Science, technology and innovation in Europe

Data 1990-2005

This publication presents statistical data and indicators based on a number of data sources available at Eurostat (mainly related to science, technology, innovation and regions). It provides the reader with statistical information to appreciate the evolution and composition of science and technology (S&T) in Europe and its position with regard to its partners. The pocketbook is divided into eight chapters among which: Key R&D input and output indicators (R&D expenditure, R&D personnel and Government budget appropriations or outlays on R&D (GBAORD)); Patents; High Technology; human resources in S&T (HRST); statistics on Innovation. Another chapter gives some background data on population, employment and gross domestic product (GDP).

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Eurostat is the Statistical Office of the European Communities. Its mission is to provide the European Union with high-quality statistical information. For that purpose, it gathers and analyses figures from the national statistical offices across Europe and provides comparable and harmonised data for the European Union to use in the definition, implementation and analysis of Community policies. Its statistical products and services are also of great value to Europe's business community, professional organisations, academics, librarians, NGOs, the media and citizens.

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Eurostat has set up with the members of the 'European statistical system' (ESS) a network of user support centres which exist in nearly all Member States as well as in some EFTA countries. Their mission is to provide help and guidance to Internet users of European statistical data. Contact details for this support network can be found on Eurostat Internet site.

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INHALT

This publication presents statistical data and indicators based on a number of data sources available at Eurostat related to Science, Technology and Innovation (STI) in Europe and beyond.

Responding to developments in the policy and scientific communities, Eurostat has now been long collecting STI data. This publication may be viewed as a compendium of data available within Eurostat. However, it is by no means an exhaustive collection, rather it can be seen as a showcase for the main data sets that currently exist. Although most data in this publication originate from Eurostat, other databases relevant in the STI field have also been exploited. The particular source of each indicator is specified for each table or graph.

The data focus is on the 25 European Union Member States and the Candidate Countries. However, so as to allow for international comparisons, data for Iceland, Liechtenstein, Norway, Switzerland, China, Japan, the Russian Federation and the United States are also considered when available.

This pocketbook is divided into three main parts and eight chapters. The three main parts are:

- Part 1 - Investing in R&D,
- Part 2 - Monitoring the knowledge workers,
- Part 3 - Productivity and competitiveness.

The first part includes the chapters on Government budget appropriations or outlays on R&D (or GBAORD - chapter 1) and on R&D expenditure (chapter 2). The part 2 on knowledge workers shows data on R&D personnel (chapter 3) and human resources in science and technology (HRST - chapter 4). Part 3 on productivity and competitiveness includes statistics on innovation (chapter 5), patents (chapter 6) and high technology (chapter 7). Finally, chapter 8 provides some general statistics concerning population, gross domestic product (GDP) and employment.

The last part of the pocketbook contains methodological notes (including definitions and abbreviations) for each of the statistical data sources used.

NOTICE TO THE READER:

Tables and figures in this publication refer to the data on the Eurostat's database NewCronos at the time of writing (October 2006) except for the chapter on the background data (used to calculate derived indicators) for which the release date is August 2006. However, as NewCronos is regularly updated, the data extracted from there could subsequently differ from the one available at the time of publishing.

At the time of writing (October 2006), no data were available for EU-27 yet. Therefore the present pocketbook shows only data for EU-25 and EU-15. Moreover, no data were available for the FYROM. In October 2006 Bulgaria and Romania were not yet EU Member States but candidate countries. Due to change of the official name of Ireland to Eire/Ireland the country will move between Estonia and Greece in the protocol order of countries. This new order will enter in force in January 2007.

SCIENCE, TECHNOLOGY AND INNOVATION IN EUROPE

STATISTICAL POCKETBOOK

This publication has been managed and prepared by Eurostat:

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PART 1

Investing in R&D

Chapter 1 - GBAORD

Government Budget Appropriations or Outlays on R&D (GBAORD) are all appropriations allocated to R&D in central government or federal budgets.

In 2005, GBAORD, expressed as a percentage of GDP, amounted to 1.06%, 0.74% and 0.71% for the United States, the EU-25 and Japan respectively.

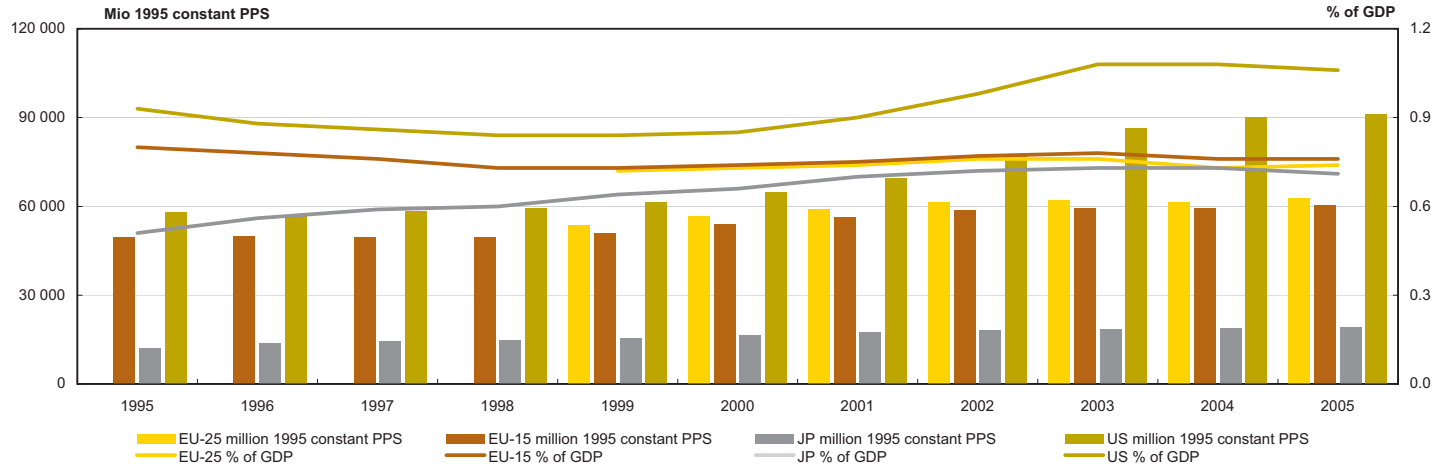
Iceland led with 1.50% of GDP devoted to GBAORD in 2005. Only one EU-25 Member State had a GBAORD higher than 1% of its GDP: Finland, with 1.04%.

In 2005, in absolute terms, GBAORD in the EU-25 amounted to approximately EUR 80 billion, whereas it largely exceeded EUR 100 billion in the United States and only reached EUR 27 billion in Japan. Five Member States accounted for almost 80% of the total EU-25 GBAORD in 2005: Germany, France, the United Kingdom, Italy and Spain.

Between 2000 and 2005, GBAORD (expressed in EUR million) increased in the EU-25 at an annual average growth rate of 3.8%. With the exception of Poland, it also increased in all Member States during the same period. GBAORD also increased in the United States (3.2%) between 2000 and 2005 but declined in Japan (-4.6%)

In 2005, the EU-25 allocated 32% of its total GBAORD to "Research financed from General University Funds (GUF)". In Japan, "Research financed from GUF" was also the main socio-economic objective (33.5 %) whereas it was "Defence" in the United States with more than half of its total GBAORD (56.6 %). As a comparison, "Defence" within the EU-25 came only as third main objective and accounted for 13.6% of total GBAORD.

Figure 1.1 GBAORD in million 1995 constant PPS and as a percentage of GDP, EU, Japan and the United States — 1995 to 2005

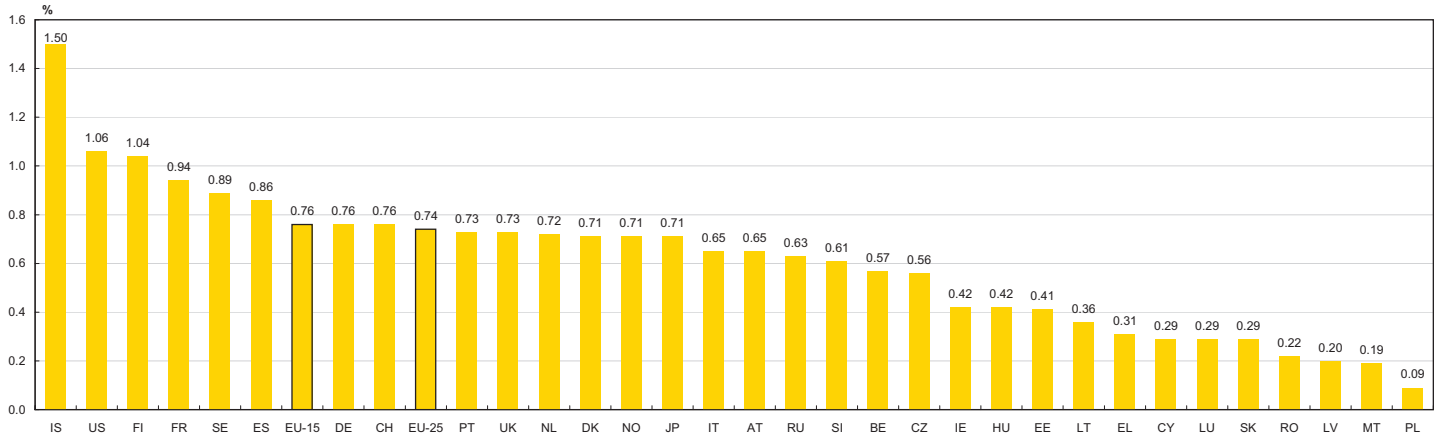


Eurostat estimates: EU-15 and EU-25.
National estimate: 2004: US.

Provisional data: 2005: JP.
Break in series: 2000: US.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 1.2 **GBAORD as a percentage of GDP, EU-25 and selected countries — 2005**



Eurostat estimates: EU-15 and EU-25.
Provisional data: IS, FR, DE, NL, NO, JP, IT, AT, BE, CZ, HU and EL.
National estimate: HU.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 1.3 **Total GBAORD in EUR million and annual average growth rates, EU-25 and selected countries — 1995 to 2005**

	GBAORD in EUR million							AAGR	
	1995	2000	2001	2002	2003	2004	2005	1995-2000	2000-2005
EU-25	:	65 952 s	69 678 s	74 272 s	75 511 s	76 584 s	79 425 s	:	3.8
EU-15	53 786 s	64 271 s	67 827 s	72 424 s	73 688 s	75 167 s	77 835 s	3.6	3.9
BE	1 113	1 423	1 515	1 606	1 683	1 713	1 714 p	5.0	3.8
CZ	:	:	:	396	422	444	552 p	:	11.7
DK	917	1 321	1 340 be	1 348 p	1 385	1 406	1 482	7.6	2.3
DE	16 886	16 253	16 460	16 737	17 101	16 943	17 084 p	-0.8	1.0
EE	:	20 e	21 e	30 e	32 e	36 e	43 e	:	16.2
EL	259	425	416	407	456	528	558 p	10.5	5.6
ES	2 184	3 799 c	4 513	5 371	5 742	6 695	7 740	11.7	15.3
FR	13 263	13 842	14 839	15 498	16 008	15 906	15 950 p	0.9	2.9
IE	162	319	378	430	477	625	676	14.4	16.3
IT	4 832	7 657	8 448	:	:	:	9 152 p	9.6	3.6
CY	:	:	:	:	:	39	40	:	:
LV	9	16	19	18	21	20	25	10.5	10.3
LT	:	36	39	:	:	66	74	:	15.4
LU	:	28	38	48	61	72	82	:	24.0
HU	:	:	:	:	:	:	367 ep	:	:
MT	:	:	:	:	1	8	9	:	:

Exception to the reference period: 2002-2005: CZ.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	GBAORD in EUR million							AAGR	
	1995	2000	2001	2002	2003	2004	2005	1995-2000	2000-2005
NL	2 724	3 226	3 380	3 430	3 524	3 595	3 598 p	3.4	2.2
AT	1 201	1 287	1 409	1 467	1 452	1 467	1 593 p	1.4	4.4
PL	424	707	821	:	657	173	205	10.8	-22.0
PT	372	713	778	901	847	916	1 082	13.9	8.7
SI	:	107	115	130	140	160	167	:	9.2
SK	58	79	79	82	88	102	108	6.5	6.4
FI	969 b	1 296	1 352	1 389	1 453	1 535	1 614	6.0	4.5
SE	2 098 e	1 873	2 068	2 326	2 548	2 526	2 561	-2.2	6.5
UK	6 807	10 809	10 892 b	12 849	12 158	12 269	12 950	9.7	3.7
IS	56	127	116	131	146	148	186 p	17.9	7.9
NO	912	1 190	1 313	1 544	1 535	1 571	1 684 p	5.5	7.2
EEA	:	67 269 s	71 107 s	75 947 s	77 192 s	78 303 s	81 295 s	:	3.9
CH	:	1 733	:	2 018	:	2 189	:	:	6.0
RO	122	57	72	69	84	:	157	-14.2	22.7
JP	20 320	33 018	31 915	30 022	27 467	26 840	26 149 p	10.2	-4.6
RU	:	1 315	1 881	2 238	2 729	3 003	:	:	22.9
US	52 593	90 529 b	102 172	108 986	104 371	101 658 e	106 025	11.5	3.2

Exceptions to the reference period: 2000-2004: CH and RU.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 1.4 **GBAORD by NABS socio-economic objectives as a percentage of total GBAORD, EU-25 and selected countries — 2005**

	EU-25	EU-15	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
01. Exploration and exploitation of the earth	1.7 s	1.7 s	0.6 p	3.0 p	0.6	1.8	0.3 e	3.6 p	1.4	0.9	2.6	2.8 p	1.6	0.6	2.6	:	2.3 ep	3.7
02. Infrastructure and general planning of land use	1.8 s	1.7 s	0.7 p	4.5 p	0.9	1.9	7.2 e	2.9 p	4.0	0.6	0.0	1.0 p	1.6	2.3	1.8	:	2.0 ep	0.0
03. Control and care of the environment	2.7 s	2.6 s	2.5 p	3.9 p	1.7	3.4	6.4 e	4.0 p	3.0	2.7	0.9	2.7 p	0.8	0.6	6.8	:	10.3 ep	0.1
04. Protection and improvment of human health	7.3 s	7.3 s	1.7 p	7.2 p	7.2	4.4	4.4 e	6.9 p	8.7	6.1	5.9	8.1 p	10.0	4.0	12.4	:	14.6 ep	5.5
05. Production, distribution and rational utilisation of energy	2.8 s	2.7 s	2.0 p	2.0 p	1.7	2.9	3.0 e	2.1 p	1.6	4.5	0.0	4.1 p	0.0	1.7	3.4	:	11.5 ep	0.0
06. Agricultural production and technology	3.4 s	3.3 s	1.3 p	4.6 p	5.6	1.8	14.1 e	5.5 p	5.2	2.3	9.9	3.6 p	20.5	7.3	17.5	:	15.0 ep	1.8
07. Industrial production and technology	10.9 s	10.9 s	30.9 p	11.9 p	6.3	12.4	5.6 e	9.2 p	25.2	6.2	15.8	12.3 p	0.0	5.1	6.0	:	21.5 ep	4.4
08. Social structure and relationships	3.1 s	3.1 s	4.1 p	2.5 p	6.3	3.8	6.5 e	5.7 p	2.1	0.4	2.7	5.0 p	8.2	1.7	20.1	:	8.9 ep	18.7
09. Exploration and exploitation of space	5.0 s	5.1 s	8.8 p	0.9 p	2.0	4.9	0.0 e	2.1 p	3.2	9.0	1.7	8.4 p	0.0	1.1	:	:	2.3 ep	0.0
10. Research financed from General University Funds (GUF)	32.0 s	32.4 s	18.5 p	22.6 p	45.3	40.3	0.0 e	47.6 p	18.1	24.8 p	59.4	42.2 p	31.8	:	:	:	6.4 ep	63.9
11. Non-oriented research	14.5 s	14.2 s	25.2 p	25.7 p	20.6	16.6	51.4 e	9.2 p	8.6	17.8 p	1.0	5.9 p	25.4	74.6	:	:	4.8 ep	2.0
12. Other civil research	1.4 s	1.4 s	3.2 p	8.2 p	1.2	0.7	0.0 e	0.7 p	2.8	2.3	0.0	0.0 p	0.0	:	29.3	:	0.3 ep	0.0
13. Defence	13.6 s	13.8 s	0.4 p	3.1 p	0.7	5.8	1.0 e	0.5 p	16.1	22.3	0.0	3.9 p	0.0	1.1	0.2	:	0.1 ep	0.0
Total GBAORD	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**:**	**100**	**100**

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	EEA	CH	RO	JP	RU	US
01. Exploration and exploitation of the earth	0.7 p	2.1 p	1.0	1.6	0.4	0.0	1.0	0.7	2.3	:	1.9 p	1.7 s	0.3	1.2	1.8	:	0.7 p
02. Infrastructure and general planning of land use	4.0 p	2.2 p	0.8	4.5	0.8	0.6	2.0	3.8	1.1	8.4 p	2.0 p	1.8 s	0.4	3.4	4.2	:	1.5 p
03. Control and care of the environment	1.6 p	1.9 p	0.9	3.5	3.1	1.0	1.8	2.2	1.8	0.4 p	2.1 p	2.6 s	0.3	2.1	0.9	:	0.4 p
04. Protection and improvment of human health	3.8 p	4.4 p	3.4	7.6	2.0	3.3	5.9	1.0	14.7	7.3 p	7.7 p	7.3 s	1.8	4.4	3.9	:	22.8 p
05. Production, distribution and rational utilisation of energy	3.8 p	0.8 p	1.6	0.9	0.5	1.6	4.8	2.3 p	0.4	2.2 p	3.0 p	2.8 s	1.0	0.9	17.1	:	1.1 p
06. Agricultural production and technology	5.9 p	2.5 p	1.6	9.9	3.2	11.5	5.9	2.2 p	3.3	21.3 p	8.6 p	3.5 s	2.8	4.3	3.3	:	1.9 p
07. Industrial production and technology	9.6 p	12.8 p	15.9	15.1	22.6	5.0	26.1	5.4 p	1.7	2.3 p	7.8 p	10.9 s	3.4	10.7	7.1	:	0.4 p
08. Social structure and relationships	2.2 p	3.4 p	2.1	3.4	2.7	3.6	6.1	5.0 p	3.5	8.9 p	6.5 p	3.2 s	1.8	0.3	0.7	:	1.1 p
09. Exploration and exploitation of space	3.2 p	0.9 p	0.1	0.2	0.0	:	1.8	1.2	2.0	:	2.2 p	4.9 s	4.0	2.4	6.7	5.4	7.9 p
10. Research financed from General University Funds (GUF)	48.2 p	55.0 p	19.1	38.8	0.0	25.6	26.1	46.1	21.7	33.1 p	38.7 p	32.2 s	58.9	:	33.5	:	
11. Non-oriented research	10.7 p	13.1 p	48.1	10.4	59.7	35.9	15.2	12.7	16.0	16.1 p	13.0 p	14.4 s	9.8	40.9	15.6	:	5.6 p
12. Other civil research	4.7 p	0.9 p	0.5	3.4	0.2	3.5	:	:	0.5	0.0	:	1.4 s	15.1	27.8	:	42.5	0.0
13. Defence	1.4 p	0.0 p	4.9	0.6	4.9	8.3	3.3	17.4	31.0	0.0	6.5 p	13.4 s	0.4	1.7	5.1 i	52.1	56.6 p
Total GBAORD	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Exceptions to the reference year: 2004: CH and JP; 2003: RU.
i JP: underestimated or based on underestimated data.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Chapter 2 - R&D Expenditure

The EU goals in Research and Development, as set by the Lisbon summit strategy, are to achieve by 2010 a R&D intensity of at least 3% for the EU, and to have two thirds of R&D expenditure financed by the business enterprise sector.

In 2004, R&D intensity (i.e. R&D expenditure as a percentage of GDP) in the EU-25 stood at 1.86 compared to 1.90 in 2003. R&D intensity remained significantly lower in the EU-25 than in other major economies. R&D expenditure was 2.66% of GDP in the United States, 3.20% in Japan (2003), while it was only 1.23% in China. R&D intensity increased since 2000 in China, Japan and Russia whereas it remained quite stable in the EU-25 and decreased in the United States.

In 2004, only two Member States exceeded the EU's 2010 goal set by the Lisbon summit to achieve a R&D intensity of 3% of GDP: Sweden (3.7%) and Finland (3.5%).

In 2004, 194 billion EUR were devoted to R&D in the EU-25. As a world wide comparison, the Japan's R&D expenditure was about 120 billions (2003) whereas it reached 251 billions in the United States and only 19 billions in China.

In 2003, 54.3% of the EU-25 R&D expenditure was financed by the business enterprise sector (BES). This proportion remained quite stable since 2000. At the national level, three EU-25 Member States fulfilled the second EU's 2010 Lisbon goal for R&D to get financed two third of the R&D expenditure by the BES: Germany (67.1%), Luxembourg (80.4%) and Finland (69.3%).

In the EU-25 as a whole and in the majority of Member States, the greatest share of business R&D expenditure was spent in the manufacturing sector followed by the services sector. Moreover, in general the highest proportion of the business R&D expenditure was spent in large enterprises (more than 250 employees).

In absolute terms, the leading EU-25 region in terms of R&D expenditure was, by far, Île de France (FR) with more than EUR 14 billion. However, the leading regions in terms of R&D intensity were mainly located in Germany (6 regions out of 15 leading) and in Sweden (4 regions out of the 15 leading). In 2003 the Braunschweig (DE) came first with 8.7% followed by Västsverige (SE) with 6.0%. R&D intensity in all other EU-25 regions was below 5%.

Table 2.1 **R&D intensity (R&D expenditure as % of GDP) and percentage financed by the business enterprise sector (BES), EU-25 and selected countries — 2000 to 2005**

	R&D intensity						% of R&D expenditure financed by the BES					
	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
EU-25	1.86 s	1.89 s	1.90 s	1.90 s	1.86 s	:	55.2 s	55.3 s	55.0 s	54.3 s	:	:
EU-15	1.91 s	1.94 s	1.95 s	1.95 s	1.92 s	:	55.5 s	55.6 s	55.3 s	54.6 s	:	:
BE	1.97	2.08	1.94	1.89	1.90 p	:	62.4	63.4	59.4	60.3	:	:
CZ	1.23	1.22	1.22	1.26	1.27	:	51.2	52.5	53.7	51.4	52.8	:
DK	2.24	2.39	2.51	2.56	2.48 p	:	:	61.4	:	59.9	:	:
DE	2.45	2.46	2.49	2.52	2.49 e	:	66.0	65.7	65.5	66.3	67.1	:
EE	0.62	0.73	0.75	0.82	0.91 p	:	24.2	32.9	29.2	33.0	:	:
EL	:	0.64	:	0.61	0.57 p	:	:	33.0	:	30.7	:	:
ES	0.91	0.92	0.99	1.05	1.07	:	49.7	47.2	48.9	48.4	48.0	:
FR	2.15 b	2.20	2.23	2.18	2.16	:	52.5 b	54.2	52.1	50.8	:	:
IE	1.13	1.10	1.10	1.16	1.20 p	:	65.8	66.7	63.4	59.5	57.2 p	:
IT	1.05	1.09	1.13	1.11	:	:	:	:	:	:	:	:
CY	0.25	0.26	0.31	0.35	0.37 p	:	17.5	15.3	17.4	19.8	:	:
LV	0.44	0.41	0.42	0.38	0.42	:	29.4	18.3	21.7	33.2	46.3	:
LT	0.59	0.67	0.66	0.67	0.76	:	31.6	37.1	27.9	16.7	:	:
LU	1.65	:	:	1.66	1.65	:	90.7	:	:	80.4 p	:	:
HU	0.79 i	0.94 i	1.01 i	0.94 i	0.89 i	:	37.8 i	34.8 i	29.7 i	30.7 i	37.1 i	:
MT	:	:	0.27	0.27	0.64 b	:	:	:	18.6	:	:	:
NL	1.90	1.80	1.72	1.76	1.78 p	:	51.4	51.9	50.0	51.1	:	:
AT	1.91 e	2.04 e	2.12	2.20 e	2.24 e	2.35 e	41.8 e	41.8 e	44.6	45.2 e	46.0 e	45.7 e

i HU: defense excluded (all or mostly).

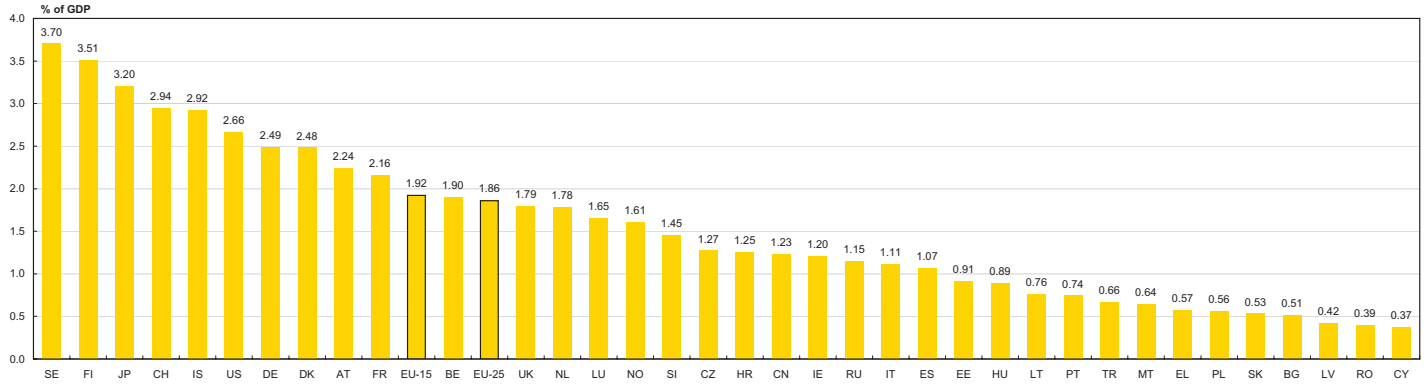
Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	R&D intensity						% of R&D expenditure financed by the BES					
	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
PL	0.64	0.62	0.56	0.54	0.56	:	29.5	28.0	24.7	27.0	26.9	:
PT	0.76 e	0.80	0.76 e	0.74	0.74 e	:	27.0 e	31.5	31.6 e	31.7	:	:
SI	1.43	1.55	1.52	1.32	1.45	:	53.3	54.7	60.0	52.2	58.5	:
SK	0.65	0.64	0.58	0.58	0.53	:	54.4	56.1	53.6	45.1	38.3	:
FI	3.38	3.38	3.43	3.48	3.51	3.47 e	70.2	70.8	69.5	70.0	69.3	:
SE	:	4.25 i	:	3.95 i	3.70	:	:	71.5 i	:	65.0 i	:	:
UK	1.86	1.87	1.89	1.88	1.79 e	:	48.3	46.9	46.1	43.9	:	:
IS	2.73 e	3.04	3.08 e	2.92	2.92	:	:	46.2	:	43.9	:	:
NO	:	1.60	1.67	1.73	1.61	:	:	51.6	:	49.2	:	:
CH	2.57	:	:	:	2.94	:	69.1	:	:	:	69.7	:
BG	0.52	0.47	0.49	0.50	0.51	:	24.4	27.1	24.8	26.8	:	:
HR	:	:	1.11	1.11	1.25	:	:	:	45.7	42.1	43.0	:
RO	0.37	0.39	0.38	0.39	0.39	:	49.0	47.6	41.6	45.4	44.0	:
TR	0.64	0.72	0.66	:	:	:	42.9	44.9	41.3	:	:	:
CN	0.90 b	0.95	1.07	1.13	1.23	:	:	:	:	:	:	:
JP	3.05	3.13	3.18	3.20	:	:	72.4	73.0	73.9	74.5	:	:
RU	1.05	1.18	1.25	1.28	1.15	:	32.9	33.6	33.1	30.8	31.4	:
US	2.73 i	2.74 i	2.64 i	2.67 pi	2.66 pi	:	68.6 i	66.6 i	64.6 pi	61.4 pi	:	:

i SE: underestimated or based on underestimated data.
i US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 2.2 R&D intensity (R&D expenditure as % of GDP), EU-25 and selected countries — 2004

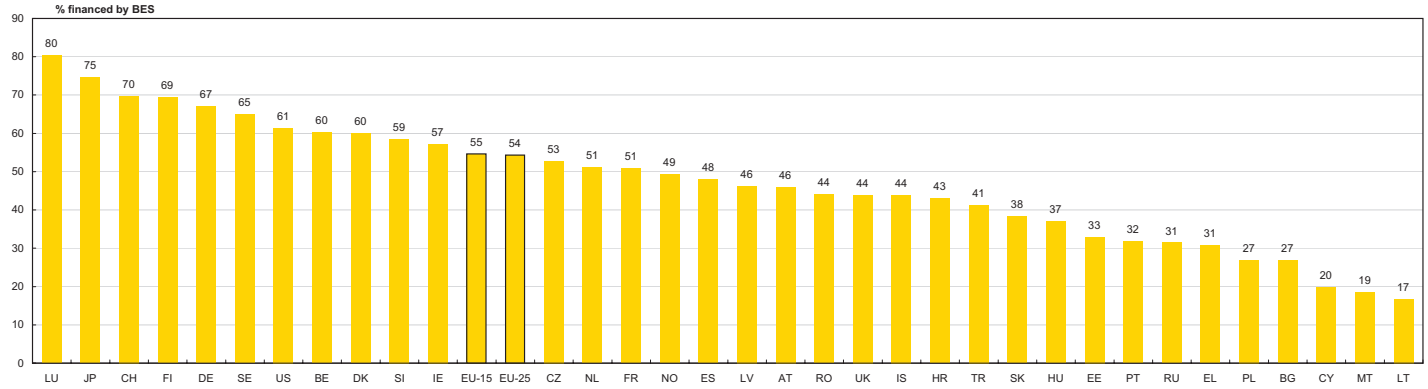


Exceptions to the reference year: 2003: IT and JP; 2002: TR.
Eurostat estimates: EU-15 and EU-25.
Provisional data: BE, DK, EE, EL, IE, CY, NL and US.
National estimates: DE, AT, PT and UK.

Break in series: MT.
HU: defense excluded (all or mostly).
US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 2.3 **Percentage of R&D expenditure financed by the business enterprise sector (BES), EU-25 and selected countries — 2004**



Exceptions to the reference year:
2003: EU-15, EU-25, LU, JP, SE, US, BE, DK, NL, FR, NO, UK, IS, EE, PT, EL, BG, CY and LT;
2002: TR and MT.
Provisional data: LU and IE.

National estimate: AT.
SE: underestimated or based on underestimated data.
HU: defense excluded (all or mostly).

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.4 **R&D expenditure in EUR million and annual average growth rate, EU-25 and selected countries — 1995 to 2005**

	R&D expenditure in EUR million							AAGR	
	1995	2000	2001	2002	2003	2004	2005	1995-2000	2000-2004
EU-25	126 165 s	169 502 s	178 808 s	186 463 s	188 681 s	194 076 s	:	6.1	3.4
EU-15	124 376 s	166 554 s	175 443 s	182 920 s	185 211 s	190 272 s	:	6.0	3.4
BE	3 628	4 964	5 373	5 201	5 177	5 465 p	:	6.5	2.4
CZ	403 b	744	832	959	1 013	1 100	:	13.0	10.3
DK	2 530	3 892	4 278	4 634	4 855	4 899 p	:	9.0	5.9
DE	42 234 e	50 619	52 002	53 363	54 538	55 100 e	:	3.7	2.1
EE	:	37	49	56	67	83 p	:	:	22.2
EL	437 b	:	852	:	951	967 p	:	:	4.3
ES	3 624	5 719	6 227	7 194	8 213	8 946	:	9.6	11.8
FR	27 448	30 954 b	32 887	34 527	34 569	35 648	:	2.4	3.6
IE	648 e	1 176	1 284	1 436	1 607	1 780 p	:	12.7	10.9
IT	8 386	12 460	13 572	14 600	14 769	:	:	8.2	5.8
CY	:	25	27	34	41	46 p	:	:	17.3
LV	18	38	38	42	38	47	:	16.0	5.6
LT	22	73	91	100	111	137	:	27.2	17.0
LU	:	364	:	:	426	448	:	:	5.3
HU	250 i	405 i	548 i	706 i	693 i	721 i	:	10.1	15.5
MT	:	:	:	12	11	28 b	:	:	:
NL	6 307	7626	8075	8019	8376	8721 p	:	3.9	3.4
AT	2 820 e	4 029 e	4 393 e	4 684	4 998 e	5 318 e	5 784 e	7.4	7.2

i HU: defense excluded (all or mostly).
Exceptions to the reference period of 2000-2004: 2001-2004: EL; 2000-2003: IT.

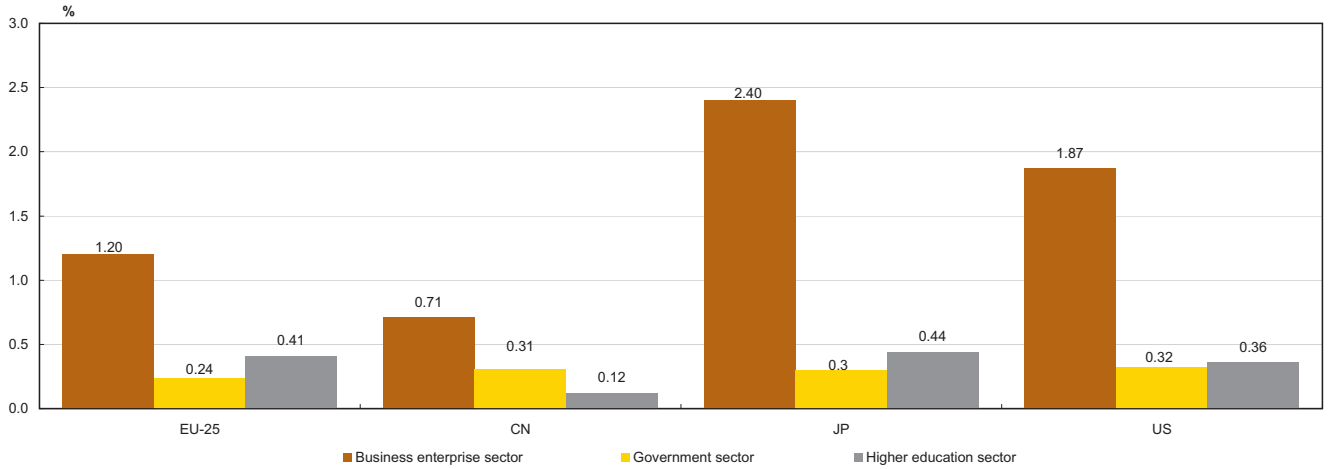
Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	R&D expenditure in EUR million							AAGR	
	1995	2000	2001	2002	2003	2004	2005	1995-2000	2000-2004
PL	673 b	1 197	1 323	1 172	1 036	1 139	:	12.2	-1.2
PT	470	927 e	1 038	1 029 e	1 020	1 059 e	:	14.5	3.4
SI	243 i	297	341	360	328	379	:	4.1	6.3
SK	138	143	149	148	169	174	:	0.7	5.1
FI	2 263	4 423	4 619	4 830	5 005	5 253	5 388 e	14.3	4.4
SE	6 354 bi	:	10 511 i	:	10 642 i	10 426	:	:	-0.3
UK	16 932	29 070	29 946	31 515	30 089	30 644 e	:	11.4	1.3
IS	82	251 e	261	280 e	274	297	:	25.1	4.2
NO	1 920 b	:	3 037	3 388	3 411	3 309	:	:	2.9
EEA	128 167 s	172 494 s	182 106 s	190 130 s	192 366 s	197 682 s	:	6.1	3.5
CH	:	6 852	:	:	:	8 486	:	:	5.5
BG	61	71	71	81	89	99	:	3.4	8.6
HR	:	:	:	271	292	345	:	:	12.9
RO	214 b	149	177	184	203	235	:	-7.0	12.1
TR	493	1 389	1 172	1 280	:	:	:	23.0	-4.0
CN	:	:	14 063	16 452	16 444	19 099	:	:	10.7
JP	117 129 i	153 860	143 015	131 726	119 748	:	:	5.6	-8.0
RU	:	2 948	4 025	4 545	4 899	5 473	:	:	16.7
US	140 732 i	289 917 i	310 205 i	292 153 i	258 519 pi	251 254 pi	:	15.6	-3.5

i SE: underestimated or based on underestimated data.
i US: excludes most or all capital expenditure.
Exceptions to the reference period of 2000-2004: 2002-2004: HR; 2001-2004: SE, NO and CN.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

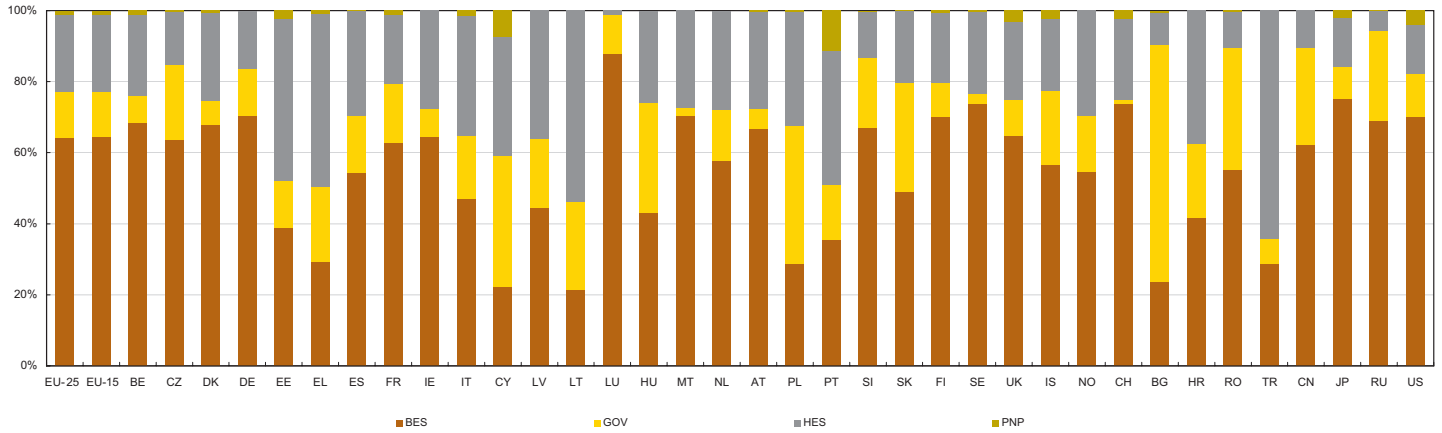
Figure 2.5 R&D intensity (R&D expenditure as % of GDP) by sector of performance, EU-25 and selected countries — 2004



Eurostat estimate: EU-25.
Provisional data: US.
Exceptions to the reference year: 2003: JP and CN.
US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 2.6 **R&D expenditure by sector of performance, as a percentage of total, EU-25 and selected countries — 2004**



Exceptions to the reference year: 2003: IT, CN and JP; 2002: AT and TR.
Eurostat estimates: EU-15 and EU-25.
Provisional data: BE, DK, EE, EL, IE, CY, NL and US.
National estimates: DE, PT and UK.

Break in series: MT.
HU: defense excluded (all or mostly).
US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.7 **R&D expenditure in EUR million, by sector of performance, EU-25 and selected countries — 2002 to 2005**

	R&D expenditure in BES				R&D expenditure in GOV				R&D expenditure in HES			
	2002	2003	2004	2005	2002	2003	2004	2005	2002	2003	2004	2005
EU-25	119 953 s	120 991 s	124 665 s	:	24 146 s	24 478 s	24 836 s	:	40 470 s	41 224 s	42 537 s	:
EU-15	118 507 s	119 461 s	122 904 s	:	22 972 s	23 412 s	23 746 s	:	39 566 s	40 362 s	41 598 s	:
BE	3 662	3 608	3 747 p	:	373	354	417 p	:	1 100	1 150	1 232 p	:
CZ	586	618	701	:	220	236	233	:	150	155	162	:
DK	3 198	3 355	3 332	:	341	340	336	:	1 068	1 127	1 198	:
DE	36 950	38 029	38 800 p	:	7 333	7 307	7 300 e	:	9 080	9 202	9 000 e	:
EE	17	23	32 p	:	9	11	11	:	27	32	38	:
EL	287	286	285 p	:	:	198	203 p	:	:	457	470 p	:
ES	3 926	4 443	4 865	:	1 108	1 262	1 428	:	2 142	2 492	2 642	:
FR	21 839	21 646	22 409	:	5 709	5 767	5 956	:	6 512	6 693	6 823	:
IE	988	1 076	1 150 p	:	125	127	138	135 p	322	404	492	:
IT	7 057	6 979	7 501 p	7 882 p	2 565	2 582	2 337 p	2 374 p	4 792	5 000	:	:
CY	7	9	10 p	:	14	16	17 p	:	10	13	15 p	:
LV	17	13	21	:	8	9	9	:	17	16	17	:
LT	17	23	29	:	33	29	34	:	50	58	74	:
LU	:	379	393	:	38	45	49	:	:	2	6	:
HU	250 i	255 i	297 i	:	232 i	217 i	213 i	:	178 i	185 i	177 i	:
MT	3	4	19 b	:	2	1	1	1	7	7	8	8
NL	4 543	4 804	5 039	:	1 106	1 213 b	1 252	:	2 312	2 356	2 430 p	:
AT	3 131	:	:	:	266	:	:	:	1 266	:	:	:

i HU: defense excluded (all or mostly).

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	R&D expenditure in BES				R&D expenditure in GOV				R&D expenditure in HES			
	2002	2003	2004	2005	2002	2003	2004	2005	2002	2003	2004	2005
PL	238	284	327	:	533	421	444	:	398	329	364	:
PT	334 e	338	377 e	:	194 e	172	161 e	:	386 e	392	400 e	:
SI	215	209	254	:	83	72	75	:	56	45	49	:
SK	95	93	86	:	39	53	53	:	13	22	35	:
FI	3 375	3 528	3 683	3 770 e	501	485	497	538 ei	926	962	1 040	1 080 e
SE	:	7 886 i	7 667	:	:	371 i	325	:	:	2 344	2 393	:
UK	20 849	19 778	19 897	:	2 786	2 906	3 043 e	:	7 023	6 437	6 700 e	:
IS	160 e	142	167	:	69 e	68	63	:	45 e	58	60	:
NO	1 946	1 960	1 813	:	535	515	514	:	907	937	983	:
EEA	122 059 s	123 093 s	126 645 s	:	24 750 s	25 061 s	25 413 s	:	41 422 s	42 218 s	43 579 s	:
CH	:	:	6 257	:	95 i	:	91 i	:	1 881	:	1 943	:
BG	15	18	24	:	58	62	67	:	8	9	9	:
HR	115	114	144	:	60	64	72	:	95	114	129	:
RO	111	118	130	:	44	65	80	:	29	19	24	:
TR	367	:	:	:	90	:	:	:	823	:	:	:
CN	10 066	10 256	:	:	4 719	4 455	:	:	1 667	1 734	:	:
JP	98 059	89 783	:	:	12 563	11 149	:	:	18 286	16 358	:	:
RU	3 176	3 353	3 780	:	1 112	1 239	1 383	:	247	297	299	:
US	205 021 i	180 343 pi	176 241 pi	:	35 583 i	32 028 pi	30 652 pi	:	39 324 i	35 514 pi	34 111 pi	:

i FI: includes other classes.
i SE: underestimated or based on underestimated data.

i CH: Federal or central government only.
i US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.8 R&D intensity (R&D expenditure as % of GDP) by sector of performance, EU-25 and selected countries — 2002 to 2005

	R&D intensity — BES				R&D intensity — GOV				R&D intensity — HES			
	2002	2003	2004	2005	2002	2003	2004	2005	2002	2003	2004	2005
EU-25	1.22 s	1.22 s	1.20 s	:	0.25 s	0.25 s	0.24 s	:	0.41 s	0.41 s	0.41 s	:
EU-15	1.27 s	1.26 s	1.24 s	:	0.25 s	0.25 s	0.24 s	:	0.42 s	0.42 s	0.42 s	:
BE	1.37	1.31	1.30 p	:	0.14	0.13	0.14 p	:	0.41	0.42	0.43 p	:
CZ	0.75	0.77	0.81	:	0.28	0.29	0.27	:	0.19	0.19	0.19	:
DK	1.73	1.77	1.69	:	0.18	0.18	0.17	:	0.58	0.59	0.61	:
DE	1.72	1.76	1.75 p	:	0.34	0.34	0.33 e	:	0.42	0.43	0.41 e	:
EE	0.23	0.28	0.36 p	:	0.13	0.13	0.12	:	0.36	0.39	0.42	:
EL	0.20	0.18	0.17 p	:	:	0.13	0.12 p	:	:	0.29	0.28 p	:
ES	0.54	0.57	0.58	:	0.15	0.16	0.17	:	0.29	0.32	0.32	:
FR	1.41	1.37	1.36	:	0.37	0.36	0.36	:	0.42	0.42	0.41	:
IE	0.76	0.77	0.77 p	:	0.10	0.09	0.09	0.08 p	0.25	0.29	0.33	:
IT	0.54	0.52	0.54 p	0.56 p	0.20	0.19	0.17 p	0.17 p	0.37	0.37		:
CY	0.06	0.08	0.08 p	:	0.12	0.13	0.14 p	:	0.09	0.12	0.12 p	:
LV	0.17	0.13	0.19	:	0.08	0.09	0.08	:	0.17	0.16	0.15	:
LT	0.11	0.14	0.16	:	0.22	0.18	0.19	:	0.33	0.35	0.41	:
LU	:	1.48	1.45	:	0.16	0.17	0.18	:	:	0.01 i	0.02 i	:
HU	0.36 i	0.35 i	0.37 i	:	0.33 i	0.30 i	0.26 i	:	0.26 i	0.25 i	0.22 i	:
MT	0.07	0.08	0.45 b	:	0.04	0.02	0.01	:	0.16	0.17	0.18	:
NL	0.98	1.01	1.03	:	0.24	0.25 b	0.26	:	0.50	0.49	0.50 p	:
AT	1.42	:	:	:	0.12	:	:	:	0.57	:	:	:

i HU: defense excluded (all or mostly).

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	R&D intensity — BES				R&D intensity — GOV				R&D intensity — HES			
	2002	2003	2004	2005	2002	2003	2004	2005	2002	2003	2004	2005
PL	0.11	0.15	0.16	:	0.25	0.22	0.22	:	0.19	0.17	0.18	:
PT	0.25 e	0.25	0.26 e	:	0.14 e	0.13	0.11 e	:	0.29 e	0.28	0.28 e	:
SI	0.91	0.84	0.97	:	0.35	0.29	0.29	:	0.24	0.18	0.19	:
SK	0.37	0.32	0.26	:	0.15	0.18	0.16	:	0.05	0.08	0.11	:
FI	2.40	2.45	2.46	2.43 e	0.36	0.34	0.33	0.35 ei	0.66	0.67	0.69	0.70 e
SE	:	2.93 i	2.72	:	:	0.14 i	0.12	:	:	0.87	0.85	:
UK	1.25	1.24	1.16	:	0.17	0.18	0.18 e	:	0.42	0.40	0.39 e	:
IS	1.76 e	1.51	1.65	:	0.76 e	0.73	0.62	:	0.50 e	0.62	0.59	:
NO	0.96	0.99	0.88	:	0.26	0.26	0.25	:	0.45	0.48	0.48	:
CH	:	:	2.17	:	0.03 i	:	0.03 i	:	0.64	:	0.67	:
BG	0.09	0.10	0.12	:	0.35	0.35	0.34	:	0.05	0.05	0.05	:
HR	0.47	0.44	0.52	:	0.25	0.24	0.26	:	0.39	0.43	0.47	:
RO	0.23	0.22	0.21	:	0.09	0.12	0.13	:	0.06	0.04	0.04	:
TR	0.19	:	:	:	0.05	:	:	:	0.43	:	:	:
CN	0.65	0.71	:	:	0.31	0.31	:	:	0.11	0.12	:	:
JP	2.36	2.40	:	:	0.30	0.30	:	:	0.44	0.44	:	:
RU	0.87	0.88	0.80	:	0.30	0.32	0.29	:	0.07	0.08	0.06	:
US	1.85 i	1.86 pi	1.87 pi	:	0.32 i	0.33 pi	0.32 pi	:	0.36 i	0.37 pi	0.36 pi	:

i FI: includes other classes.
i SE: underestimated or based on underestimated data.

i CH: Federal or central government only.
i US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.9 **Business enterprises R&D expenditure by sector of activity (NACE), in EUR million, EU-25 and selected countries — 2003**

	Total	Agriculture, hunting, forestry and fishing (A)+(B)	Mining and quarrying (C)	Industry (D)+(E)+(F)	Manufacturing (D)	Electricity, gas and water supply (E)	Services (G to Q)	Wholesale and commission trade (G)	Transport and communication (I)	Financial intermediation (J)	Computer activities; R&D; engineering activities and consultancy; technical testing and analysis (K)
EU-25	**120 991 s**	751 s	437 s	99 715 s	98 476 s	811 s	20 088 s	1 268 s	3 157 s	1 334 s	14 101 s
BE	**3 608**	46	6	2 918	2 834	26	638	31	135	21	429
CZ	**618**	2	1	401	393	0	214	18	4	1	177
DK	**3 355**	:	:	2 140 i	2 118	11 i	1 215	71	166	234	744 i
DE	**38 029**	72	25	34 692	34 581	81	3 239	85	470	99	2 578
EE	**23**	:	: c	:	10	: c	12	0	2	4	5
EL	**286**	1	2	189	188	0	94	3	11	1	78
ES	**4 443**	30	14	2 501	2 375	56	1 898	105	176	142	1 416
FR	**21 646**	311	152	19 158	18 679	393	2 025	:	842	:	1 183
IE	**1 076**	3	0	667	667	0	406	2	10	0	393
IT	**6 979**	:	26	5 198	5 150	34	1 755	212	153	187	1 185
CY	**9**	0	:	4	4	0	5	0	0	0	4
LV	**13**	:	:	4	4	:	9	0	:	:	9
LT	**23**	:	1	15	14	2	7	0	0	:	5
LU	**379**	:	:	179	179	0	200	10	11	47	133
HU	**255 i**	5	0	198	196	2	51	27	2	1	17
MT	**3**	:	0	2	2	0	0	0	0	0	1
NL	**4 804**	68	95	3 803	3 750	24	839	212	27	45	550
AT	**3 131**	2	3	2 298	2 273	14	828	98	50	8	668

Exceptions to the reference year: 2002: MT and AT.
i DK: includes other classes.
i HU: defense excluded (all or mostly).

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	Total	Agriculture, hunting, forestry and fishing (A)+(B)	Mining and quarrying (C)	Industry (D)+(E)+(F)	Manufacturing (D)	Electricity, gas and water supply (E)	Services (G to Q)	Wholesale and commission trade (G)	Transport and communication (I)	Financial intermediation (J)	Computer activities; R&D; engineering activities and consultancy; technical testing and analysis (K)
PL	**284**	9	12	215	194	2	48	0	23	: c	9
PT	**338**	1	1	157	151	3	179	18	11	41	104
SI	**209**	:	4	179	179	0	27	0	0	0	26
SK	**93**	2	0	:	37	: c	54	: c	: c	0	53
FI	**3 528**	1	6	2 849	2 800	8	672	62	85	:	514
SE	**7 886** i	23	7	6 390	6 336	54	1 466	153	8	83	1 195
UK	**19 778**	174	81	15 366	15 224	99	4 156	155	967	416	2 583
IS	**142**	3	0	140	138	1	96		4	1	90
NO	**1 960**	42	111	929	890	7	878	54	83	54	687
CH	**6 257**	:	:	:	5 033	:	1 224	: i		94	:
BG	**18**	0	0	:	9	0	9	: c	: c	1	4
HR	**114**	4	:	14	10	0	97	:	0	97	:
RO	**118**	17	9	77	73	3	15	0	1	:	13
TR	**367**	3	1	320	318	3	43	0	9	16	17
RU	**3 353**	38 i	50 i	707 i	687 i	11 i	2 398 i	0 i	13 i	0 i	2 084 i

Exceptions to the reference year: 2004: CH; 2002: TR.
i SE: underestimated or based on underestimated data.

i CH: included elsewhere.
i RU: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.10 **Business enterprises R&D expenditure by size class, in EUR million, EU-25 and selected countries — 2004**

	Total	0 person employed	1 to 9 persons employed	10 to 49 persons employed	50 to 249 persons employed	250 to 499 persons employed	500 and more persons employed
BE	**3 747 p**	10 p	149 p	462 p	829 p	392 p	1 906 p
CZ	**701**	4	12	62	176	81	365
DK	**3 355**	:	148	357	518	413	1 919
DE	**38 029**	:	70	668	2 448	1 705	33 139
EE	**23**	:	3 i	3	9	2	7
EL	**286**	:	4	49	98	20	116
ES	**4 443**	0	62	752	1 075	657	1 899
FR	**21 646**	:	269	1 166	2 066	1 789	16 356
IE	**1 150 p**	0 p	36 p	219 p	294 p	174 p	428 p
IT	**6 979**	:	70	285	832	715	5 077
CY	**9**	:	2	1	2	0	4
LV	**13**	0	1	5	3	0	3
LT	**23**	:	1	1	13	2	6
LU	**379**	:	:	32	52	17	278
HU	**297 i**	:	10 i	20 i	23 i	23	77 i
MT	**3**	-	-	1	1	0	0
NL	**4 804**	:	:	388	898	: c	: c
AT	**3 131**	:	57 i	210	492	422	1 949

Exceptions to the reference year:2003: DK, DE, EE, EL, ES, FR, IT, CY, LV, LT, LU and NL; 2002: MT and AT.
i EE: includes other classes.
i HU: defense excluded (all or mostly).
i AT: includes other classes.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	Total	0 person employed	1 to 9 persons employed	10 to 49 persons employed	50 to 249 persons employed	250 to 499 persons employed	500 and more persons employed
PL	**327**	1	2	18	106	73	126
PT	**338**	:	14	52	69	69	134
SI	**254**	1	8	11	52	16	0
SK	**86**	2	2	5	33	19	26
FI	**3 683**	:	80 i	268	403	338	2 595 i
SE	**7 886** i	:	:	:	964	455	6 466
UK	**19 778**	9	314	826	2 729	1 933	13 967
IS	**142**	:	:	:	:	:	:
NO	**1 960**	:	:	459	645	140	715
CH	**6 257**	:	77	427	776	708	4 269
BG	**18**	0	1	2	3	2	9
HR	**114**	:	:	:	:	:	:
RO	**130**	1	35	9	30	15	39
RU	**3 176**	298	207	783	509	1 229	150

Exceptions to the reference year: 2003: PT, SE, UK, IS, NO, BG and HR; 2002: RU.
i FI: includes other classes.

i SE: underestimated or based on underestimated data.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.11 **Total and business enterprise R&D expenditure by source of funds, EU-25 and selected countries — 2004**

	Total R&D expenditure						Business entreprise R&D expenditure					
	Total	BES	GOV	HES	PNP	ABROAD	**Total**	BES	GOV	HES	PNP	ABROAD
BE	**5 177**	3 122	1 219	141	26	669	**3 747 p**	3 037 p	216 p	0 p	1 p	492 p
CZ	**1 100**	581	461	17	1	41	**701**	558	106	10	0	27
DK	**4 855**	2 907	1 315	:	132	500	**3 355**	2 871	79 i	:	1	403
DE	**55 100 e**	36 947	16 738	:	173	1 242	**38 800 p**	35 597 i	2 288 i	:	23 p	892 p
EE	**67**	22	32	2	0	10	**23**	20	1	0	0	2
EL	**951**	292	451	25	11	172	**286**	253	11	0	0	22
ES	**8 946**	4 298	3 669	370	59	551	**4 865**	3 994	606	3	11	250
FR	**34 569**	17 553	13 487	326	312	2 890	**21 646**	16 971	2 405	3	9	2 258
IE	**1 780 p**	1 018 p	573 p	23 p	8 p	159 p	**1 150 p**	1 000 p	35 p	0 p	0 p	115 p
IT	**14 769**	:	:	:	:	:	**6 979**	5 313	985	3	7	671
CY	**41**	8	25	2	1	6	**9**	8	0	:	0	1
LV	**47**	22	15	:	:	11	**21**	16	1	:	:	4
LT	**111**	19	71	5	0	15	**23**	13	2	:	:	8
LU	**426**	342 p	48 p	0	1	35 p	**379**	338 p	10 p	:	:	31 p
HU	**721 i**	268 i	374 i	:	4	75 i	**297 p**	230 i	12 i	:	0	54 i
MT	**12**	2	7	0	0	3	**3**	2	0	0	0	0
NL	**8 376**	4 277	3 035	12	107	945	**4 804**	3 920	161	0	4	719
AT	**5 318 e**	2 445 e	1 877 e	:	19 e	977 e	**3 131**	2 018	176	0	1	936

Exceptions to the reference year: 2003: BE in total sectors, CZ, EE, EL, FR, IT, CY, LT, LU and NL; 2002: MT and AT in BES.
i DK: includes other classes.
i DE BES: underestimated or based on underestimated data.
i DE GOV: overestimated or based on overestimated data.
i HU: defense excluded (all or mostly).

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

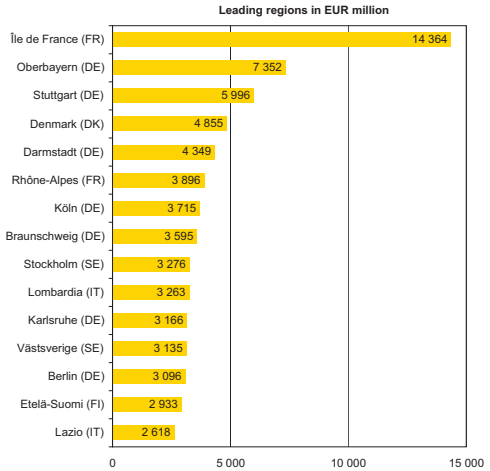
	Total R&D expenditure						Business entreprise R&D expenditure					
	Total	BES	GOV	HES	PNP	ABROAD	**Total**	BES	GOV	HES	PNP	ABROAD
PL	**1 139**	307	743	28	3	59	**327**	261	55	0	0	10
PT	**1 020**	323	613	13	19	51	**338**	302	18	:	:	19
SI	**379**	222	114	1	0	42	**254**	208	12	0	0	34
SK	**174**	67	99	0	0	7	**86**	61	23	0	0	2
FI	**5 253**	3 638	1 383	13	51	169	**3 683**	3 511	135	:	1	36
SE	**10 642 i**	6 914 i	2 496 i	39 i	417 i	776 i	**7 886 i**	6 773 i	463 i	0 i	14 i	636 i
UK	**30 089**	13 205	9 426	287	1 341	5 830	**19 778**	12 489	2 149	:	4 i	5 136
IS	**274**	120	110	:	4	40	**142**	109	5	0	0	28
NO	**3 411**	1 679	1 430	22	28	252	**1 960**	1 581	205	:	0	174
CH	**8 486**	5 917	1 927	130	68	444	**6 257**	5 687	94 i	0	32	444
BG	**89**	24	59	0	0	5	**18**	17	0	0	0	0
HR	**345**	148	161	27	:	9	**144**	135	3	:	:	7
RO	**235**	103	115	3	0	13	**130**	87	35	0	0	8
TR	**1 280**	529	647	:	88	17	**367**	347	11	:	4	6
JP	**119 748**	89 235	21 182 7	7 518 7	1 459	354	**89 783**	88 074	723	9	641	336
RU	**5 473**	1 718	3 319	19	3	415	**3 780**	1 438	2 002	1	2	337
US	**258 519 pi**	158 783 pi	78 482 pi	7 023 pi	7 290 pi	:	**180 343 pi**	155 954 pi	17 412 pi	0	0	:

Exceptions to the reference year: 2003: PT, SE, UK, IS, NO, BG, JP and US; 2002: TR.
i SE: underestimated or based on underestimated data.
i UK: includes other classes.

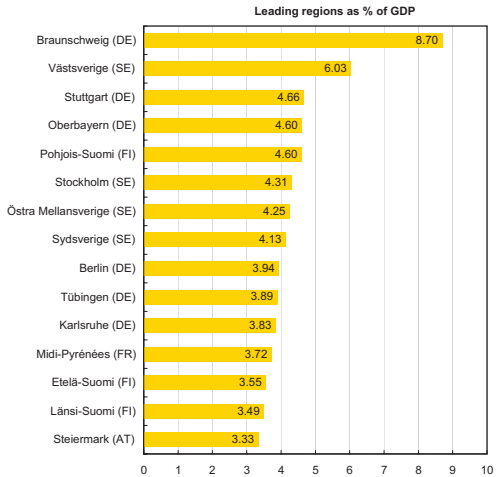
i CH: Federal or central government only.
i US: excludes most or all capital expenditure.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 2.12 Leading regions in total R&D expenditure — 2003



% of total GDP
3.20
4.60
4.66
2.56
3.22
2.61
3.13
8.70
4.31
1.20
3.83
6.03
3.94
3.55
1.89

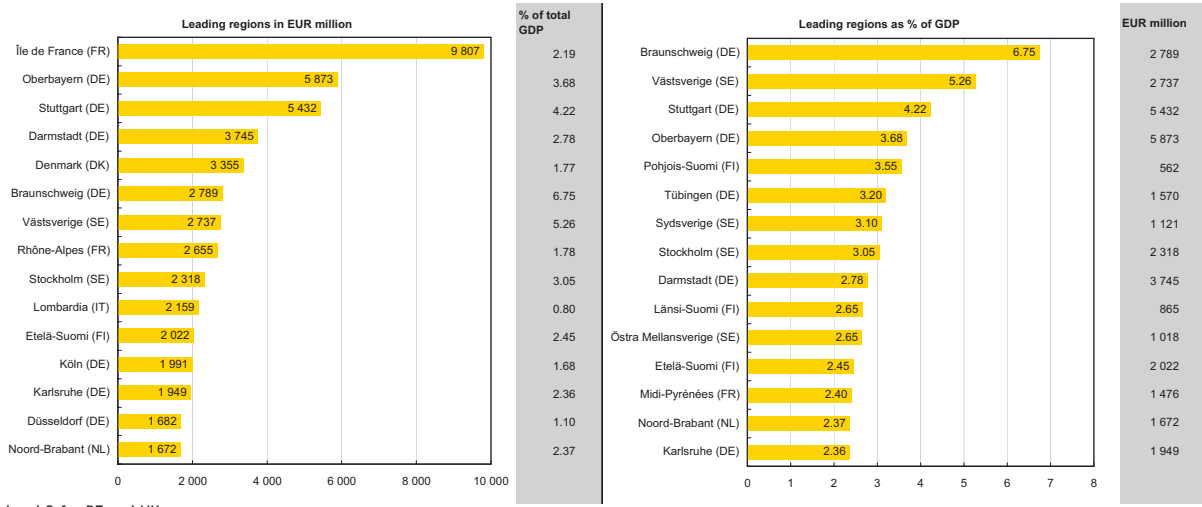


EUR million
3 595
3 135
5 996
7 352
726
3 276
1 632
1 490
3 096
1 908
3 166
2 283
2 933
1 139
907

No data at NUTS level 2 for BE and UK.
Exception to the reference year: 2002: AT.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 2.13 **Leading regions in business enterprises R&D expenditure — 2003**



No data at NUTS level 2 for BE and UK.
Exception to the reference year: 2002: AT.
National estimate: Noord-Brabant (NL).

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 2.14 **Leading region in R&D intensity (R&D expenditure as % of GDP), by sector of performance and by country — 2003**

	Total R&D expenditure		R&D expenditure in BES		R&D expenditure in GOV		R&D expenditure in HES	
BE	Vlaams Gewest	2.08	Vlaams Gewest	1.51	Vlaams Gewest	0.17	Région Wallonne	0.49
CZ	Střední Čechy	2.59	Střední Čechy	2.29	Praha	0.86	Praha	0.42
DK	Denmark	2.56	Denmark	1.77	Denmark	0.18	Denmark	0.59
DE	Braunschweig	8.70	Braunschweig	6.75	Berlin	1.10	Braunschweig	0.93
EE	Estonia	0.82	Estonia	0.28	Estonia	0.13	Estonia	0.39
EL	Attiki	0.93	Attiki	0.37	Kriti	0.41	Dytiki Ellada	0.68
ES	Comunidad de Madrid	1.69	Pais Vasco	1.06	Comunidad de Madrid	0.43	Comunidad Valenciana	0.44
FR	Midi-Pyrénées	3.72	Midi-Pyrénées	2.40	Languedoc-Roussillon	0.80	Alsace	0.64
IE	Southern and Eastern	1.21	Southern and Eastern	0.80	Southern and Eastern	0.09	Southern and Eastern	0.31
IT	Lazio	1.89	Piemonte	1.21	Lazio	0.96	Toscana	0.59
CY	Cyprus	0.35	Cyprus	0.08	Cyprus	0.13	Cyprus	0.12
LV	Latvia	0.38	Latvia	0.13	Latvia	0.09	Latvia	0.16
LT	Lithuania	0.67	Lithuania	0.14	Lithuania	0.18	Lithuania	0.35
LU	Luxembourg	1.66	Luxembourg	1.48	Luxembourg	0.17	Luxembourg	0.01
HU	Közép-Magyarország	1.38	Közép-Magyarország	0.58	Közép-Magyarország	0.53	Észak-Alföld	0.37
MT	Malta	0.27	Malta	0.08	Malta	0.02	Malta	0.17
NL	Noord-Brabant	2.68 e	Noord-Brabant	2.37 e	Flevoland	1.50 bei	Groningen	1.13
AT	Steiermark	3.33	Steiermark	2.20	Wien	0.27	Wien	1.12

NUTS1: BE, EL for total sectors and BES.
Exception to the reference year: AT 2002.

i NL: includes other classes.
DK, EE, CY, LV, LT, LU and MT are classified at NUTS level 2.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	Total R&D expenditure		R&D expenditure in BES		R&D expenditure in GOV		R&D expenditure in HES	
PL	Mazowieckie	1.14	Podkarpackie	0.29	Mazowieckie	0.67	Malopolskie	0.38
PT	Lisboa	1.03 e	Lisboa	0.36 e	Lisboa	0.26	Centro	0.32
SI	Slovenia	1.32	Slovenia	0.84	Slovenia	0.29	Slovenia	0.18
SK	Bratislavský	1.12	Západné Slovensko	0.43	Bratislavský	0.57	Bratislavský	0.17
FI	Pohjois-Suomi	4.60	Pohjois-Suomi	3.55	Etelä-Suomi	0.46 i	Pohjois-Suomi	0.78
SE	Västsverige	6.03	Västsverige	5.26	Stockholm	0.31	Övre Norrland	1.65
UK	:	:	Eastern	3.53	East Anglia	0.65	Scotland	0.64
BG	Yugozapaden	1.03	Yugozapaden	0.16	Yugozapaden	0.78	Yugozapaden	0.08
RO	Bucuresti	1.13	Bucuresti	0.46	Bucuresti	0.53	Bucuresti	0.13

NUTS1: UK for total sector, BES et HES.
SI is classified at NUTS level 2.
i FI: includes other classes.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

PART 2

Monitoring the knowledge workers

Chapter 3 - R&D Personnel

In 2004, 1.49% of total EU-25's employment was in fact R&D personnel (in head count - HC). At the national level, the highest shares of R&D personnel (HC) in total employment were observed in Finland (3.24%) followed by Sweden and Iceland with both 2.51%.

In absolute terms, EU-25's R&D personnel accounted for more than 2 million people in full time equivalent (FTE). Among these 2 million people, researchers represented the major occupation with 60% of total R&D personnel in 2004. The highest proportion was observed in the higher education sector (HES) where it reached 70% against 55% in both the government (GOV) and business enterprise sectors (BES).

The breakdown of researchers by institutional sectors shows a mixed picture across the EU-25. As an EU-25's average, 49 % of researchers (in FTE) were concentrated in the business enterprise sector, whereas in nine Member States this share was under 30 %.

Research is still a predominantly male business: in 2004, women working in R&D were in minority (28%) in the EU-25. More than half researchers were women only in Latvia (53%). The share of women among researchers (18%) was still lower in the business enterprise sector. By contrast, in the public sectors (GOV and HES) approximately one researcher among three was in fact a woman.

Industry and more specifically the manufacturing sector welcomed most of the business R&D personnel in the EU in 2004. Nevertheless, in services R&D personnel was not negligible for some Member States such as the United Kingdom where approximately one researcher among four (BES) was employed in this sector.

In most of the EU-15 Member States, enterprises with more than 500 persons employed accounted for the highest share of researchers in the business enterprise sector. In new Member States, it was generally more diversified.

In absolute terms, the leading EU-25 region in terms of R&D personnel was, by far, Île de France (FR) with more than EUR 173 000 people (HC) among which more than 100 000 researchers. Capital regions were well represented among leading regions and even more in relative terms.

Table 3.1 **R&D personnel by sector of performance, in head count (HC) and in full time equivalent (FTE), EU-25 and selected countries — 2004**

	Head count				Full time equivalent			
	TOTAL	BES	GOV	HES	TOTAL	BES	GOV	HES
EU-25	2 905 422 s	1 280 848 s	356 879 s	1 238 568 s	2 040 667 s	1 095 490 s	292 185 s	632 313 s
EU-15	2 635 678 s	1 227 833 s	301 700 s	1 077 861 s	1 867 505 s	1 050 147 s	247 008 s	550 269 s
BE	73 629	37 812	3 916	31 284	53 938 p	32 004 p	4 039 p	17 302 p
CZ	60 148	26 967	13 220	19 725	28 765	15 064	7 422	6 104
DK	65 994	40 346	4 882	20 348	42 687	28 040	3 250	11 139
DE	664 731	333 285	84 695	246 751	469 100 e	298 100 p	72 000 e	99 000 e
EE	:	:	1 099	4 894	4 735 p	1 083 p	810	2 752
EL	57 257	12 808	9 148	35 088	31 843 p	10 985 p	5 137 p	15 519 p
ES	267 943	92 888	39 499	135 027	161 933	71 123	27 166	63 331
FR	415 061 i	203 264	50 690 i	153 131 i	346 078	193 256	51 372	95 234
IE	26 184 p	12 400 p	1 609	12 175	15 713 p	9 650 p	1 222	4 841
IT	249 782	81 189	42 610	120 629	161 828	67 958	31 463	59 406
CY	2 102	567	724	601	940 p	230 p	350 p	295 p
LV	8 273	1 135	1 443	5 694	5 103	881	1 013	3 208
LT	14 534	781	3 301	10 452	10 557	981	3 041	6 535
LU	4 135	3 533	548	54	4 318	3 655	512	151
HU	49 615	8 870	11 483	29 262	22 826	6 704	7 595	8 527
MT	1 329 b	428 b	52	849	717 b	383 b	45	288
NL	:	68 286	15 137 i	:	91 594 p	49 915	13 579 i	28 100 p
AT	65 725	34 020	6 010	25 072	38 893	26 728	2 060	9 879

Footnote - HC
Exceptions to the reference year: 2003: BE, DE, EL, FR, IT, CY, LT and LU; 2002: AT.
i FR: underestimated or based on underestimated data.
i NL: includes other classes.

Footnote - FTE
Exceptions to the reference year: 2003: FR and IT; 2002: AT.
i FR: underestimated or based on underestimated data.
i NL: includes other classes.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

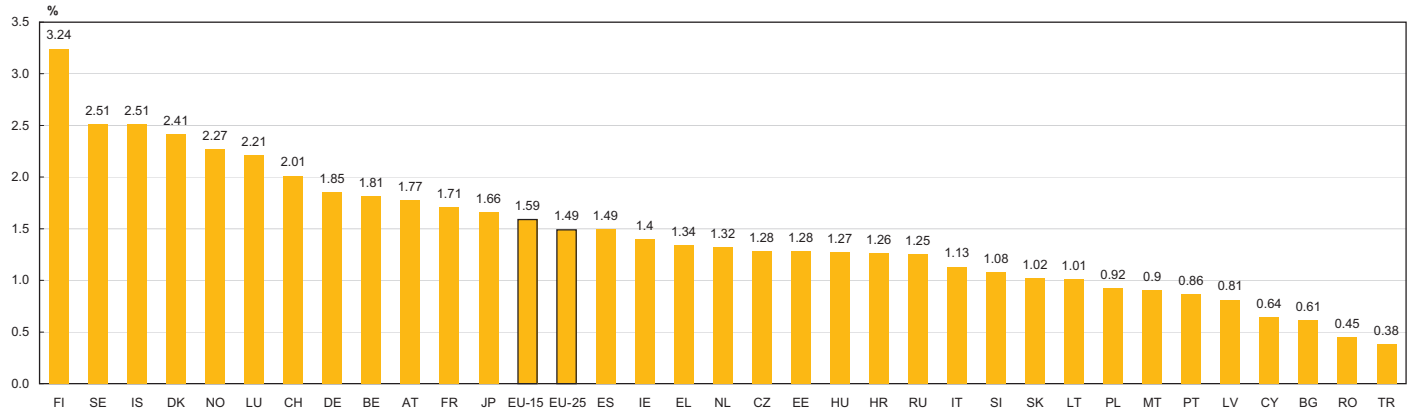
	Head count				Full time equivalent			
	Total	BES	GOV	HES	Total	BES	GOV	HES
PL	127 356	16 846	23 578	86 823	78 362	12 978	19 685	45 572
PT	44 036	9 882	7 273	21 488	27 385 e	7 698 e	4 462 e	11 668 e
SI	10 155	4 638	2 022	3 450	7 132	3 855	1 750	1 482
SK	22 217	4 642	4 046	13 442	14 329	3 473	3 493	7 285
FI	76 687	40 674	9 943	25 298	58 281	32 612	7 337	17 822
SE	108 146	52 346	5 521	49 909	72 459	47 123	3 056	21 910
UK	:	:	22 793	:	:	162 899	20 763 e	:
IS	5 466	2 193	1 740	1 323	3 050	1 422	794	746
NO	51 175	22 572	6 642	21 961	29 635 i	16 150 i	4 985	8 500
EEA	2 951 261 s	1 301 394 s	363 938 s	1 256 679 s	2 073 353 s	1 113 062 s	297 964 s	641 559 s
CH	84 090	37 820	1 595 i	44 675 e	52 250	33 085	810 i	18 355 e
BG	17 400	2 398	10 977	3 920	15 647	2 158	10 384	3 036
HR	19 739	3 233	6 398	10 108	11 162	2 831	3 634	4 697
RO	40 725	16 601	10 162	13 739	33 361	16 368	9 853	6 917
TR	79 958	9 107	8 644	62 207	28 964	5 918	5 502	17 544
CN	:	:	:	:	1 094 831	656 097	249 477	189 257
JP	1 081 099	653 380	72 367	335 983	882 414	580 628	61 893	224 049
RU	839 338	537 473	258 078	43 414	951 569	568 173	282 422	99 402

Footnote - HC
Exceptions to the reference year: 2003: PT, SE, UK, IS, NO, BG, CN and JP; 2002: TR.
i CH: central or federal government only.
i NL: includes other classes.

Footnote - FTE
Exceptions to the reference year: 2003: CN and JP; 2002: TR.
i NO: includes other classes.
i CH: central or federal government only.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 3.2 R&D personnel as a percentage of persons employed (HC), EU-25 and selected countries — 2004

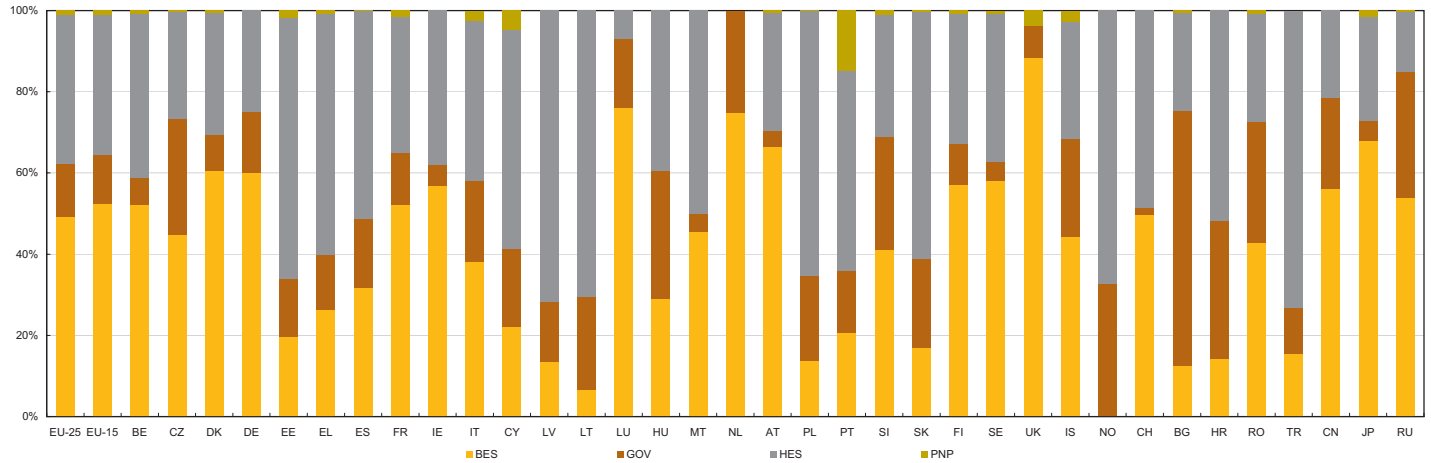


Eurostat estimates: EU-15 and EU-25.
National estimate: NL.
Provisional data: IE.
Break in series: MT.

FR: Underestimated or based on underestimated data.
Exceptions to the reference year: 2003: SE, IS, NO, LU, DE, BE, FR, JP, EL, NL, EE, IT, LT, PT, LV and BG; 2002: AT and TR.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 3.3 **Researchers by sector of performance (FTE), EU-25 and selected countries — 2004**



Exceptions to the reference year: 2003: FR, IT, CN and JP; 2002: AT and TR.
Eurostat estimates: EU-15 and EU-25.
National estimates: DE for GOV and HES, PT, UK for GOV and PNP, CH for HES.

Provional data: BE, EE for BES, EL, CY.
Break in series: MT for BES.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 3.4 **Researchers as a percentage of total (R&D) personnel (FTE) and percentage of women (FTE), EU-25 and selected countries — 2004**

	Researchers as a % of total R&D personnel (FTE) — 2004				% of women on total researchers (HC) — 2004			
	TOTAL	BES	GOV	HES	TOTAL	BES	GOV	HES
EU-25	60 s	55 s	55 s	70 s	28 s	18 s	36 s	34 s
EU-15	59 s	55 s	53 s	69 s	:	:	:	:
BE	59 p	52 p	53 p	74 p	28	20	30	35
CZ	57	48	63	70	29	20	35	32
DK	61	57	70	70	28	25	35	31
DE	57 e	54	56 e	68 e	19	12	27	25
EE	71 p	61 p	60	79	43	24	60	45
EL	49 p	37 p	42 p	60 p	37	35	39	37
ES	62	45	63	82	36	27	46	38
FR	56	52	48 i	68	28 i	20	32 i	34 i
IE	69 p	64 p	46	86	30 p	20 p	31	37
IT	43	40	44	47	29	19	39	31
CY	55 p	50 p	29 p	95 p	31	22	40	31
LV	65	51	48	74	53	51	53	53
LT	70	49	55	80	48	37	50	49
LU	47	42	67	95	17 i	14 e	29	43 i
HU	65	64	62	69	35	24	39	36
MT	61 b	52 b	43	76	24 b	20 b	50	24
NL	:	46	57 i	:	17 e	9	25 i	29 e
AT	62	60	48	71	21	10	35	30

Exceptions to the reference year: 2003: FR and IT; 2002: AT.
i FR: Defense excluded (all or mostly).

Exceptions to the reference year: 2003: BE, DK, DE, EE, EL, FR, IT, CY, LT, LU and NL; 2002: AT.
i FR: underestimated or based on underestimated data.
i NL: includes other classes.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	Researchers as a % of total R&D personnel (FTE) — 2004				% of women on total researchers (HC) — 2004			
	TOTAL	BES	GOV	HES	TOTAL	BES	GOV	HES
PL	78	64	65	87	39	25	41	41
PT	79 e	58 e	75 e	91 e	44	30	58	46
SI	57	43	64	81	33	25	41	34
SK	75	52	67	89	41	32	43	43
FI	70	72	57	73	29	17	40	43
SE	67	60	77	81	36	25	36	44
UK	:	63	44 e	:	:	:	32	:
IS	65	62	60	77	39	33	42	43
NO	: i	:	66	80	29	19	36	38
EEA	60 s	55 s	55 s	71 s	28 s	18 s	36 s	34 s
CH	49	38	52 i	67 e	27	21	26 i	30 e
BG	63	57	59	78	47	48	51	38
HR	64	36	67	79	41	39	42	41
RO	64	56	64	82	43	42	49	40
TR	83	62	50	100 i	36	25	28	37
CN	79	74	77	98	:	:	:	:
JP	77	79	54	77	12	7	12	20
RU	50	45	52	71	43	42	46	39

Exceptions to the reference year: 2003: CN and JP; 2002: TR.
i NO: included elsewhere.
i CH: Federal or central government only.
i TR:University graduates instead of researchers.

Exceptions to the reference year: 2003: PT, SE, UK, IS, NO, BG and JP; 2002: TR.
i CH: Federal or central government only.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Table 3.5 **Business enterprise R&D personnel in FTE by sector of activity (NACE) — 2004**

	Total	Agriculture, hunting, forestry and fishing (A)+(B)	Mining and quarrying (C)	Industry (D)+(E)+(F)	Manufacturing (D)	Electricity, gas and water supply (E)	Services (G to Q)	Wholesale and commission trade (G)	Computer activities; R&D; engineering activities and consultancy; technical testing and analysis (K)
BE	**32 004 p**	495	71 p	23 798 p	22 886 p	215 p	7 639 p	271 p	5 938 p
CZ	**15 064**	189	15	8 530	8 282	14	6 330	312	5 273
DK	**28 040**	183	: c	:	17 173	: c	10 529	312	6 944
DE	**298 072**	1 028	124	268 451	267 405	690	28 470	909	22 565
EE	**763**	:	-	320	298	21	443	18	305
EL	**11 581 p**	29	50	5 563	5 543	6	5 939	2 543	3 082
ES	**71 123**	843	113	38 810	37 059	396	31 357	2 347	23 607
IE	**9 650 p**	15	5 p	5 130 p	5 130 p	0 p	4 500 p	50 p	4 300 p
IT	**67 958**	:	235	50 592	50 174	287	17 131	2 215	12 083
CY	**217**	7	:	92	89	2	118	1	98
LV	**881**	:	:	:	314	:	556	13	517
LT	**664**	:	7	:	459	2	196	9	185
LU	**3 500**	:	-	:	1 511	0	1 989	62	1 250
HU	**6 704**	232	6	4 851	4 665	164	1 615	480	825
MT	**93 p**	:	0	51	46	5	24	0	22
NL	**49 915**	764	413	34 606	33 186	246	14 133	3 608	8 045
AT	**26 728**	34	25	19 310	19 137	71	7 359	868	6 061

Exceptions to the reference year: 2003: DE, EE, EL, IT CY, LT and LU; 2002: MT and AT.

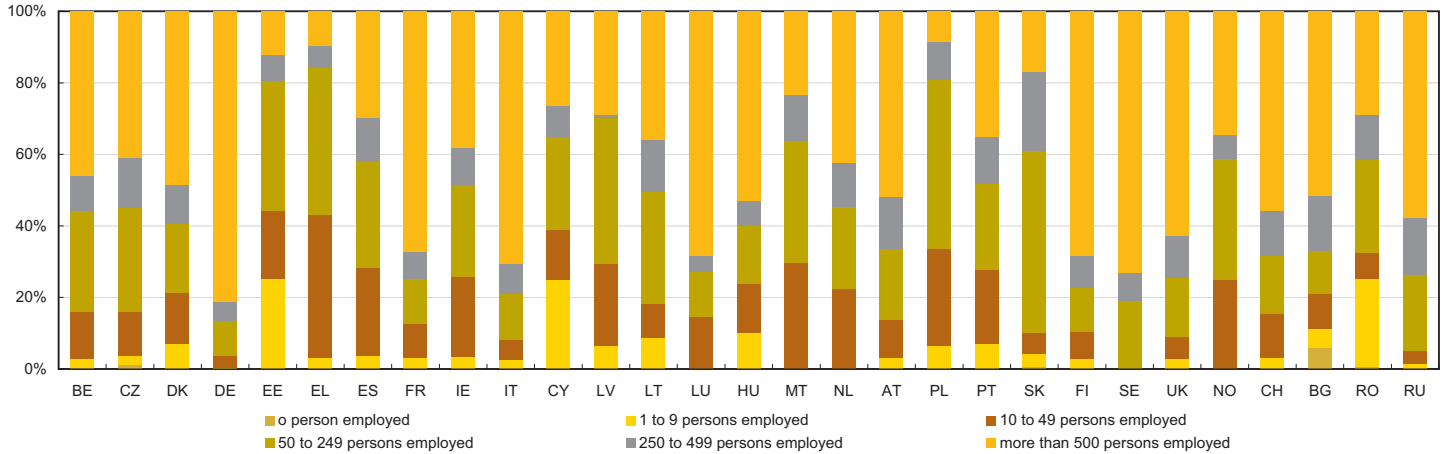
Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

	Total	Agriculture, hunting, forestry and fishing (A)+(B)	Mining and quarrying (C)	Industry (D)+(E)+(F)	Manufacturing (D)	Electricity, gas and water supply (E)	Services (G to Q)	Wholesale and commission trade (G)	Computer activities; R&D; engineering activities and consultancy; technical testing and analysis (K)
PL	**12 978**	342	511	9 490	8 929	116	2 635	137	688
PT	**6 124**	53	5	2 780	2 673	19	3 286	346	2 172
SI	**3 855**	0	29	3 217	3 217	0	609	12	593
SK	**3 473**	168	0	:	1 025	: c	2 273	12	2 174
FI	**32 612**	11	41	24 950	24 665	47	7 610	477	6 052
SE	**48 113**	182	49	:	38 748	159	8 977	919	7 147
UK	**162 863**	1 548	702	120 417	118 535	1 360	40 197	1 824	26 958
NO	**16 126**	:	530	7 406	7 071	60	8 017	504	6 324
CH	**33 085**	:	:	:	25 747	:	7 337	:	:
BG	**2 091**	19	0	940	940	0	1 132	: c	474
HR	**2 831**	54	0	666	603	10	2 111	14	1 797
RO	**16 368**	3 426	1 148	10 328	9 404	767	1 466	4	822
TR	**5 918**	129	47	4 619	4 588	24	1 123	1	685

Exceptions to the reference year: 2003: PT, SE, UK, NO and BG; 2002: TR.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

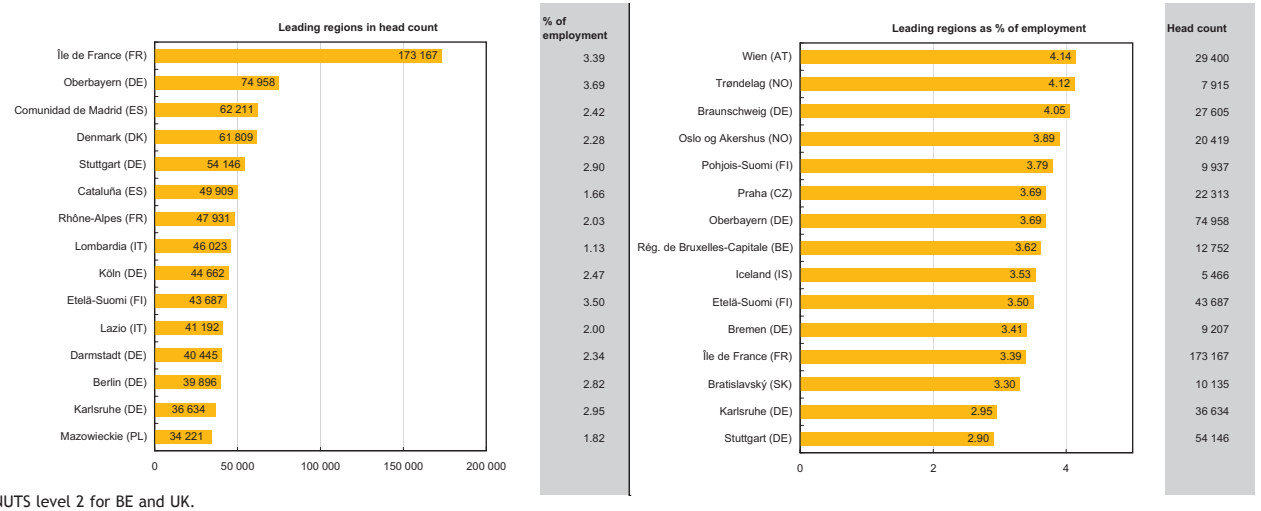
Figure 3.6 Business enterprise researchers in FTE by size class, EU-25 and selected countries — 2004



Exceptions to the reference year: 2003: DK, DE, EE, EL, FR, IT, CY, LT, LU, PT, SE, UK, NO and BG; 2002: MT, AT and RU.
Provisional data: IE.
National estimate: RU.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

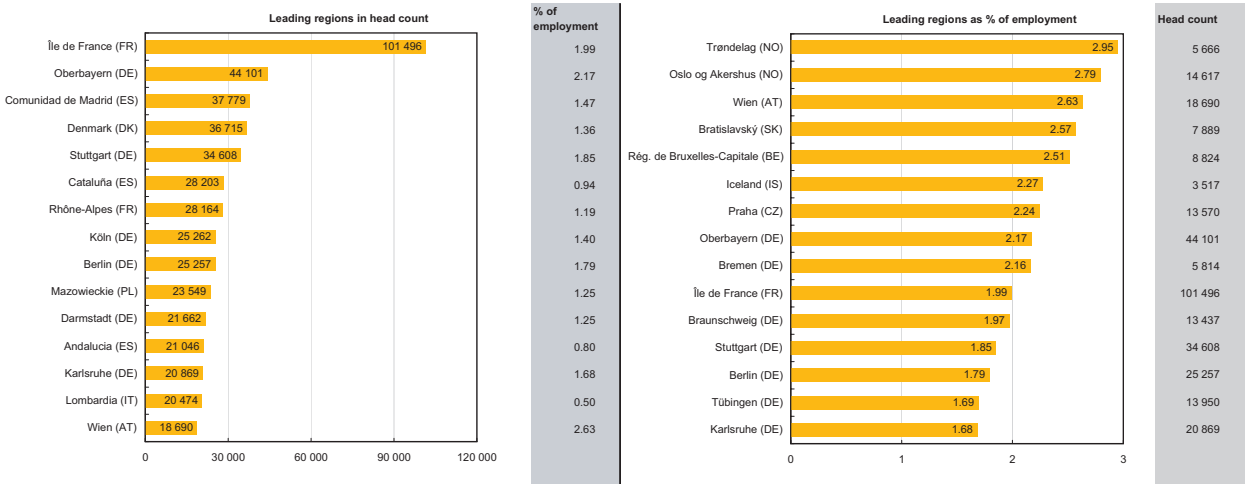
Figure 3.7 **Leading regions in terms of total R&D personnel in all sectors — 2003**



No data at NUTS level 2 for BE and UK.
Exceptions to the reference year: 2002: AT; 2001: FR.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

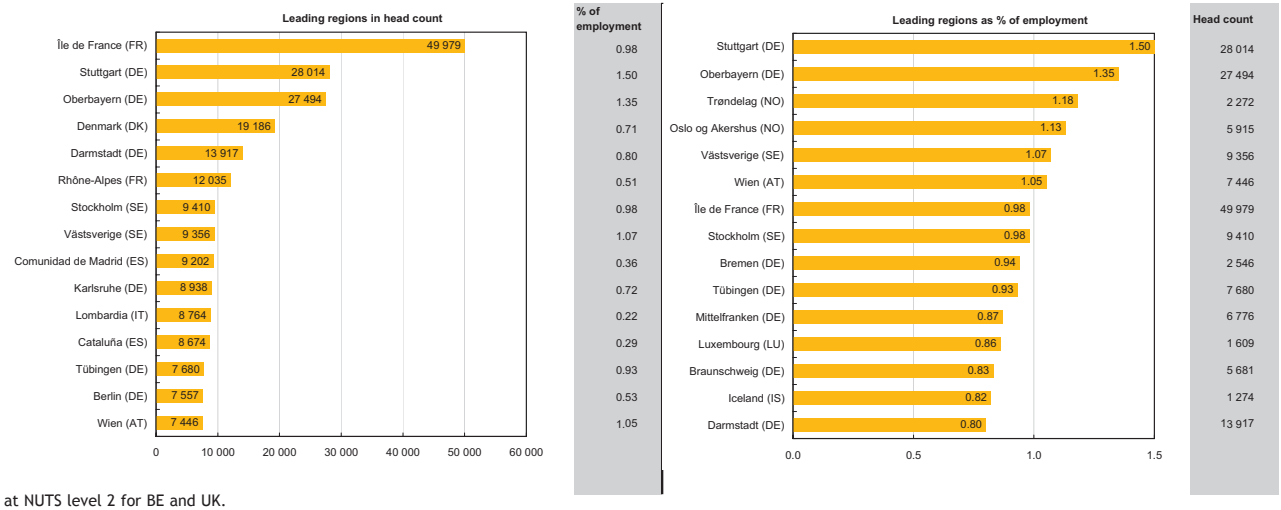
Figure 3.8 Leading regions in terms of researchers in all sectors — 2003



No data at NUTS level 2 for BE and UK.
Exceptions to the reference year: 2002: AT; 2001: FR.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Figure 3.9 **Leading regions in terms of researchers in BES – 2003**



No data at NUTS level 2 for BE and UK.
Exceptions to the reference year: 2002: AT; 2001: FR.

Source: Eurostat, R&D statistics - OECD - MSTI 2006-1

Chapter 4 - Human Resources in Science and Technology

Statistics on Human Resources in Science and Technology (HRST) review the supply of, and demand for, highly qualified persons in science and technology by measuring HRST stocks and flows.

At the education level, the tendency of the increased shares of people between 20 to 29 years old, choosing a tertiary education, is confirmed. In 2004, Finland compiles the highest proportion of people in tertiary education (46%), followed by Greece and Sweden (40%). Out of the 25 EU countries, 16 countries are over the EU average of 26% of tertiary students in 2004.

In Europe, parity between male and female students in tertiary education is achieved as the share of female students reached nearly 55% in 2004. Nevertheless, the situation is totally different by looking at graduates in science and engineering, where the graduates are mainly males (more or less 70%). This trend is also the same in the distribution of people employed as scientists or engineers where the share of female is of only 30.8% for EU-25 in 2005.

Concerning the international student mobility, in 2004, Cyprus was the leading country in the EU, with a share of foreign students of 32%. Switzerland, United Kingdom, Austria, and Germany follow with more than 10% of their tertiary students registered under a foreign citizenship.

Looking closer at the field of study of the HRST by virtue of education, it appears that of the 57 millions of HRSTE in 2005, 11 millions are qualified in "Engineering, manufacturing and construction". The proportion of females in this population was 14 %,, compared to 37 % for the 5.5 million HRSTE that in 2005 had an educational background in "Science, mathematics and computing".

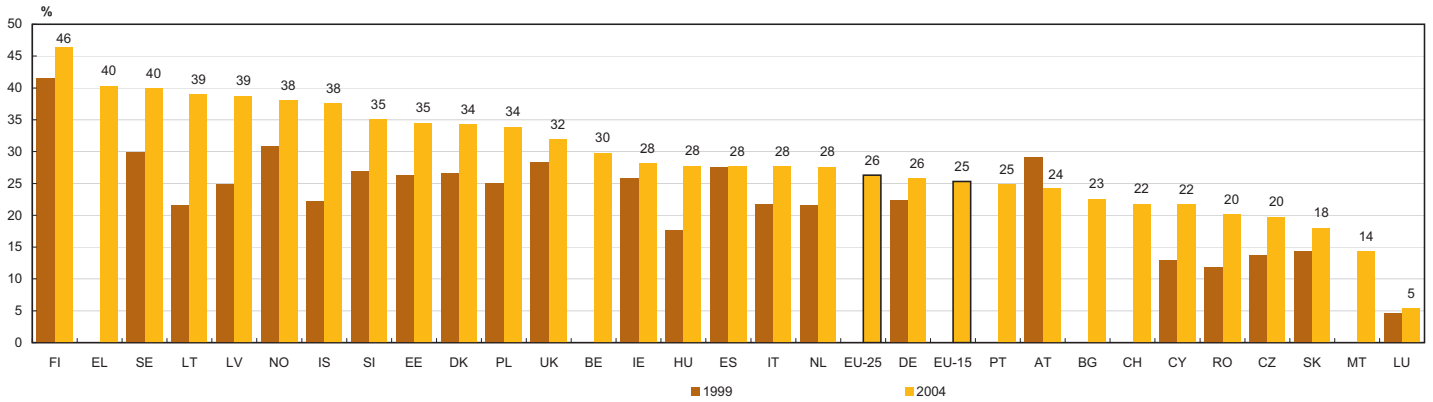
In terms of stock of HRST, EU-25 accounted for more than 91 millions of highly qualified people in 2005. Set in relation to the total labour force between 25 and 64 years of age, the share of core HRST, HRST by virtue of both education and occupation (HRSTC), are largest in Norway (26.8%), Denmark (26.5%), Luxembourg (25.7%) and the Netherlands (24.0%) in 2005.

For all EU and EFTA countries, the unemployment rates of HRST are significantly lower than for non-HRST. For EU-25 the unemployment rates for the two groups are 3.4% and 10.3%, respectively. The smallest difference in 2005 between the unemployment rates of HRST and non-HRST is registered in Greece with 6.4% and 10.2% respectively.

In 2005, in the EU, a large majority of employees in science and technology occupations work in the service sector (close to 45 millions), with the larger part in knowledge-intensive services (32.7 millions). In the manufacturing sector, the number of Science and Technology occupations is less abundant (6.8 millions), with slightly more than half of these in (3.7 millions) in high-tech and medium high-tech manufacturing.

At the regional level, in 2005, Île de France (FR) is, by far, the region with the highest number of highly qualified persons in science and technology and scored a large share of 65.8% of HRST in terms of labour force. However, Province Brabant Wallon (BE) is the leading region in terms of HRST as percentage of labour force with 73.6%.

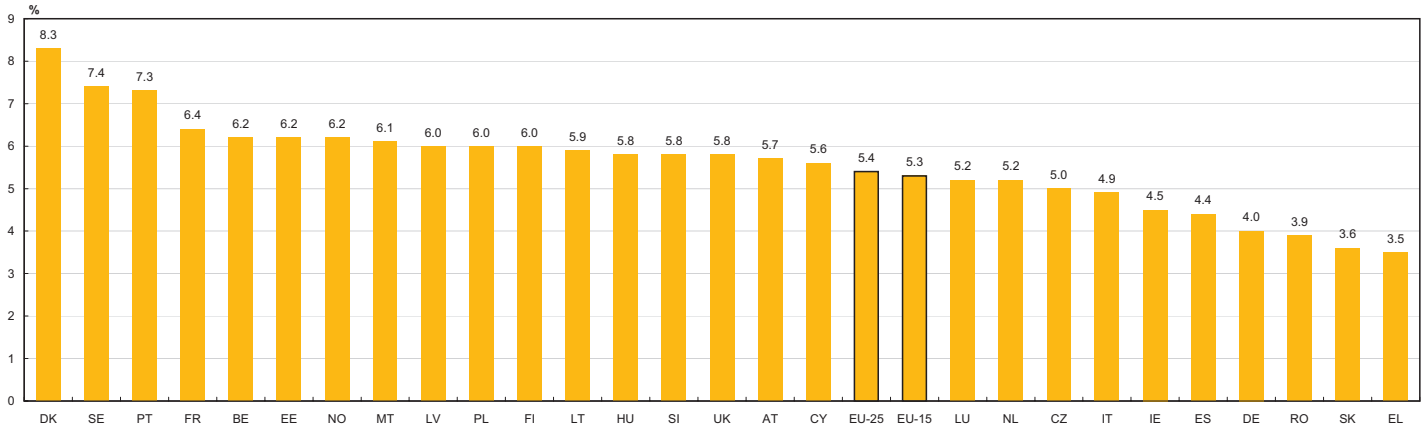
Figure 4.1 Students in tertiary education as a % of people aged 20-29 by country, EU-25 and selected countries — 1999 and 2004



Exception to the reference year 2004: LU 2002.
Eurostat estimates: EU-15 and EU-25.

Source: Eurostat, HRST statistics

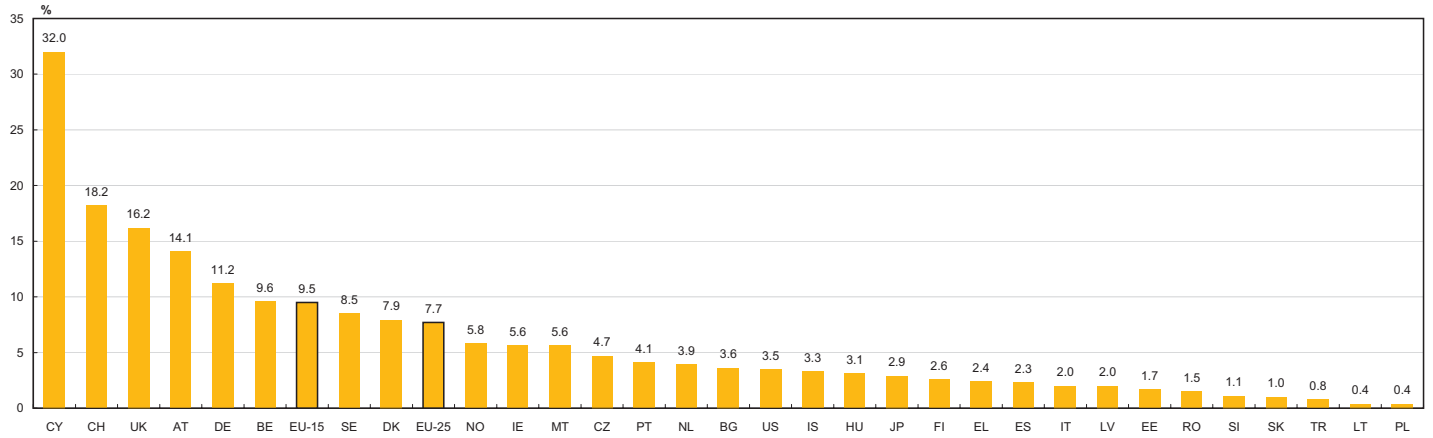
Figure 4.2 **Spending on Human Resources (public expenditure on education) as a % of GDP, EU-25 and selected countries — 2004**



Exceptions to the reference year: 2003: BE, EU-25, EU-15 and RO.

Source: Eurostat, HRST statistics

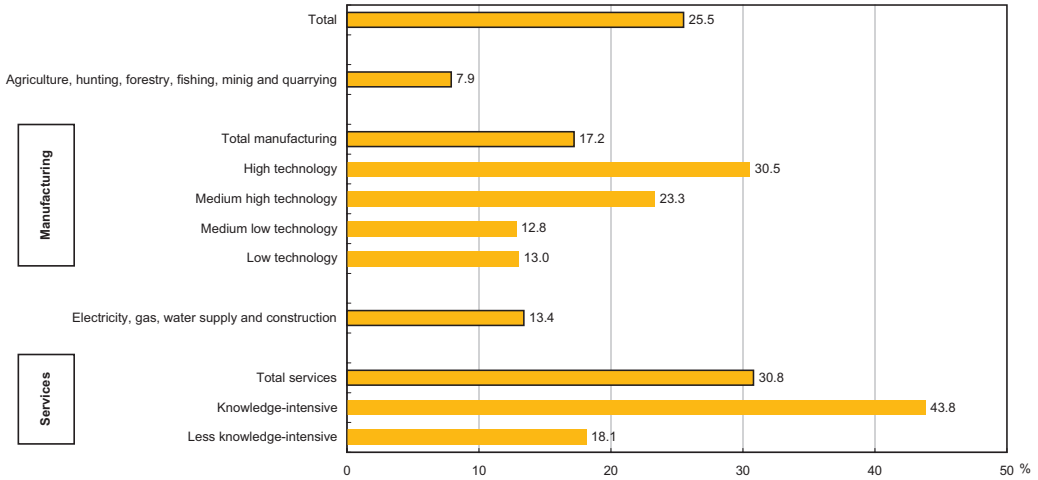
Figure 4.3 Percentage of foreign students in tertiary education by receiving country, EU-25 and selected countries — 2004



Exceptions to the reference year: 2003: EE, IE, LV, RO and US.

Source: Eurostat, HRST statistics

Figure 4.4 **Employed population with a tertiary education, as a percentage of total employment, by sector of activity (NACE), EU-25 — 2005**



Source: Eurostat, HRST statistics

Table 4.5 **Students in tertiary education, total and percentage of women, EU-25 and selected countries — 1999 to 2004**

	Total in thousands						% of women					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
EU-25	:	12 982 s	13 815 s	14 350 s	14 353 s	15 157 s	:	53.3	53.8	54.3	54.5	54.8
EU-15	:	10 340 s	10 898 s	11 213 s	11 055 s	11 698 s	:	52.5	53.0	53.5	53.7	54.1
BE	:	356	359	367	375	386	:	52.3	52.8	53.1	53.3	53.8
CZ	231	254	260	284	287	319	49.7	49.0	50.1	51.2	50.7	51.2
DK	190	189	191	195	202	217	56.3	56.9	56.5	57.5	57.9	57.9
DE	2 087	2 055	2 084	2 160	2 242	2 330	47.4	48.1	48.7	49.0	49.5	49.4
EE	49	54	58	61	64	66	57.8	58.5	60.1	61.5	61.5	61.8
EL	:	:	:	529	:	597	:	:	:	51.2	:	51.7
ES	1 787	1 829	1 834	1 833	1 841	1 840	53.0	52.9	52.5	53.1	53.1	53.8
FR	:	:	:	:	:	:	:	:	:	:	:	:
IE	151	161	167	176	182	188	53.5	54.1	54.7	55.1	55.7	55.2
IT	1 797	1 770	1 812	1 854	1 913	1 986	55.2	55.5	56.0	56.2	56.2	56.2
CY	11	10	12	14	18	21	56.0	57.1	58.0	54.8	49.5	47.9
LV	82	91	103	111	119	128	61.6	63.4	61.8	61.5	61.7	62.3
LT	107	122	136	149	168	183	60.0	60.0	59.8	60.5	60.0	60.0
LU	3	2	3	3	:	:	50.8	:	:	:	:	:
HU	279	306	331	354	390	422	54.2	54.9	54.8	55.3	56.7	57.3
MT	6	6	7	7	9	8	51.5	53.3	54.8	56.9	56.9	55.9
NL	470	488	504	511	527	543	49.3	50.0	50.5	50.8	51.0	50.9
AT	308	290	323	283	230	239	48.3	48.5	50.4	51.1	53.0	53.3

Source: Eurostat, HRST statistics

	Total in thousands						% of women					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
PL	1 399	1 580	1 775	1 906	1 983	2 044	57.0	57.5	58.0	57.9	57.8	57.6
PT	:	30	388	394	21	395	:	58.8	57.0	56.8	54.2	56.1
SI	79	84	91	99	101	104	56.0	56.1	56.1	57.5	56.2	56.9
SK	123	136	144	152	158	165	51.7	50.4	51.3	52.1	53.1	54.1
FI	258	270	280	284	292	300	53.8	53.7	53.9	54.1	53.5	53.4
SE	335	347	358	383	415	429	57.6	58.2	59.1	59.5	59.6	59.5
UK	2 081	2 024	2 067	2 241	2 288	2 247	53.2	53.9	54.5	55.2	55.9	57.0
IS	8	10	10	12	13	15	62.2	61.9	62.7	63.2	63.7	64.5
NO	187	191	190	197	212	214	57.4	58.4	59.2	59.6	59.7	59.6
EEA	:	12 654 s	13 486 s	14 030 s	14 050 s	14 789 s	:	53.5 s	54.0 s	54.5 s	54.7 s	55.0 s
CH	:	:	:	170	186	196	:	:	:	43.3	44.2	44.9
BG	270	261	247	228	231	228	59.5	57.3	56.3	54.0	52.8	52.5
RO	408	453	533	582	644	686	51.0	51.8	53.5	54.4	54.3	54.8
TR	:	1 015	1 092	1 156	1 257	1 973	:	39.8	40.5	41.0	40.4	41.4
JP	3 941	3 982	3 972	3 967	3 984	4 032	44.7	44.9	44.9	45.1	45.6	45.8
US	13 769	13 203	13 596	15 928	16 612	16 900	52.8	55.8	55.9	0.0	56.6	57.1

Source: Eurostat, HRST statistics

Table 4.6 **Graduates from tertiary education, total and as a percentage of 25-29 years old population, percentage in science and engineering(1) and percentage of women, EU-25 and selected countries — 2002 to 2004**

	Number of graduates from tertiary education				of which		Share of women			
	in thousands		as a % of 25-29 years old population		% in science and engineering(1)		as a % of total graduates		as a % of the S&E graduates	
	1999	2004	1999	2004	1999	2004	1999	2004	1999	2004
EU-25	2 569 s	3 377 s	8.2 s	11.4 s	24.1 s	23.0 s	56.1 s	58.7 s	29.5 s	30.8 s
EU-15	2 123 s	2 640 s	8.2 s	11.0 s	26.1 s	25.4 s	54.9 s	57.1 s	29.1 s	30.5 s
BE	:	77	:	11.8	:	18.9	:	57.1	:	25.3
CZ	35	54	4.4	6.0	24.0	22.3	54.0	58.0	25.4	29.4
DK	33	47	8.4	13.3	18.1	19.4	58.5	58.8	32.0	32.3
DE	315	320	6.1	7.2	27.4	26.9	49.4	52.7	20.9	23.8
EE	6	10	7.0	11.0	18.5	16.9	63.9	71.6	34.0	40.6
EL	:	48	:	6.0	:	27.3	:	60.9	:	40.5
ES	267	298	8.1	8.2	23.5	27.9	58.1	57.7	32.2	30.3
FR	500	:	12.2	:	30.3	:	55.4	:	30.3	:
IE	43	56	15.2	17.0	32.4	27.5	55.3	57.0	38.6	31.3
IT	190	325	4.3	8.1	23.9	22.7	56.0	58.1	37.1	36.8
CY	3	4	5.7	6.8	14.0	13.1	66.0	59.7	38.7	37.1
LV	13	24	7.4	15.0	17.0	13.0	66.8	69.2	36.2	32.7
LT	22	38	8.4	17.0	26.8	21.9	62.8	66.5	37.9	35.6
LU	:	:	:	:	:	:	:	:	:	:
HU	48	68	6.7	8.1	16.9	11.7	57.7	63.5	24.6	28.4
MT	2	:	:	:	10.3	:	51.6	:	20.6	:
NL	78	97	6.3	9.7	16.5	16.1	52.3	56.1	17.1	19.5
AT	25	31	4.2	6.2	29.8	28.9	48.1	50.6	19.1	22.6

(1) Science compiles science, mathematics and computing fields of study and Engineering compiles engineering, manufacturing and construction fields of study.

Source: Eurostat, HRST statistics

	Number of graduates from tertiary education				of which		Share of women			
	in thousands		as a % of 25-29 years old population		% in science and engineering[1]		as a % of total graduates		as a % of the S&E graduates	
	1999	2004	1999	2004	1999	2004	1999	2004	1999	2004
PL	286	486	10.6	16.7	11.6	12.2	63.3	65.5	35.4	33.3
PT	51	69	6.5	8.1	19.0	25.3	64.3	65.9	41.0	41.0
SI	11	15	7.5	10.0	23.2	18.7	56.9	60.4	22.7	25.0
SK	21	35	5.3	7.7	21.1	24.1	56.6	56.7	28.3	35.3
FI	38	:	12.5		29.6	:	60.0	:	25.1	:
SE	39	54	6.6	9.8	28.0	31.8	58.2	61.0	28.6	33.9
UK	476	596	11.7	16.8	25.8	22.7	54.6	57.7	29.6	31.2
IS	2	3	8.5	14.7	15.8	16.2	62.5	66.6	35.4	38.1
NO	29	32	8.5	10.9	15.7	16.0	59.5	60.3	25.5	24.5
EEA	2 531	2 738	8.0	9.1	24.2	21.4	56.1	59.1	29.5	30.7
CH	:	60	:	13.0	:	21.8	:	44.1	:	16.1
BG	45	46	:	9.0	17.8	21.0	66.1	58.3	46.0	41.7
HR	64	147	:	:	24.5	23.0	52.3	57.3	32.1	38.5
TR	179	259	:	:	29.7	28.8	42.1	44.0	29.9	30.4
JP	1 113	1 051	:	:	21.5	21.5	50.1	49.3	12.6	14.6
US	2 069	2 473	:	:	17.1	16.5	56.3	57.7	30.5	30.8

(1) Science compiles science, mathematics and computing fields of study and Engineering compiles engineering, manufacturing and construction fields of study.

Source: Eurostat, HRST statistics

Table 4.7 **Stocks of HRST, total and percentage of women, EU-25 and selected countries – 2005**

	HRST		HRSTE (Excluding HRSTC)		HRSTO (Excluding HRSTC)		HRSTC	
	in thousands	% of women	in thousands	% of women	in thousands	% of women	in thousands	% of women
EU-25	91 325	49.0	32 831	46.9	25 288	49.9	33 206	50.4
EU-15	79 508	48.0	29 025	46.5	21 507	48.11	28 976	49.4
BE	2 478	50.0	1 095	51.7	426	40.61	957	52.0
CZ	1 909	50.2	364	43.1	1 004	56.18	541	43.8
DK	1 453	50.4	459	47.7	335	45.67	659	54.6
DE	19 960	45.2	6 954	35.5	6 503	58.19	6 503	42.5
EE	344	64.5	176	58.5	58	67.24	109	72.5
EL	1 585	47.3	634	45.1	221	47.51	730	49.0
ES	9 021	48.6	4 483	49.1	1 065	39.72	3 473	50.8
FR	12 425	50.2	4 928	54.1	2 971	41.43	4 526	51.7
IE	861	52.7	415	53.0	117	49.57	329	53.5
IT	8 535	48.2	1 870	53.4	4 120	45.05	2 545	49.7
CY	152	47.4	63	52.4	24	29.17	65	49.2
LV	426	61.3	162	56.8	113	62.83	151	64.9
LT	686	59.9	289	52.2	124	71.77	273	62.6
LU	101	46.5	27	44.4	25	52.00	49	44.9
HU	1 508	57.1	503	48.9	435	65.06	570	58.2
MT	50	40.0	13	46.2	20	30.00	18	44.4
NL	4 432	47.1	1 392	43.8	1 260	50.95	1 780	47.0
AT	1 683	44.7	500	34.6	726	49.45	457	48.1

Source: Eurostat, HRST statistics

	HRST		HRSTE (Excluding HRSTC)		HRSTO (Excluding HRSTC)		HRSTC	
	in thousands	% of women	in thousands	% of women	in thousands	% of women	in thousands	% of women
PL	5 485	57.0	1 913	50.8	1 481	61.1	2 091	59.6
PT	1 177	52.0	308	56.5	346	33.2	523	61.8
SI	404	54.2	114	47.4	137	53.3	153	60.1
SK	853	55.0	208	44.2	385	63.1	260	51.5
FI	1 370	53.9	558	52.9	270	46.7	542	58.5
SE	2 294	51.7	595	54.1	692	39.5	1 007	58.8
UK	12 134	47.7	4 808	47.5	2 431	42.7	4 895	50.4
IS	67	53.7	13	53.8	21	52.4	33	54.5
NO	1 170	49.8	341	49.3	267	40.4	562	54.6
EEA	92 562	49.0	33 186	46.9	25 577	49.8	33 800	50.5
CH	2 133	41.7	613	32.5	761	55.6	759	35.0
BG	1 277	57.0	587	54.0	191	45.5	500	64.6
RO	2 249	53.2	615	41.6	759	64.2	875	51.8

Source: Eurostat, HRST statistics

Table 4.8 **HRSTE by field of study, total and percentage of women, EU-25 and selected countries — 2005**

	Total		Science, mathematics and computing		Engineering, manufacturing and construction	
	in thousands	% of women	in thousands	% of women	in thousands	% of women
EU-25	57 437	48.7	5 555	37.1	10 939	14.0
EU-15	50 771	47.8	4 901	35.7	9 656	13.0
BE	2 048	51.8	221	36.7	279	13.3
CZ	:	:	:	:	:	:
DK	1 118	51.8	51	23.5	200	20.5
DE	13 086	39.0	801	28.1	3 907	11.4
EE	285	63.9	14 u	57.1 u	82	36.6
EL	1 364	47.2	115	33.0	205	22.0
ES	:	:	:	:	:	:
FR	9 407	52.9	1 059	35.4	1 455	15.2
IE	740	53.2	130	44.6	90	8.9
IT	4 410	51.2	484	53.3	596	19.1
CY	128	50.8	11	45.5	18	16.7
LV	313	60.7	20	50.0	68	33.8
LT	562	57.3	37	51.4 u	152	27.6
LU	76	44.7	8	25.0	12	16.7
HU	1 073	53.9	53	30.2	220	19.5
MT	31	45.2	2 u	:	3 u	:
NL	3 054	45.6	188	28.7	335	8.7
AT	956	41.0	48	31.3	273	10.6

Source: Eurostat, HRST statistics

	Total		Science, mathematics and computing		Engineering, manufacturing and construction	
	in thousands	% of women	in thousands	% of women	in thousands	% of women
PL	3 540	57.0	468	48.7	570	16.8
PT	831	59.8	108	54.6	132	25.0
SI	267	54.7	14	42.9 u	51	17.6 u
SK	468	48.3	36	44.4	119	23.5
FI	1 100	55.6	52	48.1	251	13.1
SE	1 602	57.1	100	37.0	235	22.6
UK	9 684	48.9	1 391	33.1	1 451	9.7
IS	46	54.3	4	25.0	6	:
NO	903	52.6	42	31.0	53	11.3
EEA	58 386	48.8	5 602	37.0	10 998	14.0
CH	1 023	34.3	92	19.6	250	8.4
BG	1 087	58.9	43	60.5	259	36.7
RO	1 490	47.6	228	55.7	387	31.8

Source: Eurostat, HRST statistics

Table 4.9

Distribution of persons employed as scientists and engineers, total, as a percentage of active population, percentage of women and by age group, EU-25 and selected countries 2005

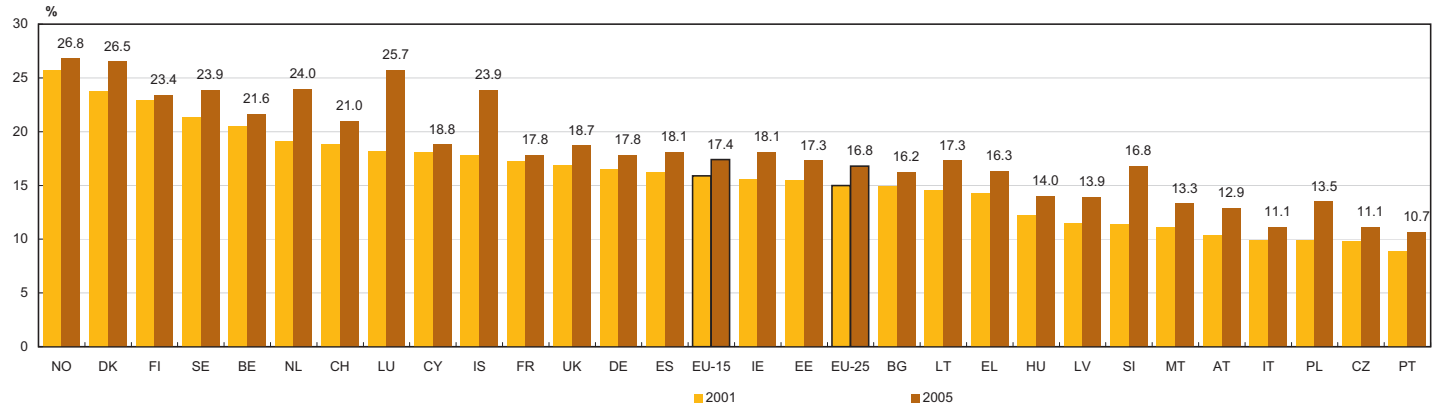
	Scientists and engineers		% of women	By age groups in thousands			
	in thousands	% of active population		25 to 34	35 to 44	45 to 64	Other
EU-25	10 015	4.6	30.4	2 914	3 087	3 555	459
EU-15	8 696	4.8	28.0	2 480	2 767	3 060	389
BE	347	7.5	47.8	113	108	108	19
CZ	172	3.3	30.2	48	43	70	10
DK	175	6.1	29.1	49	58	58	9
DE	2 172	5.3	21.6	496	786	809	81
EE	23	3.5	43.5 u	:	:	8 u	:
EL	182	3.8	30.8	48	57	74	3 u
ES	949	4.6	40.7	366	259	281	44
FR	1 271	4.7	22.3	350	386	494	42
IE	146	7.2	50.7	56	38	40	12
IT	785	3.2	31.8	170	271	319	26
CY	15	4.1	40.0	6	3	5	1 u
LV	42	3.7	54.8	7 u	11	20	:
LT	75	4.6	49.3	18 u	20 u	30	6 u
LU	11	5.2	18.2	3	4	3	:
HU	153	3.7	34.6	48	31	65	9
MT	5	3.4	40.0 u	3 u	:	:	:
NL	487	5.7	30.4	146	150	167	24
AT	122	3.1	25.4	39	38	37	7 u

Source: Eurostat, HRST statistics

	Scientists and engineers		% of women	By age groups in thousands			
	in thousands	% of active population		25 to 34	35 to 44	45 to 64	Other
PL	722	4.2	53.5	258	176	258	31
PT	156	2.8	48.1	63	41	43	9
SI	47	4.7	38.3	18	14	14	1 u
SK	65	2.5	33.8	23	16	22	4 u
FI	164	6.1	28.7	56	46	58	5
SE	301	6.3	37.2	90	92	109	10
UK	1427	4.9	20.0	434	434	461	98
IS	10	6.2	50.0	3	3	4	:
NO	126	5.3	40.5	34	39	49	:
EEA	10152	4.6	30.5	2951	3130	3608	463
CH	292	7.0	15.1	76	89	105	21
BG	103	3.1	44.7	22	33	44	:
RO	342	3.4	38.6	96	108	130	7 u

Source: Eurostat, HRST statistics

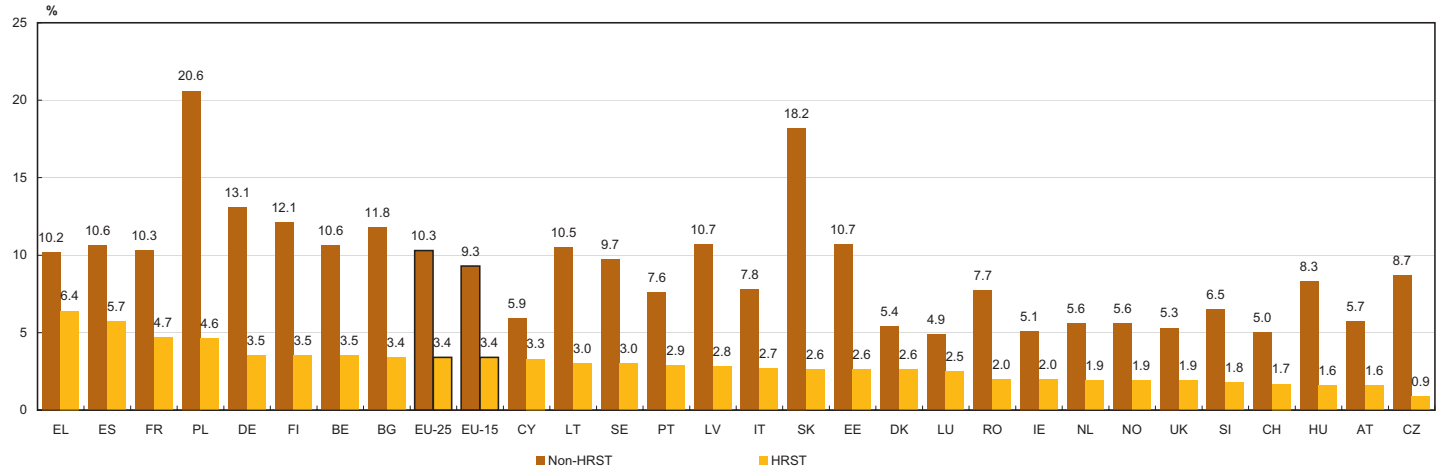
Figure 4.10 HRST core aged between 25 and 64 years old, as a percentage of labour force, EU-25 and selected countries — 2001 and 2005



Break in series in 2001: SE, UK, BG, LT, SI and MT.

Source: Eurostat, HRST statistics

Figure 4.11 **Unemployment rate for HRST and non-HRST, EU-25 and selected countries — 2005**



Source: Eurostat, HRST statistics

Table 4.12 **HRSTO employed aged 25-64, by sectors of activity (NACE), total number and percentage of women, EU-25 and selected countries — 2005**

	Manufacturing				Services				Total High-technology sectors [1]	
	Total		High- and medium high-tech		Total		KIS			
	in thousands	% of women	in thousands	% of women	in thousands	% of women	in thousands	% of women	in thousands	% of women
EU-25	6 827	29.4	3 730	23.9	44 863	54.6	32 746	57.1	6 828	24.9
EU-15	5 840	27.2	3 310	22.2	38 918	53.2	28 616	55.5	6 091	23.7
BE	168	22.6	83	20.5	1 066	53.7	858	57.5	145	20.0
CZ	243	36.2	112	31.3	1 053	58.8	714	63.3	179	29.6
DK	109	35.8	56	32.1	805	55.8	623	57.3	121	31.4
DE	1 765	26.3	1 166	20.5	9 592	55.2	6 393	56.7	1 793	21.9
EE	20	65.0 u	:	:	120	74.2	87	75.9	12 u	:
EL	59	30.5	17	29.4	837	50.1	676	52.5	45	26.7
ES	491	32.2	211	26.5	3 572	51.1	2 592	53.9	456	26.3
FR	1 009	23.8	601	21.0	5 741	53.1	4 059	55.4	1 150	25.9
IE	46	30.4	29	27.6	334	56.9	278	59.7	51	27.5
IT	823	27.9	437	23.3	5 285	51.4	4 037	55.0	778	24.0
CY	5	40.0	1 u	:	71	45.1	50	52.0	4	25.0 u
LV	13	53.8 u	:	:	199	67.8	130	76.2	10	60.0 u
LT	31	58.1 u	7 u	:	315	69.8	210	77.1	18 u	55.6 u
LU	3	33.3 u	1 u	:	67	47.8	46	50.0	3	33.3 u
HU	106	45.3	53	41.5	793	64.9	569	66.8	101	37.6
MT	3	:	2 u	:	28	42.9	20	45.0	3 u	:
NL	221	24.4	83	18.1	2 358	51.4	1 863	54.8	240	16.3
AT	131	29.0	66	22.7	850	52.7	563	55.2	106	23.6

([1]) Total high technology is a sum of High and medium high technology manufacturing and Knowledge-intensive high-technology services.

Source: Eurostat, HRST statistics

	Manufacturing				Services				Total High-technology sectors [1]	
	Total		High- and medium high-tech		Total		KIS			
	in thousands	% of women	in thousands	% of women	in thousands	% of women	in thousands	% of women	in thousands	% of women
PL	411	43.1	169	39.1	2 728	65.0	1 903	69.6	300	34.3
PT	71	31.0	30	30.0	699	54.9	486	58.8	72	26.4
SI	56	42.9	24	33.3 u	203	64.5	141	68.8	38	31.6
SK	99	42.4	44	40.9	436	64.4	305	67.2	72	38.9
FI	120	35.8	61	27.9	609	59.8	456	61.6	113	31.9
SE	166	29.5	99	26.3	1 384	55.1	1 060	57.3	248	29.8
UK	660	27.0	371	22.1	5 718	52.3	4 626	53.7	768	20.6
IS	3	33.3	1	:	44	59.1	36	61.1	5	20.0
NO	55	23.6	26	:	701	53.5	548	56.4	83	21.7
EEA	6 885	29.4	3 757	23.8	45 608	54.6	33 331	57.1	6 915	24.9
CH	143	21.7	98	18.4	1 132	48.7	863	50.8	164	17.1
BG	78	55.1	25	40.0 u	543	61.9	363	68.9	60	41.7
RO	267	48.3	104	38.5	1 113	63.0	723	70.0	154	39.0

([1]) Total high technology is a sum of High and medium high technology manufacturing and Knowledge-intensive high-technology services.

Source: Eurostat, HRST statistics

Figure 4.13 Leading regions in terms of HRST, total number and as a percentage of labour force — 2005

Source: Eurostat, HRST statistics

PART 3

Productivity and competitiveness

Chapter 5 - Innovation

European Innovation Scoreboard 2005 (EIS 2005) - Comparative analysis of innovation performance

The EIS is the policy instrument developed by the European Commission, under the Lisbon Strategy, to evaluate and compare the innovation performance of EU Member States. It uses a limited number of indicators and results, most of them produced within the European Statistical System. The EIS 2005 covers the EU-25 Member States, the EFTA Member States (excluding Liechtenstein), the candidate countries (excluding Croatia), Japan and the United States.

Results of the European Innovation Scoreboard 2005

The scoreboard calculates the Summary Innovation Index (SII) to measure the innovation performance of European countries, but also to compare EU-25 with Japan and the United States. The SII is based on the 26 indicators listed in Table 5.1.

The scoreboard divides European countries into four groups, depending on their innovation performance (see Figure 5.2):

- Leading countries: Switzerland, Finland, Sweden, Denmark and Germany
- Average performance: France, Luxembourg, Ireland, United Kingdom, Netherlands, Belgium, Austria, Norway, Italy and Iceland
- Catching up: Slovenia, Hungary, Portugal, Czech Republic, Lithuania, Latvia, Greece, Cyprus and Malta
- Losing ground: Estonia, Spain, Bulgaria, Poland, Slovakia, Romania and Turkey

None of the new Member States is among the top two groups, but two "old" Member States (Portugal and Greece) are in the "catching up" group and one (Spain) is in the "losing ground" group. For most countries not too much convergence is expected in the short term (by 2010). Some countries could reach the EU-25 average within 20 years, but for many countries convergence might take longer.

Figure 5.3 shows the innovation gap between EU-25, the United States, Japan and EU-15. The innovation gap with Japan is widening, but the gap with the United States is stable. A closer look at the individual indicators that make up the SII gives some explanations for the gaps, for example the differences in the number of USPTO patents or in the share of the population with tertiary education.

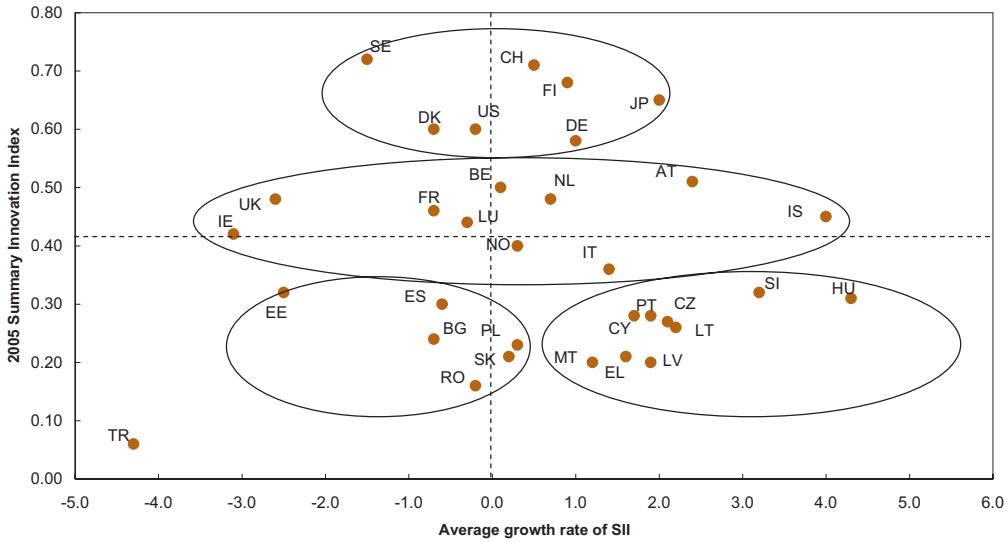
Where to obtain further information:
The European Innovation Scoreboard 2005, its annexes, accompanying thematic papers and the indicators database are available at:
www.trendchart.org

Table 5.1 EIS 2005 indicators by sub-group

		INPUT – Innovation drivers	
1.1		S&E graduates per 1000 population aged 20-29	Eurostat
1.2		Population with tertiary education per 100 population aged 25-64	Eurostat, OECD
1.3	*new*	Broadband penetration rate (number of broadband lines per 100 population)	Eurostat
1.4		Participation in life-long learning per 100 population aged 25-64	Eurostat
1.5	*new*	Youth education attainment level (% of population aged 20-24 having completed at least upper secondary education)	Eurostat
		INPUT – Knowledge creation	
2.1		Public R&D expenditures (% of GDP)	Eurostat, OECD
2.2		Business R&D expenditures (% of GDP)	Eurostat, OECD
2.3	*new*	Share of medium-high-tech and high-tech R&D (% of manufacturing R&D expenditures)	Eurostat, OECD
2.4	*new*	Share of enterprises receiving public funding for innovation	Eurostat (CIS)
2.5	*new*	Share of university R&D expenditures financed by business sector	Eurostat, OECD
		INPUT – Innovation & entrepreneurship	
3.1		SMEs innovating in-house (% of all SMEs)	Eurostat (CIS)
3.2		Innovative SMEs co-operating with others (% of all SMEs)	Eurostat (CIS)
3.3		Innovative expenditures (% of total turnover)	Eurostat (CIS)
3.4		Early-stage venture capital (% of GDP)	Eurostat
3.5		ICT expenditures (% of GDP)	Eurostat
3.6		SMEs using non-technological change (% of all SMEs)	Eurostat (CIS)
		OUTPUT – Application	
4.1		Employment in high-tech services (% of total workforce)	Eurostat
4.2	*new*	Exports of high technology products as a share of total exports	Eurostat
4.3		Sales of new-to-market products (% of total turnover)	Eurostat (CIS)
4.4		Sales of new-to-firm not new-to-market products (% of total turnover)	Eurostat (CIS)
4.5		Employment in medium-high and high-tech manufacturing (% of total workforce)	Eurostat
		OUTPUT – Intellectual property	
5.1		EPO patents per million population	Eurostat
5.2		USPTO patents per million population	Eurostat
5.3	*new*	Triadic patent families per million population	Eurostat, OECD
5.4	*new*	New community trademarks per million population	OHIM
5.5	*new*	New community designs per million population	OHIM

Source: European Innovation Scoreboard 2005

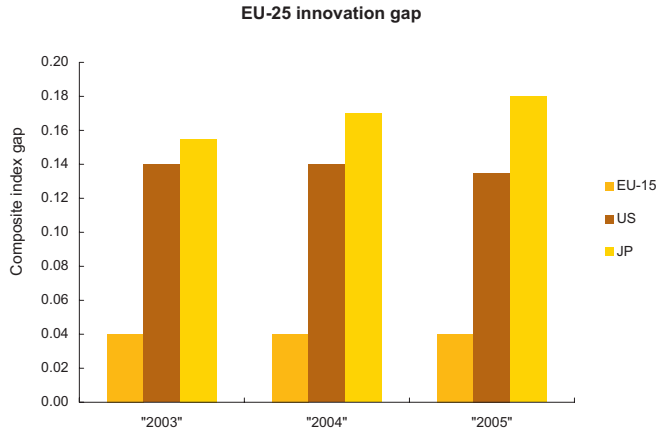
Figure 5.2 **Summary Innovation Index (SII) in 2005 and annual average growth rate 2003-2005, EU-25 and selected countries**



Dotted lines show EU25 mean performance.

Source: European Innovation Scoreboard 2005

Figure 5.3 Innovation gap between EU-25 and the United-States, Japan and EU-15



Source: European Innovation Scoreboard 2005

The Fourth Community Innovation Survey (CIS 4)

The CIS 4 is collecting information about both product and process innovation and organisational and marketing innovation. Most of the questions cover new or significantly improved goods or services or the introduction of new or significantly improved processes, logistics or distribution methods. Organisational and marketing innovation is covered by one specific question.

The CIS 4 survey is based on Commission Regulation No 1450/2004, which establishes the legal basis for innovation statistics and makes it compulsory to deliver data on a number of basic variables.
The CIS 4 questionnaire not only focuses on product and process innovation, but also looks at the effects of innovation, the sources of information about innovation activities and innovation expenditure and examines the factors hampering innovation and use of intellectual property rights. It is shorter than the CIS 3 questionnaire and is perceived as less difficult by the countries participating.

The CIS 4 was launched in 2005 in nearly all countries concerned and uses a harmonised questionnaire and survey method which define the structure of the questions to be asked and the statistical methods to be used by the countries participating.

The observation period to be covered by the survey is 2002-2004 inclusive, i.e. the three years from the beginning of 2002 to the end of 2004. The reference period for the CIS 4 is the year 2004. The CIS 4 data from more than 30 European countries will become available in the second half of 2006. At a later stage the CIS 4 micro-data will also be disseminated to researchers in accordance with the underlying European legislation.

Chapter 6 - Patents

Patents reflect a country's inventive activity and its capacity to exploit knowledge and translate it in economic profit. Patents give for a certain time and within a certain geographical area a protection to innovations. They are a tool for measuring the outputs of innovative activity and indirectly they reflect the investments in R&D.

Eurostat publishes the following indicators:

- Patent applications to the European patent office (EPO) by priority year;
- Patents granted by the United Sates patent and trademark office (USPTO) by priority year;
- Triadic patent families (patents taken at the EPO, USPTO and Japanese patent office - JPO and protecting the same invention) by earliest priority year.

This year data production is based on an OECD data extraction of PATSTAT the worldwide patent database. PATSTAT has been created by the EPO in collaboration with the OECD Interinstitutional Patent task force members (EPO, Eurostat, OECD, JPO, USPTO and WIPO). Since 2006 an update of the database should be made available to the task force members every six month (end of March and end of September).

The largest share of the EPO patent applications came in 2003 from Germany followed by France and the United Kingdom. Germany had also the highest level of patent applications per million inhabitants followed by Finland and Sweden.

Patent data are related to Patent Classification (IPC). The IPC codes given to each patent allow aggregating them in different technological areas as biotechnology, high technology and ICT (information and communication technology). A concordance table links the IPC codes to NACE codes aiming to show patents by industrial sectors.

Patents can be broken down also by institutional sector. The main sectors are business enterprise, government and higher education.

In 2003 the highest share of patent applications to the EPO was related to the IPC section B: 'Performing operations; transporting'. The high-tech sector can be split in six sub-groups. For EU-25, the ranking by number of patent applications is the following one: 'Communication technology', 'Computer and automated business equipment', 'Micro-organism and genetic engineering', 'Semiconductors', 'Aviation' and 'Laser'. A closer look to the high-tech patent applications per million inhabitants shows that Finland ranked first far ahead from Sweden and the Netherlands.

Concerning the patents granted by the USPTO the relations between the EU Member States are comparable to the patent applications to the EPO. However the number of patents granted to United States inventors is more than three times higher than those of the EU-25.

Regional data are available for patent applications to the EPO in 2002. Whereas in total numbers Ile de France (FR) was leading followed by the German regions - Stuttgart and Oberbayern - per million inhabitants Noord-Brabant (NL) ranked first and the same two German regions second and third.

Table 6.1 Patent aplications to the EPO, total number, per million inhabitants, by IPC section as a percentage of total and annual average growth rate, EU-25 and selected countries — 1998-2003

	Total number		Per million inhabitants		Distribution by IPC section as a percentage of total — 2003								Annual average growth rate 1998-2003
	1998	2003	1998	2003	Human necessities	Performing operations, transporting	Chemistry, metallurgy	Textiles, paper	Fixed constructions	Mech. engineering, lighting, heating, weapons, blasting	Physics	Electricity	
EU-25	51 145	62 191	114	137	15.6	20.9	13.4	1.9	4.5	10.7	17.0	16.1	4.0
EU-15	50 760	61 462	136	161	15.5	20.9	13.3	1.9	4.4	10.7	17.0	16.2	3.9
BE	1 313	1 496	129	144	16.9	17.8	27.2	2.8	5.3	6.4	12.3	11.4	2.6
CZ	101	163	10	16	18.3	18.2	23.4	8.2	8.9	7.5	8.3	7.2	10.0
DK	944	1 270	178	236	26.8	13.5	18.0	0.6	6.5	8.5	11.2	14.9	6.1
DE	21 629	25 728	264	312	12.2	23.7	13.0	2.1	4.0	13.6	16.3	15.1	3.5
EE	7	21	5	16	20.6	0.0	30.0	0.0	0.0	4.7	27.5	17.1	25.0
EL	80	123	7	11	21.4	16.7	8.4	0.8	6.9	12.6	18.0	15.2	9.1
ES	830	1 274	21	31	23.8	25.0	13.7	1.8	7.3	8.5	10.6	9.3	9.0
FR	7 433	9 202	128	154	17.0	19.0	13.2	1.2	3.9	10.2	16.8	18.7	4.4
IE	226	306	61	77	29.0	14.6	8.1	0.0	2.6	2.4	23.1	20.2	6.2
IT	3 711	5 002	65	87	20.2	27.7	10.3	3.4	5.5	12.4	9.6	10.7	6.2
CY	7	12	10	16	19.2	28.5	8.5	0.0	8.5	17.1	4.3	13.8	11.4
LV	10	14	4	6	43.8	16.1	40.1	0.0	0.0	0.0	0.0	0.0	6.1
LT	1	20	0	6	5.0	5.0	18.3	0.0	0.0	5.0	65.6	1.2	69.9
LU	80	90	190	200	1.7	35.9	14.6	1.4	6.5	21.4	10.5	8.1	2.3
HU	120	192	12	19	28.6	14.3	20.7	0.5	3.7	7.0	10.4	14.9	9.8
MT	5	4	13	9	0.0	28.6	0.0	14.3	0.0	0.0	57.1	0.0	-6.9
NL	2 941	3 956	188	244	13.0	13.9	12.4	1.1	4.3	4.2	32.1	19.0	6.1
AT	1 070	1 581	134	195	15.8	22.4	12.8	3.2	7.7	11.3	12.0	14.8	8.1

Source: Eurostat, Patent statistics

	Total number		Per million inhabitants		Distribution by IPC section as a percentage of total — 2003								Annual average growth rate 1998-2003
	1998	2003	1998	2003	Human necessities	Performing operations, transporting	Chemistry, metallurgy	Textiles, paper	Fixed constructions	Mech. engineering, lighting, heating, weapons, blasting	Physics	Electricity	
PL	61	160	2	4	18.1	18.9	14.6	1.2	7.8	13.2	13.0	13.1	21.5
PT	32	78	3	7	13.0	25.6	17.4	3.7	5.1	13.0	14.1	8.1	19.6
SI	50	101	25	50	21.6	14.9	19.0	2.7	8.9	8.4	9.6	14.7	15.1
SK	23	44	4	8	22.2	11.6	18.4	1.5	9.1	12.6	11.9	12.6	13.3
FI	1 481	1 591	288	306	7.9	15.2	9.4	5.7	2.5	3.7	18.5	37.1	1.4
SE	2 622	2 547	296	285	17.0	20.4	9.3	1.9	4.3	10.1	14.7	22.4	-0.6
UK	6 368	7 217	109	121	20.1	15.1	15.9	0.9	4.8	7.0	21.3	14.9	2.5
IS	36	44	133	154	25.2	4.5	20.8	0.0	2.3	5.6	34.0	7.5	4.2
LI	43	25	1 357	726	21.5	15.3	16.3	0.0	8.1	26.5	8.3	4.1	-10.4
NO	511	533	116	117	21.4	16.5	9.8	0.2	11.0	10.2	16.5	14.5	0.9
CH	2 635	3 113	371	426	21.2	20.8	13.9	3.0	4.3	7.1	18.5	11.1	3.4
BG	24	34	3	4	20.7	11.8	11.8	0.0	8.9	8.9	20.8	17.0	7.4
HR	31	81	7	18	35.3	12.8	19.4	0.0	11.1	7.4	8.2	5.7	21.2
RO	26	26	1	1	21.5	4.4	7.8	0.0	19.6	9.1	14.7	22.8	-0.2
TR	53	133	:	2	20.6	8.2	8.8	11.3	3.8	25.6	11.3	10.4	20.3
CN	348	1 898	:	:	19.0	10.5	13.3	1.0	3.2	5.4	15.6	31.9	40.4
JP	17 243	27 987	137	:	9.3	14.9	16.9	1.1	0.7	7.8	24.0	25.3	10.2
RU	534	641	:	:	19.3	17.3	18.3	0.5	3.7	9.8	16.1	15.0	3.7
US	38 345	48 786	142	:	22.9	12.4	16.1	0.8	2.0	4.8	22.8	18.1	4.9

Source: Eurostat, Patent statistics

Table 6.2 **Patents granted by the USPTO, total number, per million inhabitants, by IPC section as a percentage of total and annual average growth rate, EU-25 and selected countries — 1995-2000**

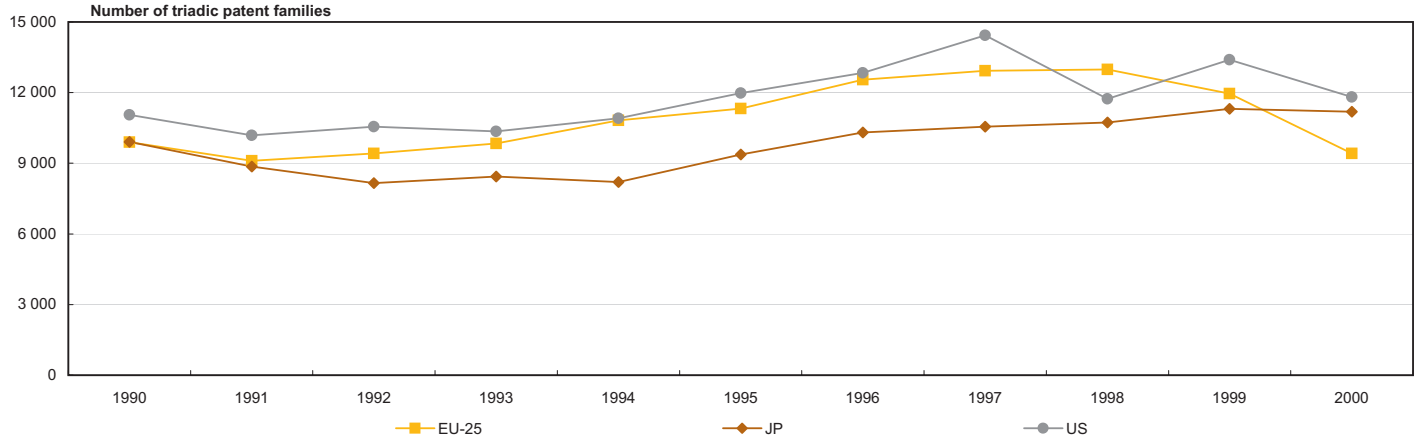
	Total number		Per million inhabitants		Distribution by IPC section as a percentage of total — 2000								Annual average growth rate 1995-2000
	1995	2000	1995	2000	Human necessities	Performing operations, transporting	Chemistry, metallurgy	Textiles, paper	Fixed constructions	Mech. engineering, lighting, heating, weapons, blasting	Physics	Electricity	
EU-25	23 077	23 716	52	53	12.1	22.1	12.4	1.6	2.7	12.0	19.1	17.8	0.5
EU-15	22 961	23 567	62	63	12.1	22.2	12.4	1.6	2.7	12.0	19.1	17.8	0.5
BE	626	550	62	54	8.8	20.1	26.8	3.7	2.4	6.3	16.8	14.6	-2.6
CZ	26	28	3	3	6.4	8.8	16.4	7.0	0.0	10.6	22.3	28.3	1.4
DK	372	382	71	72	28.1	14.0	17.6	0.3	2.9	11.8	12.2	13.1	0.5
DE	9 368	10 509	115	128	8.8	24.9	13.2	1.6	1.7	15.7	18.0	15.7	2.3
EE	2	1	1	1	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	-12.9
EL	13	14	1	1	31.2	20.7	7.3	0.0	0.0	7.3	2.6	23.5	0.7
ES	230	288	6	7	19.9	28.6	11.5	2.1	5.9	11.1	9.4	11.3	4.6
FR	3 752	3 235	65	55	15.2	22.2	11.9	0.8	2.3	9.2	18.5	19.7	-2.9
IE	91	145	25	39	13.4	15.8	7.3	0.0	2.7	2.6	29.1	29.1	9.8
IT	1 489	1 694	26	30	15.5	25.7	10.6	2.4	2.7	11.1	16.5	15.5	2.6
CY	0	1	0	2	0.0	41.7	16.7	0.0	0.0	0.0	41.7	0.0	43.1
LV	2	6	1	2	69.4	0.0	9.2	0.0	0.0	0.0	21.3	0.0	20.9
LT	0	6	0	2	15.8	36.8	31.6	0.0	0.0	0.0	0.0	15.8	80.5
LU	25	36	62	83	2.8	48.1	24.9	0.0	2.8	8.5	2.8	8.3	7.4
HU	55	54	5	5	15.5	13.6	18.4	0.0	0.0	5.6	19.7	27.2	-0.3
MT	:	2	:	5	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	:
NL	1 235	1 307	80	82	13.8	15.2	12.0	0.9	2.8	6.1	24.4	24.7	1.1
AT	446	556	56	69	12.1	24.2	12.2	1.9	5.4	13.1	14.6	16.2	4.5

Source: Eurostat, Patent statistics

	Total number		Per million inhabitants		Distribution by IPC section as a percentage of total — 2000								Annual average growth rate 1995-2000
	1995	2000	1995	2000	Human necessities	Performing operations, transporting	Chemistry, metallurgy	Textiles, paper	Fixed constructions	Mech. engineering, lighting, heating, weapons, blasting	Physics	Electricity	
PL	8	20	0	1	27.5	8.3	9.4	0.0	2.5	18.1	25.2	9.1	19.8
PT	10	14	1	1	20.2	27.6	7.9	0.0	0.0	16.1	12.6	8.6	8.1
SI	16	24	8	12	50.5	14.7	8.8	0.0	4.2	8.4	4.2	9.0	7.8
SK	6	7	1	1	18.0	3.6	28.4	0.0	0.0	38.0	7.2	4.8	3.2
FI	634	614	124	119	9.2	19.4	7.0	6.3	2.4	6.2	17.3	31.9	-0.6
SE	1 291	1 172	146	132	14.0	21.2	5.9	2.4	2.7	11.2	17.8	24.8	-1.9
UK	3 377	3 050	58	52	14.8	15.2	11.6	1.1	5.5	8.3	26.3	17.1	-2.0
IS	10	20	37	70	35.8	0.0	16.4	0.0	0.0	0.0	27.3	20.5	14.3
LI	13	10	409	314	14.7	13.1	45.8	0.0	0.0	3.2	9.8	13.1	-4.1
NO	214	203	49	45	13.7	19.0	10.9	0.0	13.3	11.3	18.7	13.1	-1.1
CH	1 298	1 253	185	175	17.7	24.0	13.7	2.3	1.6	9.0	18.6	13.2	-0.7
BG	6	4	1	1	47.7	0.0	2.6	0.0	0.0	41.8	7.9	0.0	-5.3
HR	13	14	3	3	42.9	14.3	14.3	0.0	7.1	14.3	7.1	0.0	1.5
RO	6	3	0	0	60.0	0.0	0.0	0.0	0.0	20.0	10.0	10.0	-17.0
TR	7	12	:	:	51.5	0.8	9.0	16.3	0.0	16.3	4.1	2.0	11.5
CN	81	398	:	:	14.5	13.7	9.7	0.8	2.0	7.2	18.5	32.9	37.4
JP	29 641	35 013	236	:	5.0	16.2	8.2	0.6	0.6	7.9	33.0	28.4	3.4
RU	164	226	:	:	9.0	9.5	19.7	0.4	3.2	8.4	29.3	20.4	6.7
US	72 420	77 585	277	:	17.9	17.3	8.6	0.6	3.1	7.7	25.4	19.2	1.4

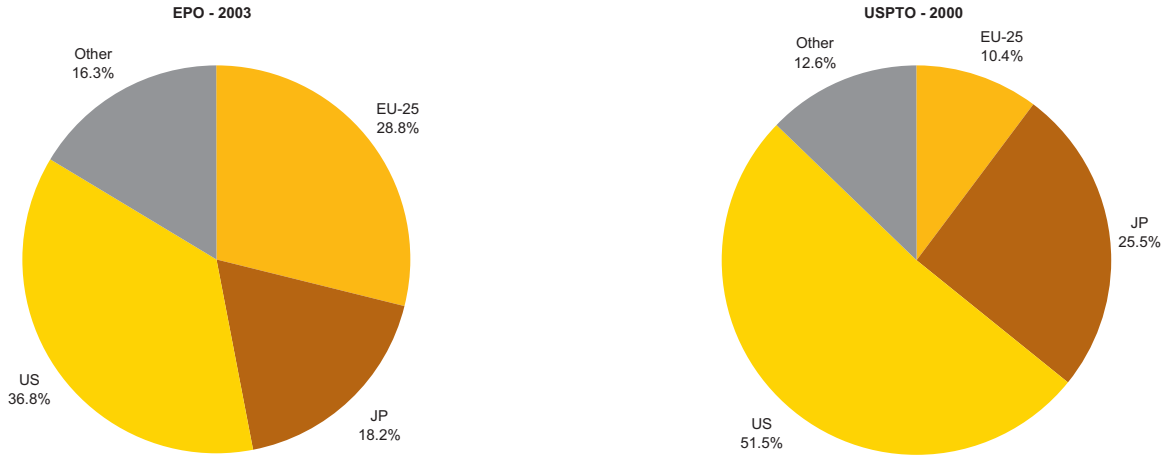
Source: Eurostat, Patent statistics

Figure 6.3 Triadic patent families, EU-25, Japan and United States — 1990 to 2000



Source: Eurostat, Patent statistics

Figure 6.4 **Distribution of high-tech patent aplications to the EPO (2003) and of high-tech patents granted by the USPTO (2000), EU-25, Japan and United Statess**



Source: Eurostat, Patent statistics

Table 6.5 **High-tech patent aplications to the EPO, total number, per million inhabitants, per million labour force and annual average growth rates, EU-25 and selected countries — 1993, 1998 and 2003**

	Total number			AAGR		per million inhabitants	per million labour force
	1993	1998	2003	1993-1998	1998-2003	2003	2003
EU-25	3 291	8 389	10 834	20.6	5.2	24	51
EU-15	3 279	8 344	10 739	20.5	5.2	28	60
BE	110	221	242	14.9	1.8	23	55
CZ	1	11	10	61.6	-1.8	1	2
DK	63	175	246	22.5	7.1	46	86
DE	927	2 770	3 635	24.5	5.6	44	92
EE	1	2	8	24.4	31.7	6	12
EL	2	5	21	25.3	32.0	2	4
ES	30	94	165	25.5	11.9	4	8
FR	682	1 363	1 980	14.9	7.8	33	74
IE	8	48	63	43.0	5.4	16	33
IT	198	325	481	10.4	8.1	8	20
CY	:	:	4	:	:	5	11
LV	:	1	1	:	4.6	0	1
LT	:	:	2	:	:	1	1
LU	:	5	6	:	4.8	14	33
HU	7	17	34	19.2	14.6	3	8
MT	:	:	:	:	:	:	:
NL	286	744	908	21.1	4.1	56	108
AT	43	95	235	16.9	20.0	29	59

Source: Eurostat, Patent statistics

	Total number			AAGR		per million inhabitants	per million labour force
	1993	1998	2003	1993-1998	1998-2003	2003	2003
PL	2	7	23	32.2	27.5	1	1
PT	3	2	15	-6.0	44.3	1	3
SI	2	4	9	14.1	15.6	4	9
SK	:	3	5	:	11.4	1	2
FI	153	565	654	29.9	3.0	126	252
SE	130	596	562	35.6	-1.2	63	123
UK	643	1 335	1 526	15.7	2.7	26	52
IS	3	9	15	27.9	11.4	53	94
LI	2	1	2	-12.9	14.9	59	:
NO	11	45	90	32.2	14.6	20	38
CH	109	263	331	19.3	4.7	45	76
BG	1	2	3	1.7	15.2	0	1
HR	1	2	4	14.9	12.3	1	2
RO	:	1	3	:	14.2	0	0
TR	0	6	13	88.8	17.0	0	1
CN	8	73	703	54.0	57.1	:	1
JP	2 656	4 228	6 834	9.7	10.1	:	103
RU	25	76	108	24.8	7.4	:	1
US	4 784	10 366	13 845	16.7	6.0	:	94

Source: Eurostat, Patent statistics

Table 6.6 High-tech patent aplications to the EPO, total number and by high-tech field as a percentage, EU-25 and selected countries — 2003

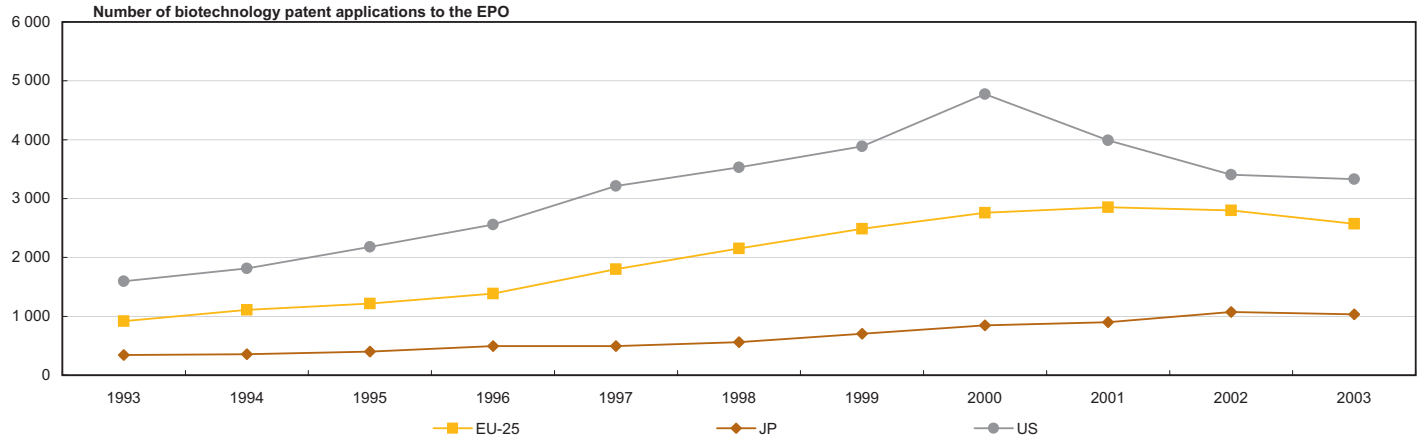
	Total number	Aviation	Computer and automated business equipment	Communication technology	Laser	Micro-organism and genetic engineering	Semiconductors
EU-25	**10 834**	2.4	29.9	45.5	1.1	12.4	8.7
EU-15	**10 739**	2.3	30.0	45.5	1.1	12.4	8.7
BE	**242**	1.2	24.4	36.5	0.0	25.5	12.3
CZ	**10**	19.9	10.0	11.6	0.0	58.5	0.0
DK	**246**	1.6	16.3	41.6	1.5	36.4	2.6
DE	**3 635**	3.0	30.1	41.0	1.3	12.7	11.9
EE	**8**	0.0	37.8	25.2	0.0	16.8	20.2
EL	**21**	2.4	30.3	56.3	0.0	9.3	1.6
ES	**165**	1.8	29.2	39.5	1.5	26.1	1.9
FR	**1 980**	3.9	29.3	47.9	1.0	10.0	7.8
IE	**63**	0.0	42.9	32.9	3.7	2.8	17.7
IT	**481**	2.2	31.1	42.3	1.8	11.7	11.0
CY	**4**	27.6	0.0	44.8	0.0	27.6	0.0
LV	**1**	100.0	0.0	0.0	0.0	0.0	0.0
LT	**2**	52.1	0.0	0.0	0.0	34.9	13.0
LU	**6**	0.0	68.4	31.6	0.0	0.0	0.0
HU	**34**	2.9	19.1	65.2	0.0	12.7	0.0
MT	**:**	:	:	:	:	:	:
NL	**908**	0.5	36.5	40.4	0.3	10.4	11.9
AT	**235**	0.9	24.5	47.9	2.5	11.8	12.4

Source: Eurostat, Patent statistics

	Total number	Aviation	Computer and automated business equipment	Communication technology	Laser	Micro-organism and genetic engineering	Semiconductors
PL	**23**	8.8	32.2	30.7	0.0	19.7	8.6
PT	**15**	0.0	20.6	24.0	6.9	41.6	6.9
SI	**9**	0.0	7.7	69.2	0.0	11.5	11.5
SK	**5**	0.0	30.0	70.0	0.0	0.0	0.0
FI	**654**	0.6	23.2	70.9	0.2	3.7	1.4
SE	**562**	0.7	20.7	67.6	0.5	8.4	2.0
UK	**1 526**	1.8	36.0	41.0	1.3	14.2	5.8
IS	**15**	0.0	27.5	22.0	0.0	50.5	0.0
LI	**2**	0.0	0.0	0.0	0.0	50.0	50.0
NO	**90**	1.1	27.2	56.1	0.0	14.5	1.1
CH	**331**	2.0	31.4	38.8	2.8	18.1	6.9
BG	**3**	0.0	46.2	0.0	7.7	30.8	15.4
HR	**4**	0.0	55.9	37.2	0.0	7.0	0.0
RO	**3**	0.0	48.4	41.9	0.0	0.0	9.7
TR	**13**	0.0	34.8	40.5	0.0	17.1	7.6
CN	**703**	0.7	18.7	64.0	0.0	12.7	3.9
JP	**6 834**	0.3	30.5	37.8	1.3	10.3	19.8
RU	**108**	9.2	27.3	38.0	2.2	13.7	9.7
US	**13 845**	1.1	39.6	32.3	1.1	14.9	11.0

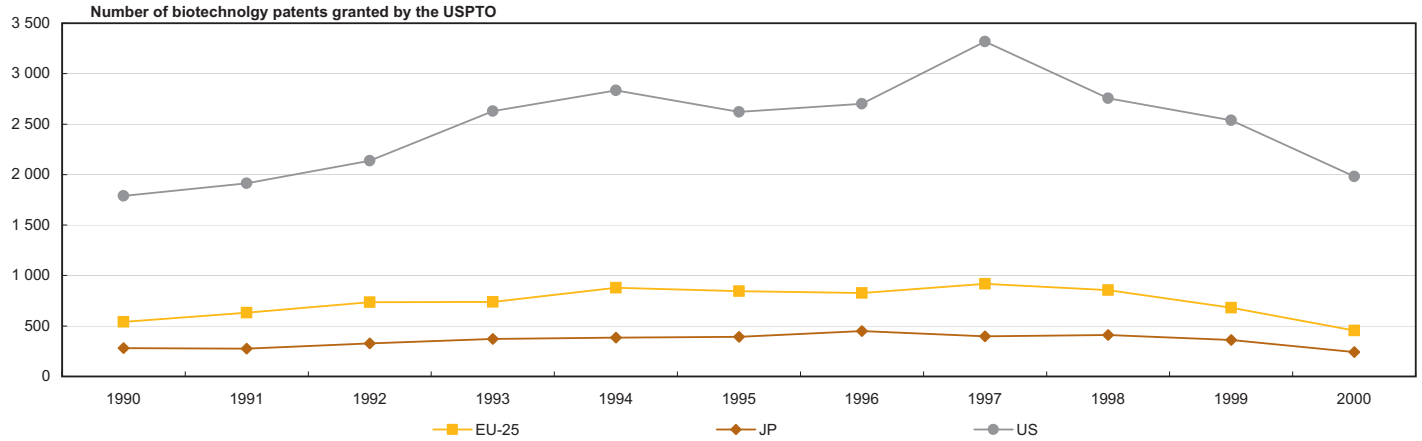
Source: Eurostat, Patent statistics

Figure 6.7 Biotechnology patent aplications to the EPO, EU-25, Japan and the United States — 1993 to 2003



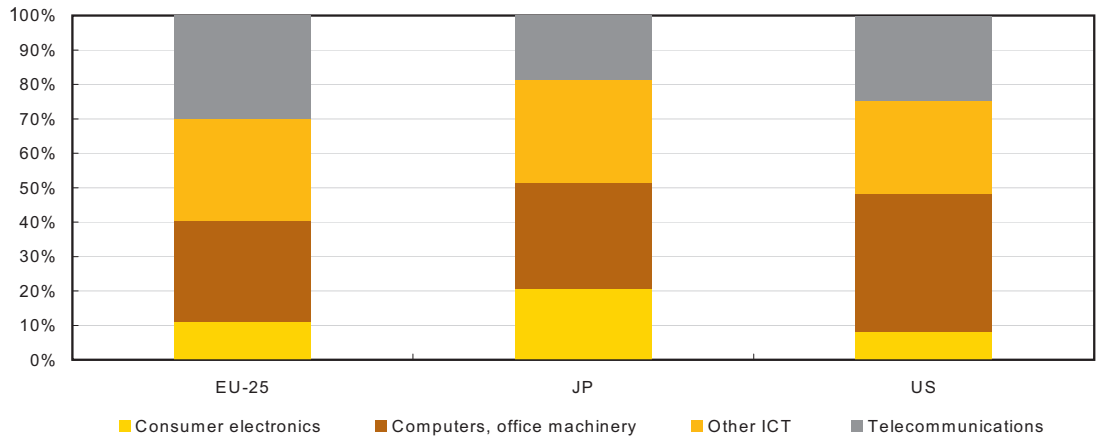
Source: Eurostat, Patent statistics

Figure 6.8 Biotechnology patents granted by the USPTO, EU-25, Japan and the United States — 1990 to 2000



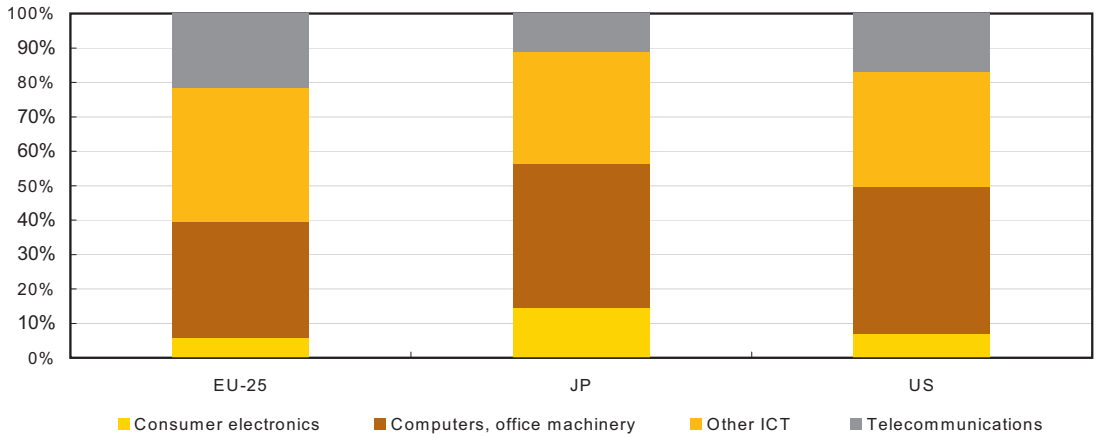
Source: Eurostat, Patent statistics

Figure 6.9 ICT patent aplications to the EPO, by ICT group as a percentage of total, EU-25, Japan and the Unites States — 2003



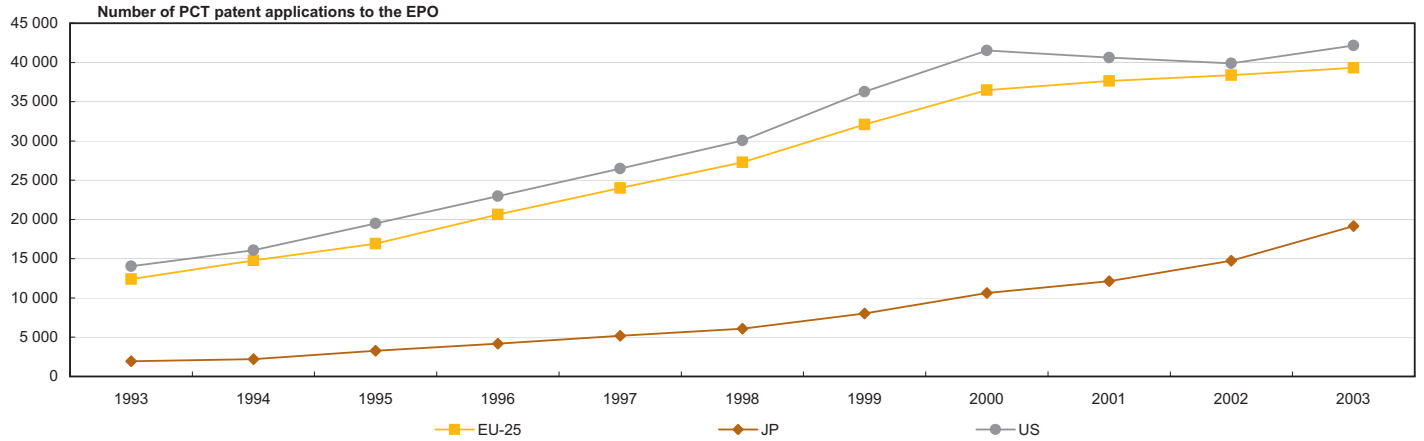
Source: Eurostat, Patent statistics

Figure 6.10 ICT patents granted by the USPTO, by ICT group as a percentage of total, EU-25, Japan and the Unites States — 2000



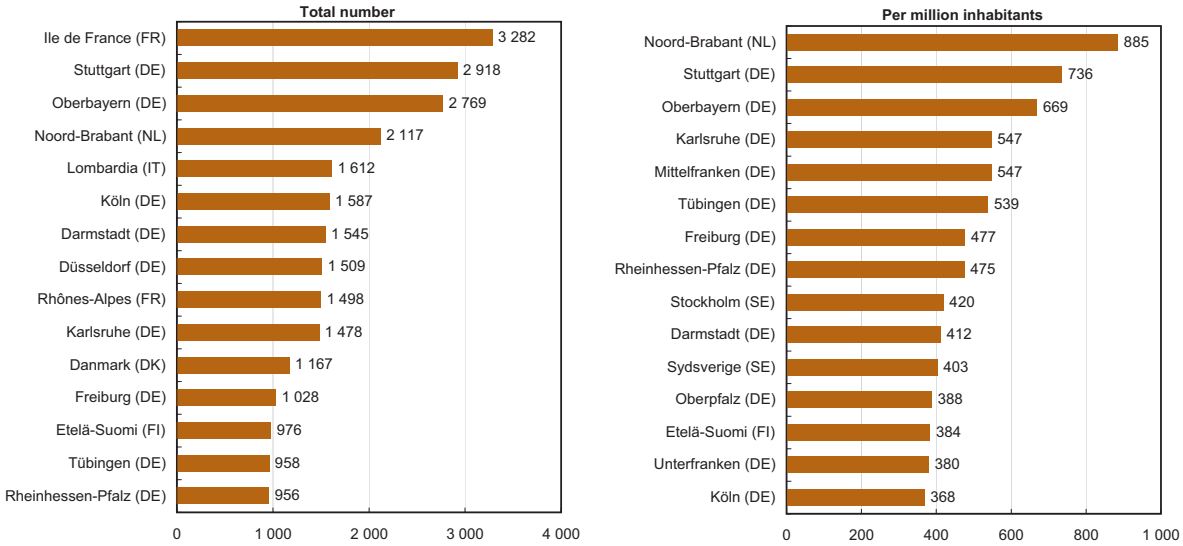
Source: Eurostat, Patent statistics

Figure 6.11 PCT patent aplications to the EPO, EU-25, Japan and the United States — 1993 to 2003



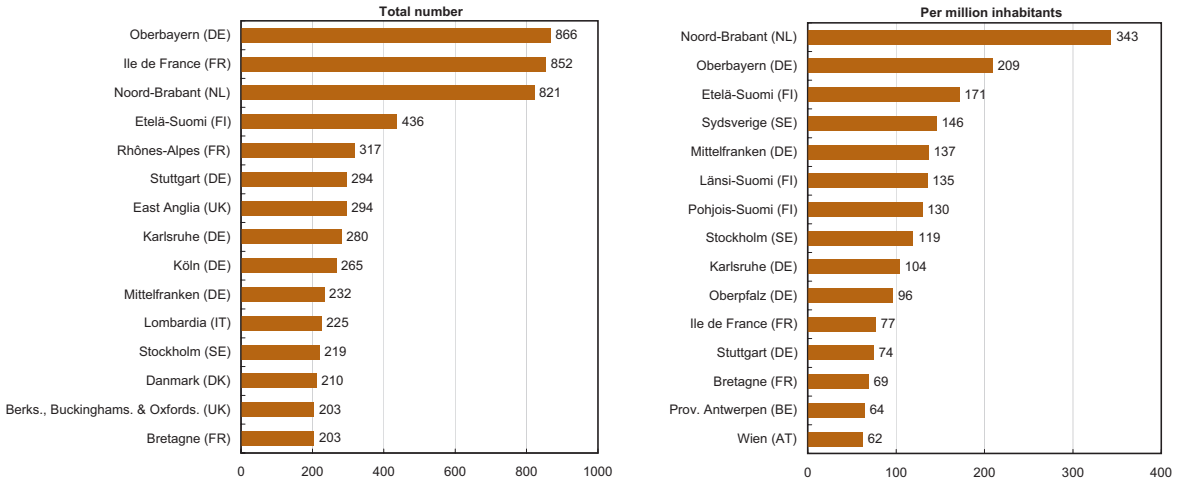
Source: Eurostat, Patent statistics

Figure 6.12 Top fifteen EU-25 regions in terms of patent aplications to the EPO, total number and per million inhabitants — 2002



Source: Eurostat, Patent statistics

Figure 6.13 Top fifteen EU-25 regions in terms of high-tech patent aplications to the EPO, total number and per million inhabitants — 2002



Source: Eurostat, Patent statistics

Chapter 7 - High-technology

In 2005, Venture Capital Investment (VCI) at early stage amounted to 0.022% of GDP in the EU-15. With 0.052% of GDP, Sweden was in 2004 the country where VCI at early stage was highest, closely followed by Denmark, with 0.051% of GDP.

EU-15's VCI at expansion and replacement stage amounted to 0.116% of GDP in 2005. Denmark ranked first with 0.351%.

Within the EU-25 in 2003, the value added by the manufacturing sector amounted to EUR 1 527 billion. With EUR 47 billion, the value added by the high-tech manufacturing sector was the greatest in Germany. The value added by the high-tech KIS sector amounted to EUR 386 billion in the EU-25, among which almost one quarter was created in the United Kingdom.

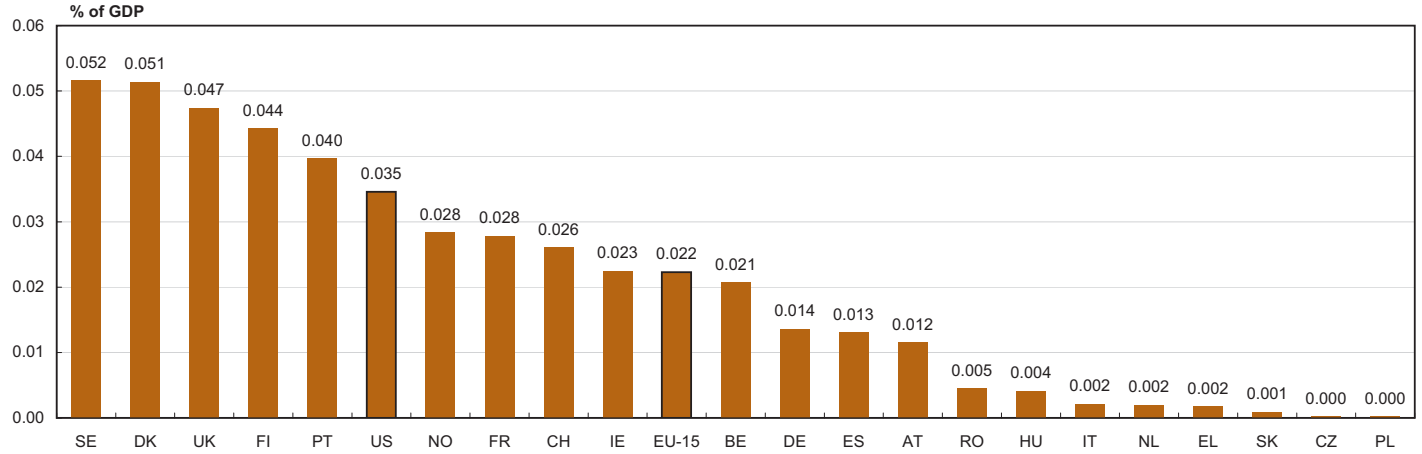
In 2004, compared to the United States and Japan, the EU-25 was leading in both exports and imports of high-tech products in the world, with goods worth EUR 178 billion and EUR 217 billion respectively. However, compared with Japan and the United States, the EU-25 also had the largest high-tech trade deficit.

Within the EU-25 in 2005, almost 133 million persons were employed in the services sector whereas less than 36 million were employed in manufacturing. Employment in the total manufacturing sector remained quite stable in the EU-25 between 2000 and 2005 whereas it increased in the services sector. However, employment in the high-tech manufactures declined between 2000 and 2005 with an annual average rate of -1.4%.

Women employment rate was low in the EU-25 manufacturing sector (30%). In the high-tech manufacturing sector, their share was slightly higher (35%). By contrast, in the total services sector women reached the parity (53%) but not in the specific sector of high-tech KIS (33%). Moreover, both in manufacturing and in services, women were less remunerated whatever the country.

At the regional level, German regions led in terms of employment in the high- and medium high-tech manufacturing sector though capital regions were well ranked in terms of employment in high-tech KIS.

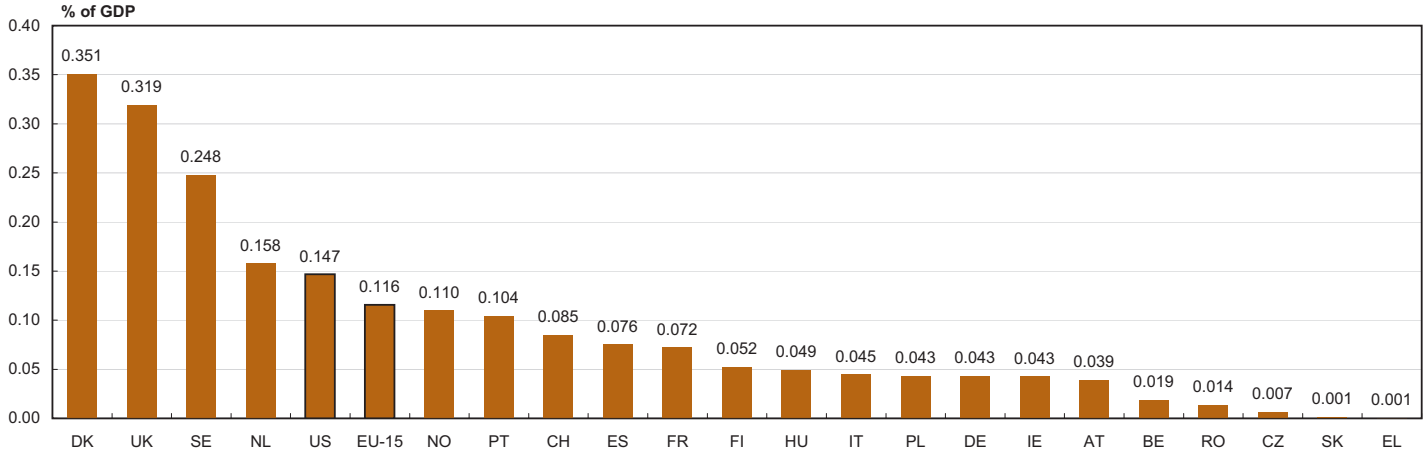
Figure 7.1 Venture capital at early stage as a percentage of GDP, EU-15 and selected countries — 2005



Exceptions to the reference year: 2004: CZ and EL.
Eurostat estimates: EU-15.

Source: Eurostat, High-tech statistics

Figure 7.2 Venture capital at expansion and replacement stage as a percentage of GDP, EU-15 and selected countries — 2005



Eurostat estimates: EU-15.

Source: Eurostat, High-tech statistics

Table 7.3 Number of enterprises, turnover, production value and value added in total manufacturing sector and in high-tech manufacturing sector, EU-25 and selected countries — 2003

	Total manufacturing				High-tech manufacturing			
	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million
EU-25	2 160 484 s	5 755 201 s	5 321 685 s	1 527 094 s	134 891 s	:	:	:
EU-15	1 671 422 s	5 425 050 s	5 015 766 s	1 439 431 s	103 255 s	:	:	:
BE	36 089	185 029	176 862	45 701	1 887	15 020	15 554	6 279
CZ	153 060	73 962	70 676	18 800	8 288	: c	6 817	1 296
DK	18 730	76 544	73 682	25 446	1 085	9 261	9 240	4 007
DE	201 390	1 490 476	1 329 436	411 789	19 987	143 358	125 240	46 918
EE	4 752	4 792	4 382	1 277	250	: c	: c	: c
EL	3 236	30 391	29 029	8 853	: c	: c	: c	: c
ES	220 284	423 923	397 815	112 298	7 826	22 850	21 227	6 538
FR	260 018	980 788	916 222	206 130	16 635	147 185	135 542	35 757
IE	4 880	104 912	99 835	38 608	309	30 458	30 036	8 714
IT	534 222	806 335	777 939	201 629	33 447	59 482	57 327	18 896
CY	6 325	3 124	2 915	967	85	90	89	37
LV	7 689	4 099	3 841	1 283	212	: c	: c	: c
LT	9 030	7 644	7 514	1 811	363	379	384	125
LU	954	14 523	7 808	2 458	59	: c	: c	: c
HU	69 711	64 753	57 065	14 069	5 685	13 887	12 940	2 715
MT	3 792	2 615	2 604	808	: c	: c	: c	: c
NL	46 010	222 983	201 049	53 994	3 055	: c	: c	: c
AT	28 581	115 466	108 581	37 876	1 751	10 816	9 629	3 961

Exceptions to the reference year: 2003: EL, MT and high-tech manufacturing in LT; 2002: high-tech manufacture in CY.
EU aggregates exclude EL and MT for high-tech manufacturing.

Source: Eurostat, High-tech statistics

	Total manufacturing				High-tech manufacturing			
	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million
PL	210 200	126 611	117 489	38 673	15 398	7 789	7 095	2 498
PT	78 431	69 187	66 222	18 345	1 162	4 730	4 542	1 124
SI	17 739	18 456	16 737	5 497	913	2 022	1 882	908
SK	6 764	24 094	22 697	4 478	442	1 166	1 113	229
FI	25 504	107 244	91 958	29 227	1 289	28 816	17 401	7 398
SE	54 616	151 029	145 824	43 364	3 359	24 535	25 471	6 518
UK	158 477	646 220	593 506	203 711	11 404	92 178	80 451	32 958
BG	27 603	11 486	10 916	2 132	1 247	526	494	156
RO	50 819	27 923	26 935	6 857	1 610	922	830	327

Exceptions to the reference year: 2003: PL and SE.

Source: Eurostat, High-tech statistics

Table 7.4 Number of enterprises, turnover, production value and value added in high-tech KIS and in market KIS, EU-25 and selected countries — 2003

	Market KIS				High-tech KIS			
	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million
EU-25	:	:	:	:	531 919 s	772 450 s	715 108 s	386 078 s
EU-15	:	:	:	:	473 548 s	751 225 s	697 411 s	376 127 s
BE	89 119	56 894	51 596	20 313	13 982	22 814	22 440	11 167
CZ	221 959	14 334	14 154	5 552	25 035	6 917	6 342	3 489
DK	54 655	43 340	44 531	22 381	7 802	14 285	14 170	6 931
DE	502 244	315 462	288 625	185 349	53 335	148 362	129 666	79 130
EE	7 464	1 668	1 436	581	872	683	656	325
EL	:	:	:	:	:	:	:	:
ES	474 079	158 845	117 345	68 588	32 680	51 341	41 458	25 695
FR	488 805	318 507	308 044	132 914	52 920	114 626	111 805	57 194
IE	: c	: c	: c	: c	4 971	16 326	11 607	7 408
IT	837 625	178 375	174 774	69 695	96 738	93 386	92 220	44 801
CY	:	:	:	:	231	538	525	429
LV	15 399	1 111	1 078	502	1 097	763	711	456
LT	7 539	1 285	1 324	548	1 348	972	897	403
LU	7 186	5 621	4 526	2 763	1 095	2 210	1 964	1 211
HU	149 031	14 092	8 831	3 966	24 932	7 374	5 027	2 896
MT	6 731	812	838	557	684	314	312	230
NL	120 805	107 032	105 658	49 056	22 890	40 094	38 658	20 912
AT	58 614	36 497	28 944	18 089	13 667	14 965	11 069	7 354

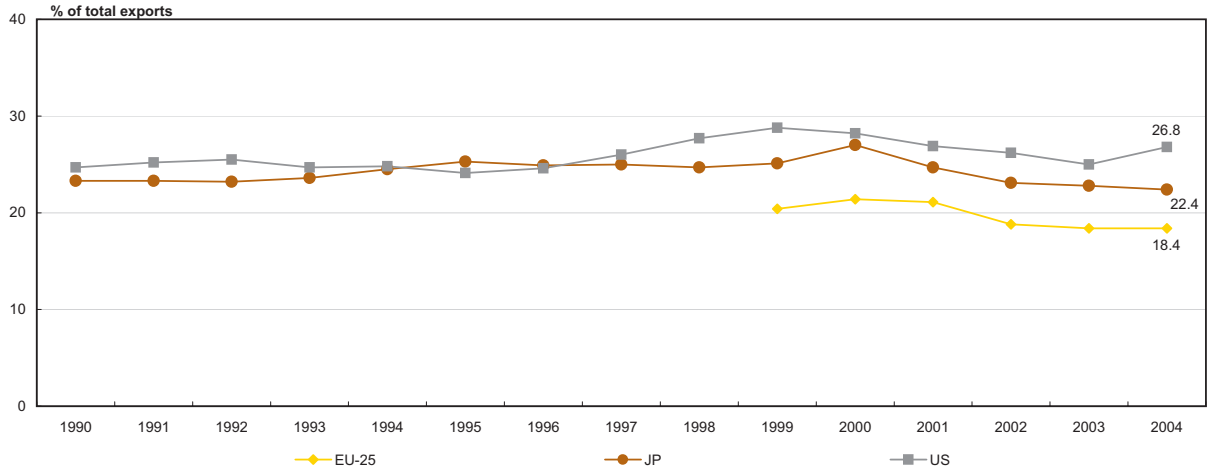
Exceptions to the reference year: 2003: High-tech KIS in CY and LU, MT.
EU aggregates exclude EL and PL.

Source: Eurostat, High-tech statistics

	Market KIS				High-tech KIS			
	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million	Number of enterprises	Turnover in EUR million	Prod. Value in EUR million	Value added in EUR million
PL	:	:	:	:	:	:	:	:
PT	57 336	18 566	17 933	6 486	3 194	9 149	8 769	4 260
SI	15 886	3 555	2 779	1 073	2 787	1 797	1 537	807
SK	8 090	2 073	1 938	794	1 385	1 867	1 690	916
FI	41 414	19 702	18 905	9 144	5 155	12 453	11 722	5 142
SE	166 873	58 228	58 343	27 943	31 184	28 244	26 119	11 710
UK	457 013	370 457	370 947	207 906	133 935	182 970	175 744	93 210
BG	21 250	: c	: c	336	3 514	1 527	1 460	848
RO	: c	: c	: c	: c	9 598	3 278	3 054	1 691

Source: Eurostat, High-tech statistics

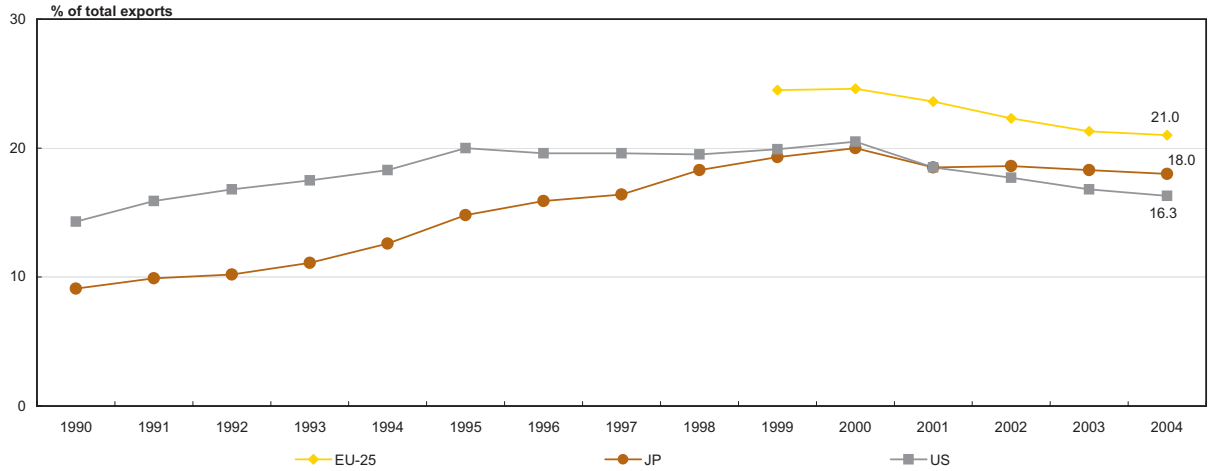
Figure 7.5 High-tech exports as a percentage of total exports, EU-25, Japan and the United States — 1994 to 2004



EU-25 excludes intra-EU exports.

Source: Eurostat, High-tech statistics

Figure 7.6 High-tech imports as a percentage of total imports, EU-25, Japan and the United States — 1994 to 2004



EU-25 excludes intra-EU imports.

Source: Eurostat, High-tech statistics

Table 7.7 **High-tech trade in 2004, in million euro and of which proportion of extra EU-25, and annual average growth rate 1999-2004, EU-25 and selected countries**

	Imports			Balance	Exports		
	Total in EUR million	of which % of extra EU-25	AAGR 1999-2004	Total in EUR million	Total in EUR million	of which % of extra EU-25	AAGR 1999-2004
EU-25	216 566	100	3.4	-38 508	178 058	100	4.9
BE	18 890	34	5.0	-1 327	17 563	23	5.9
CZ	9 309	32	20.3	-1 732	7 577	18	31.1
DK	7 628	32	3.6	618	8 246	41	4.7
DE	99 899	54	6.1	12 419	112 318	41	9.2
EE	886	38	14.8	-406	480	13	16.0
EL	4 772	40	4.7	-3 896	876	33	9.1
ES	21 137	22	8.0	-12 763	8 374	35	7.5
FR	69 261	38	1.0	3 678	72 939	48	-0.1
IE	14 201	53	-2.2	10 295	24 496	40	-1.4
IT	32 068	34	3.8	-11 926	20 142	49	3.9
CY	437	30	7.5	-316	121	40	49.9
LV	425	22	12.0	-322	103	51	22.1
LT	798	25	21.1	-595	203	41	30.8
LU	3 886	75	13.0	-38	3 848	2	27.1
HU	10 095	55	19.1	-394	9 701	24	16.3
MT	959	40	-0.9	161	1 120	65	1.6
NL	53 645	71	3.6	1 232	54 877	22	4.1
AT	14 386	25	8.6	-360	14 026	33	13.8

EU-25 excludes intra-EU trade.

Source: Eurostat, High-tech statistics

	Imports			Balance	Exports		
	Total in EUR million	of which % of extra EU-25	AAGR 1999-2004	Total in EUR million	Total in EUR million	of which % of extra EU-25	AAGR 1999-2004
PL	7 359	30	8.4	-5 711	1 648	30	23.2
PT	4 988	58	4.5	-2 832	2 156	58	16.4
SI	1 208	59	6.5	-524	684	59	17.8
SK	2 392	14	19.7	-1 369	1 023	14	25.0
FI	6 116	61	1.9	2 674	8 790	61	1.4
SE	11 704	58	1.4	2 306	14 010	58	-0.3
UK	72 870	47	0.9	-9 195	63 675	47	-1.8
IS	292	:	2.3	-239	53	:	6.3
NO	4 694	:	-0.1	-2 451	2 243	:	3.5
CH	15 386	:	1.4	5 879	21 265	:	6.8
BG	988	:	10.9	-759	229	:	24.4
HR	1 484	:	:	-785	699	:	:
RO	2 890	:	18.7	-2 170	720	:	24.3
TR	9 263	:	7.9	-8 116	1 147	:	5.3
JP	65 978	:	3.3	35 782	101 760	:	0.7
US	199 897	:	0.2	-23 525	176 372	:	0.3

Source: Eurostat, High-tech statistics

Table 7.8 **Employment in manufacturing sectors, total and percentage of women in 2005, and annual average growth rate 2000-2005, EU-25 and selected countries**

	Total			High-tech			Medium high-tech		
	Total in thousands	Percentage of women	AAGR 2000-2005	Total in thousands	Percentage of women	AAGR 2000-2005	Total in thousands	Percentage of women	AAGR 2000-2005
EU-25	35 910 s	30 s	0.4 s	2 175 s	35 s	-1.4 s	10 923 s	23 s	0.2 s
EU-15	29 385 s	28 s	-1.5 s	1 852 s	33 s	-2.9 s	9 378 s	22 s	-1.3 s
BE	727	25	-1.2	31	32	-1.9	245	22	-0.4
CZ	1 288	37	0.1	69	49	3.7	378	33	0.9
DK	443	32	-2.0	26	40	-1.3	146	30	-0.1
DE	7 939	28	-1.7	597	33	-2.3	3 179	20	-1.3
EE	146	47	2.3	8 u	:	1.3 u	21	37	4.7
EL	560	27	0.1	7	:	-5.2	86	20	2.0
ES	3 103	25	1.5	85	30	-1.7	799	20	1.8
FR	3 975	30	-1.7	282	35	-3.1	1 259	24	-1.3
IE	272	31	-1.4	52	40	-1.9	64	34	1.5
IT	4 797	29	-0.1	240	32	2.5	1 430	22	0.7
CY	41	32	2.8	:	:	:	4	40	4.1
LV	151	47	-3.3	:	:	:	15	35	25.4
LT	255	49	-2.1	12 u	52 u	3.0 u	26	39	-7.0
LU	17	19	-4.1	1 u	:	13.6 u	2	:	-11.4
HU	868	39	-1.2	95	52	3.0	224	34	-0.1
MT	30	28	:	5	38	:	5	:	:
NL	1 061	22	-0.6	52	26	-6.0	215	14	-5.0
AT	697	26	-1.7	52	32	-7.5	190	22	2.0

Source: Eurostat, High-tech statistics

	Total			High-tech			Medium high-tech		
	Total in thousands	Percentage of women	AAGR 2000-2005	Total in thousands	Percentage of women	AAGR 2000-2005	Total in thousands	Percentage of women	AAGR 2000-2005
PL	2 878	34	:	85	44	:	624	28	:
PT	973	42	-2.1	23	44	-0.7	144	30	-1.8
SI	278	37	0.7	11	44	7.8	80	34	2.7
SK	590	38	1.9	38	58	11.3	168	32	6.8
FI	444	29	-1.6	50	28	1.3	114	19	-1.7
SE	662	24	-2.3	47	30	-5.1	237	23	-2.2
UK	3 716	25	-4.8	305	31	-6.8	1 269	21	-4.6
IS	22	31	-0.9		:	:	3	:	5.4
NO	261	25	-2.4	11	:	-5.1	78	12	-2.1
EEA	36 193 s	30 s	0.4 s	2 187 s	35 s	-1.4 s	11 004 s	23 s	0.2 s
CH	591	28	-1.5	89	32	-0.8	199	22	-0.7
BG	740	50	1.9	13	:	-4.0	126	33	-2.7
HR	278	39	:	9 u	42 u	:	52	22	:
RO	2 043	46	0.1	28	34	-2.5	474	31	-1.5

Source: Eurostat, High-tech statistics

Table 7.9 **Employment in services sectors, total and percentage of women in 2005, and annual average growth rate 2000-2005, EU-25 and selected countries**

	Total			KIS			High-tech KIS		
	Total in thousands	Percentage of women	AAGR 1999-2004	Total in thousands	Percentage of women	AAGR 1999-2004	Total in thousands	Percentage of women	AAGR 1999-2004
EU-25	132 709 s	53 s	3.1 s	65 495 s	60 s	3.6 s	6 581 s	33 s	2.7 s
EU-15	116 267 s	53 s	1.9 s	58 076 s	59 s	2.5 s	5 842 s	31 s	1.6 s
BE	3 103	52	0.8	1 624	59	1.4	158	29	1.2
CZ	2 680	54	0.9	1 188	64	1.1	147	48	0.7
DK	1 986	54	0.7	1 173	62	0.5	128	35	-1.3
DE	24 532	55	1.1	12 097	60	1.9	1 218	31	2.1
EE	366	60	1.9	176	65	2.9	17	42	1.1
EL	2 854	45	3.6	1 074	53	4.2	76	31	3.5
ES	12 306	52	5.2	5 095	56	6.3	519	32	8.1
FR	17 498	55	1.7	8 822	61	1.9	954	41	1.3
IE	1 279	55	4.0	655	61	4.3	69	31	0.4
IT	14 780	48	2.3	6 755	56	3.9	655	33	1.4
CY	247	52	4.6	93	59	5.8	7	39	8.8
LV	635	58	2.2	265	69	2.0	27	63	4.3
LT	845	58	0.5	376	70	-1.2	31	54	-1.7
LU	157	48	2.5	81	53	4.8	6	29	6.0
HU	2 444	56	1.4	1 100	65	1.8	118	41	0.0
MT	101	37	:	45	46	:	4	:	:
NL	5 876	52	1.2	3 401	58	2.0	328	26	0.2
AT	2 544	55	1.6	1 163	60	2.3	102	28	-0.2

Source: Eurostat, High-tech statistics

	Total			KIS			High-tech KIS		
	Total in thousands	Percentage of women	AAGR 1999-2004	Total in thousands	Percentage of women	AAGR 1999-2004	Total in thousands	Percentage of women	AAGR 1999-2004
PL	7 387	56	:	3 376	65	:	300	39	:
PT	2 962	55	2.2	1 167	64	4.0	94	38	9.9
SI	506	56	1.6	236	64	3.1	28	36	4.3
SK	1 231	57	1.2	562	65	2.0	60	46	-0.6
FI	1 674	59	1.5	983	66	1.8	109	37	1.0
SE	3 287	56	1.9	2 083	63	2.0	224	32	1.1
UK	21 428	55	1.1	11 903	60	1.5	1 201	25	-0.2
IS	115	57	1.2	70	65	2.7	8	37	3.2
NO	1 732	56	0.6	1 042	63	1.6	91	33	1.2
EEA	134 556 s	53 s	3.1 s	66 606 s	60 s	3.5 s	6 680 s	33 s	2.6 s
CH	2 822	53	1.5	1 590	55	2.6	151	32	1.0
BG	1 701	52	2.0	662	63	1.7	86	49	3.7
HR	848	53	:	326	63	:	32	30	:
RO	3 392	51	1.4	1 276	64	1.6	127	45	-2.9

Source: Eurostat, High-tech statistics

Table 7.10 Mean annual earnings in EUR per person employed, in manufacturing sectors, by gender, EU-25 and selected countries — 2002

	Total manufacturing		High-tech manufacturing		Medium high-tech manufacturing	
	Women	Men	Women	Men	Women	Men
BE	25 950	31 999	26 614	44 518	31 585	35 294
CZ	5 232	7 637	5 183	8 078	5 549	7 601
DK	33 900	42 658	30 657	43 904	34 726	42 480
DE	28 632	39 591	30 745	46 473	33 945	43 293
EE	3 920	5 256	3 838	6 082	4 820	5 848
EL	13 934	18 724	13 795	24 566	16 085	20 968
ES	16 921	23 197	20 006	27 990	21 170	26 326
FR	24 853	31 065	26 462	38 604	28 826	33 451
IE	27 822	34 972	29 630	38 081	28 005	35 854
IT	20 598	26 091	21 933	29 659	22 948	27 589
CY	12 309	21 692			12 242	18 725
LV	3 069	3 695	2 793	3 438	3 395	3 809
LT	3 323	4 346	3 486	5 699	4 050	5 082
LU	29 853	37 117	22 458	32 808	33 502	37 080
HU	4 754	6 327	4 658	6 735	6 000	7 242
MT	:	:	:	:	:	:
NL	29 924	35 047	28 970	40 314	33 267	39 018
AT	25 265	36 436	30 333	45 060	27 899	37 756

Source: Eurostat, High-tech statistics

	Total manufacturing		High-tech manufacturing		Medium high-tech manufacturing	
	Women	Men	Women	Men	Women	Men
PL	5 459	6 902	6 389	8 615	6 750	7 621
PT	8 828	13 394	11 519	20 653	13 065	16 577
SI	9 307	11 314	8 014	13 707	11 356	12 659
SK	3 903	5 785	4 023	6 381	4 448	6 519
FI	26 689	33 036	29 149	38 993	27 534	33 107
SE	26 176	31 038	:	:	26 379	32 032
UK	28 568	41 278	28 805	44 035	32 371	44 005
IS	25 504	35 672	:	:	:	:
NO	35 903	41 577	38 931	:	38 567	46 504
BG	1 429	1 978	1 645	1 853	1 772	2 056
RO	1 609	2 216	2 135	2 681	2 134	2 513

Source: Eurostat, High-tech statistics

Table 7.11 Mean annual earnings in EUR per person employed, in services sectors, by gender, EU-25 and selected countries — 2002

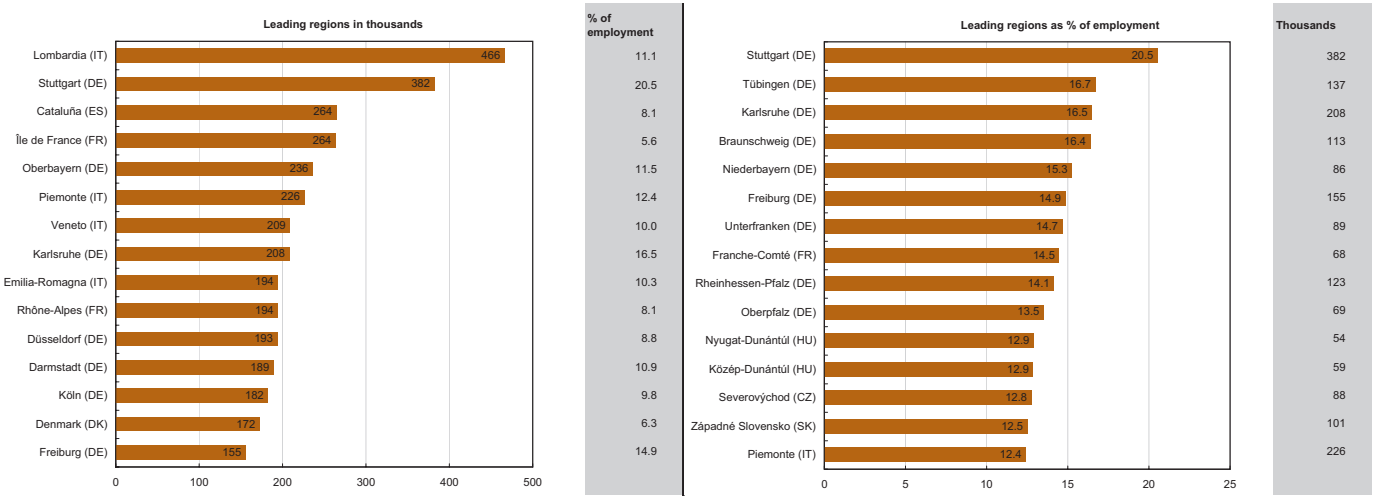
	Total services		High-tech KIS	
	Women	Men	Women	Men
BE	27 373	34 177	31 454	38 062
CZ	6 273	8 371	6 341	10 428
DK	34 366	45 019	42 619	55 443
DE	27 725	38 109	33 668	46 663
EE	4 237	6 004	5 010	9 335
EL	15 145	20 655	17 661	26 486
ES	17 713	24 667	22 897	31 585
FR	25 340	32 539	30 429	38 424
IE	32 287	38 935	31 464	37 708
IT	23 452	29 745	25 047	27 211
CY	18 881	27 822	20 039	27 519
LV	3 105	4 223	4 389	7 570
LT	3 698	4 612	4 117	6 655
LU	33 122	44 257	41 471	52 609
HU	5 384	6 381	6 954	10 069
MT	:	:	:	:
NL	30 713	39 312	36 983	38 566
AT	25 528	37 453	30 442	39 815

Source: Eurostat, High-tech statistics

	Total services		High-tech KIS	
	Women	Men	Women	Men
PL	6 430	7 778	8 754	10 958
PT	14 043	17 386	21 679	25 319
SI	13 059	14 721	16 108	17 545
SK	4 567	6 549	4 448	7 075
FI	27 466	34 344	29 987	35 334
SE	28 810	35 192	34 409	46 192
UK	29 434	45 756	40 491	50 916
IS	28 340	38 179	:	:
NO	33 950	45 000	:	62 411
BG	1 793	2 021	2 231	2 739
RO	2 387	2 686	3 466	3 985

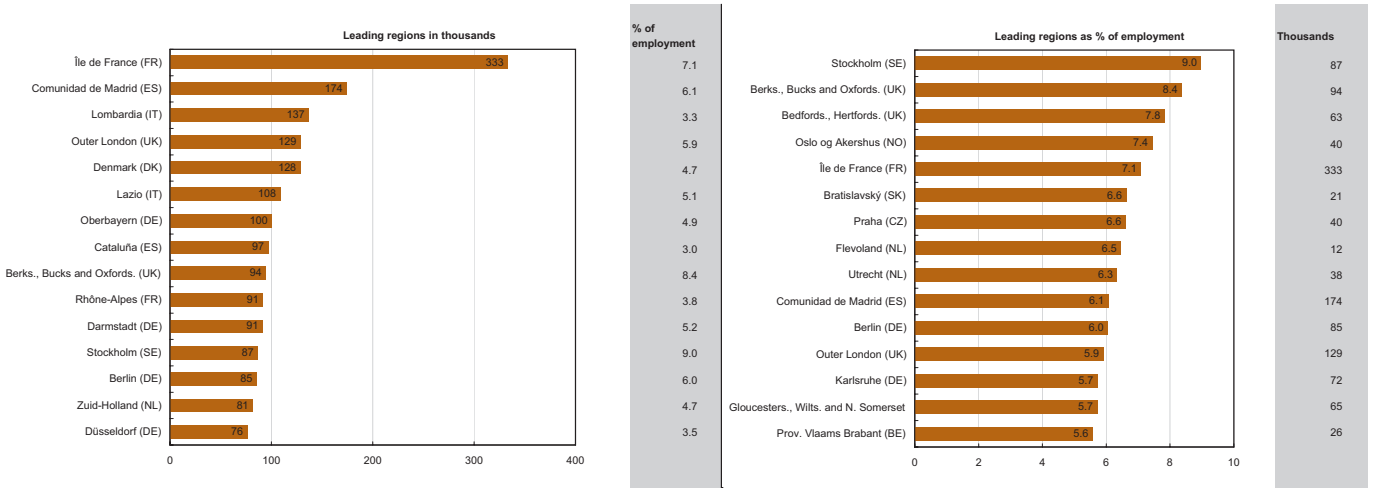
Source: Eurostat, High-tech statistics

Figure 7.12 Leading regions in terms of employment in high- and medium-high-tech manufacturing — 2005



Source: Eurostat, High-tech statistics

Figure 7.13 Leading regions in terms of employment in high-tech KIS — 2005



Source: Eurostat, High-tech statistics

Chapter 8 - Background data

Table 8.1 Population, employment and GDP, EU-25 and selected countries — 2000 and 2005

	Population on 1st January in million		Employment in million		GDP in EUR million	
	2000	2005	2000	2004	2000	2005
EU-25	450.4	:	188.9	194.5	9 093 851 s	10 798 352 s
EU-15	375.5	:	159.5	165.5	8 712 966 s	10 245 077 s
BE	10.2	10.4	4.1	4.1	251 741	298 180
CZ	10.3	10.2	4.7	4.7	60 397	98 418
DK	5.3	5.4	2.7	2.7	173 598	208 206
DE	82.2	82.5	36.5	35.8	2 062 500	2 245 500
EE	1.4	1.3	0.6	0.6	5 940	10 540
EL	10.9	11.1	4.1	4.3	125 892	181 088
ES	40.0	43.0	15.5	18.0	630 263	904 323
FR	58.8	60.6	23.3	24.4	1 441 372	1 696 757 e
IE	3.8	4.1	1.7	1.9	104 379	160 322
IT	56.9	58.5	21.1	22.4	1 191 057	1 417 241
CY	0.7	0.7	0.3	0.3	9 895	13 418
LV	2.4	2.3	0.9	1.0	8 496	12 789
LT	3.5	3.4	1.4	1.4	12 408	20 587
LU	0.4	0.5	0.2	0.2	22 001	28 637 e
HU	10.2	10.1	3.8	3.9	51 039	87 826
MT	0.4	0.4	0.1	0.1	4 198	4 483
NL	15.9	16.3	7.9	8.1	402 291	501 921
AT	8.0	8.2	3.7	3.7	210 392	246 466

Source: Eurostat, OECD - MSTI 2006/1

	Population on 1st January in million		Employment in million		GDP in EUR million	
	2000	2005	2000	2004	2000	2005
PL	38.7	38.2	14.5	13.8	185 775	240 540
PT	10.2	10.5	5.0	5.1	122 270	147 249
SI	2.0	2.0	0.9	0.9	20 814	27 373
SK	5.4	5.4	2.1	2.2	21 926	37 301
FI	5.2	5.2	2.3	2.4	130 859	155 320
SE	8.9	9.0	4.2	4.3	262 550	287 977
UK	58.8	:	27.2	28.0	1 564 573	1 768 549
IS	0.3	0.3	:	0.2	9 220	12 423 e
NO	4.5	4.6	2.3	2.3	181 079	237 984
EEA	455.2	:	:	:	:	:
CH	7.2	7.4	4.1	4.2	266 724	295 117
BG	8.2	7.8	2.8	2.9	13 704	21 448
HR	4.6	4.4	:	1.6	19 955	29 691 e
RO	22.5	21.7	10.7	9.1	40 346	79 314
TR	:	71.6	21.5	21.7	216 736	290 503
CN	1 266	:	720.9	752.0	:	:
JP	127	128 e	66.6	65.2	5 037 379	3 674 865
RU	146	:	64.7	67.4	:	:
US	282	297 e	139.2	141.6	10 629 060	10 037 055

Population-OECD data: CN, JP, RU and US.

Source: Eurostat, OECD - MSTI 2006/1

Methodological notes

GBAORD

1. Definition

Government budget appropriations or outlays on R&D (GBAORD) are all appropriations allocated to R&D in central government or federal budgets and therefore refer to budget provisions, not to actual expenditure. Provincial or state government should be included where the contribution is significant. Unless otherwise stated, data include both current and capital expenditure and cover not only government-financed R&D performed in government establishments, but also government-financed R&D in the business enterprise, private non-profit and higher education sectors, as well as abroad (Frascati Manual, § 496). Data on actual R&D expenditure, which are not available in their final form until some time after the end of the budget year concerned, may well differ from the original budget provisions. This and further methodological information can be found in the Frascati Manual, OECD, 2002.

GBAORD data are assembled by national authorities using data for public budgets. These are measuring government support to R&D activities, or, in other words, how much priority governments place on the public funding of R&D.

2. Sources

The basic data are forwarded to Eurostat by the national administrations of Member States and other countries involved. Data for Japan and the United States come from the OECD - Main Science and Technology Indicators (MSTI).

3. Breakdown by socio-economic objectives

Government R&D appropriations or outlays on R&D are broken down by socio-economic objectives on the basis of NABS - Nomenclature for the analysis and comparison of scientific programmes and budgets, Eurostat 1994. The 1993 version of NABS applies from the 1993 final and the 1994 provisional budgets onwards. Not all countries collect the data directly by NABS: some follow other compatible classifications (OECD, Nordforsk), which are then converted to the data compiled in accordance to NABS classification (see Table 8.2 of the Frascati Manual).

4. Exceptions

No GBAORD data exist for Luxembourg before 2000 and therefore EU aggregates exclude Luxembourg before that year. From 2000 onwards, Luxembourg is included only for the total GBAORD.

No GBAORD data exist for Cyprus before 2004 and for Hungary before 2005. Therefore the EU-25 and the EEA aggregates exclude them before that year.

R&D Expenditure and Personnel

1. Concepts

The definitions of R&D expenditure and R&D personnel are taken from the Frascati Manual OECD, 2002. For further details, see the Frascati Manual, chapter 5 and 6 respectively.

R&D Personnel

- Full-time equivalent - FTE

Full-time equivalent corresponds to one year's work by one person. Thus, someone who normally devotes 40 % of his/her time to R&D and the rest to other activities (e.g. teaching, university administration or counseling) should be counted as only 0.4 FTE.

- Personnel in head count - HC

Head count corresponds to the number of individuals who are employed mainly or partly on R&D. For purposes of comparison between different regions and periods, this indicator is often used in conjunction with employment or population variables.

R&D Expenditure

Intramural expenditures are all expenditures for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds is (Frascati Manual, § 358).

2. Institutional classifications

Internal R&D expenditure and R&D personnel are broken down by institutional sector, i.e. the sector in which the R&D is performed. There are four main sectors:

- The business enterprise sector - BES *(Frascati Manual, § 163)*

The business enterprise sector includes all firms, organisations and institutions whose primary activity is the market production of goods or services (other than higher education) for sale to the general public at an economically significant price and the private non-profit institutes mainly serving them.

- The government sector - GOV *(Frascati Manual, § 184)*

The government sector includes all departments, offices and other bodies which furnish but normally do not sell to the community those common services, other than higher education, which cannot otherwise be conveniently and economically provided and administer the state and the economic and social policy of the community (Public enterprises are included in the business enterprise sector) and PNP controlled and mainly financed by government but not administrated by the higher education sector.

- The higher education sector - HES *(Frascati Manual, § 206)*

This sector includes all universities, colleges of technology and other institutes of post-secondary education, whatever their source of finance or legal status. It also includes all research institutes, experimental stations and clinics operating under the direct control of or administered by or associated with higher education institutions.

- The private non-profit sector - PNP *(Frascati Manual, § 194)*

This sector includes non-market, private non-profit institutions serving households (i.e. the general public) and private individuals or households.

R&D expenditure is subdivided into five sources of funds: Business Enterprise, Government, Higher Education, PNP and Abroad - Frascati Manual, § 389 ff.

3. Data in purchasing power standards - PPS

Purchasing power parities are based on comparisons of the prices of representative and comparable goods or services recorded in national currency of the country in question on a specific date. As a result, monetary aggregates can be expressed in purchasing power standards - PPS - rather than EUR based on exchange rates.

4. R&D intensity

The R&D intensity is the R&D expenditure expressed as a percentage of GDP.

The GDP from National Accounts is used as reference data. At regional level, GDP data are taken from the Eurostat regional accounts. Both data series were for the European countries extracted from the Eurostat reference database NewCronos in August 2006. GDP data for the non-European countries are provided by the OECD.

5. Aggregates

EEA: Liechtenstein is not included.

Additional information on the methodology used is found at Eurostat's reference database NewCronos:

http://europa.eu.int/newcronos under Science and Technology / Research and Development / Statistics on Research and Development

Human Resources in Science and Technology

Statistics on Human Resources in Science and Technology (HRST) improve the understanding of both the demand for, and supply of highly qualified personnel. The data presented in this publication focuses on two main aspects: stocks and flows. The former serves to show the needs and the current situation of the highly skilled labour force and the latter indicates to what degree this demand is likely to be met in the future.

Human Resources in S&T (HRST) are defined according to the OECD Canberra Manual as persons fulfilling one of the following conditions:

- Successfully completed education at the third level in an S&T field of study (ISCED '97 version levels 5a, 5b or 6);

OR

- Not formally qualified as above, but employed in an S&T occupation where the above qualifications are normally required (ISCO '88 COM codes 2 or 3).

The conditions of the above educational or occupational requirements are considered according to internationally harmonised standards:

- the International Standard Classification of Education - ISCED - giving the level of formal education achievement;

- the International Standard Classification of Occupation - ISCO - detailing the type of occupation.

According to the OECD Canberra Manual, the seven broad S&T fields of study are: Natural Sciences, Engineering and Technology, Medical Sciences, Agricultural Sciences, Social Sciences, Humanities and Other fields (Canberra Manual, § 71).

For further information, see also Eurostat's reference database (http://europa.eu.int/newcronos) under Science and Technology / Human Resources in Science & Technology.

1. Stocks

HRST stocks provide information on the number of HRST at a particular point in time. Stock data relate to the employment status as well as the occupational and educational profiles of individuals in quarter 2 of the given year.

HRST stock data and their derived indicators are extracted and built up using data from the EU Labour Force Survey - EU-LFS. The EU-LFS is based upon a sample of the population. All results conform to Eurostat guidelines on sample-size limitations and are therefore not published if not being of sufficient accuracy.

The main categories of HRST are as follows:

HRST - Human Resources in Science and Technology

- successfully completed education at the third level in a S&T field of study (ISCED '97 version levels 5a, 5b or 6) or
- not formally qualified as above but are employed in a S&T occupation where the above qualifications are normally required (ISCO '88 COM codes 2 or 3).

HRSTO - Human Resources in Science and Technology - Occupation

- employed in a S&T occupation (ISCO '88 COM codes 2 or 3).

HRSTE - Human Resources in Science and Technology - Education

- successfully completed education at the third level in a S&T field of study (ISCED '97 version levels 5a, 5b or 6).

HRSTC - Human Resources in Science and Technology - Core

- successfully completed education at the third level in a S&T field of study (ISCED '97 versionlevels 5a, 5b or 6) and
- employed in a S&T occupation (ISCO '88 COM codes 2 or 3).

SE - Scientists and Engineers

- employed in (a) Physical, mathematical and engineering occupations or in (b) life science and health occupations (ISCO '88 COM codes 21 and 22).

HRSTU - Human Resources in Science and Technology - Unemployed

- successfully completed education at the third level in a S&T field of study (ISCED '97 version levels 5a, 5b or 6) and are unemployed.

NHRSTU - Unemployed non-HRST

- no completed education at the third level in a S&T field of study and are unemployed.

2. Inflows

HRST inflows are the number of people who do not fulfill any of the conditions for inclusion in HRST at the beginning of a time period, but gain at least one of them during the observation period. The number of graduates from the national higher education system represents the main inflow into the national stock of HRST.

HRST education inflow data are extracted from the Eurostat Education database produced on the basis of data coming from the UNESCO/OECD/Eurostat questionnaire on education, which is based on the ISCED classification.

This publication includes the following totals and sub-totals (ISCED1997 version):

Total: Sum of fields of study
Science and Engineering (S&E):
- **Science** compiles the educational fields of Life sciences, Physical sciences, Mathematics and statistics, Computing (codes 42, 44, 46, 48);
- **Engineering** groups the fields of education in Engineering and engineering trades, Manufacturing and processing, Architecture and building (codes 52, 54, 58).

3. Sectors of economic activity

The sectors of economic activity based on the NACE Rev. 1.1 (Nomenclature statistique des Activités économiques dans la Communauté Européenne) are defined as follows:

- Total (TOTAL)
- Agriculture, hunting, forestry, fishing, mining and quarrying (NACE A to C)
- Total Manufacturing (NACE D)
- High technology manufacturing (NACE 24.4+30+32+33)
- Medium high technology manufacturing (NACE 24+29+31+34+35)
- Medium low technology manufacturing (NACE 23+25 to 28)
- Low technology manufacturing (NACE 15 to 22+36 to 37)
- Electricity, gas, water supply and construction (NACE E and F)
- Total services (NACE G to Q)
- Knowledge-Intensive Services (KIS) (NACE 61+62+64+65 to 67+70 to 74+80+85+92)
- Less Knowledge-Intensive Services (LKIS) (NACE 50 to 52+55+60+63+75+90+91+93+95+99)

Please observe that break in series might disturb the results in the time series (more details are available in the methodological notes at Eurostat's reference database).

For further information, see also Eurostat's methodological metadata (http://europa.eu.int/newcronos) under Science and Technology / Human Resources in Science & Technology.

Patent

1. Sources and definitions

A patent is a legal title granting its holder the exclusive right to make use of an invention for a limited area and time. An invention needs to fulfil three criteria to be granted as a patent: (1) novelty, (2) inventive step and (3) industrial applicability. All patent applications and granted patents are published. They provide a useful indicator about innovative developments in all areas of technology, and they can indicate the level of innovative activity in a particular market, region or country.

Following changes in the production of patent statistics at Eurostat in 2005, data shown in this Pocketbook and also on the Eurostat webpage are no longer fully comparable with data disseminated two years ago. Before 2005 two data bases were used to produce an extended set of tables and indicators. From 2005 onwards only one single raw data base (mainly compiled on the basis of the input from the European Patent Office - EPO, the US Patent and Trademark Office - USPTO, and the Japanese Patent Office - JPO) is used for the data production.

The OECD Patent Statistics Task Force has developed since 2004 the concept of a world-wide patent statistics database (PATSTAT). PATSTAT has to be understood as one single patent statistics raw database, held by the European Patent Office (EPO) and developed in cooperation with the World Intellectual Property Organisation (WIPO), the OECD and Eurostat. PATSTAT should fulfil all the user needs of the various international organisations which will use this raw database. With the purpose of being sustainable over time, PATSTAT became operational in 2006 and is concentrating on raw data leaving the indicator production mainly to users such as the OECD, Eurostat or others. PATSTAT is produced twice per year (31/3 and 30/9 each year) and made available for the users being represented in the OECD Task Force. The first version was made available in March 2006.

The aggregated patent statistics contained in this pocketbook are produced in using a raw data set delivered by the OECD. This raw data set will be replaced by PATSTAT for the next data productions.

For all further details please see also the Eurostat metadata on patent statistics.

2. Counting patents with multiple inventors

When a patent was invented by several inventors from different countries, the respective contributions of each country is taken into account. This is done in order to eliminate multiple counting of such patents. For example, a patent co-invented by 1 French, 1 American and 2 German residents will be counted as ¼th of a patent for France, ¼th for the USA and ½ a patent for Germany.

3. EPO patent applications by priority year

This collection provides users with data concerning patent applications to the EPO. Data are given at the national level and cover the period from 1977 to 2003. The EPO data refers to all patent applications by priority year.

4. USPTO patent granted by priority year

The data production provides users with data concerning patents granted by the USPTO by priority year. The time series covers the period from 1977 to 2000. Due to data availability, USPTO data refers to patents granted as opposed to applications, which is the case of EPO data.

5. Triadic patent families by earliest priority year

The patent families data available in NewCronos refer to triadic families: i.e. a patent is a member of the patent families if and only if it has been applied for and filed at the European Patent Office (EPO), at the Japanese Patent Office (JPO) and if it has been granted by the US Patent and Trademark Office (USPTO). Patent families data are provided with the intention of improving international comparability (the home advantage is suppressed; the values of the patents are more homogeneous).

6. International patent classification

On 1 January 2006 the eighth edition of the International Patent Classification (IPC) entered into force. The World Intellectual Property Organization (WIPO), a specialised agency of the United Nations, is responsible for updating the IPC. The IPC is a comprehensive subject classification system applied to all patents by the patent-issuing authorities. The IPC is a hierarchical system divided into sections, classes, subclasses and groups. Each IPC code is a combination of letters and numbers referring to the different categories of the system. A patent can have only one IPC code or more.

7. Biotechnology sector

The OECD defines biotechnology as: "The application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services." The choice of the IPC subclasses used for this sector is based on the OECD definition.

8. High-technology groups in accordance with the International Patent Classification (IPC)

AVI	Aviation
CAB	Computer and automated business equipment
CTE	Communication technology
LSR	Lasers
MGE	Micro-organism and genetic engineering
SMC	Semi-conductors.

9. ICT sector groups in accordance with the International Patent Classification (IPC)

Telecommunications

Consumer electronics

Computers, office machinery

Other ICT

10. NACE sector codes

The IPC-NACE concordance table created by the Fraunhofer Institute for Systems and Innovation Research in Karlsruhe (Germany) links the IPC codes to the following NACE sections.

DA	Manufacture of food products, beverages and tobacco
DB	Manufacture of textiles and textile products
DC	Manufacture of leather and leather products
DD	Manufacture of wood and wood products
DE	Manufacture of pulp, paper and paper products; publishing and printing
DF	Manufacture of coke, refined petroleum products and nuclear fuel
DG	Manufacture of chemicals, chemical products and man-made fibres
DH	Manufacture of rubber and plastic products
DI	Manufacture of other non-metallic mineral products
DJ	Manufacture of basic metals and fabricated metal products
DK	Manufacture of machinery and equipment not elsewhere classified
DL	Manufacture of electrical and optical equipment
DM	Manufacture of transport equipment
DN	Manufacturing not elsewhere classified

11. PCT patent applications

These patent applications are filed first with the World Intellectual Property Organization (WIPO) with designating the EPO as main patent office.

Users should note that data on PCT applications to the EPO are not compiled using the nationality of the inventor but the nationality of the applicant.

High-technology

1. Sources and definitions

1.1. Venture capital investments

Venture Capital Investment (VCI) is defined as private equity raised for investment in companies. Management buyouts, management buy-ins, and venture purchase of quoted shares are excluded.

Data are broken down into two investment stages:

- Early stage (seed + start-up) and
- Expansion and replacement stage (expansion and replacement capital).

The basic data are provided by the European Private Equity and Venture Capital Association (EVCA). For more information on venture capital, please refer to: http://www.evca.com. For all further details please see also the Eurostat metadata on high-technology statistics disseminated on the Eurostat's reference webpage.

1.2. High-tech enterprises

Data on high-tech enterprises and derived indicators are extracted and built up using data from the Structural Business Statistics - SBS.

The indicator “number of enterprises” includes all units active during at least a part of the reference period.

Turnover comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties.

Value added at factor cost is the gross income from operating activities after adjusting for operating subsidies and indirect taxes.

The production value measures the amount actually produced by the unit, based on sales, including changes in stocks and the resale of goods and services.

For all further details please see also the Eurostat metadata on high-technology statistics disseminated on the Eurostat's reference webpage.

1.3. High-tech trade

High-tech trade data have been compiled on the basis of the COMEXT database for the EU Member States and from COMTRADE for other countries. There are no data for Luxembourg and Belgium separately before 1999. Hence, both countries are treated together previous to that year.

High technology products groups are defined according to the R&D intensity of products following the concepts developed by the OECD - R&D expenditure/total sales covering six countries. These can be classified in the following nine groups: Aerospace, Computers-Office machinery, Electronics-Telecommunications, Pharmacy, Scientific instruments, Electrical machinery, Chemistry, Non-electrical machinery and Armament.

For all further details please see also the Eurostat metadata on high-technology statistics disseminated on the Eurostat's reference webpage

1.4. Employment in high-tech

Employment in high-tech data and derived indicators are extracted and built up using data from the Community Labour Force Survey - CLFS.

For all further details please see also the Eurostat metadata on high-technology statistics disseminated on the Eurostat's reference webpage.

1.5. Earnings in high-tech

Earnings in high-tech data and derived indicators are extracted and built up using data from the Structure of Earnings Survey - SES.

For all further details please see also the Eurostat metadata on high-technology statistics disseminated on the Eurostat's reference webpage.

2. Definition of high tech and knowledge-intensive services sectors

2.1. High-tech classification of manufacturing industries

Eurostat and OECD use the following breakdown of the manufacturing industry according to global technological intensity and based on NACE rev. 1.1 at 3-digit level (due to restrictions of the data source, a different but derived classification based on NACE at 2-digit level was used for data on employment in high-tech and data on earnings in high-tech):

High-technology

24.4 Manufacture of pharmaceuticals, medicinal chemicals and botanical products; 30 Manufacture of office machinery and computers; 32 Manufacture of radio, television and communication equipment and apparatus; 33 Manufacture of medical, precision and optical instruments, watches and clocks; 35.3 Manufacture of aircraft and spacecraft.

Medium-high-technology

24 Manufacture of chemicals and chemical product, excluding 24.4 Manufacture of pharmaceuticals, medicinal chemicals and botanical products; 29 Manufacture of machinery and equipment n.e.c.; 31 Manufacture of electrical machinery and apparatus n.e.c.; 34 Manufacture of motor vehicles, trailers and semi-trailers; 35 Manufacture of other transport equipment, excluding 35.1 Building and repairing of ships and boats and excluding 35.3 Manufacture of aircraft and spacecraft.

Medium-low-technology

23 Manufacture of coke, refined petroleum products and nuclear fuel; 25 to 28 Manufacture of rubber and plastic products; basic metals and fabricated metal products; other non-metallic mineral products; 35.1 Building and repairing of ships and boats.

Low-technology

15 to 22 Manufacture of food products, beverages and tobacco; textiles and textile products; leather and leather products; wood and wood products; pulp, paper and paper products, publishing and printing; 36 to 37 Manufacturing n.e.c.

2.2. Knowledge-intensive and less knowledge-intensive services

Following a similar logic as for manufacturing, Eurostat defines the following sector as knowledge intensive services (KIS) or as less knowledge-intensive services (LKIS):

Knowledge-intensive services (KIS)

61 Water transport; 62 Air transport; 64 Post and telecommunications; 65 to 67 Financial intermediation; 70 to 74 Real estate, renting and business activities; 80 Education; 85 Health and social work; 92 Recreational, cultural and sporting activities.

High tech KIS

64 Post and telecommunications; 72 Computer and related activities; 73 Research and development.

Market KIS (excl. financial intermediation and high-tech services)

61 Water transport; 62 Air transport; 70 Real estate activities; 71 Renting of machinery and equipment without operator and of personal and household goods; 74 Other business activities.

Financial KIS

65 to 67 Financial intermediation.

Less Knowledge-Intensive Services (LKIS)

50 to 52 Motor trade; 55 Hotels and restaurants; 60 Land transport; transport via pipelines; 63 Supporting and auxiliary transport activities; activities of travel agencies; 75 Public administration and defence; compulsory social security; 90 Sewage and refuse disposal, sanitation and similar activities; 91 Activities of membership organization n.e.c.; 93 Other service activities; 95 Activities of households as employers of domestic staff; 99 Extra-territorial organizations and bodies.

Less Knowledge-Intensive Market services

50 to 52 Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods; 55 Hotels and restaurants; 60 Land transport; transport via pipelines; 63 Supporting and auxiliary transport activities; activities of travel agencies.

Abbreviations and Symbols

STATISTICAL SYMBOLS AND ABBREVIATIONS

b . . . . . break in series
e . . . . . estimation
f . . . . . forecast
p . . . . . provisional
r . . . . . revised value
s . . . . . Eurostat estimate
:u . . . . . extremely unreliable data
u . . . . . unreliable data
:c . . . . . confidential data
: . . . . . data not available
- . . . . . not applicable or real zero
% . . . . . percentage
0 . . . . . less than fifty percent of the unit use
1000s . . . . . thousands
2004 . . . . . calendar year (e.g. from 1.1.2004 to 31.12.2004)
2000-2004 . . period of several calendar years (e.g. from 1.1.2000 to 31.12.2004)

ABBREVIATIONS

AGR . . . . . Annual Growth Rate
AAGR . . . . . Annual Average Growth Rate
BES . . . . . Business Enterprise Sector
CIS 2002/2003 . . . . . Community Innovation Survey 2002/2003
CIS4 . . . . . Fourth Community Innovation Survey
CLFS/LFS . . . . . (Community) Labour Force Survey
COMEXT . . Eurostat reference database containing external trade statistics
EC . . . . . European Community/Communities
EEA . . European Economic Area (EU-25, Iceland, Liechtenstein and Norway)
EHT . . . . . Employment in high and medium high-tech sectors
EPO . . . . . European Patent Office
ESA . . . . . European System of Accounts
EU/EU-25/EU-27 . . . . . European Union (25/27 Member States)
EU-15 . . . . . European Union (15 Member States)
EUR . . . . . Euro
Eurostat . . . . . Statistical Office of the European Communities
EXP . . . . . Expenditure
FTE . . . . . Full-Time Equivalent
GBAORD . . Government budget appropriations or outlays allocated to R&D

GDP . . . . . .Gross Domestic Product
GOV . . . . . .Government sector
GUF . . . . . .General University Funds
HC . . . . . .Head Count
HES . . . . . .Higher Education Sector
HRST . . . . . .Human Resources in Science and Technology
HRSTC . . . . . .Human Resources in Science and Technology – Core
HRSTE . . . . . .Human Resources in Science and Technology – Education
HRSTO . . . . . .Human Resources in Science and Technology – Occupation
HRSTU . . . . . .Human Resources in Science and Technology – Unemployed
IPC . . . . . .International Patent Classification
ICT . . . . . .Information and Communications Technology
ISCED . . . . . .International Standard Classification of Education
ISCO . . . . . .International Standard Classification of Occupations
JPO . . . . . .Japanese Patent Office
KIS . . . . . .Knowledge-Intensive Services
LKIS . . . . . .Less Knowledge-Intensive Services
Mio . . . . . .Million
MS . . . . . .Member States
MSTI . . . . . .Main Science and Technology Indicators (OECD)
NABS . . . . . .Nomenclature for the analysis and comparison of science budgets and programmes
NACE . . . . . .Statistical classification of economic activities in the European Communities
NewCronos . . . . . .Eurostat's statistical reference database
NUTS . . . . . .Nomenclature of Territorial Units for Statistics
OECD . . . . . .Organisation for Economic Cooperation and Development
PCT . . . . . .Patent Cooperation Treaty
PNP . . . . . .Private Non-Profit sector
PPS . . . . . .Purchasing Power Standard
PSL . . . . . .Personnel
R&D . . . . . .Research and Development
RSE . . . . . .Researchers
SII . . . . . .Summary Innovation Index
S&E . . . . . .Science and Engineering
S&T . . . . . .Science and Technology
SME . . . . . .Small and Medium sized Enterprises
USPTO . . . . . .United States Patent and Trademark Office
VCI . . . . . .Venture Capital Investment
WIPO . . . . . .World Intellectual Property Organisation

COUNTRIES ABBREVIATIONS

EU Member States

BE . . . . . .Belgium
BG . . . . . .Bulgaria (from 1.1.2007)
CZ . . . . . .Czech Republic
DK . . . . . .Denmark
DE . . . . . .Germany
EE . . . . . .Estonia
IE . . . . . .Eire/Ireland
EL . . . . . .Greece
ES . . . . . .Spain
FR . . . . . .France
IT . . . . . .Italy
CY . . . . . .Cyprus
LV . . . . . .Latvia
LT . . . . . .Lithuania
LU . . . . . .Luxembourg
HU . . . . . .Hungary
MT . . . . . .Malta
NL . . . . . .Netherlands
AT . . . . . .Austria
PL . . . . . .Poland
PT . . . . . .Portugal
RO . . . . . .Romania (from 1.1.20007)
SI . . . . . .Slovenia
SK . . . . . .Slovakia
FI . . . . . .Finland
SE . . . . . .Sweden
UK . . . . . .United Kingdom

Candidate countries

BG . . . . . .Bulgaria (until 31.12.2006)
FYROM . . . . . .Former Yugoslav Republic of Macedonia
HR . . . . . .Croatia
RO . . . . . .Romania (until 31.12.2006)
TR . . . . . .Turkey

Other countries

CA . . . . . .Canada
CH . . . . . .Switzerland
CN . . . . . .China
IS . . . . . .Iceland
JP . . . . . .Japan
LI . . . . . .Liechtenstein
NO . . . . . .Norway
RU . . . . . .Russia
US . . . . . .United States of America

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