

# COUNTRY PROFILE



## FI - Finland

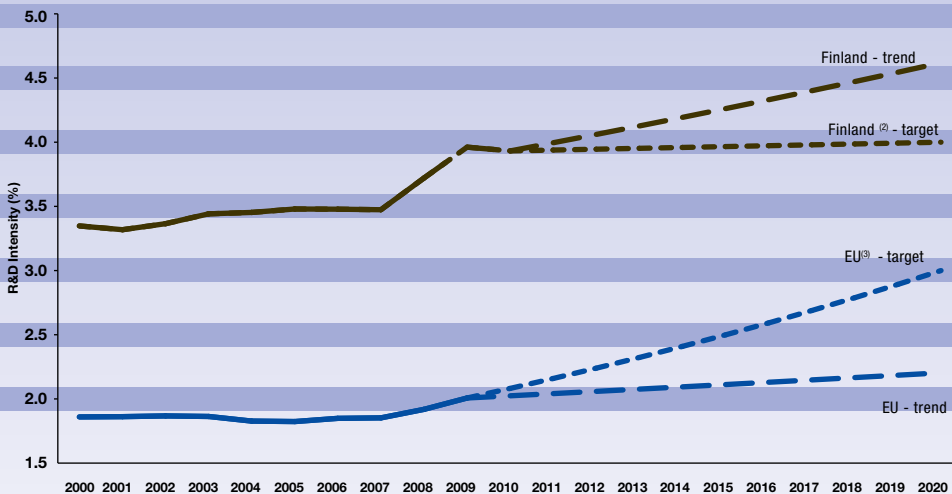
### Progress towards meeting the Europe 2020 R&D intensity target

R&D intensity in 2009 rose to 3.93%, very close to the 4% target, and confirmed once again the front leading position of Finland in terms of R&D investments. Public R&D in 2009 increased up to 1.11% and somehow compensated for the slight decrease of private R&D that resulted after the financial and economic downturn of the last couple of years. Nevertheless, private R&D still remains strong in the country at 2.79%. The R&D target for 2020 has been set at 4%, a value very close to the existing R&D intensity. While the continuation of the recent R&D growth trend would suggest the possibility of a more ambitious target, it should be noted that Finland faces a structural and acute challenge to raise further R&D investment, as a great part of private sector investment

is concentrated in one sector, i.e. ICT, and around one company, Nokia. A widely shared view in Finland is that investing in R&I is necessary for competitiveness and productivity growth, and consequently a general commitment to moderately increase public R&D funding is expected in the future. This could be combined with efforts to further improve framework conditions for fast growing innovative firms, also beyond ICT, in emerging user driven sectors including in services, in order to help the diversification of the economy building on the strong knowledge base assets of Finland. The recent review for 2011-2015 Research and Innovation policy guidelines of the Prime Minister led Research and Innovation Council raised the public funding, while ensuring the effectiveness of the public investments and a simplification of the R&I system.

### FINLAND

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



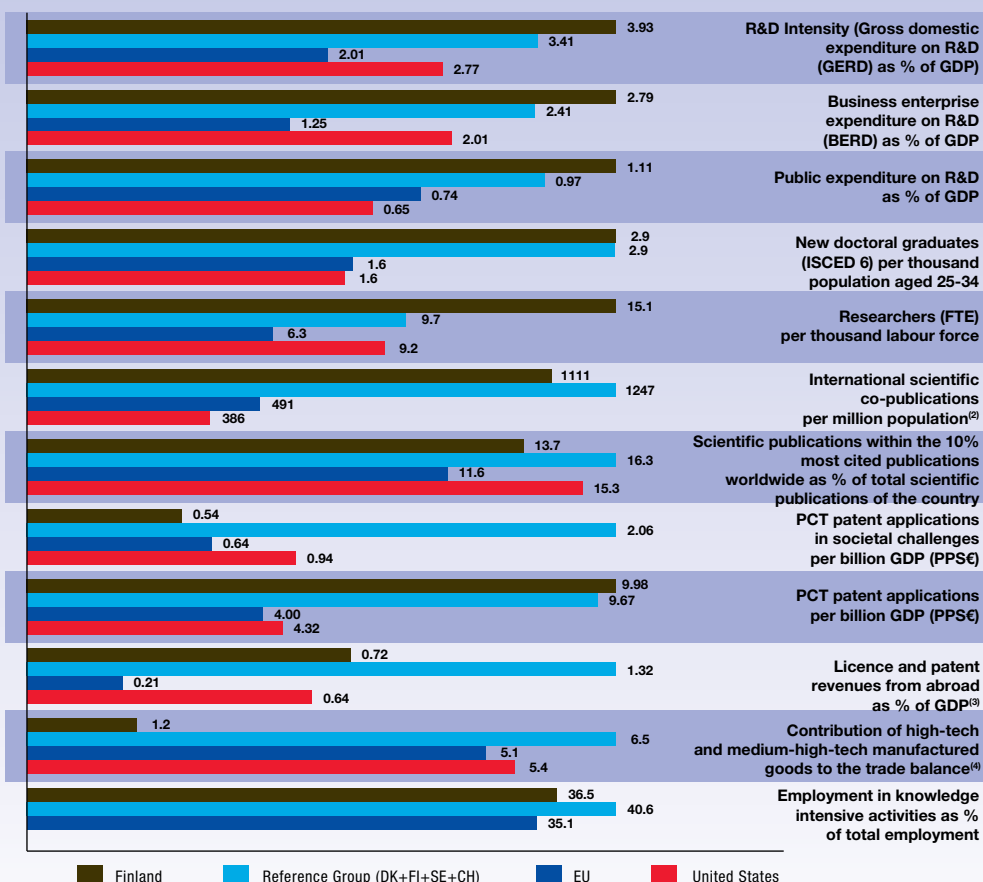
Source: DG Research and Innovation

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 for 2000-2009 in the case of the EU and for 2000-2010 in the case of Finland.  
 (2) FI: This projection is based on a tentative R&D Intensity target of 4.0% for 2020.  
 (3) EU: This projection is based on the R&D Intensity target of 3.0% for 2020.

Innovation Union Competitiveness Report 2011

## FINLAND

R&D profile, 2009<sup>(1)</sup>

Source: DG Research and Innovation

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

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

(2) (i) The EU value refers to the median rather than to the average; (ii) CH is not included in the Reference Group.

(3) EU refers to extra-EU.

(4) (i) EU does not include BG, CY, LV, LT, MT, RO; (ii) EU refers to extra-EU; (iii) CH is not included in the Reference Group.

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

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## Research and Innovation Performance

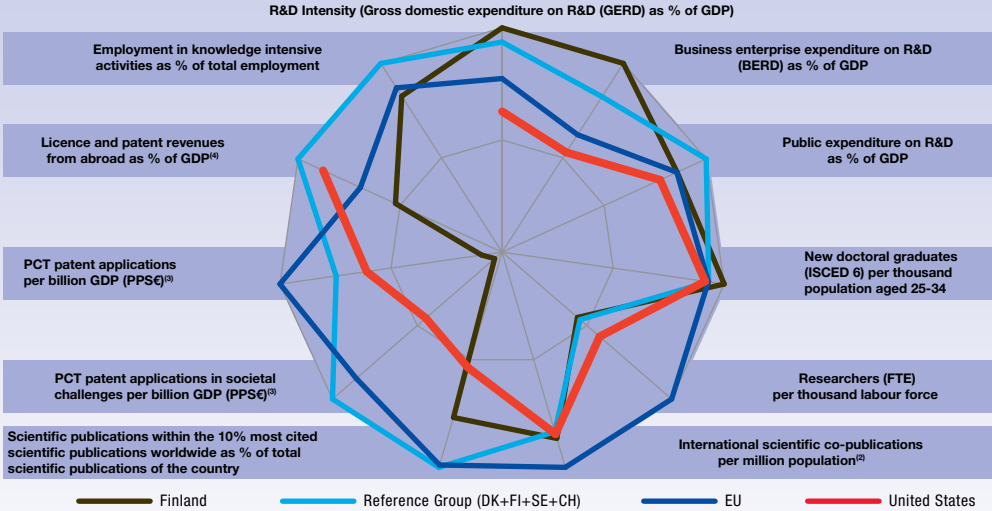
The Finnish research and innovation (R&I) system is characterised by a strong commitment both from the public and private sectors to increase R&I and education investments. Finland is leading in terms of R&D intensity and human resources. A distinctive characteristic is the high dependency of the system on one company, Nokia, which accounts for nearly 50% of the total business sector R&D investments, which in turn accounts for 71% of the total R&D investment. The large R&D investments and favourable framework condition in terms of macroeconomic stability and relatively high access to venture capital result in important scientific and technological outputs. Finland scores

well above the EU average in terms of high quality scientific publications, patents and their contribution to a knowledge-base economy.

In dynamic terms, in the last decade Finland has outperformed the EU, the United States and other highly knowledge-intensive countries in Europe in terms of private and public R&D investments and the share of new doctoral graduates. However, this rosy picture in terms of increasing input does not find its immediate translation in terms of growth in scientific and technological output, especially in terms of patents, where the country seems to lose ground vis-à-vis these reference countries.

# FINLAND

## Average annual growth (%), 2000-2009<sup>(1)</sup>



Source: DG Research and Innovation

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) (i) The EU value refers to the median rather than to the average; (ii) CH is not included in the Reference Group.

(3) Average annual growth refers to real growth.

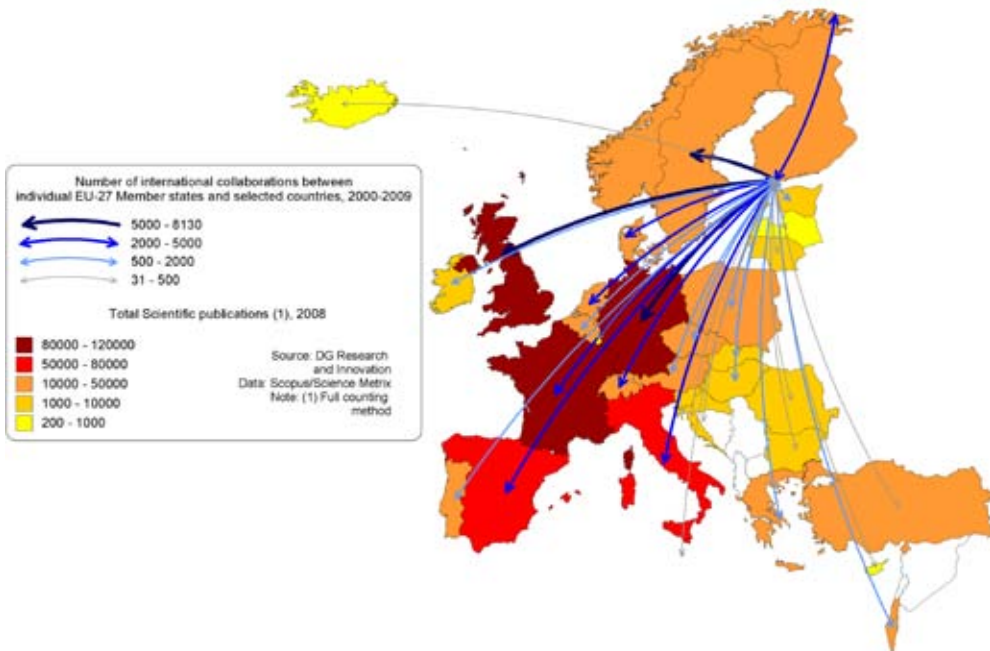
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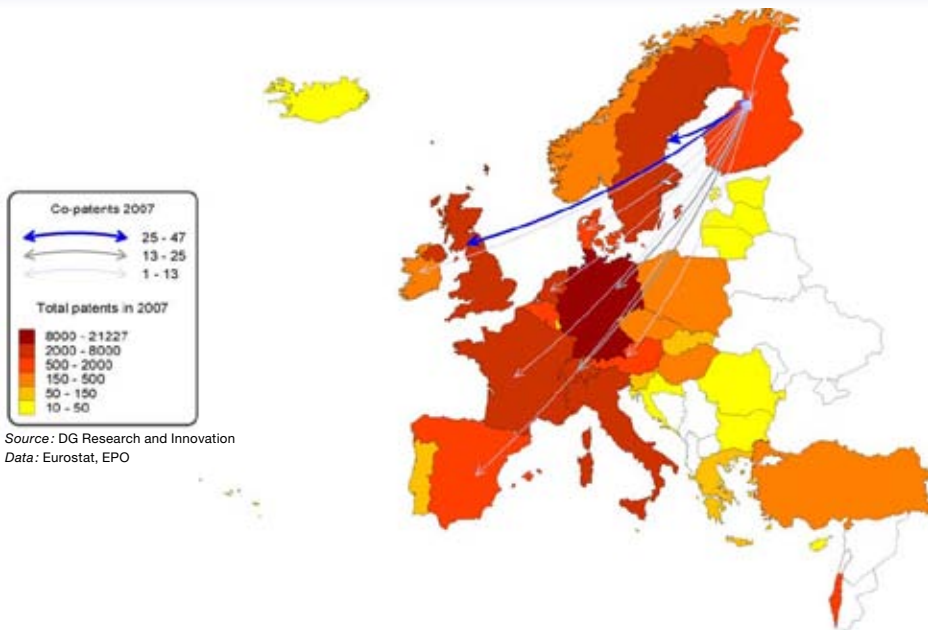
# FINLAND

## Co-publications between Finland and European Countries in 2000-2009



## FINLAND

## Co-invented patent applications between Finland and European Countries, 2007



Source: DG Research and Innovation  
Data: Eurostat, EPO

This relative weaker growth performance may evidence some areas where the efficiency of the system to translate high R&D investments into high quality scientific and technological output and economic activity could be improved. In this sense, the recent review of the 2011-2015 Research and Innovation policy guidelines of the Prime Minister draw the attention to the need for boosting the effectiveness of public investments.

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

Finland is a small economy with limited resources and markets, dependent of external trade and internationalisation of R&I. Alongside internal reforms, the efficiency of the research system is being strengthened by an opening up and integration into the European research system. The integration towards other R&I relevant European organisations and scientific networks is improving.

The Innovation Union Competitiveness report illustrates several aspects of scientific and technological cooperation. European-wide maps illustrate that Finland is connected to the main nodes of the networks, which are located in major research-intensive countries of Western and Central Europe. The strongest links of the Finnish science and technology cooperation are with the main EU trade partners especially Germany, Sweden and the United Kingdom, but some cooperation is also

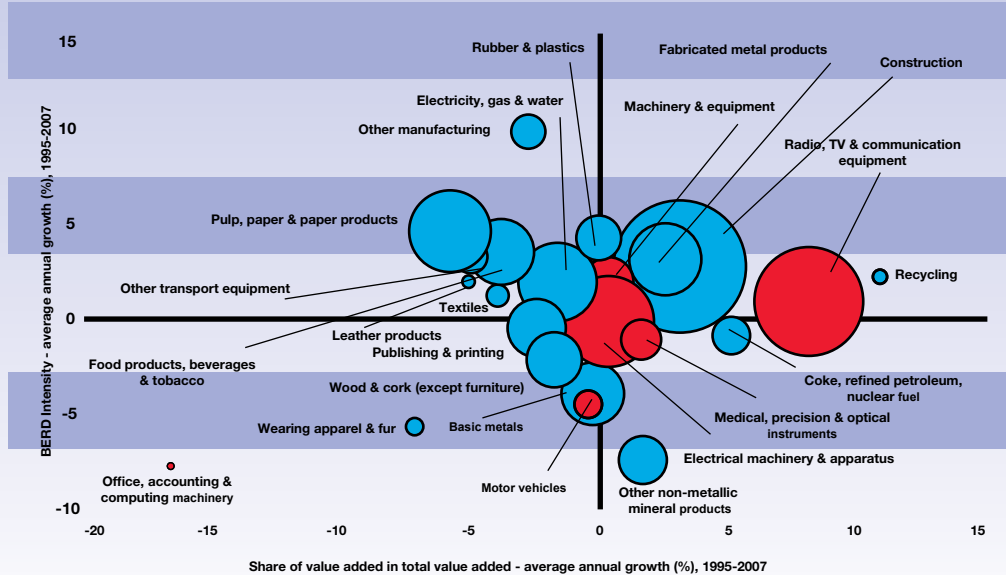
visible with Southern and Eastern European countries. More generally, Finnish researchers are integrating in the international scientific knowledge flows as evidenced by the international co-publications including cooperation with the United States and Asia. However, despite being among the scientific and technological leaders in Europe, Finland's internationalisation in science and technology still remains behind the reference group including Sweden, Denmark and Switzerland, notably in terms of technological cooperation. This may signal an untapped potential for progress that could benefit future competitiveness and growth of the country.

### Structural change towards more knowledge-intensive economy

In the last fifteen year, Finland has become a research intensive economy, with an important increase in terms of private R&D investments. The development of Nokia has led the High-tech ICT cluster to dominate the Finnish economy. ICT related growth has, to some extent, overshadowed the development of prior traditional sectors, such as Machinery and Equipment, which have however managed to increase their R&D intensity, measured as the share of R&D investment over total value added. Large sectors such as Construction and Fabricated metal products have demonstrated their capacity to raise their R&D intensity and to translate this in additional growth. The Pulp and Paper sector might get similar benefits over the years to come. However, it

## FINLAND

## Share of value added versus BERD Intensity - Average annual growth, 1995-2007



Source: DG Research and Innovation

Data: OECD

Notes: (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.

(2) 'Chemicals and chemical products' is not visible on the graph.

Innovation Union Competitiveness Report 2011

is widely acknowledged in Finland that the emergence of new R&I intensive sectors and growth companies are crucial for the future well-being of the country. In this regard, Finland expects also service innovations and design to play a significant role. Conversations on how to foster this structural change are currently ongoing among major national stakeholders.

## FP7 Key facts and figures

### Applications

As of 2011/03/16, a total of

- 4425 eligible proposals were submitted in response to 248 FP7 calls for proposals
- involving 6117 applicants from Finland (2.30% of EU-27\*) and
- requesting EUR 2364.28m of EC contribution (2.68% of EU-27\*)

Among the EU-27\* Finland (FI) ranks:

- 12<sup>th</sup> in terms of number of applicants and
- 11<sup>th</sup> in terms of requested EC contribution

### Success rates

- The FI applicant success rate of 23.1% is higher than the EU-27\* applicant success rate of 21.6%.

- The FI EC financial contribution success rate of 21.3% is similar to the EU-27\* rate of 20.7%.

Specifically, following evaluation and selection, a total of

- 986 proposals were retained for funding (22.3%)
- involving 1415 (23.1%) successful applicants from Finland and
- requesting EUR 503.47m (21.3%) of EC financial contribution

Among the EU-27\*, Finland (FI) ranks:

- 9<sup>th</sup> in terms of applicants success rate and
- 8<sup>th</sup> in terms of EC financial contribution success rate

### Signed grant agreements

As of 2011/03/16, Finland (FI) participates in

- 851 signed grant agreements
- involving 11429 participants of which 1271 (11.12%) are from Finland
- benefiting from a total of EUR 3264.07m of EC financial contribution of which EUR 432.01m (13.24%) is dedicated to participants from Finland.

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

- 11<sup>th</sup> in number of participations and
- 11<sup>th</sup> in budget share

**SME performance and participation**

- The FI SME applicant success rate of 21.88% is higher than the EU-27\* SME applicant success rate of 19.33%.
- The FI SME EC financial contribution success rate of 22.78% is higher than the corresponding EU-27\* rate of 18.26%.

Specifically,

- 1 161 FI SME applicants requesting EUR 299.99m
- 254 (21.88%) successful SMEs requesting EUR 68.33m (22.78%)

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

- 163 FI SME grant holders, i.e., 12.82% of total FI participation
- EUR 39.15m, i.e., 9.06% of total FI budget share

**Top 3 collaborative links with**

- DE - Germany (1 550)
- UK - United Kingdom (1 091)
- FR - France (985)

**Nr. of Researchers		
as% of population	N/A	0.40%
Rank in EU-27*		
Innovation scoreboard (2008)	- 2 <sup>nd</sup>	
- Above EU-27 average		
- Innovation Leader		
Nr. of FP7 applicants (% EU-27*)	6 117	
(2.30%)	266 507	
Req. EC contribution by FP7 applicants		

in EUR million		
(% EU-27*)	2 364.28	
(2.68%)	88 295	
Nr. of successful FP7 applicants		
(% EU-27*)	1 415	
(2.39%)	59 199	
Req. EC contribution by successful FP7 applicants		
in EUR million		
(% EU-27*)	503.47	
(2.76%)	18 262.02	
Success rate FP7 applicants	23.1%	21.6%
Success rate		
FP7 EC contribution	21.3%	20.7%
Nr. of FP7 grant holders		
(% EU-27*)	1 271	
(2.48%)	51 279	
EC contribution to FP7 grant holders		
in EUR million		
(% EU-27*)	432.01	
(2.61%)	16 578.15	
Nr. of FP7 coordinators		
(% of grant holders)	185	
(14.56%)	9 383	
(18.30%)		
Nr. of FP7 SME grant holders		
(% of grant holders)	163	
(12.82%)	8 845	
(17.25%)		
EC contribution to FP7 SME grant holders in EUR million		
(% of grant holders)	39.15	
(9.06%)	2 207.73	
(13.32%)		

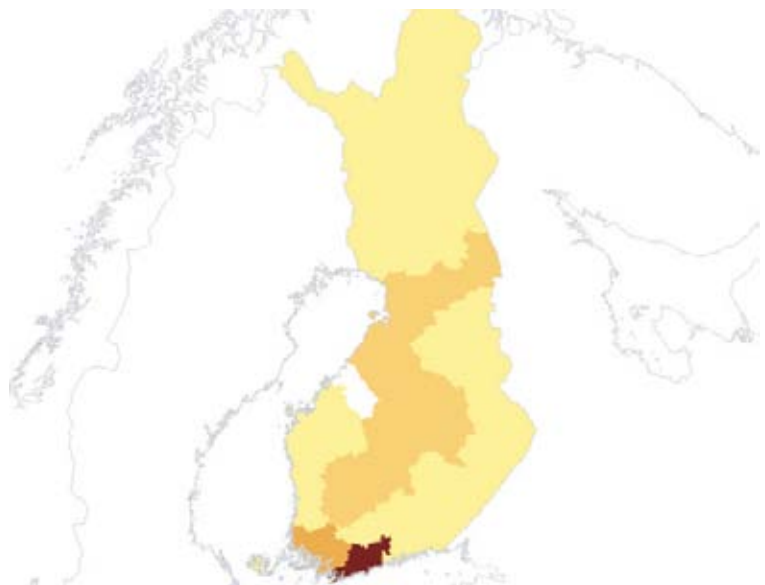
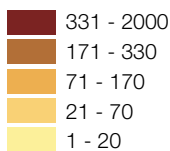


TABLE 1

**FI - Finland - 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	1 527	635.58	263	17.22%	104.19	16.39%
Marie-Curie Actions	607	n/a	142	23.39%	n/a	n/a
Health	531	260.91	130	24.48%	58.26	22.33%
Socio-economic sciences and Humanities	375	95.88	38	10.13%	14.80	15.44%
Research for the benefit of SMEs	365	45.99	79	21.64%	9.71	21.11%
Food, Agriculture and Fisheries, and Biotechnology	362	125.91	80	22.10%	26.10	20.73%

TABLE 2

**FI - Finland - Most active FP7 research priority areas  
by EC contribution granted to the research projects**

FP7 priority area	Number of grant holders	% of all FI grant holders	EC contribution (EUR million)	% of total EC contribution to FI
Information and Communication Technologies	278	21.87%	90.11	20.86%
Health	125	9.83%	55.23	12.79%
Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	124	9.76%	47.56	11.01%
ERC	32	2.52%	46.53	10.77%
Energy	53	4.17%	28.17	6.52%
Food, Agriculture and Fisheries, and Biotechnology	68	5.35%	24.27	5.62%

Notes: Report generated on: 2011/03/25.04:38 PM

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

FP7 grant agreements and participation figures are valid as of 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

TABLE 3

**FI - Finland - 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	2464	746.08	475	19.28%	131.77	17.66%	461	168.94	39.11%
REC	1589	656.30	440	27.69%	178.45	27.19%	421	169.26	39.18%
PRC	1291	340.07	321	24.86%	93.47	27.49%	294	78.28	18.12%
PUB	253	44.57	90	35.57%	16.24	36.43%	50	6.06	1.40%
OTH	228	62.23	57	25.00%	25.36	40.74%	45	9.47	2.19%
SME	1161	299.99	254	21.88%	68.33	22.78%	163	39.15	9.06%

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

TABLE 4

**FI - Finland - The most active NUTS3 regions,  
by EC contribution granted to the FP7 research projects**

FI - Finland region	Number of grant holders	% of all FI - Finland grant holders	EC contribution (M euro)	% of total EC contribution to FI
Uusimaa (FI181)	848	66.72%	316.12	73.17%
Varsinais-Suomi (FI183)	96	7.55%	29.19	6.76%
Pirkanmaa (FI197)	80	6.29%	27.15	6.29%
Pohjois-Pohjanmaa (FI1A2)	61	4.80%	17.71	4.10%
Pohjois-Savo (FI132)	42	3.30%	11.69	2.71%

TABLE 5

**FI - Finland - Most active organisations in terms  
of EC contribution granted to the FP7 research projects**

Legal Name	Number of Participations	% of all DK grant holders	EC contribution (M euro)	% of total EC contribution to DK grant holders
Teknologian Tutkimuskeskus VTT (VTT)	215	16.92%	100.40	23.24%
Helsingin Yliopisto	125	9.83%	59.79	13.84%
Aalto-Korkeakoulusaatio	99	7.79%	33.17	7.68%
Turun Yliopisto	50	3.93%	17.76	4.11%
Oulun Yliopisto	39	3.07%	14.05	3.25%