (1) The values refer to 2009 or to the latest available year.

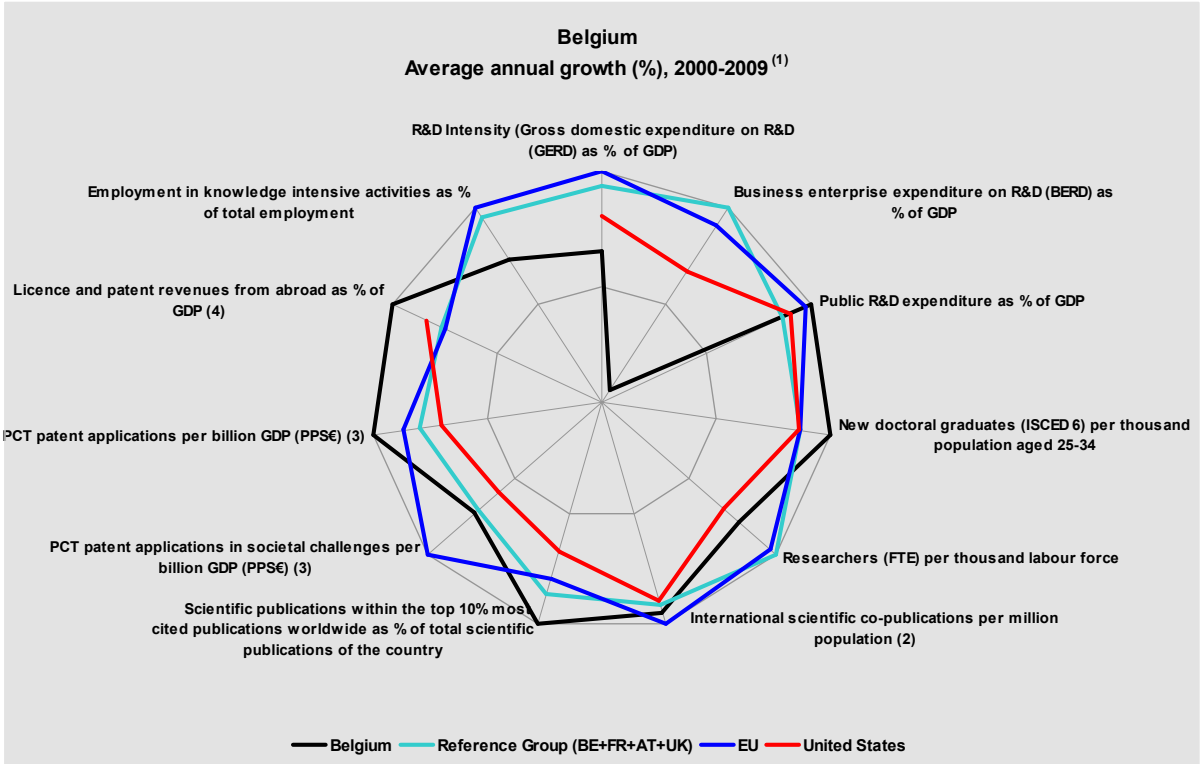
(2) The EU value refers to the median rather than to the average.

(3) EU refers to extra-EU.

(4) (i) EU does not include BG, CY, LV, LT, MT, RO; (ii) EU refers to extra-EU.

(5) Elements of estimation were involved in the compilation of the data.

But the Belgian research and innovation system also has some weaknesses: business expenditure on R&D has been decreasing (as a % of GDP, not in absolute terms, as mentioned before) and PCT patent applications per billion GDP are below the EU average.<sup>3</sup> Equally important, the public expenditure of R&D as a % of GDP remains below the EU average.



Source: DG Research and Innovation  
 Innovation Union Competitiveness report 2011  
 Data: Eurostat, OECD, Science Metrix / Scopus (Elsevier)  
 Notes: (1) Growth rates which do not refer to 2000-2009 refer to growth between the earliest available year and the latest available year over the period 2000-2010.  
 (2) The EU value refers to the median rather than to the average.  
 (3) Average annual growth refers to real growth.  
 (4) EU refers to extra-EU.  
 (5) Elements of estimation were involved in the compilation of the data.

<sup>3</sup> The total Belgium triadic patent families is also low with a share of 0.8% - OECD STI Outlook report 2010

**Participation in the European Research Area: Scientific and Technological collaborations**

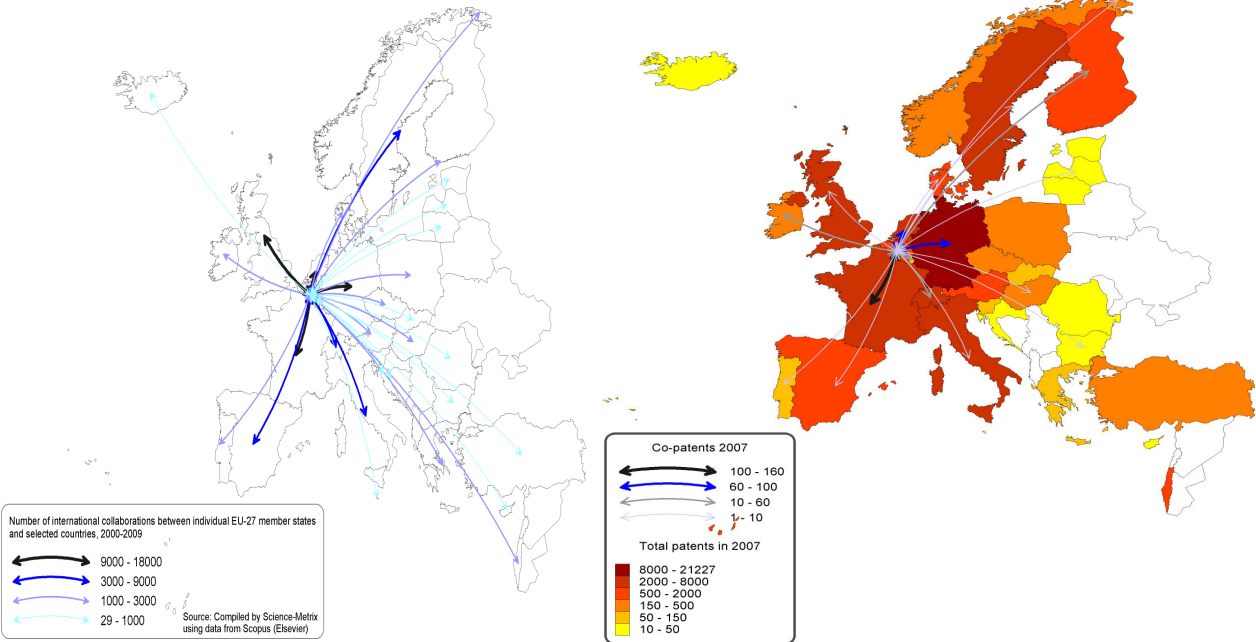
Belgium has a very open research and innovation system well connected with the major European research and innovation networks. As measured in terms of co-publications, Belgium researchers have an active collaboration with researchers from the Netherlands, where the geographical proximity plays an important role, but also with France, the United Kingdom, Germany and Italy.

20% of all EPO patent applications filed by Belgian residents are co-patents including a third country. The transnational knowledge flows involving Belgium partners are mostly with Germany, France and the Netherlands.

This degree of internationalisation reflects the very high quality and interconnection of the Belgium scientific and technological base. This strong position is reflected in the context of the EU R&D Framework Programmes, where Belgium is one of the most successful countries in FP6 and FP7 (see Part II 4.3.3 of this report).

**Co-publications between Belgium and European countries in 2000-2009**

**Co-invented patent applications between Belgium and European countries, 2007**



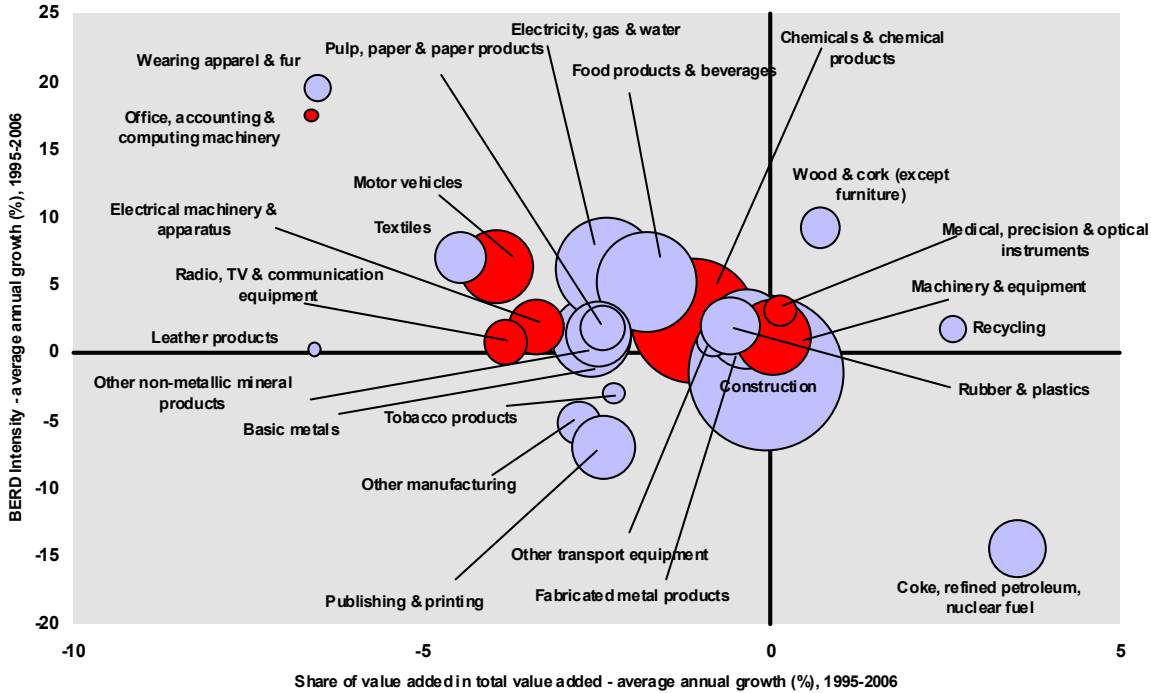
Source: DG Research and Innovation  
Data: Scopus/ Science Metrix and Eurostat

### Structural change towards a more knowledge-intensive economy

The manufacturing sector in Belgium accounts for 80% of the BERD, which is highly concentrated with only 3 sectors responsible for 50% (Chemicals, Pharmaceuticals, and Radio, TV and telecommunication equipment). The contraction of the Chemicals sector and of the Radio, TV and telecommunication sector over the period 1995-2006 has been very important, this in spite of the expansion of pharmaceuticals (counted as NACE2 category "Chemicals and chemical products"). This concentration is reflected in the number of large companies and (foreign owned) multinationals in the Chemicals, Pharmaceuticals and Biotech sectors. In general terms one can say that research in the Belgian private sector is now more than ever dominated by life sciences.

During the period 1995-2006, R&D intensity increased in most sectors, with the following exceptions: publishing and printing, coke, refined petrol products and nuclear fuel. During the same period, the economic structure has become less research oriented as some research-intensive economic activities declined in absolute terms. BERD intensity slightly increased during the same period, thus compensating the impact of the trend of the economy towards less research intensive activities.

**Belgium - Share of value added versus BERD Intensity - average annual growth, 1995-2006**



Source: DG Research and Innovation  
 Data: OECD  
 Note: (1) High-Tech and Medium-High-Tech sectors are shown in red. 'Other transport equipment' includes High-Tech, Medium-High-Tech and Medium-Low-Tech.

## FP7 Key facts and figures

### Applications:

As of 2011/03/16, a total of

- 8.147 eligible proposals were submitted in response to 248 FP7 calls for proposals
- involving 11.134 applicants from Belgium (4,18% of EU-27\*) and
- requesting EUR 3.602,93m of EC contribution (4,08% of EU-27\*)

Among the EU-27\* Belgium (BE) ranks:

- 8th in terms of number of applicants and
- 9th in terms of requested EC contribution

### Success rates:

- The BE applicant success rate of 26,9% is higher than the EU-27\* applicant success rate of 21,6%.
- The BE EC financial contribution success rate of 24,4% is higher than the EU-27\* rate of 20,7%.

Specifically, following evaluation and selection, a total of

- 2.025 proposals were retained for funding (24,9%)
- involving 2.995 (26,9%) successful applicants from Belgium and
- requesting EUR 880,81m (24,4%) of EC financial contribution

Among the EU-27\*, Belgium (BE) ranks:

- 1st in terms of applicants success rate and
- 2nd in terms of EC financial contribution success rate

### Signed grant agreements

As of 2011/03/16, Belgium (BE) participates in

- 1.624 signed grant agreements
- involving 19.850 participants of which 2.391 (12,05%) are from Belgium
- benefiting from a total of EUR 5.613,01m of EC financial contribution of which EUR 707,89m (12,61%) is dedicated to participants from Belgium.

Among the EU-27\* in all FP7 signed grant agreements, Belgium (BE) ranks:

- 7th in number of participations and
- 8th in budget share

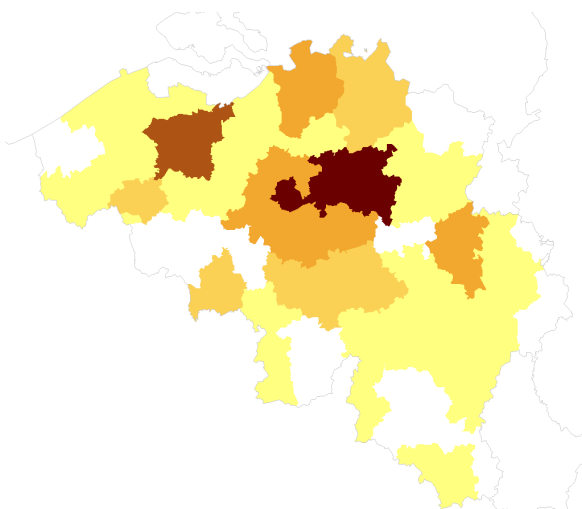
### SME performance and participation

- The BE SME applicant success rate of 25,39% is higher than the EU-27\* SME applicant success rate of 19,33%.
- The BE SME EC financial contribution success rate of 23,05% is higher than the corresponding EU-27\* rate of 18,26%.

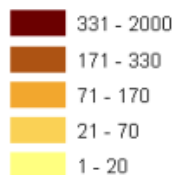
Specifically,

- 3.237 BE SME applicants requesting EUR 872,43m

**Nr. of Researchers as % of population	N/A	0,40%
Rank in EU-27*		
Innovation scoreboard (2008)	- 8th	
- Above EU-27 average		
- Innovation Follower		
Nr. of FP7 applicants (% EU-27*)	11.134	
(4,18%)	266.507	
Req. EC contribution by FP7 applicants in EUR million (% EU-27*)	3.602,93	
(4,08%)	88.295	
Nr. of successful FP7 applicants (% EU-27*)	2.995	
(5,06%)	59.199	
Req. EC contribution by successful FP7 applicants in EUR million (% EU-27*)	880,81	
(4,82%)	18.262,02	
Success rate FP7 applicants	26,9%	21,6%
Success rate		
FP7 EC contribution	24,4%	20,7%
Nr. of FP7 grant holders (% EU-27*)	2.391	
(4,66%)	51.279	
EC contribution to FP7 grant holders in EUR million (% EU-27*)	707,89	
(4,27%)	16.578,15	
Nr. of FP7 coordinators (% of grant holders)	406	
(16,98%)	9.383	
(18,30%)		
Nr. of FP7 SME grant holders (% grant holders)	502	
(21,00%)	8.845	
(17,25%)		
EC contribution to FP7 SME grant holders in EUR million (% of grant holders)	122,11	
(17,25%)	2.207,73	
(13,32%)		



- 822 (25,39%) successful SMEs requesting EUR 201,08m (23,05%)



In signed grant agreements, as of 2011/03/16,

- 502 BE SME grant holders, i.e., 21,00% of total BE participation
- EUR 122,11m, i.e., 17,25% of total BE budget share

### Top 3 collaborative links with:

- DE - Germany (2.659)
- UK - United Kingdom (1.964)
- FR - France (1.944)

BE - Belgium - most active FP7 research priority areas by number of applicants applying for the research projects						
FP7 priority area	Nr. of applicants	Requested EC contribution by applicants (M euro)	Nr. of mainlisted applicants	Success Rate (applicants)	Requested EC contribution by mainlisted applicants (M euro)	Success Rate (requested EC contribution)
Information and Communication Technologies	2.288	932,28	478	20,89 %	192,53	20,65 %
Marie-Curie Actions	1.371	n/a	311	22,68 %	n/a	n/a
Transport (including Aeronautics)	1.156	279,45	374	32,35 %	85,74	30,68 %
Health	1.077	458,02	271	25,16 %	103,25	22,54 %
Environment (including Climate Change)	760	203,57	191	25,13 %	45,53	22,37 %
Research for the benefit of SMEs	681	125,37	178	26,14 %	33,70	26,88 %

BE - Belgium - most active FP7 research priority areas by EC contribution granted to the research projects				
FP7 Priority Area	Number of grant holders	% of all BE grant holders	EC contribution (EUR million)	% of total EC contribution to BE
Information and Communication Technologies	449	18,78%	167,43	23,65 %
Health	251	10,50%	91,93	12,99 %
Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	201	8,41%	66,48	9,39 %
ERC	53	2,22%	63,14	8,92 %
Transport (including Aeronautics)	274	11,46%	59,28	8,37 %
Marie-Curie Actions	244	10,20%	55,95	7,90 %

BE - Belgium - participation in the FP7 research projects by organisation activity type									
Activity Type	Nr. of applicants	Requested EC contribution by applicants (M euro)	Nr. of mainlisted applicants	Success rate (applicants)	Requested EC contribution by mainlisted applicants (M euro)	Success rate (requested contribution)	Nr. of grant holders	EC contribution to grant holders	% of total EC contribution to grant holders
HES	3.688	1.043,64	835	22,64%	237,08	22,72%	805	294,76	41,64%
PRC	2.787	759,78	724	25,98%	184,98	24,35%	638	161,62	22,83%
REC	2.341	783,19	732	31,27%	246,38	31,46%	533	178,15	25,17%
OTH	1.461	324,10	462	31,62%	105,26	32,48%	312	54,65	7,72%
PUB	450	79,97	186	41,33%	27,36	34,22%	103	18,71	2,64%
<b>SME</b>	<b>3.237</b>	<b>872,43</b>	<b>822</b>	<b>25,39%</b>	<b>201,08</b>	<b>23,05%</b>	<b>502</b>	<b>122,11</b>	<b>17,25%</b>

HES - Higher or secondary education, PRC - Private for profit (excl. education), REC - Research organisations, OTH - Others, PUB - Public body (excl. research and education),



BE - Belgium - the most active NUTS3 regions, by EC contribution granted to the FP7 research projects				
BE - Belgium region	Number of grant holders	% of all BE - Belgium grant holders	EC contribution (M euro)	% of total EC contribution to BE
Arr. de Bruxelles-Capitale / Arr. van Brussel-Hoofdstad (BE100)	904	37,81%	203,41	28,73%
Arr. Leuven (BE242)	479	20,03%	196,81	27,80%
Arr. Gent (BE234)	262	10,96%	99,78	14,10%
Arr. Antwerpen (BE211)	140	5,86%	45,53	6,43%
Arr. Nivelles (BE310)	120	5,02%	33,81	4,78%

BE - Belgium - most active organisations in terms of EC contribution granted to the FP7 research projects				
Legal Name	Number of Participations	% of all BE grant holders	EC contribution (M euro)	% of total EC contribution to BE grant holders
KATHOLIEKE UNIVERSITEIT LEUVEN (K.U.LEUVEN)	259	10,83%	108,38	15,31%
INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	114	4,77%	61,79	8,73%
UNIVERSITEIT GENT (UGent)	127	5,31%	52,25	7,38%
UNIVERSITE LIBRE DE BRUXELLES (ULB)	85	3,55%	30,65	4,33%
UNIVERSITE CATHOLIQUE DE LOUVAIN (UCL)	92	3,85%	26,29	3,71%

NOTES:

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FP7 proposal and application figures are valid as of the 2011/03/16

FP7 grant agreements and participation figures are valid as of the 2011/03/16

\*EU-27 includes the 27 country-members and JRC as a separate entity

\*\*E-STAT Reference year: 2007

\*\*European Innovation Scoreboard is available at the website of [DG Enterprise and Industry](#)