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Science and technology in Europe — Data 1990-2004

POCKETBOOKS

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Science and technology in Europe

Data 1990-2004

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The collections *Detailed tables* and *Methods and nomenclatures* suit the needs of the specialist who is prepared to spend more time analysing and using very detailed information and tables.

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INHALT

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.

Responding to developments in the policy and scientific communities, Eurostat has now been long collecting S&T 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 S&T field have also been exploited. This is the case of the OECD's Main Science and Technology Indicators (MSTI). 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 and the United States are also considered when available.

This pocketbook is divided into nine chapters. The first four chapters present key R&D input and output indicators. R&D inputs are measured in terms of R&D expenditure (chapter 1), R&D personnel (chapter 2) and Government budget appropriations or outlays on R&D (or GBAORD, in chapter 4), whereas outputs are analyzed by means of statistics on patents (chapter 7) and high technology (chapter 8). Chapter three presents a brief regional overview of S&T, looking at the top European regions and at the best performing region of each country. Chapter 5 looks at the composition and evolution of human resources in S&T fields (HRST). Chapter 6 presents the main results of the Community Innovation Statistics 2002/2003. Finally, chapter 9 gives 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 (December 2005) except for the chapter on the background data (used to calculate derived indicators) for which the release date is August 2005. However, because NewCronos is regularly updated as and when new data are received, the data extractions made could subsequently differ from those available at the time of publishing.

SCIENCE AND TECHNOLOGY IN EUROPE

STATISTICAL POCKETBOOK

This publication has been managed and prepared by Eurostat, Unit F4 — Education, Science and Culture Statistics — headed by Jean-Louis Mercy.

Co-ordinators

August Götzfried — august.goetzfried@cec.eu.int,
Bernard Félix — bernard.felix@cec.eu.int,
Simona Frank — simona.frank@cec.eu.int,
Håkan Wilén — hakan.wilen@cec.eu.int
Eurostat, **Unit F4** — Education, Science and Culture Statistics

Statistical Office of the European Communities,
Joseph Bech Building,
Alphonse Weicker, 5
L-2721, Luxembourg.

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1 - 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 (BES).

In 2004 (preliminary data), R&D intensity (i.e. R&D expenditure as a percentage of GDP) in the EU-25 stood at 1.90 compared to 1.92 in 2003. R&D intensity remained significantly lower in the EU-25 than in other major economies. In 2003, R&D expenditure was 2.59% of GDP in the United States, 3.15% in Japan, while it was 1.31% in China. Only Japan and China increased their R&D expenditure in proportion of GDP between 1999 and 2003 whereas it remained quite stable in the EU-25 and decreased in the United States.

The EU-25 average hides discrepancies between Member States. Indeed, in 2004 three countries already exceeded the EU's 2010 goal set by the Lisbon summit to achieve a R&D intensity of 3% of GDP. These countries were Sweden (3.74%), Finland (3.51%) and Iceland (3.01%).

In 2004, 195 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 billion in 2003 whereas it reached 252 billion in the United States and 16 billion in China.

The trends for the EU-25, the United States and Japan R&D expenditure, expressed in purchase power standards (PPS), was positive for all three of them.

In 2003, 54.3% of the EU-25 R&D expenditure was financed by the business enterprise sector, almost 35% by the government sector (GOV) and less than 10% by abroad. These proportions remain stable compared to the previous year. At the national level, only two 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: these countries were Luxembourg and Finland with R&D financing shares by the BES of 80.4% and 70.0% respectively.

In the majority of the EU-15 countries, large enterprises of more than 250 employees accounted for more than 60% of R&D expenditure in the business enterprise sector. In a few smaller countries such as Cyprus, Latvia and Malta small enterprises of less than 50 employees accounted for more than 30% of business enterprise expenditure.

Table 1.1 R&D intensity (R&D expenditure as a % of GDP) and percentage of R&D expenditure financed by the Business Enterprise Sector (%) in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United States — 1999 to 2004

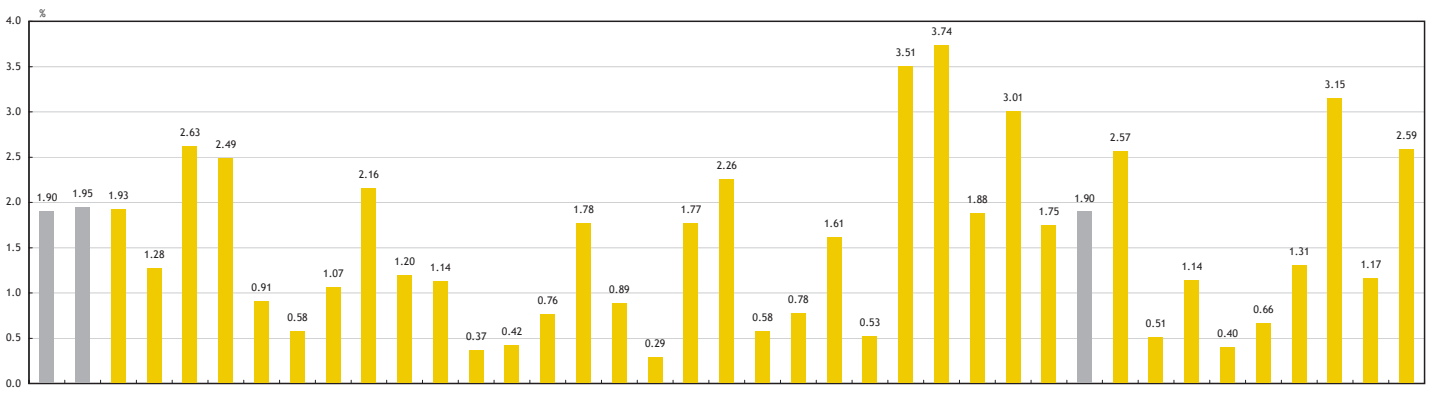
	R&D expenditure as % of GDP						% of R&D expenditure financed by the BES					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
EU-25	1.87 s	1.89 s	1.93 s	1.93 s	1.92 s	1.90 sp	:	55.2 s	55.3 s	55.0 s	54.3 s	:
EU-15	1.92 s	1.94 s	1.98 s	1.98 s	1.97 s	1.95 sp	:	55.5 s	55.6 s	55.3 s	54.6 s	:
BE	1.96	2.04	2.17	1.99	1.92	1.93 f	66.2	63.0	64.3	59.4	60.3	:
CZ	1.16	1.23	1.22	1.22	1.26	1.28	52.6	51.2	52.5	53.7	51.4	:
DK	2.10	2.27	2.40	2.55 r	2.59 r	2.63 p	59.0	:	61.4	:	61.3	:
DE	2.40	2.45	2.46	2.49	2.52	2.49 e	65.4	66.0	65.7	65.5	66.3	67.1 e
EE	0.70	0.62	0.73	0.75	0.82	0.91 p	24.2	24.2	32.9	29.2	33.0	:
EL	0.67	:	0.64	:	0.62 p	0.58 p	24.2	:	33.0	:	30.7	:
ES	0.88	0.91	0.92	0.99	1.05	1.07	:	:	:	48.9	48.4	:
FR	2.16	2.15 b	2.20	2.23	2.18	2.16 p	54.1	52.5 b	54.2	52.1	50.8	:
IE	1.18	1.13	1.12	1.10 r	1.16 r	1.20 r	64.4	66.0	:	63.4	59.1	:
IT	1.04	1.07	1.11	1.16	1.14	:	:	:	:	:	:	:
CY	0.24	0.25	0.26	0.31	0.35	0.37 p	17.4	17.5	15.3	17.4	19.8	:
LV	0.37	0.45	0.41	0.42	0.38	0.42	22.2	29.4	18.3	21.7	33.2	:
LT	0.51	0.59	0.68	0.67	0.68	0.76	:	31.6	37.1	27.9	16.7	:
LU	:	1.71	:	:	1.78	:	:	90.7	:	:	80.4 p	:
HU	0.69	0.80	0.95	1.02	0.95	0.89	38.5	37.8	34.8	29.7	30.7	:
MT	:	:	:	0.28	0.27	0.29 u	:	:	:	18.6	:	:
NL	2.02	1.90	1.81	1.72	1.76	1.77 p	49.7	51.3	51.9	50.0	50.9	:
AT	1.88	1.91	2.04	2.12	2.19 e	2.26 e	41.1	41.8	41.8	44.6	43.9 e	43.4 e

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	R&D expenditure as % of GDP						% of R&D expenditure financed by the BES					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
PL	0.70	0.66	0.64	0.58	0.56	0.58	38.1	32.6	30.8	30.1	30.3	:
PT	0.72	:	0.85	0.80 e	0.78	:	21.3	27.0	31.5	31.6 e	31.7	:
SI	1.42	1.44	1.56	1.53	1.54 e	1.61 e	56.9	53.3	54.7	60.0	59.3 e	:
SK	0.66	0.65	0.64	0.58	0.58	0.53	49.9	54.4	56.1	53.6	45.1	:
FI	3.21	3.38	3.38	3.43	3.48	3.51	:	:	:	69.5	70.0	:
SE	3.65	:	4.27	:	3.98	3.74	67.8	:	71.9	:	65.0	:
UK	1.84	1.84	1.89	1.89	1.88	:	:	:	:	46.1	43.9	:
IS	2.39	2.76 e	3.08	3.14 f	2.97	3.01	43.4	:	46.2	:	43.9	:
NO	1.65	:	1.60	1.67	1.75	:	49.5	:	51.6	:	49.2	:
EEA	1.87 s	1.88 s	1.92 s	1.92 s	1.92 s	1.90 sp	:	55.2 s	55.2 s	54.9 s	54.2 s	:
CH	:	2.57	:	:	:	:	:	69.1	:	:	:	:
BG	0.57	0.52	0.47	0.49	0.50	0.51	22.8 b	24.4	27.1	24.8	26.8	:
HR	:	:	:	1.12	1.14	:	:	:	:	45.7	42.1	:
RO	0.40	0.37	0.39	0.38	0.40	0.40	50.2	49.0	47.6	41.6	45.4	:
TR	0.63	0.64	0.72	0.66	:	:	43.3	42.9	44.9	41.3	:	:
CN	0.83	1.00 b	1.07	1.22	1.31	:	:	57.6 b	:	:	60.1	:
JP	2.96	2.99	3.07	3.12	3.15	:	72.2	72.4	73.0	73.9	74.5	:
RU	1.00	1.05	1.18	1.25	1.29 r	1.17	31.6	32.9	33.6	33.1	30.8	:
US	2.63	2.70	2.71	2.65 p	2.59 p	:	66.9	69.3	67.3	64.4 p	63.1 p	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Figure 1.1 R&D intensity (R&D expenditure as % percentage of GDP) in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United States — 2004

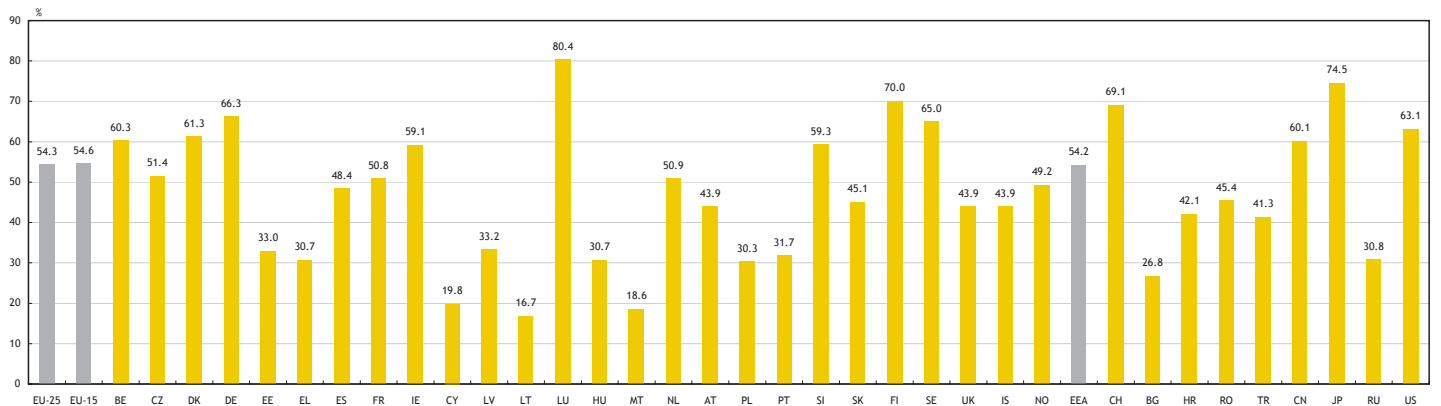


Exceptions to the reference year: IT, LU, PT, UK, NO, HR, CN, JP and US 2003 ; CH 2000 and TR 2002.
Provisional data: EU-15, EU-25, EEA, DK, EE, EL, FR, CY, NL and US.
Forecast: BE.

Eurostat estimations: EU-15, EU-25 and EEA.
National estimations: DE, AT, SI.
Revised data: IE.
Unreliable data: MT.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Figure 1.2 **Percentage of R&D expenditure financed by the Business Enterprise Sector in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United States — 2003**



Exceptions to the referrence year: MT and TR 2002 ; CH 2000.
Provisional data: LU, US.

Eurostat estimations: EU-15, EU-25 and EEA.
National estimations: AT, SI.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 1.2 **R&D expenditure in million current EUR and million PPS in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United States — 1999 to 2004**

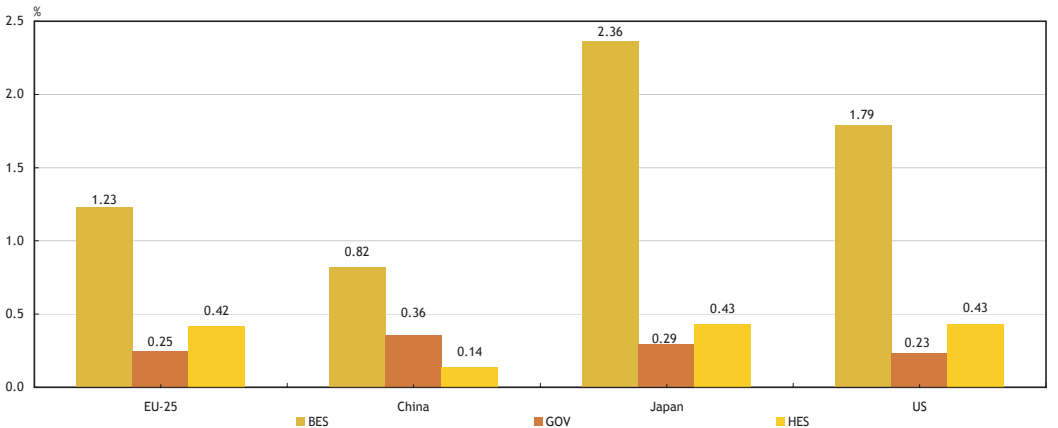
	R&D expenditure in Mio current EUR						R&D expenditure in Mio PPS					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
EU-25	156 909 s	169 418 s	179 629 s	186 349 s	188 222 s	194 650 sp	147 712 s	160 112 s	170 705 s	177 080 s	178 676 s	185 442 sp
EU-15	154 332 s	166 471 s	176 264 s	182 806 s	184 702 s	190 808 sp	142 320 s	154 257 s	164 463 s	170 677 s	172 167 s	178 404 sp
BE	4 618	5 046	5 515	5 201	5 177	5 465 f	4 296	4 814	5 354	5 086	5 014	5 329 f
CZ	641	744	832	959	1 013	1 100	1 450	1 621	1 693	1 788	1 895	2 045
DK	3 406	3 892	4 265	4 634 r	4 851 r	5 112 p	2 632	3 033	3 321	3 528 r	3 645 r	3 877 p
DE	48 191	50 619	52 002	53 363	54 538	55 100 e	41 978	45 353	46 497	48 066	48 852	50 333 e
EE	37	37	49	56	67	83 p	74	74	92	100	117	141 p
EL	795	:	841	:	951 p	967 p	977	:	1 058	:	1 183 p	1 184 p
ES	4 995	5 719	6 227	7 194	8 213	8 968	5 957	6 774	7 244	8 362	9 405	10 061
FR	29 529	30 954 b	32 887	34 527	34 569	35 648 p	27 820	29 740 b	31 889	33 119	32 398	33 294 p
IE	1 068	1 183	1 315	1 435 r	1 610 r	1 780 r	1 014	1 091	1 165	1 237 r	1 349 r	1 535 r
IT	11 524	12 460	13 572	14 600	14 769	:	12 450	13 560	14 462	15 282	14 936	:
CY	21	25	27	34	41	46 p	26	29	33	38	45	50 p
LV	25	38	38	42	38	47	56	74	74	82	78	95
LT	52	73	91	100	111	137	125	158	196	208	230	282
LU	:	364	:	:	426	:	:	324	:	:	367	:
HU	309	405	548	706	693	721	684	863	1 114	1 290	1 240	1 234
MT	:	:	:	12	11	12 u	:	:	:	17	17	19 u
NL	7 563	7 655	8 090	8 018	8 376	8 657 p	7 144	7 279	7 681	7 517	7 731	8 087 p
AT	3 762	4 029	4 393	4 684	4 975 e	5 346 e	3 534	3 875	4 167	4 436	4 653 e	5 051 e

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	R&D expenditure in Mio current EUR						R&D expenditure in Mio PPS					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
PL	1 086	1 197	1 323	1 172	1 036	1 139	2 299	2 317	2 293	2 139	2 099	2 338
PT	815	:	1 038	1 029 e	1 020	:	1 097	:	1 377	1 350 e	1 302	:
SI	284	297	341	360	377 e	418 e	387	416	476	487	503 e	564 e
SK	126	143	149	148	169	174	310	333	346	337	351	331
FI	3 879	4 423	4 619	4 830	5 005	5 253	3 453	3 972	4 129	4 314	4 421	4 710
SE	8 608	:	10 459	:	10 642	10 426	7 095	:	9 041	:	8 783	8 752
UK	25 301	28 787	30 254	31 515	30 092	:	22 626	24 389	26 318	28 045	28 632	:
IS	188	251 e	261	280 f	274	297	157	193 e	224	226 f	215	229
NO	2 445	:	3 037	3 388	3 411	:	1 929	:	2 339	2 403	2 515	:
EEA	159 544 s	172 417 s	182 927 s	190 017 s	191 907 s	198 622 sp	149 800 s	162 480 s	173 268 s	179 708 s	181 406 s	188 546 sp
CH	:	6 852	:	:	:	:	:	4 947	:	:	:	:
BG	69	71	71	81	89	99	227	226	216	235	249	266
HR	:	:	:	271	292	:	:	:	:	462	494	:
RO	134	149	177	184	203	235	430	414	482	501	553	614
TR	1 094	1 389	1 172	1 280	:	:	2 230	2 591	2 658	2 603	:	:
CN	7 695	11 714 b	14 063	16 452	16 444	:	:	:	:	:	:	:
JP	123 909	153 860	143 015	131 726	119 748	:	81 109	86 888	91 364	94 717	98 107	:
RU	1 812	2 948	4 025	4 545	4 899 r	5 473	:	:	:	:	:	:
US	228 958	287 131	306 786	293 041 p	251 577 p	:	213 345	234 084	241 460	245 308 p	247 745 p	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

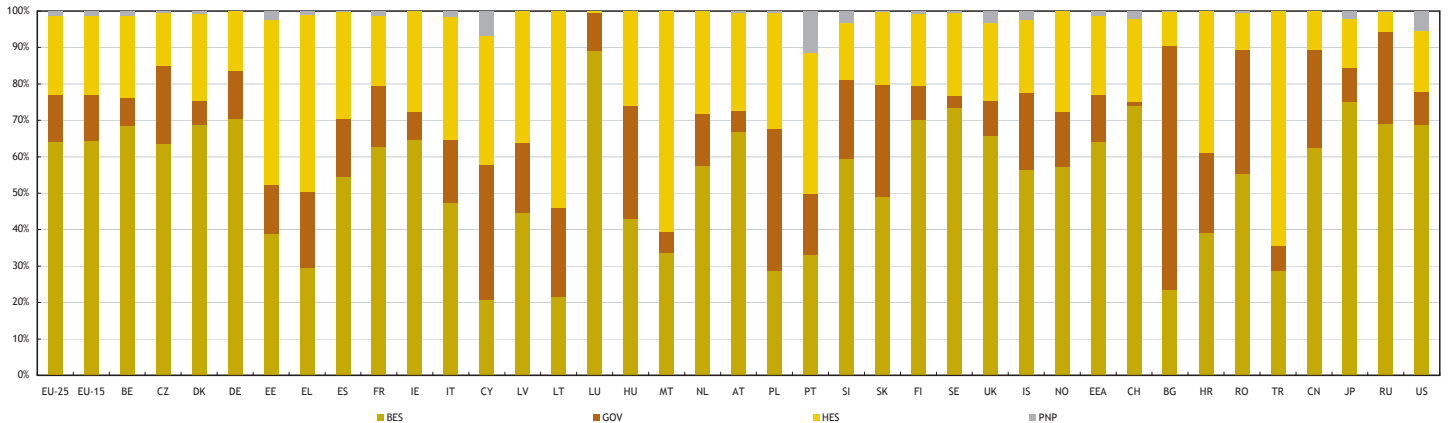
Figure 1.3 R&D intensity (R&D expenditure as a % of GDP) by sector of performance in the EU-25, China, Japan and the United states — 2003



Eurostat estimation: EU-25.
Provisional data: US.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Figure 1.4 **Breakdown of R&D expenditure by sector of performance as a percentage of total in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United states — 2004**



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National estimations: DE, AT, SI.
Revised data: IE.
Unreliable data: MT.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 1.3 R&D expenditure in million current EUR, by sector of performance, in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United States — 2001 to 2004

	R&D expenditure in BES				R&D expenditure in GOV				R&D expenditure in HES			
	2001	2002	2003	2004	2001	2002	2003	2004	2001	2002	2003	2004
EU-25	117 066 s	119 951 s	120 581 s	125 172 sp	23 723 s	24 138 s	24 480 s	24 850 sp	37 595 s	40 366 s	41 151 s	42 577 sp
EU-15	115 510 s	118 505 s	119 039 s	123 418 sp	22 786 s	22 964 s	23 401 s	23 745 sp	36 739 s	39 462 s	40 274 s	41 621 sp
BE	4 062	3 662	3 608	3 747 f	331	373	354	417 f	1 059	1 100	1 150	1 232 f
CZ	501	586	618	701	197	220	236	233	130	150	155	162
DK	2 934	3 198	3 355 r	3 516 p	503	341 r	337	335 p	796	1 068	1 126	1 233 p
DE	36 332	36 950	38 029	38 800 p	7 146	7 333	7 307	7 300 p	8 524	9 080	9 202	9 000 p
EE	16	17	23	32 p	7	9	11	11	25	27	32	38
EL	278	:	286 p	285 p	188	:	198	203 p	382	:	457	470 p
ES	3 261	3 926	4 443	4 888	989	1 108	1 262	1 426	1 925	2 142	2 492	2 642
FR	20 782	21 839	21 646	22 409 p	5 432	5 709	5 767	5 956 p	6 217	6 512	6 693	6 823 p
IE	917	988 r	1 076	1 150 e	104	125	127	138 e	294	322	407 r	492
IT	6 870	7 057	6 979	7 501 p	2 657	2 565	2 582	2 337 p	4 418	4 792	5 000	:
CY	5	7	9	9 p	12	14	16	17 p	7	10	13	16 p
LV	14	17	13	21	8	8	9	9	16	17	16	17
LT	27	17	23	29	36	33	29	34	29	50	58	74
LU	:	:	379	:	33	38	45	:	2	:	2 u	:
HU	220	250	255	297	142	232	217	213	141	178	185	177
MT	:	3	4 p	4 u	:	2	1	1	:	7	7	8
NL	4 712	4 543	4 804	4 982 p	1 194	1 106	1 213	1 243 p	2 184	2 312	2 356	2 430 p
AT	:	3 131	:	:	:	266	:	:	:	1 266	:	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	R&D expenditure in BES				R&D expenditure in GOV				R&D expenditure in HES			
	2001	2002	2003	2004	2001	2002	2003	2004	2001	2002	2003	2004
PL	474	238	284	327	414	533	421	444	433	398	329	364
PT	330	334 e	338	:	216	194 e	172	:	381	386 e	392	:
SI	197	215	222 e	249 e	83	83	86 e	91 e	55	56	60 e	66 e
SK	101	95	93	86	35	39	53	53	13	13	22	35
FI	3 284	3 375	3 528	3 684	501	501	485	497	834	926	962	1 040
SE	8 118	:	7 886	7 667	297	:	371	325	2 033	:	2 344	2 393
UK	20 392	20 849	19 778	:	2 941	2 786	2 906 r	3 043	6 488	7 023	6 442	6 700 e
IS	153	160 f	142	167	52	69 f	68	63	49	45 f	58	60
NO	1 814	1 946	1 960	:	444	535	515	514	780	907	937	983
EEA	119 034 s	122 057 s	122 683 s	127 519 sp	24 219 s	24 742 s	25 063 s	25 427 sp	38 424 s	41 318 s	42 146 s	43 620 sp
CH	:	:	:	:	:	95	:	:	:	1 881	:	:
BG	15	15	18	23	48	58	62	66	9	8	9	9
HR	:	115	114	:	:	60	64	:	:	95	114	:
RO	109	111	118	130	48	44	65	80	20	29	19	24
TR	395	367	:	:	86	89	:	:	690	823	:	:
CN	8 499	10 066	10 256	:	4 183	4 719	4 455	:	1 381	1 667	1 734	:
JP	105 364	98 059	89 783	:	13 637	12 563	11 149	:	20 687	18 286	16 358	:
RU	2 829	3 176	3 353	3 780	978	1 112	1 239	1 383	210	247	297	299
US	223 900	205 810 p	173 366 p	:	24 112	25 861 p	22 761 p	:	44 377	46 508 p	42 153 p	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 1.4 R&D intensity (R&D expenditure as a % of GDP) by sector of performance, in the EEA countries, Candidate Countries, Switzerland, China, Japan, the Russian Federation and the United States — 2001 to 2004

	R&D expenditure as a % of GDP - BES				R&D expenditure as a % of GDP - GOV				R&D expenditure as a % of GDP - HES			
	2001	2002	2003	2004	2001	2002	2003	2004	2001	2002	2003	2004
EU-25	1.26 s	1.24 s	1.23 s	1.22 sp	0.25 s	0.25 s	0.25 s	0.24 sp	0.40 s	0.42 s	0.42 s	0.41 sp
EU-15	1.30 s	1.28 s	1.27 s	1.26 sp	0.26 s	0.25 s	0.25 s	0.24 sp	0.41 s	0.43 s	0.43 s	0.43 sp
BE	1.60	1.40	1.34	1.32 f	0.13	0.14	0.13	0.15 f	0.42	0.42	0.43	0.43 f
CZ	0.74	0.75	0.77	0.81	0.29	0.28	0.29	0.27	0.19	0.19	0.19	0.19
DK	1.65	1.76	1.79 r	1.81 p	0.28	0.19 r	0.18	0.17 p	0.45	0.59	0.60	0.63 p
DE	1.72	1.72	1.76	1.75 p	0.34	0.34	0.34	0.33 p	0.40	0.42	0.43	0.41 p
EE	0.25	0.23	0.28	0.36 p	0.10	0.13	0.13	0.12	0.37	0.36	0.39	0.42
EL	0.21	:	0.19 p	0.17 p	0.14	:	0.13	0.12 p	0.29	:	0.30	0.28 p
ES	0.48	0.54	0.57	0.58	0.15	0.15	0.16	0.17	0.28	0.29	0.32	0.32
FR	1.39	1.41	1.37	1.36 p	0.36	0.37	0.36	0.36 p	0.42	0.42	0.42	0.41 p
IE	0.78	0.76 r	0.77	0.77 e	0.09	0.10	0.09	0.09 e	0.25	0.25	0.29 r	0.33
IT	0.56	0.56	0.54	0.56 p	0.22	0.20	0.20	0.17 p	0.36	0.38	0.38	:
CY	0.05	0.06	0.08	0.08 p	0.12	0.12	0.13	0.14 p	0.07	0.09	0.12	0.13 p
LV	0.15	0.17	0.13	0.19	0.09	0.08	0.09	0.08	0.17	0.17	0.16	0.15
LT	0.20	0.11	0.14	0.16	0.27	0.22	0.18	0.19	0.21	0.33	0.36	0.41
LU	:	:	1.58	:	0.15	0.17	0.19	:	0.01	:	0.01 u	:
HU	0.38	0.36	0.35	0.37	0.25	0.34	0.30	0.26	0.24	0.26	0.26	0.22
MT	:	0.07	0.08 p	0.10 u	:	0.05	0.02	0.02	:	0.16	0.17	0.18
NL	1.05	0.98	1.01	1.02 p	0.27	0.24	0.25	0.25 p	0.49	0.50	0.49	0.50 p
AT	:	1.42	:	:	:	0.12	:	:	:	0.57	:	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	R&D expenditure as a % of GDP - BES				R&D expenditure as a % of GDP - GOV				R&D expenditure as a % of GDP - HES			
	2001	2002	2003	2004	2001	2002	2003	2004	2001	2002	2003	2004
PL	0.23	0.12	0.15	0.17	0.20	0.26	0.23	0.23	0.21	0.20	0.18	0.19
PT	0.27	0.26 e	0.26	:	0.18	0.15 e	0.13	:	0.31	0.30 e	0.30	:
SI	0.90	0.91	0.90 e	0.96 e	0.38	0.35	0.35 e	0.35 e	0.25	0.24	0.25 e	0.25 e
SK	0.43	0.37	0.32	0.26	0.15	0.15	0.18	0.16	0.06	0.05	0.08	0.11
FI	2.41	2.40	2.45	2.46	0.37	0.36	0.34	0.33	0.61	0.66	0.67	0.69
SE	3.31	:	2.95	2.75	0.12	:	0.14	0.12	0.83	:	0.88	0.86
UK	1.27	1.25	1.24	:	0.18	0.17	0.18 r	0.18	0.40	0.42	0.40	0.39 e
IS	1.81	1.80 f	1.54	1.70	0.62	0.77 f	0.74	0.63	0.58	0.51 f	0.63	0.61
NO	0.96	0.96	1.00	:	0.23	0.26	0.26	0.26	0.41	0.45	0.48	0.49
EEA	1.25 s	1.24 s	1.22 s	1.22 sp	0.25 s	0.25 s	0.25 s	0.24 sp	0.40 s	0.42 s	0.42 s	0.42 sp
CH	:	:	:	:	:	0.03	:	:	:	0.64	:	:
BG	0.10	0.09	0.10	0.12	0.31	0.35	0.35	0.34	0.06	0.05	0.05	0.05
HR	:	0.48	0.45	:	:	0.25	0.25		:	0.39	0.45	:
RO	0.24	0.23	0.23	0.22	0.11	0.09	0.13	0.14	0.04	0.06	0.04	0.04
TR	0.24	0.19	:	:	0.05	0.05	:	:	0.43	0.43	:	:
CN	0.65	0.75	0.82	:	0.32	0.35	0.36	:	0.11	0.12	0.14	:
JP	2.26	2.32	2.36	:	0.29	0.30	0.29	:	0.44	0.43	0.43	:
RU	0.83	0.87	0.88	0.81	0.29	0.31	0.33	0.30	0.06	0.07	0.08	0.06
US	1.98	1.86 p	1.79 p	:	0.21	0.23 p	0.23 p	:	0.39	0.42 p	0.43 p	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 1.5 **R&D expenditure in the Business Enterprises Sector by selected NACE sector, in million current EUR, in the EEA countries, Candidate Countries and the Russian Federation — 2003**

	Total	Mining and quarrying (C)	Industry(1)	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)
BE	**3 608**	6	2 918	2 834	26	638	31	135	21	429
CZ	**618**	1	401	393	0	214	18	4	1	177
DK	**3 355 r**	:	2 055	2 044	:	1 388	68	284	349	686
DE	**38 029**	25	34 692	34 581	81	3 239	85	470	99	2 578
EE	**23**	:	10	10	:	12	0	2	4	5
EL	**286 p**	2	189	188	0	94	3	11	1	78
ES	**4 443**	14	2 501	2 375	56	1 898	105	176	142	1 416
FR	**21 839**	160	18 701	18 227	383	2 420	:	1 267	:	1 150
IE	**1 076**	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**	:	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**	0	198	196	2	51	27	2	1	17
MT	**3**	0	2	2	0	0	0	0	0	1
NL	**4 804**	95	3 803	3 750	24	840	212	27	45	550
AT	**3 131**	3	2 298	2 273	14	828	98	50	8	668

Exceptions to the reference year: FR, MT and AT 2002.
Industry = NACE D+ NACE E+ NACE F (with at least NACE D available).

Sources: Eurostat-R&D statistics

	Total	Mining and quarrying (C)	Industry[1]	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**	12	215	194	2	48	0	23	:	9
PT	**338**	1	157	151	3	179	18	11	41	104
SI	**222** e	6 e	192 e	192 e	0	25 e	0 e	0	0	23
SK	**93**	0	37	37	:	54	:	:	0	53
FI	**3 528**	6	2 849	2 800	8	672	62	85	:	514
SE	**7 886**	7	6 390	6 336	54	1 466	153	8	83	1 195
UK	**19 778**	81	15 366	15 224	99	4 156	155	967	416	2 583
IS	**142**	0	140	138	1	96		4	1	90
NO	**1 960**	111	929	890	7	878	54	83	54	687
BG	**18**	0	9	9	0	9	:	:	1	4
HR	**114**	:	14	10	0	97	:	0	97	:
RO	**118**	9	77	73	3	15	0	1	:	13
TR	**367**	1	320	318	3	43	0	9	16	17
RU	**3 176**	11	216	216	:	2 945	0	1	0	2 941

Exceptions to the reference year: TR and RU 2002.
Industry = NACE D+ NACE E+ NACE F (with at least NACE D available).

Sources: Eurostat-R&D statistics

Table 1.6 **R&D expenditure in the Business Enterprises Sector by size class, in million current EUR, in the EEA countries, Candidate Countries and the Russian Federation — 2003**

	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	**3 608**	9	128	441	380	794	1 857
CZ	**618**	2	9	48	49	168	342
DK	**3 355 r**	:	133	323	391	486	2 116
DE	**38 029**	:	70	668	1 705	2 448	33 139
EE	**23**	:	3	3	2	9	7
EL	**286 p**	:	4	49	20	98	116
ES	**4 443**	0	65	776	654	1 052	1 897
FR	**21 646**	:	269	1 166	1 789	2 066	16 356
IE	**1 076**	0	34	215	162	280	385
IT	**6 979**	:	70	285	715	832	5 077
CY	**9**	:	2	1	0	2	4
LV	**13**	0	2	5	0	3	3
LT	**23**	:	1	1	2	13	6
LU	**379**	:	:	32	17	52	278
HU	**255**	:	13	13	30	25	169
MT	**3**	:	:	1	0	1	0
NL	**4 804**	:	:	387	446	898	3 073
AT	**3 325 s**	:	:	:	:	:	:

Exception to the reference year: MT 2002.
DK: the sum of the breakdowns does not add the total.

Sources: Eurostat-R&D statistics

	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	**284**	1	2	15	57	101	108
PT	**338**	:	14	52	69	69	134
SI	**222 e**	:	:	:	:	:	:
SK	**93**	1	2	11	23	29	28
FI	**3 528**	:	68	241	302	433	2 485
SE	**7 886**	:	:		455	964	6 466
UK	**19 778**	9	314	826	1 933	2 729	13 967
IS	**142**	:	:	:	:	:	:
NO	**1 960**	:	:	459	140	645	715
BG	**18**	0	1	2	2	3	10
HR	**114**	:	:	:	:	:	:
RO	**118**	9	3	6	24	22	54
TR	**367**	:	:	:	:	:	:
RU	**3 176**	298	207	783	1 229	509	150

Exceptions to the reference year: TR and RU 2002.

Sources: Eurostat-R&D statistics

Table 1.7 **Total R&D expenditure and the Business R&D expenditure by source of funds, in the EEA countries, Candidate Countries, China, Japan, the Russian Federation and the United States — 2003**

	R&D expenditure by source of funds in % in 2003				R&D expenditure in BES by source of funds in % in 2003[1]			
	BES	GOV	Other national sources	ABROAD	BES	GOV	Other national sources	ABROAD
EU-25	54.30 s	34.90 s	2.30 s	8.50 s	81.27 s	8.10 s	0.12 s	10.50 s
EU-15	54.60 s	34.70 s	2.20 s	8.50 s	81.28 s	8.06 s	0.12 s	10.54 s
BE	60.31	21.67	5.11	12.91	81.69	5.36	0.04	12.91
CZ	51.45	41.83	2.16	4.57	80.98	11.99	1.57	5.46
DK	61.31	26.51	2.66	9.51	86.86	2.26	0.03	10.85
DE	66.26	31.17	0.32	2.25	91.52	6.11	0.06	2.30
EE	32.96	48.59	3.26	15.20	86.97	5.59	0.06	7.39
EL	30.68	47.41	3.80	18.11	88.55	3.68	0.11	7.66
ES	48.35	40.07	5.82	5.73	83.46	11.14	0.16	5.24
FR	50.78	34.57	6.30	8.36	78.40	11.12	0.05	10.43
IE	59.13	29.31	2.79	8.79	87.33	3.02	0.48	9.18
IT	:	:	:	:	76.13	14.11	0.14	9.61
CY	19.84	59.94	6.13	13.88	87.94	1.75	0.00	10.31
LV	33.22	46.42	0.00	20.36	64.22	16.02	0.00	19.76
LT	16.74	64.56	4.87	13.83	54.24	9.60	0.00	36.16
LU	80.39 p	11.16 p	0.16 p	8.29 p	89.19 p	2.53 p	0.00 p	8.28 p
HU	30.68	58.03	0.40	10.72	70.92	6.36	0.36	22.36
MT	:	:	:	:	:	:	:	:
NL	50.88	36.80	1.05	11.27	81.29	3.77	0.00	14.95
AT	43.92 e	34.74 e	0.36	20.99 e	64.46	5.61	0.03	29.90

(1) Exception to the reference year : AT 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	R&D expenditure by source of funds in % in 2003[1]				Business entreprise R&D expenditure by source of funds in % in 2003[1]			
	BES	GOV	Other national sources	ABROAD	BES	GOV	Other national sources	ABROAD
PL	30.27	62.72	2.38	4.63	83.04	15.20	0.26	1.49
PT	31.73	60.11	3.17	5.00	89.24	5.28	0.00	5.48
SI	59.28 e	35.28 e	1.44 e	3.99 e	93.20 e	4.91 e	0.10 e	1.79 e
SK	45.10	50.84	0.73	3.34	75.34	22.05	0.52	2.09
FI	70.00	25.72	1.13	3.15	95.82	3.29	0.06	0.83
SE	64.97	23.45	4.29	7.29	85.89	5.87	0.18	8.06
UK	43.89	31.31	5.43	19.38	63.14	10.87	0.02	25.97
IS	43.88	40.12	1.51	14.49	76.58	3.88	0.01	19.53
NO	49.23	41.91	1.46	7.40	80.67	10.44	0.02	8.87
EEA	54.20 s	35.10 s	2.20 s	8.50 s	81.25 s	8.13 s	0.12 s	10.49 s
BG	26.77	66.94	0.52	5.77	98.47	0.17	0.00	1.36
HR	42.06	55.86	-	2.17	95.72	1.62	0.00	2.66
RO	45.39	47.63	1.53	5.46	67.06	28.23	0.32	4.40
TR	41.28	50.57	6.86	1.30	94.34	2.90	1.11	1.65
CN	60.10	29.91	:	1.95	87.47	4.93	4.99	2.61
JP	74.52	17.69 e	7.50 e	0.30	98.10	0.81	0.72	0.37
RU	30.76	59.61	0.64	8.99	38.20	51.53	0.24	10.04
US	63.11 p	31.20 p	5.69 p	:	89.96 p	10.04 p	0.00	:

(1) Exception to the reference year: TR 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

2 - R&D PERSONNEL

In 2003, 1.44% of the total personnel (in head count - HC) employed in the EU-25 worked in R&D. This proportion remained stable compared to 2002. Within the EU-25, the biggest concentrations of R&D personnel (HC) in proportion of total employment were observed in Finland (3.11%), Sweden (2.49%) and Denmark (2.29%).

In 2004, more than 2 million people (in full time equivalent - FTE) including 1.2 million of researchers were active in R&D in the EU-25. Both number of R&D personnel and researchers increased over the last year by 1.3% and 3.5% respectively.

Researcher is the major occupation among the R&D personnel (in FTE) and its proportion has slightly risen to 59% of the total R&D personnel in 2004. The highest proportion was observed in the higher education sector (HES) where it reached 64% against 55% in both the government and business enterprise sectors.

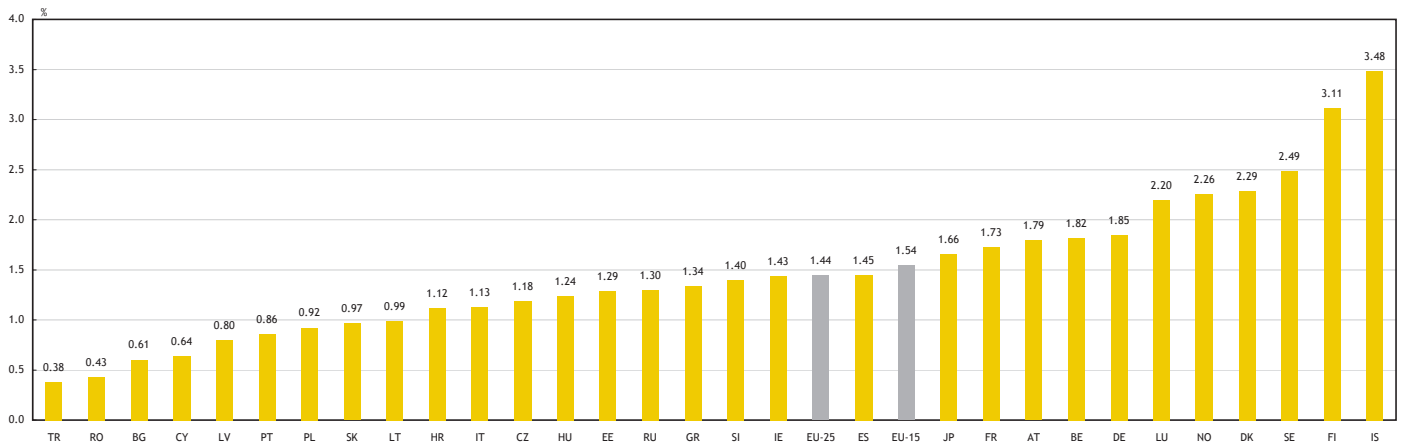
The breakdown of researchers by sectors of employment shows a mixed picture across the EU. While on average 49 % of researchers FTE are concentrated in the business enterprise sector, in eight new Member States this share is less than 30 %.

Research is still a predominantly male business: in 2003, women working in R&D were in minority in most of the EU countries. They represented more than 45% in only 3 Member States out of 19 (for which the data is available).

The R&D personnel in head count (HC) increased as well by 1.5% and in 2004 about 2.8 million people worked in R&D in the EU-25.

Industry and manufacturing welcomed most of the R&D personnel in the EU in 2003, whereas France, the United-Kingdom and Germany rank at the top in terms of R&D employment in computer activities; R&D; engineering activities and consultancy, etc. In most EU Member States, large enterprises of more than 250 persons employed account for more than 40 % of all researchers in the business enterprise sector. In Estonia, Greece and Latvia small enterprises of less than 49 persons employed amounted for more than 40 % of business enterprise researchers.

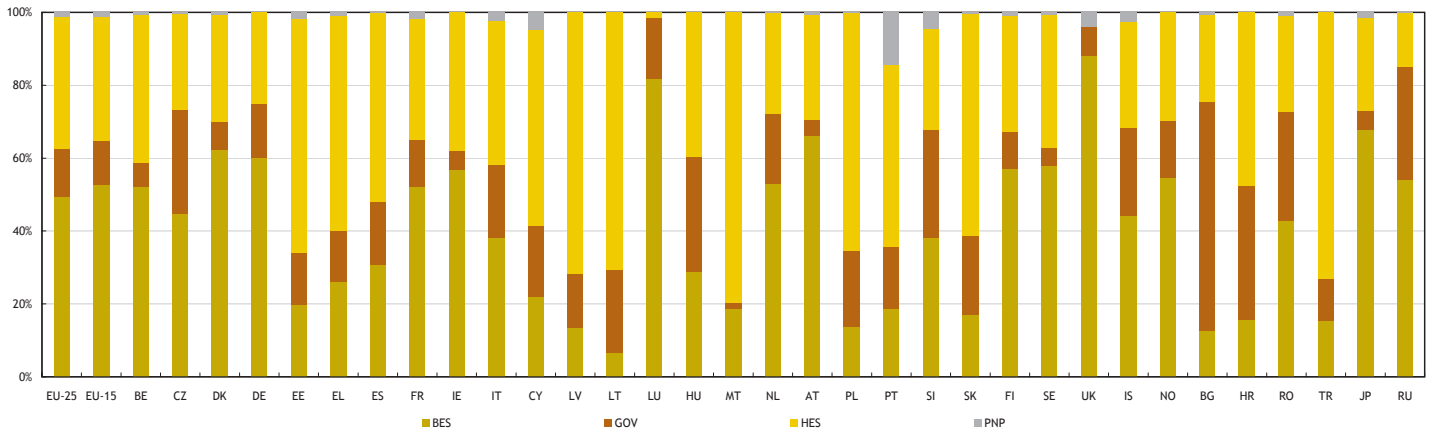
Figure 2.1 R&D personnel as a percentage of persons employed (in HC) in the EEA countries, Switzerland, the Candidate Countries, Japan and the Russian Federation — 2003



Exceptions to the reference year: AT and TR 2002.
Provisional data: IE.
National estimation: SI.
Eurostat estimations: EU-15 and EU-25.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Figure 2.2 **Researchers by institutional sector (in FTE) in the EEA countries, the Candidate Countries, Japan and the Russian Federation — 2004**



Exceptions to the reference year: FR, IT, LU, PT, UK, NO, HR and JP 2003 ; AT and TR 2002.
Provisional data: DK, BES in EE, EL, CY.

National estimations: GOV and HES in DE, NL, SI.
Eurostat estimations: EU-15 and EU-25.
Unreliable data: HES in LU, HES in TR, BES in MT.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 2.1 **Researchers as a percentage of total personnel (in FTE) in 2004 and percentage of women among researchers (in HC) in 2003, in the EEA countries, the Candidate Countries, Japan and the Russian Federation**

	Researchers as a % of total R&D personnel in 2004 - FTE[1]				% of women on total researchers in 2003 - HC[2]			
	TOTAL	BES	GOV	HES	TOTAL	BES	GOV	HES
EU-25	59.0 sp	54.6 sp	54.6 sp	68.4 sp	:	:	:	:
EU-15	57.9 sp	54.6 sp	53.0 sp	66.2 sp	:	:	:	:
BE	59.1 f	51.9 f	52.8 f	74.4 f	28.3	19.6	29.8	35.6
CZ	56.7	48.4	62.8	70.0	28.3	19.5	32.6	32.9
DK	61.3 p	56.9 p	71.6 p	70.1 p	28.4	25.1	34.9	31.3
DE	57.5 e	54.3	55.6 e	68.2 e	19.2	11.6	27.1	25.0
EE	71.2 p	61.0 p	60.0	78.6	43.1	23.7	59.5	45.1
EL	49.2 p	37.5 p	41.9 p	59.8 p	36.8	34.7	38.9	36.9
ES	62.9 e	45.3 e	63.1 e	81.5 e	36.3	26.6	44.5	37.7
FR	55.7	52.1	47.8	67.6	27.8	20.3	32.0	34.1
IE	69.4 e	64.2 e	45.7	85.7	31.0 p	20.3	30.6	38.8 p
IT	43.5	39.5	44.4	46.8	29.3	19.3	38.7	30.8
CY	55.3 p	50.0 p	28.6 p	94.9 p	30.9	22.3	40.1	31.0
LV	65.1	50.9	48.4	74.3	53.1	54.0	55.5	52.5
LT	69.7	49.3	55.1	79.5	48.3	36.5	50.3	48.7
LU	48.6	45.5	68.3	88.3 u	17.4	14.2 e	28.5	42.9 u
HU	65.3	64.3	61.8	69.2	35.1	24.5	39.9	36.8
MT	68.9 u	54.3 u	23.1	76.6	:	:	22.2	24.3
NL	45.0 e	43.5 e	57.1 e	41.7 e	:	8.7	20.0	:
AT	62.0	59.9	48.5	70.6	20.7	10.4	34.6	30.0

(1) Exceptions to the reference year: FR, IT, LU 2003 ; AT 2002.

(2) Exception to the reference year: AT 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	Researchers as a % of total R&D personnel in 2004 - FTE[1]				% of women on total researchers in 2003 - HC[2]			
	TOTAL	BES	GOV	HES	TOTAL	BES	GOV	HES
PL	77.8	64.2	65.0	87.2	39.3	25.2	41.1	40.5
PT	79.3	62.0	70.0	90.3	44.3	29.7	57.9	45.9
SI	56.7 e	38.4 e	73.1 e	87.8 e	34.4 e	28.3 e	43.3 e	33.0 e
SK	74.8	52.3	67.1	89.3	40.6	30.9	45.2	41.4
FI	70.4	71.7	57.2	73.1	29.9	18.4	40.7	52.7
SE	67.3	60.0	76.7	81.2	74.7	25.2	36.4	43.7
UK	:	63.0	44.0 e	:	:	:	32.2	:
IS	65.2	61.8	60.3	77.3	39.4	33.0	42.1	43.1
NO	:	71.2	66.2	80.0	29.4	18.9	35.6	37.6
EEA	59.2 sp	54.9 sp	54.8 sp	68.5 sp	:	:	:	:
BG	62.8	57.4	59.4	77.8	46.6	47.5	50.7	37.8
HR	64.1	42.2	65.9	75.2	42.2	40.1	45.9	40.4
RO	63.7	55.5	64.2	81.7	43.0	41.8	49.2	40.3
TR	82.8	62.5	50.1	100.0 u	35.6	25.0	27.5	37.0
JP	76.5	79.0	54.5	76.9	11.6	6.6	11.7	20.4
RU	50.2	45.3	52.4	71.3	43.3	42.6	45.9	38.2

(1) Exceptions to the reference year:
BES in UK, NO, HR and JP 2003 ; TR 2002.

(2) Exceptions to the reference year:
FI and TR2002.
CH 2000 in BES.
CH 2002 and NL 2001 in GOV.
CH 2002 in HES.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 2.2 **R&D personnel by sector of performance, in head count (HC) and as a percentage of person employed, in the EEA countries, the Candidate Countries, Japan and the Russian Federation — 2003**

	TOTAL		BES		GOV		HES	
	Total in HC	as a % of persons employed	Total in HC	as a % of persons employed	Total in HC	as a % of persons employed	Total in HC	as a % of persons employed
EU-25	2 781 491 s	1.44 s	1 262 484 s	0.66 s	374 451 s	0.19 s	1 114 355 s	0.58 s
EU-15	2 529 030 s	1.54 s	1 211 882 s	0.74 s	313 662 s	0.19 s	974 306 s	0.60 s
BE	73 763	1.82	37 812	0.93	3 903	0.10	31 431	0.78
CZ	55 699	1.18	24 122	0.51	13 357	0.28	17 877	0.38
DK	61 809	2.29	36 953	1.37	5 018	0.19	19 455	0.72
DE	664 731	1.85	333 285	0.93	84 695	0.24	246 751 p	0.69 p
EE	7 600	1.29	1 529	0.26	1 145	0.19	4 813	0.82
EL	57 257	1.34	12 808	0.30	9 148	0.21	35 088	0.82
ES	249 969	1.45	82 327	0.48	35 306	0.20	131 725	0.76
FR	415 061	1.73	203 264	0.85	50 690	0.21	153 131	0.64
IE	25 704 p	1.43 p	12 037	0.67	1 657	0.09	12 010 p	0.67 p
IT	249 782	1.13	81 189	0.37	42 610	0.19	120 629	0.55
CY	2 102	0.64	567	0.17	724	0.22	601	0.18
LV	8 002	0.80	1 228	0.12	1 472	0.15	5 302	0.53
LT	14 534	0.99	781	0.05	3 301	0.22	10 452	0.71
LU	4 135	2.20	3 533	1.88	548	0.29	54 u	0.03 u
HU	48 681	1.24	9 438	0.24	11 474	0.29	27 769	0.71
MT	975	0.65	97	0.07	37	0.02	841	0.56
NL	122 250 e	1.50 e	57 442	0.71	15 866	0.20	48 851 be	0.60 be
AT	65 725	1.79	34 020	0.93	6 010	0.16	25 072	0.68

Exception to the reference year: AT 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	TOTAL		BES		GOV		HES	
	Total in HC	as a % of persons employed	Total in HC	as a % of persons employed	Total in HC	as a % of persons employed	Total in HC	as a % of persons employed
PL	126 241	0.92	15 035	0.11	25 390	0.19	85 745	0.63
PT	44 036	0.86	9 882	0.19	7 273	0.14	21 488	0.42
SI	12 501 e	1.40 e	5 676 e	0.63 e	2 693 e	0.30 e	3 868 e	0.43 e
SK	20 928	0.97	4 545	0.21	4 458	0.21	11 917	0.55
FI	74 773	3.11	40 089	1.67	9 903	0.41	24 049	1.00
SE	108 146	2.49	52 346	1.20	5 521	0.13	49 909	1.15
UK	:	:	:	:	22 793	0.08	:	:
IS	5 466	3.48	2 193	1.40	1 740	1.11	1 323	0.84
NO	51 175	2.26	22 572	1.00	6 642	0.29	21 961	0.97
EEA	2 824 794 sp	1.45 sp	1 282 929 sp	0.66 sp	381 677 sp	0.20 sp	1 129 877 sp	0.58 sp
BG	17 400	0.61	2 398	0.08	10 977	0.38	3 920	0.14
HR	17 216	1.12	2 237	0.15	5 487	0.36	9 492	0.62
RO	39 985	0.43	17 232	0.18	9 641	0.10	12 859	0.14
TR	79 958	0.38	9 107	0.04	8 644	0.04	62 207	0.30
JP	1 081 099	1.66	653 380	1.00	72 367	0.11	335 983	0.52
RU	858 470	1.30	558 668	0.85	256 098	0.39	43 120	0.07

Exception to the reference year: TR 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 2.3 **Total R&D personnel and researchers in FTE by sector of performance in the EEA countries, the Candidate Countries, Japan and the Russian Federation — 2004**

	TOTAL		BES		GOV		HES	
	Total personnel	Researchers	Total personnel	Researchers	Total personnel	Researchers	Total personnel	Researchers
EU-25	2 047 530 sp	1 207 409 sp	1 093 977 sp	597 424 sp	292 414 sp	159 660 sp	636 849 sp	435 420 sp
EU-15	1 872 670 sp	1 084 689 sp	1 047 544 sp	572 009 sp	246 948 sp	130 910 sp	554 700 sp	367 386 sp
BE	53 938 f	31 880 f	32 004 f	16 612 f	4 039 f	2 133 f	17 302 f	12 875 f
CZ	28 765	16 300	15 064	7 297	7 422	4 661	6 104	4 274
DK	44 321 p	27 159 p	29 747 p	16 922 p	2 859 p	2 047 p	11 452 p	8 030 p
DE	469 100 e	269 500 e	298 100 p	162 000	72 000 e	40 000 e	99 000 e	67 500 e
EE	4 735 p	3 369 p	1 083 p	661 p	810	486	2 752	2 162
EL	31 843 p	15 680 p	10 984 p	4 116 p	5 137 p	2 150 p	15 519 p	9 277 p
ES	158 257 e	99 482 e	67 476 e	30 562 e	27 137 e	17 131 e	63 331 e	51 616 e
FR	346 078	192 790	193 256	100 646	51 372	24 541	95 234	64 403
IE	15 713 e	10 910 e	9 650 e	6 200 e	1 222	559	4 841	4 151
IT	161 828	70 332	67 958	26 866	31 463	13 976	59 406	27 774
CY	940 p	520 p	230 p	115 p	350 p	100 p	295 p	280 p
LV	5 103	3 324	881	448	1 013	490	3 208	2 385
LT	10 557	7 356	981	484	3 041	1 676	6 535	5 196
LU	4 010	1 949	3 500	1 594	476	325	34 u	30 u
HU	22 826	14 904	6 704	4 309	7 595	4 693	8 527	5 902
MT	395 u	272 u	94 u	51 u	17	4	284	217
NL	89 522 p	40 269 e	49 014 p	21 306 e	13 479 p	7 690 p	27 000 p	11 250 e
AT	38 893	24 124	26 728	16 001	2 060	999	9 879	6 977

Exceptions to the reference year: FR, IT, LU 2003 ; AT 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	TOTAL		BES		GOV		HES	
	Total personnel	Researchers	Total personnel	Researchers	Total personnel	Researchers	Total personnel	Researchers
PL	78 362	60 944	12 978	8 334	19 685	12 804	45 572	39 716
PT	25 529	20 242	6 124	3 794	4 917	3 440	11 147	10 062
SI	8 830 e	5 003 e	4 945 e	1 901 e	2 040 e	1 491 e	1 586 e	1 392 e
SK	14 329	10 718	3 473	1 815	3 493	2 345	7 286	6 509
FI	58 281	41 004	32 612	23 397	7 337	4 200	17 822	13 037
SE	72 459	48 784	47 123	28 295	3 056	2 345	21 910	17 794
UK	:	:	162 863	102 684	20 763 e	9 126 e	:	:
IS	3 050	1 987	1 422	879	794	479	746	576
NO	:	:	16 126	11 480	4 985	3 300	8 500	6 800
EEA	2 080 407 sp	1 231 706 sp	1 111 731 sp	610 505 sp	298 194 sp	163 438 sp	646 095 sp	442 796 sp
BG	15 647	9 827	2 158	1 239	10 384	6 168	3 036	2 362
HR	9 148	5 861	2 165	913	3 275	2 158	3 708	2 790
RO	33 361	21 257	16 368	9 092	9 853	6 326	6 917	5 654
TR	28 964	23 995	5 918	3 697	5 502	2 754	17 544	17 544 u
JP	882 414	675 330	580 628	458 845	61 893	33 711	224 049	172 396
RU	951 569	477 647	568 173	257 621	282 422	147 896	99 402	70 844

Exceptions to the reference year: PT, HR, JP, BES in UK and BES in NO 2003 ; TR 2002.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 2.4 R&D personnel in FTE in the Business Enterprise Sector by selected NACE sectors in the EEA countries, the Candidate Countries and the Russian Federation — 2003

	Total	Mining and quarrying (C)	Industry(1)	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)
BE	**31 375**	70	23 566	22 659	211	7 289	283	996	267	5 550
CZ	**13 711**	11	7 942	7 756	3	5 622	273	140	27	4 805
DK	**27 230 r**	:	16 140	16 071	:	12 723	538	2 096	2 973	7 106
DE	**298 072**	124	268 451	267 404	690	28 470	909	4 088	823	22 565
EE	**763**	:	320	298	21	443	18	43	68	305
EL	**11 581 p**	50	5 563	5 543	6	5 939	2 543	184	27	3 082
ES	**65 032**	115	35 951	34 357	314	28 376	1 627	2 354	1 140	21 970
FR	**191 217**	294	139 110	135 378	2 928	49 258	2 364	7 217	260	38 966
IE	**9 281**	3	5 057	5 057	0	4 206	33	114	0	4 047
IT	**67 958**	235	50 592	50 174	287	17 131	2 215	1 535	1 043	12 083
CY	**217**	:	92	89	2	118	1	4	5	98
LV	**886**	:	302	299	:	584	6	:	:	572
LT	**664**	7	461	459	2	196	9	2	:	185
LU	**3 500**	:	1 511	1 511	0	1 989	62	182	495	1 250
HU	**7 180**	11	5 136	4 922	193	1 758	522	88	15	930
MT	**75**	0	51	46	5	24	0	2	0	22
NL	**44 485**	480	32 636	32 080	181	10 706	2 707	326	575	7 036
AT	**26 728**	25	19 310	19 137	71	7 359	868	330	64	6 061

Exceptions to the reference year : FR, MT and AT 2002.
(1) Industry = NACE D+ NACE E+ NACE F (with at least NACE D available).

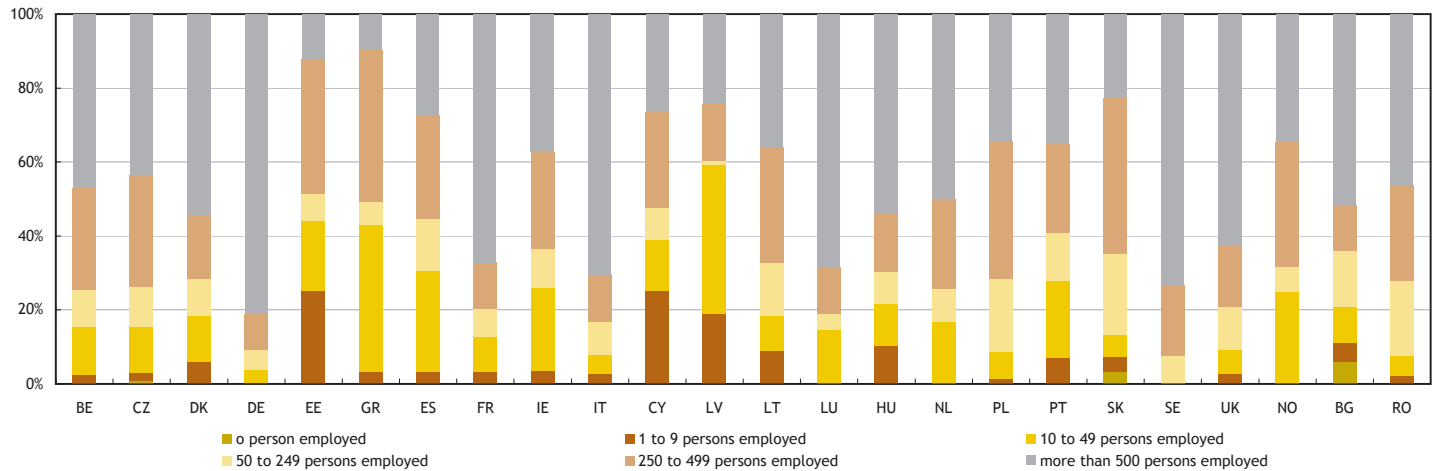
Sources: Eurostat-R&D statistics

	Total	Mining and quarrying (C)	Industry(1)	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	**11 378**	725	9 007	8 191	136	1 358	13	556	64	339
PT	**6 124**	5	2 780	2 673	18	3 286	346	87	540	2 172
SI	**4 499**	39	3 762	3 762	0	697	23	0	0	656
SK	**3 651**	0	1 049	1 049	:	2 414	:	:	0	2 350
FI	**31 861**	34	24 762	24 312	56	7 056	455	773	:	5 703
SE	**48 113**	49	38 907	38 748	159	8 977	919	29	632	7 147
UK	**162 863**	702	120 417	118 535	1 360	40 197	1 824	5 328	5 642	26 958
IS	**1 352**	:	:	:	:	:	:	:	:	
NO	**16 126**	530	7 406	7 071	60	8 017	504	591	598	6 324
BG	**2 091**	0	940	940	0	1 132	:	:	141	474
HR	**2 165**	:	:	:	:	:	:	:	:	
RO	**16 942**	1 214	11 473	10 844	344	1 221	4	85	:	998
TR	**5 918**	47	4 619	4 588	24	1 123	1	215	216	685
RU	**592 625**	:	:	:	:	:	:	:	:	

Exceptions to the reference year : SI and TR 2002.
(1) Industry = NACE D+ NACE E+ NACE F (with at least NACE D available).

Sources: Eurostat-R&D statistics

Figure 2.3 Business Enterprise Sector researchers in FTE broken down by size class in selected EEA and Candidate Countries — 2003



Sources: Eurostat-R&D statistics

3 - SCIENCE and TECHNOLOGY in REGIONS

In 2002, the German regions dominated the rankings of most R&D intensive EU regions followed by Finnish and French regions. Denmark and Iceland (the entire countries are classified at NUTS 2 level), were also among the top fifteen regions in R&D intensity. When taking into account the R&D intensity of the Business Enterprises Sector (BES), six German regions, four Swedish and three Finnish were among 15 top regions.

Like for R&D expenditure, most of the leading regions in 2002 were German for the R&D personnel as a percentage of total employment. High concentrations of R&D personnel are clustered in the capital regions; four capital regions ranked among top 15 regions: Wien (AT), Praha (CZ), Île de France (FR) and Bratislavsky (SK). German regions also take the lead if taking into account the R&D personnel in the Business Enterprise sector. Iceland (which is classified at NUTS 2 level) was among the top fifteen leading regions both for the total R&D personnel and for the R&D personnel in the BES.

Expressed as a proportion of total employment, German regions led in high and medium high tech manufacturing. In 2004, among the fifteen leading regions, twelve were German. In the Knowledge Intensive Services (KIS), seven out of the fifteen leading regions were in fact capitals: Inner and Outer London (UK), Stockholm (SE), Oslo og Akershus (NO), Région Bruxelles-Capitale (BE), Île de France (FR) and Berlin (DE).

Table 3.1 Top 15 EEA regions in total R&D expenditure, in R&D expenditure in the BES and in employment in high and medium high tech manufacturing

	Total R&D expenditure in 2002 (1)			BES R&D expenditure in 2002 (2)			Employment in high and medium high-tech manufacturing 2004		
	Region	Mio current EUR	% of GDP	Region	Mio current EUR	% of GDP	Region	Thousands HC	% of total employment
1	Stuttgart (DE)	6 146	**4.86**	Braunschweig (DE)	2 140	**5.25**	Stuttgart (DE)	415	**22.2**
2	Oberbayern (DE)	6 989	**4.65**	Västsverige (SE)	2 445	**5.19**	Tübingen (DE)	154	**18.7**
3	Pohjois-Suomi (FI)	608	**4.18**	Stuttgart (DE)	5 586	**4.42**	Braunschweig (DE)	117	**17.5**
4	Tübingen (DE)	1 767	**3.80**	Stockholm (SE)	3 005	**4.37**	Karlsruhe (DE)	214	**17.4**
5	Karlsruhe (DE)	2 949	**3.71**	Oberbayern (DE)	5 575	**3.71**	Franche-Comté (FR)	63	**16.0**
6	Midi-Pyrénées (FR)	2 133	**3.69**	Střední Čechy (CZ)	225	**3.18**	Niederbayern (DE)	88	**15.6**
7	Dresden (DE)	1 060	**3.63**	Sydsverige (SE)	1 017	**3.10**	Freiburg (DE)	155	**15.4**
8	Střední Čechy (CZ)	247	**3.49**	Tübingen (DE)	1 423	**3.06**	Mittelfranken (DE)	117	**15.2**
9	Länsi-Suomi (FI)	1 006	**3.24**	Pohjois-Suomi (FI)	445	**3.06**	Rheinhessen-Pfalz (DE)	130	**15.0**
10	Köln (DE)	3 675	**3.18**	Noord-Brabant (NL)	1 769	**2.82**	Unterfranken (DE)	91	**15.0**
11	Iceland (IS)	280 f	**3.14 f**	Ostra Mellansverige (SE)	984	**2.78**	Schwaben (DE)	124	**14.9**
12	Rheinhessen-Pfalz (DE)	1 475	**3.10**	Mittelfranken (DE)	1 273	**2.62**	Közép-Dunántúl (HU)	65	**14.4**
13	Darmstadt (DE)	3 973	**2.99**	Etelä-Suomi (FI)	2 098	**2.60**	Oberpfalz (DE)	71	**14.2**
14	Rhône-Alpes (FR)	3 985	**2.73**	Darmstadt (DE)	3 394	**2.55**	Oberbayern (DE)	280	**13.8**
15	Denmark (DK)	4 634 r	**2.55 r**	Länsi-Suomi (FI)	740	**2.38**	Nyugat-Dunántúl (HU)	55	**12.9**

(1) Exceptions to the reference year: DE, FR regions 2001.
Data are not available for regions from BE, EL, IT, SE, UK and NO at NUTS2 level and are for this reason excluded from the table.

(2) Exceptions to the reference year: regions from DE, NL and SE 2001.
Data are not available for regions from EL, IT and UK NUTS2 level and are for this reason excluded from the table.

Source: Eurostat - R&D statistics and High-tech statistics

Table 3.2 **Top 15 EEA regions in total R&D personnel, in R&D personnel in the BES and in employment in Knowledge-intensive services**

	Total R&D personnel in 2003 (1)			BES R&D personnel in 2003 (2)			Employment in knowledge-intensive services in 2004		
	Region	Thousands HC	% of total employment	Region	Thousands HC	% of total employment	Region	Thousands HC	% of total employment
1	Wien (AT)	29	**4.14**	Oberbayern (DE)	48	**2.38**	Inner London (UK)	761	**59.83**
2	Braunschweig (DE)	28	**4.05**	Pohjois-Suomi (FI)	6	**2.12**	Stockholm (SE)	523	**54.74**
3	Pohjois-Suomi (FI)	10	**3.79**	Braunschweig (DE)	13	**1.97**	Oslo og Akershus (NO)	265	**49.76**
4	Oberbayern (DE)	75	**3.69**	Île de France (FR)	95 s	**1.89 s**	Outer London (UK)	1 068	**49.21**
5	Praha (CZ)	22	**3.69**	Etelä-Suomi (FI)	23	**1.85**	Utrecht (NL)	295	**49.08**
6	Île de France (FR)	177	**3.52 s**	Västsverige (SE)	16	**1.83**	Surrey, East and West Sussex (UK)	620	**49.03**
7	Etelä-Suomi (FI)	44	**3.50**	Länsi-Suomi (FI)	10	**1.75**	Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest (BE)	176	**48.68**
8	Iceland (IS)	5	**3.48**	Stockholm (SE)	16	**1.68**	Övre Norrland (SE)	114	**48.65**
9	Bremen (DE)	9	**3.41**	Iceland (IS)	2	**1.40**	Zürich (CH)	337	**47.86**
10	Bratislavský (SK)	10	**3.30**	Mittelfranken (DE)	11	**1.37**	Île de France (FR)	2 266	**46.97**
11	Karlsruhe (DE)	37	**2.95**	Denmark (DK)	37	**1.37**	Trøndelag (NO)	91	**46.92**
12	Stuttgart (DE)	54	**2.90**	Karlsruhe (DE)	17	**1.35**	Berlin (DE)	657	**46.75**
13	Länsi-Suomi (FI)	16	**2.83**	Noord-Brabant (NL)	16 e	**1.29 e**	Berkshire, Bucks and Oxfordshire (UK)	521	**46.65**
14	Berlin (DE)	40	**2.82**	Steiermark (AT)	6	**1.18**	Nord-Norge (NO)	105	**46.57**
15	Tübingen (DE)	23	**2.76**	Oberpfalz (DE)	6	**1.13**	Mellersta Norrland (SE)	279	**46.49**

(1) Exceptions to the reference year: regions from AT and FR 2002.
Data are not available for regions from BE, NL and UK at NUTS2 level and are for this reason excluded from the table.

(2) Exceptions to the reference year: regions from AT and FR 2002.
Data are not available for regions from UK at NUTS2 level and are for this reason excluded from the table.

Source: Eurostat - R&D statistics and High-tech statistics

Table 3.3 Leading regions by EU-25 country in total R&D expenditure, in R&D expenditure in the BES and in employment in high and medium high tech manufacturing

	Total R&D expenditure in 2002 (1)			BES R&D expenditure in 2002 (1)			Employment in high and medium high-tech manufacturing in 2004		
	Region	Mio current EUR	% of GDP	Region	Mio current EUR	% of GDP	Region	Thousands HC	% of total employment
BE	:	:	:	Vlaams Gewest	2 472	**1.65**	Prov. Antwerpen	62	**8.94**
CZ	Střední Čechy	247	**3.49**	Střední Čechy	225	**3.18**	Severovýchod	84	**12.38**
DK	Denmark	4 634 r	**2.55 r**	Denmark	3 198	**1.76**	Denmark	164	**5.97**
DE	Braunschweig	2 896	**7.11**	Braunschweig	2 140	**5.25**	Stuttgart	415	**22.24**
EE	Estonia	56	**0.75**	Estonia	17	**0.23**	Estonia	30	**5.12**
EL	:	:	:	:	:	:	Sterea Ellada	8	**4.0**
ES	Comunidad de Madrid	2 278	**1.87**	Comunidad de Madrid	1 318	**1.08**	Comunidad Foral de Navarra	27	**10.67**
FR	Midi-Pyrénées	2 133	**3.69**	Île de France	10 085	**2.34**	Franche-Comté	63	**16.03**
IE	Southern and Eastern	1 236	**1.18**	Southern and Eastern	838	**0.80**	Southern and Eastern	91	**6.68**
IT	:	:	:	:	:	:	Piemonte	216	**12.08**
CY	Cyprus	34	**0.31**	Cyprus	7	**0.06**	Cyprus	4	**1.18**
LV	Latvia	42	**0.42**	Latvia	17	**0.17**	Latvia	15	**1.42**
LT	Lithuania	100	**0.67**	Lithuania	17	**0.11**	Lithuania	40	**2.79**
LU	Luxembourg	426	**1.78**	Luxembourg	379	**1.58**	Luxembourg	2	**1.28**
HU	Közép-Magyarország	460	**1.46**	Közép-Magyarország	188	**0.60**	Közép-Dunántúl	65	**14.37**
MT	Malta	12	**0.28**	Malta	3	**0.07**	Malta	11	**7.66**
NL	Noord-Brabant	2 011	**3.20**	Noord-Brabant	1 769	**2.82**	Zeeland	10 u	**5.37 u**
AT	Wien	2 021	**3.36**	Steiermark	599	**2.20**	Oberösterreich	53	**8.44**

(1) Exceptions to the reference year: DE, NL 2001 ; LU 2003.

Source: Eurostat - R&D statistics and High-tech statistics

	Total R&D expenditure in 2002 (1)			BES R&D expenditure in 2002 (1)			Employment in high and medium high-tech manufacturing in 2004		
	Region	Mio current EUR	% of GDP	Region	Mio current EUR	% of GDP	Region	Thousands HC	% of total employment
PL	Mazowieckie	517	**1.25**	Podkarpackie	26	**0.33**	Opolskie	25.0	**7.99**
PT	Centro	338 e	**1.49 e**	Centro	233 e	**1.03 e**	Lisboa	59	**4.52**
SI	Slovenia	360	**1.53**	Slovenia	215	**0.91**	Slovenia	79	**8.40**
SK	Bratislavský	62	**0.93**	Západné Slovensko	40	**0.49**	Západné Slovensko	94	**11.90**
FI	Pohjois-Suomi	608	**4.18**	Pohjois-Suomi	445	**3.06**	Länsi-Suomi	46	**7.88**
SE	Sverige	10459	**4.27**	Västsverige	2 445	**5.19**	Västsverige	81	**9.25**
UK	:	:	:	Eastern	4 359	**3.07**	Cheshire	46	**9.91**

(1) Exceptions to the reference year: PT, SE 2001.

Source: Eurostat - R&D statistics and High-tech statistics

Table 3.4 Leading regions for each EU-25 country in total R&D personnel, in R&D personnel in the BES and in employment in Knowledge-intensive services

	Total R&D personnel in 2003 (1)			BES R&D personnel in 2003 (1)			Employment in knowledge-intensive services in 2004		
	Region	Thousands HC	% of total employment	Region	Thousands HC	% of total employment	Region	Thousands HC	% of total employment
BE	:	:	:	Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest	4	**1.00**	Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest	176	**48.68**
CZ	Praha	22	**3.69**	Praha	7	**1.09**	Praha	244	**40.68**
DK	Denmark	62	**2.29**	Denmark	37	**1.37**	Denmark	1 160	**42.30**
DE	Braunschweig	28	**4.05**	Oberbayern	48	**2.38**	Berlin	657	**46.75**
EE	Estonia	8	**1.29**	Estonia	2	**0.26**	Estonia	164	**27.49**
EL	Attiki	29	**1.89**	Attiki	10	**0.63**	Attiki	520	**32.09**
ES	Comunidad de Madrid	62	**2.64**	Pais Vasco	10	**1.13**	Comunidad de Madrid	976	**36.13**
FR	Île de France	177 s	**3.52 s**	Île de France	95 s	**1.89 s**	Île de France	2 266	**46.97**
IE	Southern and Eastern	21 e	**1.59 e**	Southern and Eastern	10	**0.74**	Southern and Eastern	477	**34.92**
IT	Lazio	41	**2.00**	Piemonte	16	**0.87**	Lazio	799	**38.06**
CY	Cyprus	2	**0.64**	Cyprus	1	**0.17**	Cyprus	88	**26.24**
LV	Latvia	8	**0.80**	Latvia	1	**0.12**	Latvia	251	**24.60**
LT	Lithuania	15	**0.99**	Lithuania	1	**0.05**	Lithuania	359	**24.95**
LU	Luxembourg	4	**2.20**	Luxembourg	4	**1.88**	Luxembourg	71	**38.02**
HU	Közép-Magyarország	27	**2.28**	Közép-Magyarország	6	**0.52**	Közép-Magyarország	453	**37.11**
MT	Malta	1	**0.65**	Malta	0.1	**0.07**	Malta	42	**29.06**
NL	:	:	:	Noord-Brabant	16 e	**1.29 e**	Utrecht	295	**49.08**
AT	Wien	29	**4.14**	Wien	11	**1.59**	Wien	321	**45.80**

(1) Exceptions to the reference year: FR, AT 2002.

Source: Eurostat - R&D statistics and High-tech statistics

	Total R&D personnel in 2003			BES R&D personnel in 2003			Employment in knowledge-intensive services in 2004		
	Region	Thousands HC	% of total employment	Region	Thousands HC	% of total employment	Region	Thousands HC	% of total employment
PL	Mazowieckie	34	**1.82**	Mazowieckie	5	**0.26**	Mazowieckie	606	**31.72**
PT	Lisboa	21 be	**1.59 be**	Lisboa	4 be	**0.35 be**	Lisboa	449	**34.65**
SI	Slovenia	13 e	**1.40 e**	Slovenia	6 e	**0.63 e**	Slovenia	228	**24.16**
SK	Bratislavský	10	**3.30**	Bratislavský	1	**0.41**	Bratislavský	118	**39.36**
FI	Pohjois-Suomi	10	**3.79**	Pohjois-Suomi	6	**2.12**	Åland	7	**55.29**
SE	Sverige	108	**2.49**	Västsverige	16	**1.83**	Stockholm	523	**54.74**
UK	:	:	**:**	Eastern	43 s	**1.57 s**	Inner London	761	**59.83**

Source: Eurostat - R&D statistics and High-tech statistics

Table 3.5 Leading regions for each EU-25 country in total and in high tech patent applications to the EPO — 2002

	Patent applications to the EPO			High-technology patent applications to the EPO		
	Regions	Number	Per million inhabitants	Regions	Number	Per million inhabitants
BE	Prov. Brabant Wallon	116	**327**	Prov. Antwerpen	106	**64**
CZ	Praha	33	**28**	Praha	3	**2**
DK	Denmark	1 167	**217**	Denmark	210	**39**
DE	Stuttgart	2 918	**736**	Oberbayern	866	**209**
EE	Estonia	10	**7**	Estonia	3	**2**
EL	Attiki	73	**19**	Attiki	16	**4**
ES	Comunidad Foral de Navarra	43	**77**	Comunidad de Madrid	52	**10**
FR	Île de France	3 282	**296**	Île de France	852	**77**
IE	:	:	**:**	:	:	**:**
IT	Emilia-Romagna	786	**197**	Valle d'Aosta	5	**42**
CY	Cyprus	5	**8**	Cyprus	1	**1**
LV	Latvia	13	**6**	Latvia	3	**1**
LT	Lithuania	10	**3**	Lithuania	-	**-**
LU	Luxembourg	69	**155**	Luxembourg	4	**9**
HU	Közép-Magyarország	132	**47**	Közép-Magyarország	21	**8**
MT	Malta	5	**12**	Malta	-	**-**
NL	Noord-Brabant	2 117	**885**	Noord-Brabant	821	**343**
AT	Vorarlberg	123	**349**	Wien	97	**62**

Data are not available by region in IE.

Source: Eurostat - Patent statistics

	Patent applications to the EPO			High-technology patent applications to the EPO		
	Regions	Number	Per million inhabitants	Regions	Number	Per million inhabitants
PL	Mazowieckie	63	**12**	Dolnoslaskie	6	**2**
PT	Região Autónoma da Madeira	2	**7**	Região Autónoma da Madeira	1	**2**
SI	Slovenia	103	**52**	Slovenia	9	**5**
SK	Bratislavský	19	**32**	Bratislavský	3	**5**
FI	Etelä-Suomi	976	**384**	Etelä-Suomi	436	**171**
SE	Stockholm	772	**420**	Sydsverige	187	**146**
UK	:	:	**:**	:	:	**:**

Data are not available by million inhabitants for UK.

Source: Eurostat - Patent statistics

4 - GBAORD

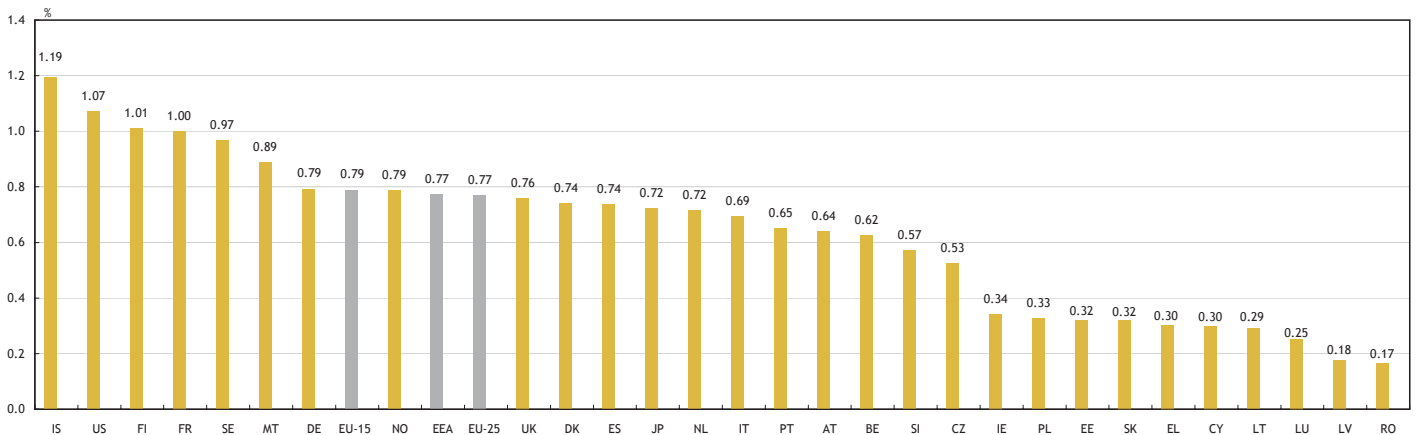
Government Budget Appropriations or Outlays on R&D (GBAORD) are all appropriations allocated to R&D in central government or federal budgets.

During the 1990s, at international level, there was a convergence of Government Budget Appropriation or Outlays on Research and Development. Indeed, in 1991 GBAORD amounted to 1.10 %, 0.91 % and 0.43 % of GDP in the United States, EU-15 and Japan respectively. In 1999, these ratios were of 0.84 %, 0.73 % and 0.62 % respectively. Since 2000, budgets allocated to R&D increased faster in the United Sates than in the European Union and in Japan.

In 2003, in absolute terms, the EU-25 granted approximately EUR 75 billion to R&D, where the United States allocated more than EUR 100 billion and Japan only EUR 27 billion.

In 2003, the EU-15 allocated 32.1 % of its total GBAORD to "Research financed from General University Funds (GUF)". In Japan, the main socio-economic objective was "Research financed from GUF" too with a proportion of 34.8 % whereas it was "Defence" in the United States with more than half of its total GBAORD (53.7 %). As a comparison, "Defence" within the EU-15 came as second main objective, but accounted only for 15.1 % of total GBAORD.

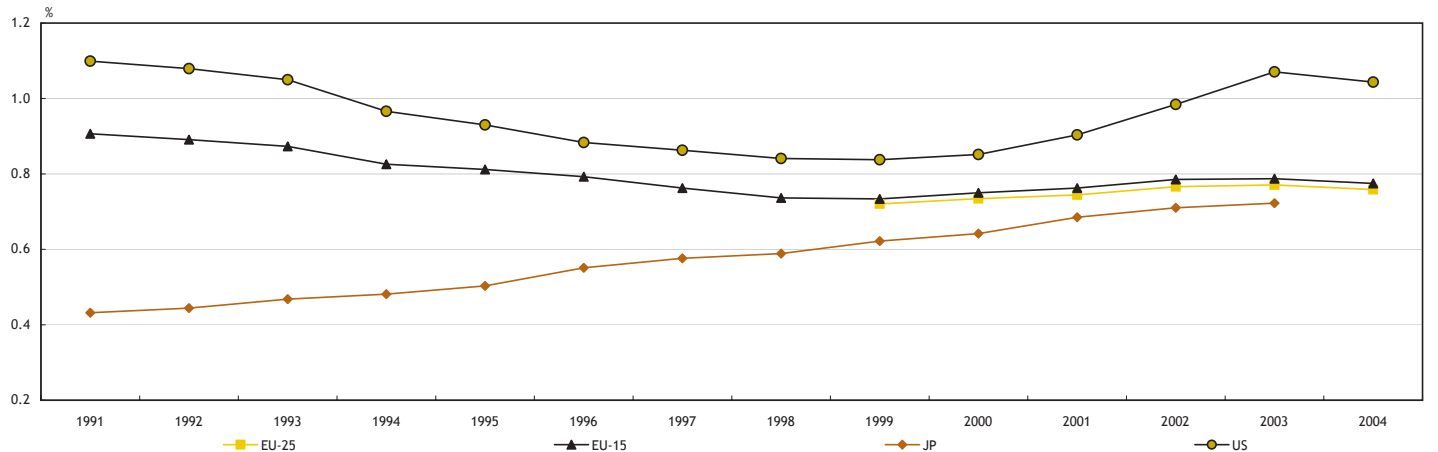
Figure 4.1 GBAORD as a percentage of GDP in the EEA countries, Romania, Japan and the United States — 2003



Exceptions to the reference year: PL, CY: 2004 ; FR: 2002 ; MT, IT, EE: 2001.
Provisional data: SE, UK, PL, CY, RO.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Figure 4.2 GBAORD as a percentage of GDP in the EU-15, EU-25, Japan and the United States — 1991 to 2004



Eurostat estimations: EU-15, EU-25.
Provisional data: EU-15 and EU-25 2004, US 2004, JP 2002-2003

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 4.1 **Total GBAORD in million of EUR at curent prices in the EEA countries, Romania, Switzerland, Japan and the United States — 1994 to 2005**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
EU-25	:	:	:	:	:	60 430 s	65 925 s	69 416 s	74 104 s	75 629 s	77 868 ps	:
EU-15	52 551 s	53 748 s	55 126 s	55 864 s	56 464 s	59 115 s	64 525 s	67 888 s	72 442 s	73 787 s	75 864 s	:
BE	1 033	1 113	1 172	1 215	1 287	1 382	1 423	1 515	1 606	1 683	1 774 p	:
CZ	:	:	:	:	:	:	:	:	396	422	459 p	551 p
DK	799	917	1 025	1 080	1 141	1 290 be	1 321	1 340 be	:	1 385 r	1 406	1 471 p
DE	16 072	16 886	16 860	15 939	15 909	16 322	16 253	16 460	16 737	17 101	16 717 p	:
EE	:	:	:	:	:	22	20 e	21 e	:	:	:	:
EL	178	259	293	324	312	365	425	416	407	465 p	:	:
ES	1 993	2 169	2 273	2 449	2 935	3 328	:	:	5 371	5 742	6 687 p	:
FR	13 592	13 263 b	13 239	12 456	12 622	12 892	13 842	14 839	15 498	:	:	:
IE	129	162	188	206	209	249	319	379	392	477	591	620 p
IT	5 381	4 832	5 644	6 244	6 114	6 079	7 657	8 448 p	:	:	:	9 152 p
CY	:	:	:	:	:	:	:	:	:	:	37 p	:
LV	8	9	10	12	13	14	16	19	18	18	:	:
LT	:	:	:	:	:	35	36	39	:	:	:	:
LU	:	:	:	:	:	:	28	38	48 r	61 r	72 r	82 p
HU	:	:	:	:	:	:	:	:	:	:	:	:
MT	31	26	28	46	46	35	37	37	:	:	:	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
NL	2 578	2 724	2 658	2 824	2 849	3 025	3 226	3 380	3 591	3 407	3 623	3 600 p
AT	1 171	1 201	1 151	1 128	1 200	1 281	1 287	1 409	1 467	1 452	1 500 p	1 539 p
PL	403	424	509	556	598	623	707	821	:	:	639 p	:
PT	345	372	446	481	538	644	713	778	901	847 r	915 p	:
SI	:	:	79	90	96	112	107	115	130	140	167 p	:
SK	49	58	69	77	82	77	79	79	82	93	102	:
FI	852 b	969	958	1 197	1 242	1 275	1 291	1 351	1 389	1 453	1 535	:
SE	2 018	2 098 be	2 299 e	:	1 722 p	1 725 p	1 872 p	2 068 p	2 227 p	2 585 p	2 624 p	2 665 p
UK	6 702	6 726	7 077	8 511	8 437	9 374	10 681	10 938	12 848	12 154	12 230 p	:
IS	41	44	45	46	64	113	124	110	101 p	110 p	:	:
NO	904	912	969	1 023	1 023	1 090	1 190	1 313	1 544	1 535 r	1 571	1 684 p
EEA	:	:	:	:	:	61 633 s	67 238 s	70 839 s	75 750 s	77 274 s	79 561 ps	:
CH	1 795	:	1 856	:	1 652	:	1 733	:	2 018	:	:	:
RO	105	123	101	83	88	49	57	72	69	84	:	174
JP	19 440	20 320	20 353	21 905	20 709	26 020	33 018	31 915	29 974 p	27 467 p	:	:
US	57 444	52 592	54 380	63 184	65 622	72 844	90 529 b	102 172	108 986	103 850 e	98 431 p	:

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

Table 4.2 GBAORD by socio-economic objectives (NABS) as a percentage of total GBAORD, in the EEA countries, Romania, Switzerland, Japan and the United States — 2003

	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	1.38 s	0.65	3.10	0.78	1.71	:	3.13 p	1.09	0.68	2.33 p	1.87	:	:	:	:	:	:
02. Infrastructure and general planning of land use	1.67 s	1.40	3.70	1.22	1.77	:	2.14 p	3.54	0.57	-	0.41	:	:	:	:	:	:
03. Control and care of the environment	2.53 s	2.09	4.12	1.87	3.32	:	3.51 p	1.88	2.91	2.05 p	2.28	:	:	:	:	:	33.33
04. Protection and improvment of human health	6.66 s	1.74	7.45	6.92 r	4.25	:	8.11 p	7.53	5.80	5.51 p	7.00	:	:	:	:	:	:
05. Production, distribution and rational utilisation of energy	2.59 s	2.09	1.77	1.35	3.01	:	1.71 p	1.67	3.72	-	3.64	:	:	:	:	:	:
06. Agricultural production and technology	2.90 s	2.10	4.59	6.49 r	1.95	:	6.70 p	3.78	2.13	12.03 p	1.86	:	:	:	:	:	:
07. Industrial production and technology	11.11 s	32.55	10.08	7.00	12.41	:	8.63 p	21.36	5.96	27.60 p	10.20	:	:	:	:	:	:
08. Social structure and relationships	3.21 s	4.06	2.33	7.47 r	4.97	:	3.55 p	0.43	0.89	0.75 p	4.37	:	:	:	:	:	:
09. Exploration and exploitation of space	4.97 s	9.07	0.85	2.01	5.01	:	0.28 p	3.02	9.01	-	7.29	:	:	:	:	:	:
10. Research financed from General University Funds (GUF)	32.08 s	17.88	24.23	42.65 r	38.94	:	51.23 p	24.92	23.11	36.74 p	43.71	:	:	:	:	:	66.67
11. Non-oriented research	14.96 s	23.02	25.96	19.68 r	16.31	:	10.13 p	5.99	20.70	12.91 p	13.33	:	:	:	:	:	:
12. Other civil research	0.92 s	3.01	8.49	1.40 r	0.57	:	0.25 p	0.89	1.55	-	-	:	:	:	:	:	:
13. Defence	15.10 s	0.34	3.34	1.16	6.52	:	0.61 p	23.90	22.96	-	4.03	:	:	:	:	:	:

Exceptions to the reference year: FR 2002 ; IT 2001.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	CH	RO	JP	US
01. Exploration and exploitation of the earth	0.41	2.32	:	1.82 r	0.53	-	1.03	0.28 p	2.10 p	-	1.98	0.34	0.37	1.91	0.91 p
02. Infrastructure and general planning of land use	6.17	1.92	:	4.76 r	2.60	1.32	1.98	2.78 p	1.42 p	7.69	2.18	0.51	2.55	4.40	1.36 p
03. Control and care of the environment	2.76	1.66	:	3.32 r	1.99	1.53	1.95	1.50 p	1.79 p	0.29	2.44	0.34	2.03	0.85	0.53 p
04. Protection and improvment of human health	3.68	3.19	:	7.32 r	5.18	4.57	6.64	0.95 p	13.65 p	9.09	7.49	1.69	2.77	3.89	23.35 p
05. Production, distribution and rational utilisation of energy	3.37	0.70	:	1.23 r	0.87	0.88	4.57	2.90 p	0.32 p	2.31	2.29	1.18	1.67	17.39	1.20 p
06. Agricultural production and technology	4.50	2.90	:	12.01 r	3.52	14.04	6.09	3.37 p	3.28 p	20.88	9.37	2.70	6.19	3.53	1.83 p
07. Industrial production and technology	9.56	9.56	:	17.10 r	22.99	5.04	26.87	5.27 p	5.21 p	2.44	7.69	3.38	17.62	7.52	0.33 p
08. Social structure and relationships	2.88	1.67	:	3.71 r	3.43	4.10	5.49	6.17 p	3.16 p	41.27	6.80 r	1.18	1.06	0.89	0.69 p
09. Exploration and exploitation of space	3.43	0.20	:	0.45 r	-	-	1.79	0.55 p	1.57 p	-	1.95	4.56	2.46	6.73	6.33 p
10. Research financed from General University Funds (GUF)	45.95	61.93	:	34.84 r	4.45	22.29	27.07	43.68 p	19.79 p	-	37.72 r	60.98	-	34.76	:
11. Non-oriented research	11.68	13.85	:	9.54 r	54.35	38.00	13.65	10.71 p	15.35 p	16.03	13.17	5.74	38.16	13.83	5.01 p
12. Other civil research	3.83	0.10	:	1.90 r	0.00	1.01	-	-	0.47 p	-		16.89	23.76	:	:
13. Defence	1.77	0.00	:	2.00 r	0.10	7.22	2.86	21.85 p	31.89 p	-	6.92	0.51	1.37	4.30	53.70 p

Exceptions to the reference year: CH 2002 ; JP 2001.

Sources: Eurostat-R&D statistics, OECD - MSTI 2005-1

5 - HUMAN RESOURCES in SCIENCE and TECHNOLOGY

Statistics on Human Resources in Science and Technology (HRST) are developed to assess the supply and demand of highly qualified people 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 2003, Finland compiles the highest proportion of people in tertiary education (45 %), followed by Greece (39 %)

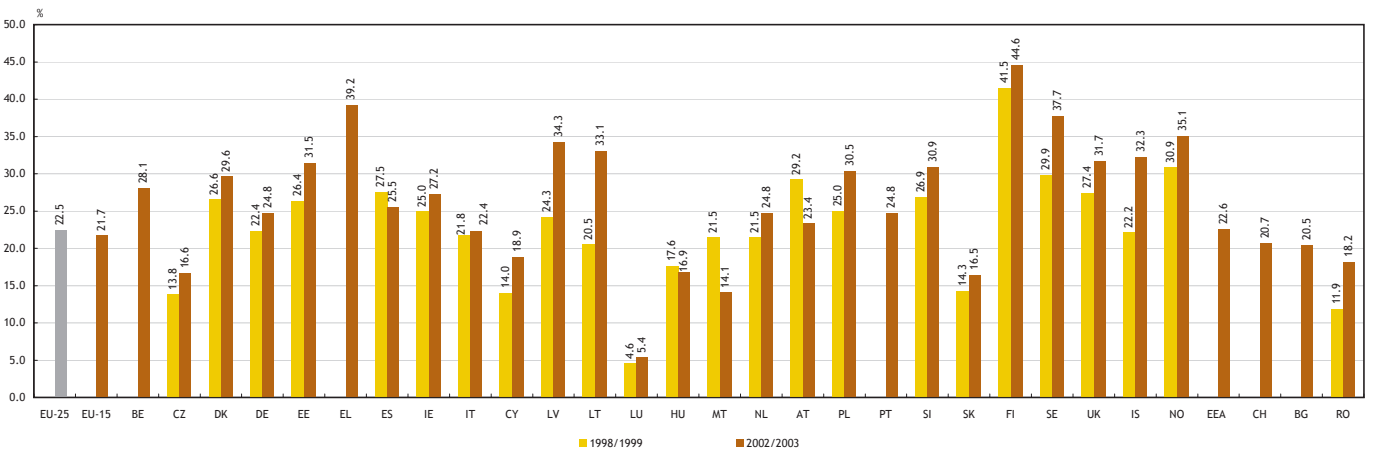
In the European Union, the share of female students in tertiary education increased smoothly to nearly 54 %. Nevertheless, the situation is totally different by looking at graduates in science and engineering, where the graduates are mainly males (more or less 70 %). This is also reflected in the distribution of people employed as scientists and engineers where the share of women are less than 30 % for EU-25.

Concerning the mobility of students, in 2003 Cyprus was the leading country in the EU, with a share of foreign students above 28 %. Switzerland, Austria, Belgium and United Kingdom follow with more than 10 % of their tertiary students registered under a foreign citizenship.

Set in relation to total labour force between 25 and 64 years of age, the share of core HRST, HRST by education and occupation, are largest in Denmark (25.4 %), Finland (23.3 %), Sweden (22.9 %) and Norway (25.3 %) in 2004. 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 3.5 % and 10.4% respectively.

In 2004, in the EU, a large majority of employees in Science and Technology worked in the service sector (42 million), with the larger part in knowledge-intensive services (30 million). In the manufacturing sector, the number of Science and Technology employees is less abundant (6.7 million), with slightly more than half of these (3.7 million) in high-tech and medium high-tech manufacturing.

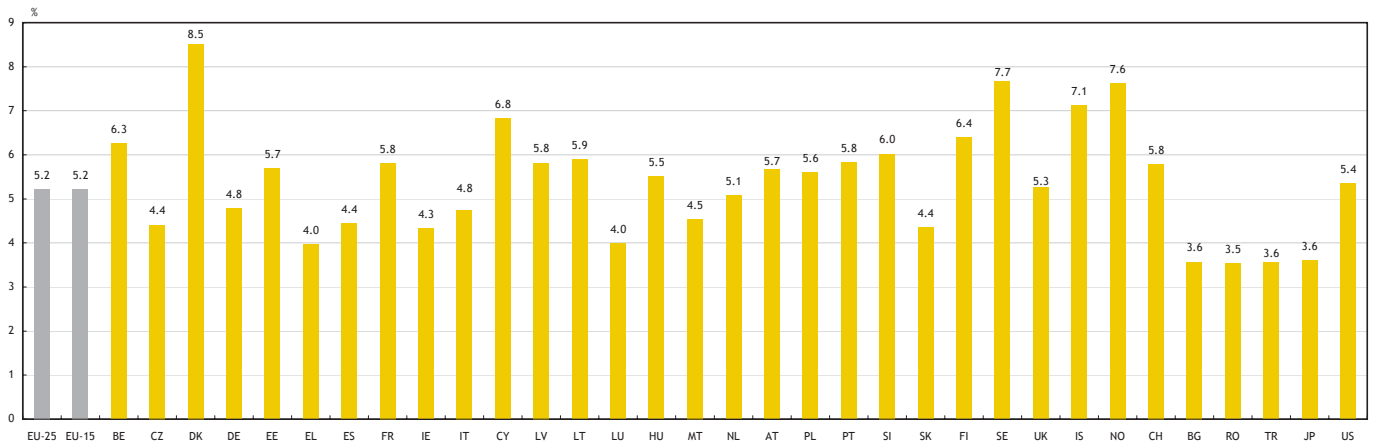
Figure 5.1 Students in tertiary education as a % of people aged 20-29 by country in the EEA countries, Switzerland and Candidate Countries — 1998/1999 and 2002/2003



Data not available in 1998/1999: EU-25, EU-15, BE, EL, PT, EEA, CH, BG, FR and TR.
Data not available in 2002/2003: FR and TR.
Exceptions to the reference year (2002/2003): EL 2001/2002 ; LU 2001/2002.

Source: Eurostat - HRST

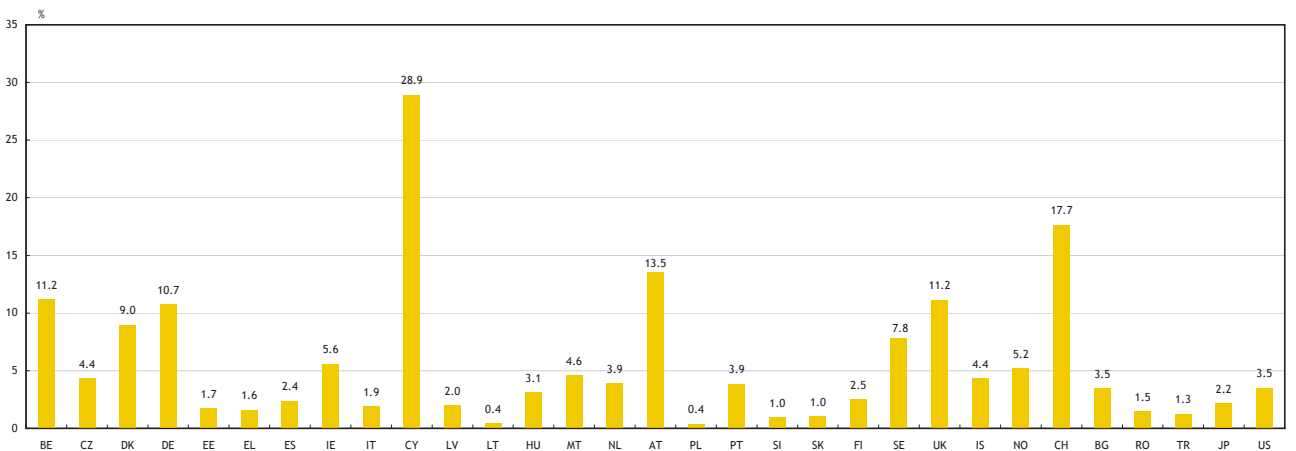
Figure 5.2 **Spending on Human Resources (public expenditure on education) as a % of GDP in the EEA countries, Switzerland, Candidate Countries, Japan and the United States — 2002**



Eurostat estimations: EU-15, EU-25.

Source: Eurostat

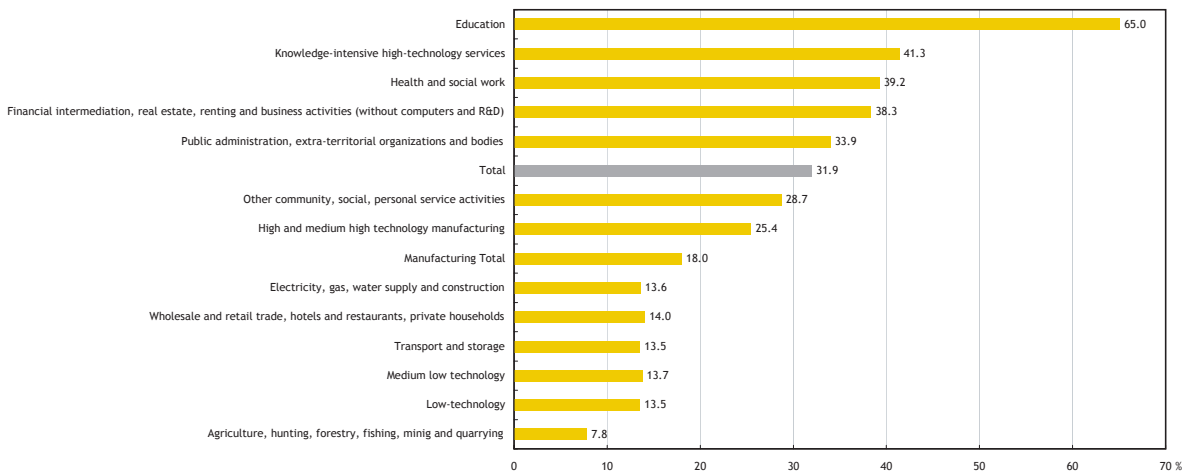
Figure 5.3 Percentage of foreign students by receiving country in the EEA countries, Switzerland, Candidate Countries, Japan and the United States — 2002/2003



Exceptions to the reference year: EL 2001/2002 ; ES 2001/2002.

Source: Eurostat - HRST

Figure 5.4 **Employed population with a 3rd level education relative to total employment for each grouped economic sector of activity in the EU-25 — 2004**



Eurostat estimation: EU-25.

Source: Eurostat - HRST

Table 5.1 **Students in tertiary education, total and % of women, in the EEA countries, Switzerland, Candidate Countries, Japan and the United States — 1997/98 to 2002/03**

	Total in thousands						% of which women					
	1997/98	1998/99	1999/2000	2000/2001	2001/2002	2002/2003	1997/98	1998/99	1999/2000	2000/2001	2001/2002	2002/2003
EU-25	:	:	:	:	14 350.4	14 203.5	:	:	:	:	54.26	54.65
EU-15	:	:	:	:	11 212.8	10 905.7	:	:	:	:	53.50	53.92
BE	:	:	355.9	359.3	367.0	374.5	:	:	52.27	52.83	53.09	53.35
CZ	202.3	231.2	253.7	260.0	284.5	287.0	47.48	49.73	49.03	50.11	51.23	50.68
DK	183.3	190.0	189.2	190.8	195.2	201.7	55.49	56.30	56.91	56.47	57.48	57.92
DE	2 097.7	2 087.0	2 054.8	2 083.9	2 159.7	2 242.4	46.49	47.40	48.12	48.66	49.03	49.46
EE	43.1	48.7	53.6	57.8	60.7	63.6	56.79	57.77	58.47	60.09	61.45	61.54
EL	:	:	:	:	529.2	:	:	:	:	:	51.25	:
ES	1 746.2	1 786.8	1 829.0	1 833.5	1 832.8	1 840.6	53.03	53.04	52.94	52.47	53.15	53.14
FR	:	:	:	:	:	:	:	:	:	:	:	:
IE	142.8	151.1	160.6	166.6	176.3	181.6	52.75	53.53	54.11	54.72	55.12	55.72
IT	1 869.1	1 797.2	1 770.0	1 812.3	1 854.2	1 913.4	54.71	55.17	55.52	56.00	56.25	56.25
CY	:	10.8	10.4	11.9	13.9	18.3	:	56.03	57.09	58.01	54.83	49.50
LV	70.2	82.0	91.2	102.8	110.5	118.9	58.92	61.60	63.41	61.80	61.53	61.71
LT	96.4	107.4	121.9	135.9	148.8	167.6	60.28	60.00	59.96	59.84	60.45	60.03
LU	1.8	2.7	2.4	2.5	3.0	:	:	:	:	:	:	:
HU	254.7	279.4	305.7	330.6	354.4	390.5	54.01	54.21	54.85	54.78	55.27	56.69
MT	:	5.8	6.3	7.4	7.3	8.9	:	51.47	53.30	54.81	56.91	56.94
NL	461.4	469.9	487.7	504.0	510.8	526.8	48.63	49.29	49.96	50.50	50.82	51.01
AT	300.7	307.6	289.7	323.2	283.5	229.8	47.33	48.27	48.53	50.36	51.09	52.99

Source: Eurostat - HRST

	Total in thousands						% of which women					
	1997/98	1998/99	1999/2000	2000/2001	2001/2002	2002/2003	1997/98	1998/99	1999/2000	2000/2001	2001/2002	2002/2003
PL	1191.1	1399.1	1579.6	1775.0	1906.3	1983.4	:	57.02	57.53	58.02	57.90	57.81
PT	351.8	:	373.7	387.7	393.7	400.8	56.02	:	56.51	57.01	56.79	56.60
SI	68.1	79.1	83.8	91.5	99.2	101.5	55.22	56.04	56.09	56.09	57.54	56.22
SK	112.8	122.9	135.9	143.9	152.2	158.1	51.03	51.70	50.39	51.29	52.08	53.05
FI	250.1	258.5	270.2	279.6	283.8	291.7	53.51	53.75	53.70	53.85	54.09	53.49
SE	280.7	335.1	346.9	358.0	382.9	414.7	56.24	57.58	58.22	59.07	59.47	59.59
UK	1938.4	2081.0	2024.1	2067.4	2240.7	2287.8	52.66	53.20	53.94	54.54	55.24	55.90
IS	8.1	8.5	9.7	10.2	11.6	13.3	59.98	62.16	61.91	62.68	63.21	63.66
NO	183.0	187.5	190.9	190.1	197.1	212.4	56.71	57.40	58.42	59.25	59.65	59.74
EEA	:	:	:	:	14559.1	14429.7	:	:	:	:	54.34	54.73
CH	:	:	:	:	170.1	186.0	:	:	:	:	43.27	44.23
BG	260.5	270.1	261.3	247.0	228.4	230.5	60.93	59.47	57.27	56.31	53.97	52.80
HR	:	:	:	:	:	:	:	:	:	:	:	:
RO	360.6	407.7	452.6	533.2	582.2	643.9	49.95	51.03	51.83	53.51	54.35	54.30
TR	:	:	1015.4	1091.8	1155.7	1256.6	:	:	39.80	40.47	41.02	40.38
JP	:	:	:	3972.5	3966.7	3984.4	:	:	:	44.86	45.12	45.57
US	:	:	:	:	15928.0	16611.7	:	:	:	:	:	56.64

Source: Eurostat - HRST

Table 5.2 **Graduates from tertiary education, total, % in science and engineering, % of women and % of 25-29 years old population in the EEA countries, Switzerland, Candidate Countries, Japan and the United States — 1997/1998 and 2002/03**

	Number of graduates from tertiary education				Share of Women				Total tertiary graduates	
	Total in thousands		Of which S&E		As a % of the Total graduates		As a % of the S&E graduates		as a % of 25-29 year olds population	
	1997/1998	2002/2003	1997/1998	2002/2003	1997/1998	2002/2003	1997/1998	2002/2003	1997/1998	2002/2003
EU-25	:	:	:	:	:	:	:	:	:	:
EU-15	:	:	:	:	:	:	:	:	:	:
BE	:	74.4	:	19.30	:	56.97	:	25.13	:	10.98
CZ	30.6	47.2	24.56	22.70	50.49	55.18	22.94	29.27	4.14	4.92
DK	31.0	42.6	19.45	19.78	56.28	58.00	30.50	30.29	8.13	11.33
DE	322.5	304.8	28.47	26.34	48.12	52.97	19.58	23.48	5.89	6.65
EE	5.7	9.9	10.84	17.11	64.77	69.54	28.43	42.54	5.95	10.25
EL	:	:	:	:	:	:	:	:	:	:
ES	240.9	299.4	21.91	28.08	57.56	57.24	32.12	30.43	7.36	7.65
FR	497.2	:	29.99	:	55.47	:	31.19	:	12.06	:
IE	40.7	53.8	31.97	29.26	53.01	57.63	34.27	34.67	14.56	16.59
IT	179.9	:	24.17	:	56.32	:	37.42	:	4.04	:
CY	:	3.2	:	12.01	:	61.31	:	41.97	:	6.23
LV	10.4	20.8	19.35	13.44	63.93	69.03	32.90	37.80	5.71	12.76
LT	19.2	34.5	24.62	22.40	62.23	65.43	36.62	35.75	6.94	13.81
LU	0.4	:	21.02	:	58.22	:	2.56	:	1.12	:
HU	43.8	67.6	18.07	11.22	57.32	62.16	28.87	26.60	6.16	5.03
MT	1.3	2.0	4.93	8.89	53.66	54.74	15.15	26.37	0.00	6.64
NL	80.1	89.3	16.98	16.29	52.13	56.00	16.76	18.41	6.39	8.34
AT	26.4	29.2	33.38	28.36	45.77	50.94	17.26	21.08	4.18	5.79

Source: Eurostat - HRST

	Number of graduates from tertiary education				Share of Women				Total tertiary graduates as a % of 25-29 year olds population	
	Total in thousands		Of which S&E		As a % of the Total graduates		As a % of the S&E graduates			
	1997/1998	2002/2003	1997/1998	2002/2003	1997/1998	2002/2003	1997/1998	2002/2003	1997/1998	2002/2003
PL	232.0	477.8	11.92	11.54	58.46	65.14	31.90	33.22	8.94	15.22
PT	46.5	68.5	17.95	18.99	63.84	67.17	38.65	41.55	5.98	8.04
SI	9.8	13.9	23.83	18.63	56.59	60.97	24.20	25.50	7.01	8.93
SK	17.4	31.9	21.13	24.11	56.69	55.82	28.60	34.41	0.00	6.71
FI	39.0	:	26.12	:	61.23	:	24.02	:	12.40	:
SE	34.8	49.3	25.97	30.53	58.50	61.20	26.42	34.21	5.85	8.59
UK	465.9	601.7	26.17	25.79	53.21	56.97	28.99	34.38	10.71	16.65
IS	1.5	:	19.12	:	56.88	:	26.60	:	8.06	:
NO	38.9	30.1	12.18	17.86	61.06	61.05	27.16	27.11	11.16	9.38
EEA	:	:	:	:	:	:	:	:	:	:
CH	:	57.5	:	21.91	:	42.69	:	14.64	:	12.24
BG	41.9	47.3	16.04	20.23	65.97	58.52	45.51	42.13	:	8.20
HR	:	16.9	:	:	:	58.13	:	:	:	:
RO	67.8	136.6	23.96	23.83	53.17	57.25	33.81	39.37	3.56	7.63
TR	:	253.1	:	27.52	:	44.45	:	31.38	:	:
JP	1 107.3	1 040.4	21.21	22.08	50.44	49.01	12.17	14.43	:	:
US	2 066.6	2 352.3	16.87	18.31	55.95	57.44	29.67	31.89	:	:

Source: Eurostat - HRST

Table 5.3 Stocks of HRST in the EEA countries, Switzerland and the Candidate Countries — 2004

	HRST		HRSTE Excluding HRSTC		HRSTO Excluding HRSTC		HRSTC	
	Total in thousands	Women in %	Total in thousands	Women in %	Total in thousands	Women in %	Total in thousands	Women in %
EU-25	87 794.1 s	48.7 s	32 334.8 s	46.5 s	24 406.7 s	49.4 s	31 052.7 s	50.4 s
EU-15	76 536.4 s	47.55 s	28 772.8 s	46.10 s	20 639.7 s	47.18 s	27 123.9 s	49.38 s
BE	2 360.4	49.01	1 053.4	49.80	375.5	37.90	931.5	52.59
CZ	1 801.4	49.59	352.2	39.35	946.5	56.05	502.7	44.60
DK	1 421.7	49.88	450.5	46.02	333.0	43.84	638.3	55.75
DE	19 386.9	45.28	6 817.8	35.28	6 370.5	57.84	6 198.6	43.37
EE	321.4	64.08	172.7	61.84	54.0	63.95	94.7	68.25
EL	1 582.1	46.52	640.8	44.64	215.3	47.64	725.9	47.85
ES	8 258.6	48.29	4 080.3	49.59	969.1	37.62	3 209.2	49.86
FR	12 098.7	49.79	4 759.2	53.63	2 979.1	40.75	4 360.4	51.79
IE	826.7	51.62	394.4	51.75	116.1	47.72	316.2	52.89
IT	8 318.0	47.61	1 621.0	53.13	4 182.7	44.49	2 514.3	49.23
CY	148.5	47.42	62.4	50.86	21.9	37.17	64.3	47.58
LV	385.8	62.54	149.6	58.95	104.3	65.73	131.8	64.09
LT	641.4	61.49	285.5	51.50	119.1	77.96	236.9	65.26
LU	94.6	43.71	23.5	43.56	29.6	48.97	41.5	40.04
HU	1 505.9	56.91	475.9	48.30	457.0	65.71	573.1	57.04
MT	45.7	39.11	10.6	44.66	16.6	28.03	18.5	45.86
NL	4 179.9	46.90	1 287.0	41.53	1 332.9	52.44	1 560.1	46.59
AT	1 733.7	42.84	550.9	36.78	734.4	46.85	448.4	43.71

Eurostat estimations: EU-15, EU-25.
Excpetion to the reference year: NL 2003.

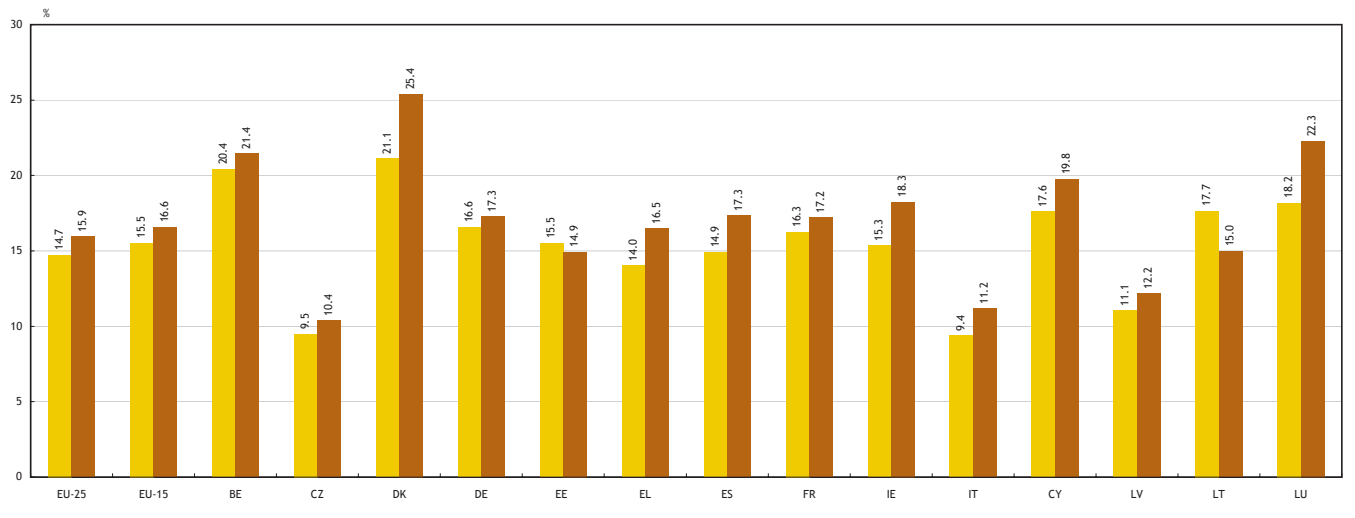
Source: Eurostat - HRST

	HRST		HRSTE Excluding HRSTC		HRSTO Excluding HRSTC		HRSTC	
	Total in thousands	Women in %	Total in thousands	Women in %	Total in thousands	Women in %	Total in thousands	Women in %
PL	5 222.8	57.52	1 756.7	50.64	1 534.4	63.33	1 931.7	59.16
PT	1 171.8 b	51.53 b	302.6 b	56.40 b	338.8 b	32.27 b	530.4 b	61.06 b
SI	381.9	54.62	106.1	47.35	135.3	54.71	140.4	60.03
SK	802.9	57.20	190.3	43.58	377.8	65.03	234.8	55.64
FI	1 340.6	53.31	546.7	52.99	256.3	45.97	537.6	57.12
SE	2 214.2	51.49	549.7	52.82	710.1	39.34	954.4	59.76
UK	11 944.2	47.12	4 722.9	47.21	2 401.7	40.86	4 819.6	50.16
IS	61.2	52.07	14.8	45.63	19.3	51.85	27.8	55.65
NO	1 146.8	49.64	346.4	48.11	274.1	43.01	526.3	54.09
EEA	89 002.1 s	48.70 s	32 695.3 s	46.51 s	24 699.3 s	49.38 s	31 607.5 s	50.45 s
CH	2 109.3	41.44	616.3	30.68	768.8	56.50	724.2	34.62
BG	1 272.8	57.20	603.1	54.15	190.6	47.73	479.2	64.79
HR	:	:	:	:	:	:	:	:
RO	2 177.7	53.51	575.5	41.06	757.7	64.75	844.5	51.91
TR	:	:	:	:	:	:	:	:

Eurostat estimation: EEA.

Source: Eurostat - HRST

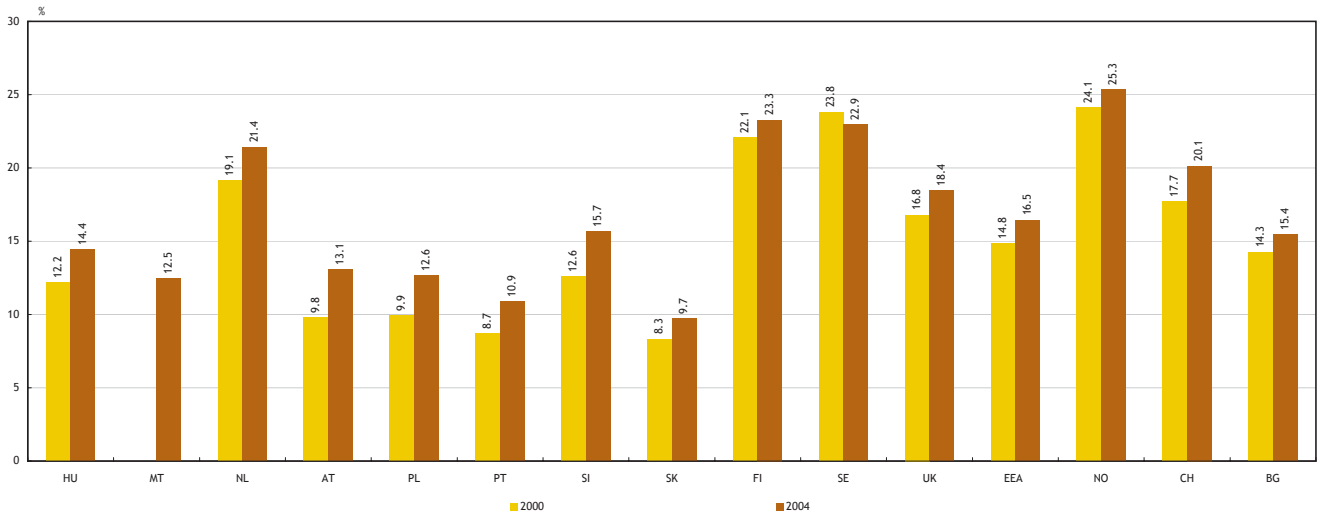
Figure 5.5 HRST core aged between 25 and 64 years old as a % of labour force in the EEA countries, Switzerland and Candidate Countries — 2000 and 2004 (Part 1)



Eurostat estimations: EU-15, EU-25

Source: Eurostat - HRST

Figure 5.5 HRST core aged between 25 and 64 years old as a % of labour force in the EEA countries, Switzerland and Candidate Countries — 2000 and 2004 (Part 2)



Eurostat estimation: EEA.
Provisional data: AT.
Exception to the reference year: NL 2003.

Source: Eurostat - HRST

Table 5.4 **Distribution of persons employed as scientists and engineers, total, as a % of active population, % of women and by age group, in the EEA countries, Switzerland and the Candidate Countries — 2004**

	Total scientists and engineers in thousands	as % of active population	of which % of women	By age groups in thousands			
				25 to 34	35 to 44	45 to 64	Other
EU-25	9 168.3 s	3.95 s	28.81 s	2 681.1 s	2 792.8 s	3 257.1 s	437.3 s
EU-15	8 131.3 s	4.16 s	27.94 s	2 358.6 s	2 537.8 s	2 854.5 s	380.4 s
BE	333.0	7.01	48.88	111.5	108.9	90.3	22.3
CZ	160.0	2.93	32.42	47.1	42.3	61.3	9.3
DK	147.5	4.47	32.01	35.7	46.9	64.9	:
DE	2 062.9	4.74	21.61	466.2	709.1	798.6	89.1
EE	11.8 u	1.45 u	:	:	5.2 u	6.6 u	:
EL	182.7	3.32	30.85	51.3	56.9	70.0	4.3
ES	899.6	4.06	39.03	363.0	239.7	254.6	42.3
FR	1 221.7	4.09	21.63	330.0	392.4	458.5	40.8
IE	140.7	6.97	49.50	56.2	36.8	36.6	11.1
IT	795.2	2.91	33.19	190.3	262.8	311.9	30.3
CY	15.1 u	3.94 u	38.91 u	5.9 u	3.4 u	5.1 u	0.7 u
LV	35.4	2.65	44.48	7.2	9.8	18.3	:
LT	72.2	4.39	50.37	15.2	23.9	26.4	6.7
LU	10.0	4.17	13.84	3.1	3.2	3.7	:
HU	169.6	3.74	33.02	52.0	36.3	72.5	8.9
MT	1.9 u	1.30 u	:	1.9 u	:	:	:
NL	451.1	5.08	28.75	145.2	143.0	142.6	20.2
AT	109.3	2.63	27.83	32.6	37.5	33.3	5.8

Eurostat estimations: EU-15, EU-25.
Exception to the reference year: NL 2003.

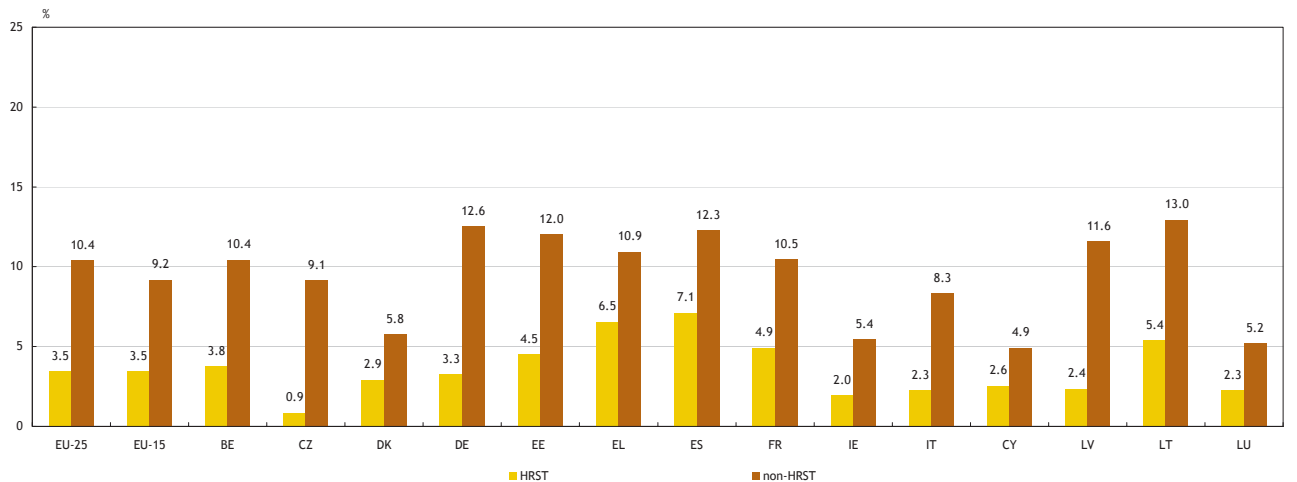
Source: Eurostat - HRST

	Total scientists and engineers in thousands	as % of active population	of which % of women	By age groups in thousands			
				25 to 34	35 to 44	45 to 64	Other
PL	455.2	2.44	32.23	155.9	106.9	173.0	19.4
PT	155.8 b	2.73 b	45.34 b	58.4 b	44.1 b	41.6 b	11.7 b
SI	41.9	3.77	38.49	15.0	10.9	14.5	1.5
SK	61.5	2.18	28.76	17.4	15.1	24.4	4.6
FI	172.5	6.37	27.03	61.4	44.9	59.0	7.2
SE	270.0	5.38	38.36	79.0	79.9	104.9	6.2
UK	1364.9	4.54	19.72	438.5	393.3	437.0	96.1
IS	8.2	4.84	49.08	2.0	2.9	3.3	:
NO	113.7	4.27	36.73	29.5	36.7	47.5	:
EEA	9294.0 s	3.96 s	28.92 s	2712.5 s	2832.4 s	3308.0 s	441.1 s
CH	279.0	6.49	13.88	80.0	84.0	96.1	18.9
BG	84.1	2.04	43.20	16.9	27.4	39.8	:
HR	:	:	:	:	:	:	:
RO	:	:	:	:	:	:	:
TR	:	:	:	:	:	:	:

Eurostat estimation: EEA.

Source: Eurostat - HRST

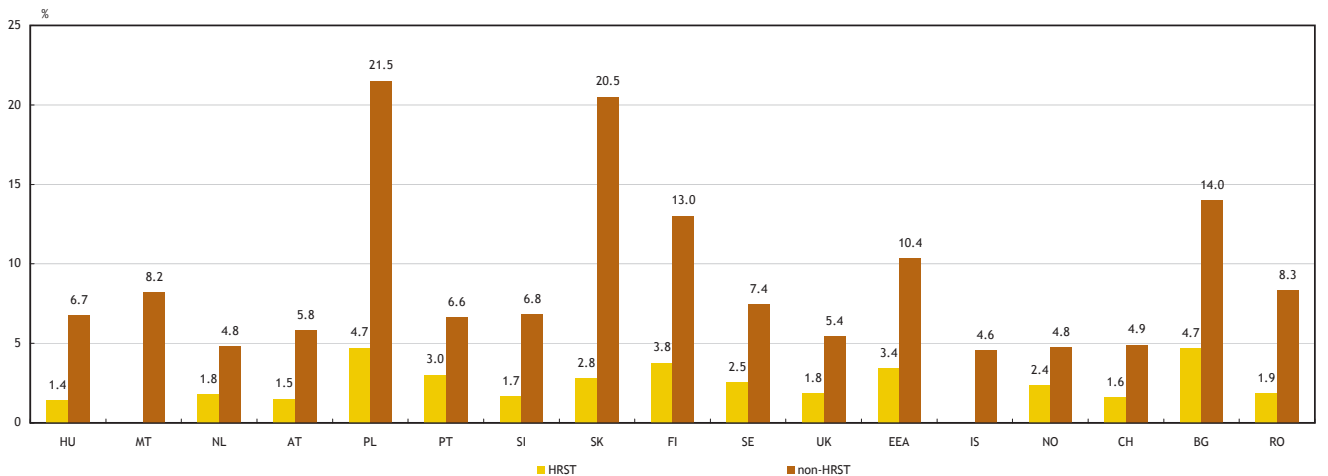
Figure 5.6 Unemployement rate for HRST and non-HRST in the EEA countries, Switzerland and Candidate Countries — 2004 (Part 1)



Eurostat estimations: EU-15, EU-25.

Source: Eurostat - HRST

Figure 5.6 Unemployement rate for HRST and non-HRST in the EEA countries, Switzerland and Candidate Countries — 2004 (Part 2)



Eurostat estimation: EEA.
Provisional data: AT.
Exception to the reference year: NL 2003.

Source: Eurostat - HRST

Table 5.5 **Total number and share of women of HRSTO employed in selected sectors of economic activity in the EEA countries, Switzerland and Candidate Countries — 2004**

	Manufacturing				Services				HRSTO in High Technology [1]	
	Total manufacturing		High-tech and medium high-tech manufacturing		Total services		Knowledge-intensive services		Total	
	HRSTO	% of women	HRSTO	% of women	HRSTO	% of women	HRSTO	% of women	HRSTO	% of women
EU-25	6 739.9 s	29.35 s	3 723.2 s	23.98 s	42 255.7 s	54.61 s	30 994.4 s	57.11 s	6 638.8 s	25.57 s
EU-15	5 793.5 s	27.19 s	3 330.1 s	22.54 s	36 571.8 s	52.98 s	27 042.6 s	55.29 s	5 946.9 s	24.46 s
BE	155.2	21.17	78.6	22.13	1 007.8	53.48	817.9	57.08	147.7	20.43
CZ	236.1	35.22	105.6	31.85	969.1	59.55	667.3	64.54	171.2	31.62
DK	102.1	33.63	52.4	33.13	790.5	55.88	610.9	58.06	114.6	30.42
DE	1 848.2	27.20	1 224.6	21.80	9 205.3	55.68	6 310.6	57.27	1 797.0	22.74
EE	16.5	36.77	7.8	:	106.7	72.46	73.1	73.46	13.4	:
EL	65.3	33.04	20.8	19.39	816.9	49.11	667.1	51.40	49.2	25.46
ES	467.6	32.07	219.4	25.95	3 272.0	49.91	2 365.5	52.75	431.2	28.40
FR	1 005.0	24.14	592.7	21.39	5 558.1	53.01	3 948.3	55.00	1 156.7	26.95
IE	48.9	28.46	30.2	29.72	322.5	56.23	266.9	59.80	54.8	27.47
IT	823.9	28.05	439.9	23.64	5 295.7	50.64	4 068.0	54.44	783.1	24.40
CY	4.8	34.54	0.7 u	:	70.8	45.40	47.9	52.04	4.5 u	25.78 u
LV	19.2	49.65	3.8	:	174.0	70.54	112.8	78.89	11.4	46.25
LT	25.8	63.98 u	:	:	285.3	72.63	199.4	78.29	16.8	39.68
LU	3.7	20.63 u	:	:	62.8	44.85	40.4	47.43	3.3	18.57
HU	107.9	45.71	52.6	42.13	801.1	64.95	586.8	67.31	99.2	38.44
MT	2.8 u	0.00	1.8 u	0.00	24.1	44.76	18.0	51.15	3.2	:
NL	210.2	28.05	90.8	19.93	2 311.7	51.85	1 806.4	55.11	224.0	20.89
AT	149.7	28.56	74.2	24.56	828.5	50.88	520.0	52.97	113.1	24.26

Eurostat estimations: EU-15, EU-25.
Provisional data: AT.
Exception to the reference year: NL 2003.

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

Source: Eurostat - HRST

	Manufacturing				Services				HRSTO in High Technology [1]	
	Total manufacturing		High-tech and medium high-tech manufacturing		Total services		Knowledge-intensive services		Total	
	HRSTO	% of women	HRSTO	% of women	HRSTO	% of women	HRSTO	% of women	HRSTO	% of women
PL	402.9	44.88	167.3	37.07	2 636.9	65.97	1 823.1	70.80	292.3	35.11
PT	76.1 b	30.10 b	34.3 b	29.83 b	683.7 b	54.46 b	487.8 b	58.61 b	62.4 b	29.07 b
SI	49.0	41.27	17.9	31.98 u	197.7	64.16	133.3	68.45	28.9	35.51 u
SK	81.4	43.65	31.1	40.99	418.3	68.33	290.2	71.76	51.1	41.22
FI	116.1	35.57	57.1	27.65	591.9	58.96	443.0	60.77	110.8	32.50
SE	173.6	27.76	104.0	22.56	1 356.5	55.59	1 016.7	58.79	232.3	27.56
UK	648.9	25.48	360.1	20.40	5 613.8	51.65	4 550.4	53.22	770.6	21.03
IS	2.8	39.73	1.4	:	39.6	56.90	30.7	57.59	4.6	29.80
NO	53.5	23.25	27.3	:	676.2	53.97	519.2	56.17	76.2	21.43
EEA	6 796.2 s	29.30	3 751.9 s	23.92	42 971.5 s	54.60	31 544.3 s	57.09	6 719.7	25.53
CH	128.5	22.29	87.1	18.72	1 121.7	48.74	853.7	50.54	157.6	17.70
BG	76.3	57.32	28.2	37.17	520.8	62.69	353.6	69.43	57.7	37.27
HR	:	:	:	:	:	:	:	:	:	:
RO	259.6	48.88	101.3	42.83	1 074.0	63.13	706.3	69.88	143.0	43.85
TR	:	:	:	:	:	:	:	:	:	:

Eurostat estimation: EEA.
(1) Total high technology is a sum of High and medium high technology manufacturing and Knowledge-intensive high-technology services.

Source: Eurostat - HRST

6 - INNOVATION

The Community Innovation Statistics (CIS) 2002/2003 provide some limited information on the characteristics of innovation activity at enterprise level, where an innovation is a new or significantly improved product (good or service) or the introduction of a new or significantly improved process.

The CIS 2002/2003 data was compiled by countries on a voluntary basis. Therefore no harmonised methodology or questionnaire was used at national level. The data is therefore not fully comparable, on the one hand between countries and on the other hand with statistics based on other Community Innovation Surveys.

In the manufacturing sector, the turnover from products being new for the enterprise, but not new for the market accounted for more than 25 % for Denmark and Finland. In the services sector, the same ratio reached more than 25 % again in Denmark, whereas for all other countries, it did not exceed 10%.

In the manufacturing sector, the turnover made on the base of products new for the enterprise and also for the market showed a turnover share higher than 10% for Denmark, Slovakia and Romania. In the services sector, the respective proportion of total turnover was the highest in Italy with 6.5%.

Cyprus had the highest share of high-tech Small and Medium Sized Enterprises (SME) innovating in house. They accounted for more than 60% in both, the manufacturing sector and the services sector. For Hungary's high tech SME the highest share of co-operation arrangements for innovation activities is displayed with 38.8% with high tech manufacturers and 52.7% in high-tech services enterprises.

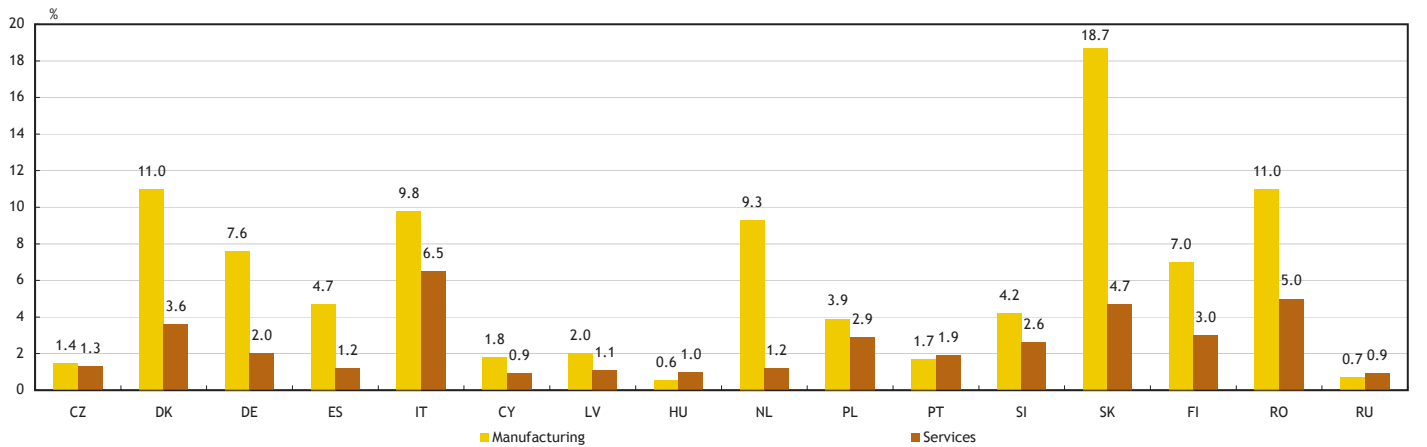
Table 6.1 **Turnover related to new or significantly improved products which are new to the enterprise but not new to the market, as a percentage of turnover for all enterprises, by sector, in selected EU-25 countries, Romania and Russian Federation — 2003**

	Manufacturing					Services	
	Total	High tech	Medium high tech	Medium low tech	Low tech	Total	High tech KIS
CZ	5.0	6.4	7.3	3.5	4.9	6.6	12.1
DK	26.0	14.0	26.1	29.6	27.5	25.4	13.8
ES	10.6	11.5	15.8	11.6	4.8	3.2	10.0
IT	7.6	13.4	14.3	4.7	4.4	4.0	4.2
CY	3.9	4.3	4.3	4.0	3.7	3.9	2.9
LV	4.5	6.9	12.0	5.7	3.3	4.0	2.1
HU	1.1	4.0	4.6	1.5	0.5	2.6	6.7
NL	4.5	20.5	4.8	4.3	1.7	1.6	13.5
AT	13.8	:	:	:	:	8.2	:
PL	17.4	33.3	28.7	15.5	9.6	1.7	1.0
PT	1.2	1.7	1.4	0.9	1.3	0.4	0.4
SI	5.5	7.8	11.3	5.0	1.4	1.3	2.9
SK	4.4	4.1	3.0	5.4	5.1	1.8	2.7
FI	27.0	78.0	14.0	8.0	7.0	5.0	13.0
RO	2.0	4.0	2.0	2.0	2.0	1.0	4.0
RU	2.2	3.8	4.5	1.0	1.0	7.7	7.9

Exceptions to the reference year: DK, ES, IT, CY, NL, SI, FI and RO 2002.

Source: Eurostat - CIS 2002-2003

Figure 6.1 **Turnover related to new or significantly improved products which are new to the enterprise and also new to the market, as a percentage of turnover for all enterprises, in manufacturing and in services, in selected EU-25 countries, Romania and Russian Federation — 2003**



Exceptions to the reference year: DK, ES, IT, CY, NL, SI, FI and RO 2002.

Source: Eurostat - CIS 2002-2003

Table 6.2 **Percentage of SME innovating in house and percentage of SME involved in cooperation arrangements, in selected EU-25 countries, Romania and Russian Federation — 2003**

	SMEs innovating in-house as a percentage of all SMEs				SMEs involved in cooperation as a percentage of all SMEs			
	Total manufacturing	High Tech manufacturing	Services	High Tech services	Total manufacturing	High Tech manufacturing	Services	High Tech services
CZ	24.1	36.2	19.8	50.4	4.8	7.8	4.0	16.7
DK	27.8	43.4	23.1	39.2	16.9	19.5	16.2	31.6
DE	58.0	:	35.0	:	:	:	:	:
ES	25.7	43.3	18.4	35.3	5.1	10.8	3.3	14.6
IT	33.8	60.4	14.2	40.5	2.8	5.0	2.4	10.4
CY	42.0	63.6	36.4	65.0	22.1	34.9	23.0	35.0
LV	19.0	34.3	10.6	29.3	6.4	10.2	7.8	20.5
HU	15.3	18.8	11.0	33.4	31.7	38.8	34.8	52.7
NL	28.4	36.8	10.6	47.0	11.3	22.0	5.6	21.4
PL	:	:	16.5	37.7	7.6	13.8	8.7	26.1
PT	18.3	32.1	39.2	39.2	8.6	14.8	28.4	28.4
SI	21.2	36.9	10.9	28.5	9.8	17.6	5.1	12.8
SK	17.2	28.2	11.2	33.9	3.6	4.7	4.1	19.0
FI	31.0	56.0	18.0	51.0	24.0	33.0	14.0	44.0
RO	15.0	25.0	10.0	35.0	3.0	7.0	4.0	15.0
RU	2.4	4.7	1.2	2.1	2.5	2.6	4.0	7.0

Exceptions to the reference year: DK, ES, IT, CY, NL, SI, FI and RO 2002.

Source: Eurostat - CIS 2002-2003

7 - 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.

Following changes in the production of patent statistics at Eurostat in 2005, data shown in this Pocketbook are no longer fully comparable with data previously disseminated. In the past, 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 United States Patent and Trademark Office (USPTO) and the Japanese Patent Office (JPO) will be used to produce patent statistics.

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

The largest share of patent applications came in 2002 from Germany followed by France and the United Kingdom. Finland had the highest level of patent applications per million inhabitants followed by Germany and Sweden.

Patent data are related to the International Patent Classification (IPC). In 2002 the highest share of patent applications to the EPO was related to the IPC section B: 'Performing operations; transporting'. Having a closer look to the high-tech patent applications per million inhabitants Finland got by far the highest ranking followed by the Netherlands and Sweden. 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'.

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 the United States is more than three times higher than those of the EU-25.

Table 7.1 **Patent applications to the EPO, total number and by million inhabitants in 1998 and 2002, by IPC classes in 2002, and AAGR 1998-2002 — EEA countries, Candidate Countries, Switzerland, Japan and the United States**

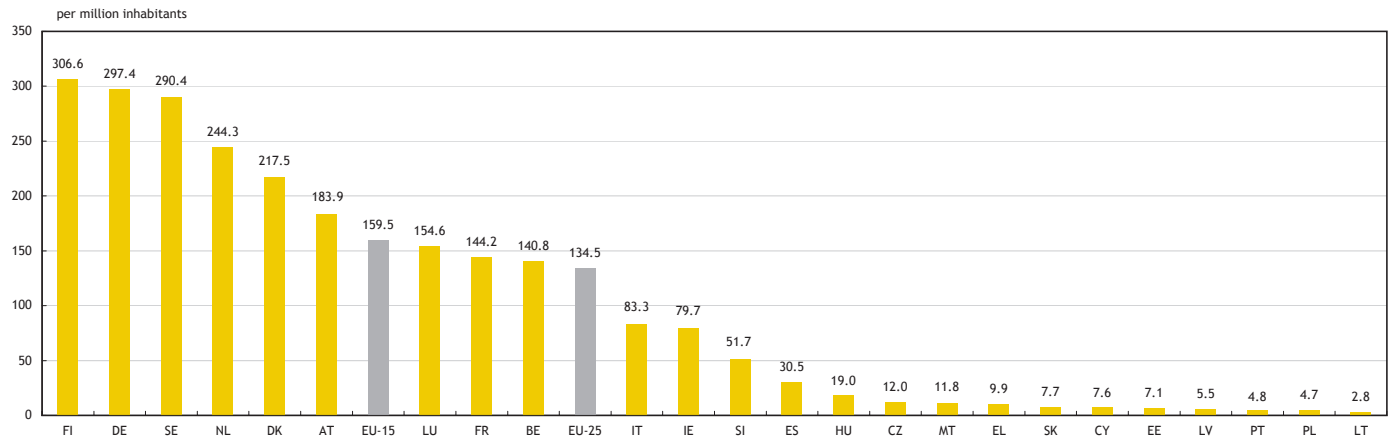
	Total Number		Distribution by IPC section in 2002								Annual average growth rate 1998-2002	Per million inhabitants	
	1998	2002	Human necessities	Performing operations, transporting	Chemistry, metallurgy	Textiles, paper	Fixed constructions	Mech. engineering, lighting, heating, weapons, blasting	Physics	Electricity		1998	2002
EU-25	50 912	59 756	9 039	12 114	8 592	1 226	2 528	6 074	9 982	10 187	4.1	113	:
EU-15	50 529	59 074	8 879	12 005	8 463	1 217	2 482	6 016	9 880	10 119	4.0	135	:
BE	1 302	1 452	225	261	375	57	57	72	198	205	2.8	128	141
CZ	100	122	23	30	18	4	8	18	14	7	5.2	10	12
DK	936	1 167	299	156	224	8	58	116	164	143	5.7	177	217
DE	21 559	24 514	2 796	5 604	3 623	519	902	3 354	3 840	3 871	3.3	263	297
EE	7	10	3	1	2	-	-	-	4	-	8.8	5	7
EL	80	109	30	19	16	1	11	6	9	16	8.1	7	10
ES	826	1 246	275	340	173	27	80	89	129	134	10.8	21	31
FR	7 408	8 556	1 438	1 618	1 198	107	312	752	1 501	1 626	3.7	127	144
IE	223	311	69	35	30	0	5	15	73	84	8.6	60	80
IT	3 688	4 747	992	1 306	517	147	286	510	454	532	6.5	65	83
CY	7	5	2	1	0	-	-	-	1	1	-6.0	10	8
LV	10	13	4	1	1	1	-	3	2	2	6.3	4	6
LT	1	10	2	1	1	1	-	2	3	-	61.5	0	3
LU	80	69	8	16	15	1	3	12	9	6	-3.8	190	155
HU	120	193	49	33	36	-	16	8	29	22	12.6	12	19
MT	5	5	1	-	-	-	0	-	2	1	-1.7	13	12
NL	2 930	3 934	541	506	490	40	118	148	1 102	989	7.6	187	244
AT	1 067	1 483	231	341	158	63	137	141	192	219	8.6	134	184

Source: Eurostat - Patent statistics - EPO

	Total Number		Distribution by IPC section in 2002								Annual average growth rate 1998-2002	Per million inhabitants	
	1998	2002	Human necessities	Performing operations, transporting	Chemistry, metallurgy	Textiles, paper	Fixed constructions	Mech. engineering, lighting, heating, weapons, blasting	Physics	Electricity		1998	2002
PL	60	179	38	23	46	-	17	13	27	15	31.7	2	5
PT	32	49	9	11	7	3	8	3	5	4	11.3	3	5
SI	50	103	33	13	13	2	3	4	18	18	20.0	25	52
SK	23	41	6	7	11	-	2	11	3	2	15.2	4	8
FI	1 469	1 593	138	198	142	110	44	67	273	620	2.0	285	307
SE	2 610	2 587	493	546	257	57	117	191	439	488	-0.2	295	290
UK	6 319	7 258	1 335	1 048	1 239	76	345	539	1 493	1 182	3.5	107	:
IS	36	52	23	5	9	1	2	2	8	1	9.4	133	181
LI	42	28	12	4	3	-	-	6	2	2	-9.2	1 341	850
NO	507	610	117	105	82	5	67	62	122	50	4.7	115	135
EEA	51 497	60 446	9 191	12 228	8 686	1 232	2 597	6 143	10 115	10 240	4.1	:	:
CH	2 617	2 987	584	616	443	71	106	228	563	377	3.4	369	412
BG	24	36	10	8	1	0	-	6	6	6	11.4	3	5
HR	31	87	22	14	21	1	10	7	10	3	29.9	7	:
RO	26	30	5	1	1	-	8	7	4	3	3.5	1	1
TR	53	118	29	18	10	9	7	26	6	13	22.2	:	:
JP	16 877	24 494	2 296	3 818	4 387	272	176	1 836	5 742	5 966	9.8	134	:
US	37 877	46 819	10 341	5 848	7 664	505	942	2 311	10 501	8 708	5.4	141	:

Source: Eurostat - Patent statistics - EPO

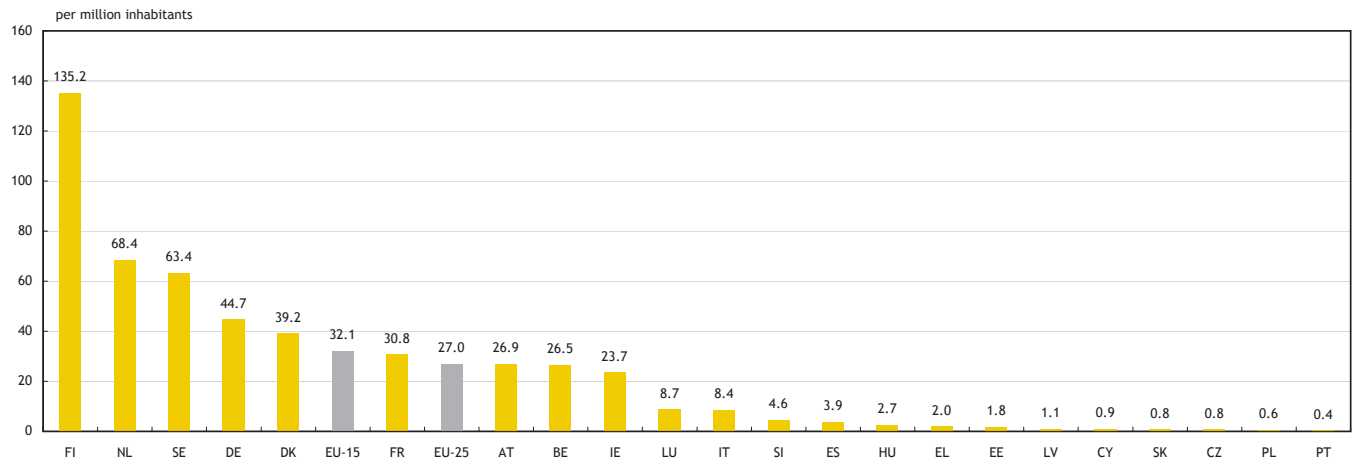
Figure 7.1 **Patent applications to the EPO per million inhabitants, EU-25 Member States — 2002**



Exceptions to the reference year: EU-15 and EU-25 2001.

Source: Eurostat - Patent statistics - EPO

Figure 7.2 **High tech patent applications to the EPO per million inhabitants, EU-25 Member States — 2002**



Exceptions to the reference year: EU-15 and EU-25 2001.

Source: Eurostat - Patent statistics - EPO

Table 7.2 **High tech patent applications to the EPO by the EEA countries, Candidate Countries, Switzerland, Japan and the United States — in 1993, 1998 and 2002**

	Number of high-tech patent applications to the EPO			AAGR 1993-1998	AAGR 1998-2002	Number of high-tech patent applications to the EPO per million inhabitants		
	1993	1998	2002			1993	1998	2002
EU-25	3 288	8 337	11 052	20.5	7.3	7	19	:
EU-15	3 275	8 292	10 976	20.4	7.3	9	22	:
BE	109	217	274	14.7	5.9	11	21	27
CZ	1	11	8	61.6	-8.7	0	1	1
DK	63	171	210	22.0	5.2	12	32	39
DE	926	2 762	3 683	24.4	7.5	11	34	45
EE	1	2	3	24.4	5.7	0	1	2
EL	2	5	22	25.3	43.4	0	0	2
ES	30	93	160	25.1	14.5	1	2	4
FR	680	1 352	1 828	14.7	7.8	12	23	31
IE	8	48	92	42.7	17.9	2	13	24
IT	197	320	478	10.2	10.6	3	6	8
CY	:	:	1	:	:	:	:	1
LV	:	1	3	:	33.0	:	0	1
LT	:	:	:	:	:	:	:	:
LU	:	5	4	:	-6.3	:	12	9
HU	7	17	27	19.2	12.0	1	2	3
MT	:	:	:	:	:	:	:	:
NL	287	744	1 102	21.0	10.3	19	48	68
AT	43	93	217	16.6	23.5	5	12	27

Source: Eurostat - Patent statistics - EPO

	Number of high-tech patent applications to the EPO			AAGR 1993-1998	AAGR 1998-2002	Number of high-tech patent applications to the EPO per million inhabitants		
	1993	1998	2002			1993	1998	2002
PL	2	7	22	32.2	35.1	0	0	1
PT	3	2	4	-6.0	13.2	0	0	0
SI	2	4	9	14.1	21.9	1	2	5
SK	:	3	4	:	10.1	:	1	1
FI	153	560	703	29.7	5.8	30	109	135
SE	130	594	565	35.5	-1.3	15	67	63
UK	643	1 324	1 635	15.5	5.4	11	22	:
IS	3	9	12	27.9	8.6	10	32	43
LI	2	1	2	-12.9	10.7	67	32	45
NO	11	44	90	31.6	19.2	3	10	20
EEA	3 303	8 391	11 156	20.5	7.4	:	:	:
CH	109	263	393	19.4	10.5	16	37	54
BG	1	2	6	1.7	38.2	0	0	1
HR	1	2	6	14.9	28.8	0	0	:
RO	:	1	2	:	14.8	:	0	0
TR	0	6	10	88.8	14.7	:	:	:
JP	2 644	4 093	6 255	9.1	11.2	21	32	:
US	4 759	10 248	13 958	16.6	8.0	19	38	:

Source: Eurostat - Patent statistics - EPO

Table 7.3 **High Tech patent applications to the EPO by high tech fields as a percentage of total, by the EEA countries, Candidate Countries, Switzerland, Japan and the United States — 2002**

	Aviation	Computer and automated business equipment	Communication technology	Laser	Micro-organism and genetic engineering	Semiconductors	Total number
	%	%	%	%	%	%	
EU-25	1.6	29.1	45.1	1.5	13.8	8.9	**11 052**
EU-15	1.6	29.0	45.2	1.5	13.7	8.9	**10 976**
BE	1.5	30.6	41.6	0.1	17.5	8.7	**274**
CZ	13.1	26.1	49.0	0.0	11.8	0.0	**8**
DK	0.5	19.6	38.8	1.0	37.4	2.8	**210**
DE	1.7	28.1	40.2	1.6	16.2	12.1	**3 683**
EE	0.0	60.0	0.0	0.0	40.0	0.0	**3**
EL	9.2	14.1	51.9	0.0	22.5	2.3	**22**
ES	3.8	21.3	43.4	0.6	28.0	2.9	**160**
FR	3.1	29.6	46.6	1.1	10.6	8.9	**1 828**
IE	0.0	33.9	33.6	8.7	11.9	11.9	**92**
IT	1.7	30.4	40.3	2.7	11.9	13.0	**478**
CY	0.0	50.0	50.0	0.0	0.0	0.0	**1**
LV	40.0	60.0	0.0	0.0	0.0	0.0	**3**
LT	:	:	:	:	:	:	**:**
LU	0.0	57.0	0.0	0.0	34.5	8.5	**4**
HU	0.0	35.6	50.5	0.0	10.2	3.7	**27**
MT	:	:	:	:	:	:	**:**
NL	0.6	30.0	49.0	0.4	10.6	9.3	**1 102**
AT	0.6	29.6	46.0	1.3	10.7	11.9	**217**

Source: Eurostat - Patent statistics - EPO

	Aviation	Computer and automated business equipment	Communication technology	Laser	Micro-organism and genetic engineering	Semiconductors	**Total number**
	%	%	%	%	%	%	
PL	0.0	42.0	23.3	5.3	20.2	9.2	**22**
PT	0.0	13.1	58.9	0.0	28.0	0.0	**4**
SI	0.0	31.7	37.8	0.0	30.5	0.0	**9**
SK	0.0	0.0	23.4	0.0	76.6	0.0	**4**
FI	0.1	21.9	73.6	0.6	2.5	1.2	**703**
SE	0.8	32.3	51.2	0.9	12.3	2.5	**565**
UK	1.5	32.8	41.4	2.7	15.0	6.7	**1 635**
IS	0.0	36.6	0.0	0.0	63.4	0.0	**12**
LI	0.0	0.0	0.0	0.0	66.7	33.3	**2**
NO	0.0	37.8	32.2	0.0	27.7	2.2	**90**
EEA	1.6	29.2	45.0	1.5	14.0	8.8	**11 156**
CH	0.3	32.8	36.5	1.5	17.8	11.2	**393**
BG	0.0	22.8	68.6	0.0	0.0	8.6	**6**
HR	18.2	54.5	27.3	0.0	0.0	0.0	**6**
RO	0.0	49.4	29.0	0.0	0.0	21.6	**2**
TR	0.0	19.3	50.9	0.0	29.9	0.0	**10**
JP	0.2	31.4	36.5	1.4	11.9	18.6	**6 255**
US	1.1	39.0	30.8	1.3	17.5	10.3	**13 958**

Source: Eurostat - Patent statistics - EPO

Table 7.4 **Patent granted by the USPTO to EEA countries, Candidate Countries, Switzerland, Japan and the United States — 1993, 1998 and 1999**

	1993	1998	1999	AAGR 1993-1998	AGR 1998-1999	1999 per million inhabitants	1999 per million labour force
EU-25	20 112	27 445	24 733	6.4	-10.96	55	:
EU-15	20 009	27 311	24 602	6.4	-11.0	66	143
BE	624	684	599	1.8	-14.3	59	137
CZ	18	36	29	14.7	-22.7	3	6
DK	379	437	395	2.9	-10.7	74	138
DE	8 023	11 781	10 622	8.0	-10.9	129	268
EE	1	3	3	42.9	-20.1	2	4
EL	10	25	10	20.7	-152.9	1	2
ES	199	302	285	8.7	-5.8	7	16
FR	3 293	4 148	3 685	4.7	-12.6	63	144
IE	52	139	163	21.9	14.8	44	97
IT	1 441	1 716	1 670	3.6	-2.7	29	72
CY	2	:	2	:	:	3	:
LV	:	4	1	:	-327.0	0	1
LT	2	1	1	-16.1	37.6	0	1
LU	36	35	36	-0.6	2.6	84	199
HU	37	35	52	-1.4	34.0	5	13
MT	1	1	3	21.6	55.7	8	:
NL	974	1 305	1 213	6.0	-7.6	77	154
AT	417	561	520	6.1	-7.9	65	135

Source: Eurostat - Patent statistics - USPTO

	1993	1998	1999	AAGR 1993-1998	AGR 1998-1999	1999 per million inhabitants	1999 per million labour force
PL	28	22	21	-4.6	-5.9	1	1
PT	8	13	12	11.8	-9.8	1	2
SI	14	26	12	13.3	-109.5	6	13
SK	1	6	6	34.9	3.0	1	2
FI	533	836	738	9.4	-13.3	143	279
SE	1 036	1 585	1 391	8.9	-14.0	157	317
UK	2 984	3 742	3 264	4.6	-14.6	55	115
IS	2	25	23	74.9	-5.7	84	151
LI	15	22	14	7.3	-55.4	439	:
NO	166	278	224	10.8	-24.0	50	96
EEA	20 295	27 769	24 994	6.5	-11.1	:	:
CH	1 195	1 354	1 286	2.5	-5.3	180	322
BG	3	6	9	13.0	34.4	1	:
HR	15	11	7	-6.9	-57.4	:	:
RO	5	6	5	2.8	-9.9	0	0
TR	5	16	10	26.6	-60.7	:	0
JP	26 389	32 751	32 178	4.4	-1.8	254	475
US	67 048	89 859	87 116	6.0	-3.1	321	619

Source: Eurostat - Patent statistics - USPTO

8 - HIGH-TECHNOLOGY

In the European Union in 2002, the labour productivity per person employed in the total manufacturing sector reached 45 000 EUR whereas it added up to 53 000 EUR and 63 000 EUR in the medium high-tech manufacturing and in the high-tech manufacturing sub-sectors respectively.

Within the EU-25 in 2004, almost 130 million persons (66.9%) were employed in the services sector whereas only 36 million (18.7%) were employed in manufacturing.

Employment in the manufacturing sector decreased between 1999 and 2004 in the EU-15 at an Annual Average Growth Rate (AAGR) of -1.2%. During the same period, employment in the high-tech manufacturing sub-sector decreased even more (-2.0%).

On the contrary, employment in total services increased at an AAGR of +1.9% between 1999 and 2004. In the sub-sector of 'Knowledge Intensive Services' (KIS) and in the branch of high-tech KIS, employment grew with even higher rates with respectively 2.6% and 2.9%.

In 2004, only 26% of employed people in the European Union were women working in the high and medium high-tech manufacturing. This proportion was slightly higher in the total manufacturing sector (30%). In the total services sector, more than half of the persons employed were women (53%). However, this share only reached 34% in the sub-sector of high-tech KIS.

Comparing the EU with the United States and Japan in 2004, the share of high-tech exports in the EU (18.2%) as a percentage of total exports was lower than in Japan (22.8%) and in the United States (27%). Among EU countries, Malta had the highest share of high-tech exports with 55.9% of its total exports.

Table 8.1 **Value added (in million EUR) and labour productivity (in thousands EUR per person employed) in selected manufacturing and services sectors, in the EU-25 countries and Candidate Countries — 2002**

	Manufacturing						Services			
	Total		High-tech		Medium high-tech		High tech knowledge-intensive		Market kowledge-intensive	
	Value added	Labour productivity	Value added	Labour productivity	Value added	Labour productivity	Value added	Labour productivity	Value added	Labour productivity
EU-25	1 533 907 s	45 s	195 521 s	63 s	476 155 s	53 s	363 823 s	65 s	834 462 s	46 s
EU-15	1 450 220 s	52 s	188 463 s	70 s	456 113 s	59 s	355 107 s	68 s	823 151 s	48 s
BE	44 271 (1)	65 (1)	5 761 (1)	104 (1)	13 652 (1)	76 (1)	9 261 (1)	67 (1)	18 526 (1)	44 (1)
CZ	18 120	13	1 316	15	5 885	14	2 701 (1)	23 (1)	3 099 (1)	9 (1)
DK	25 495	56	3 915 (1)	87 (1)	6 221	55	6 502	65	21 725	75
DE	401 497	55	43 734	63	177 389	62	71 669	68	194 638	56
EE	1 136	9	64 (2)	7 (2)	106 (2)	11 (2)	285	24	532	12
EL	8 371 (3)	34 (3)	519 (3)	37 (3)	1 203 (3)	34 (3)	:	:	:	:
ES	109 038	41	6 279	52	27 661	49	23 857	64	62 503	33
FR	207 984	52	35 419	68	57 687	58	53 966	59 (1)	127 401	48 (1)
IE	35 989	149	:	:	14 902	333	7 394	136	:	:
IT	203 014	42	19 340	56	53 925	47	42 982	65	69 250	34
CY	960	26	37	34	76	25	429	82	630	36
LV	1 635 (1)	11 (1)	:	:	140 (1)	9 (1)	491	21	479	8
LT	1 540	6	125	9	:	:	422	20	440	9
LU	2 309	67	75	37	301	64	1 211	115	2 063	48
HU	12 320	14	1 744	19	3 866	18	2 805	22	3 564	9
MT	808	25	354 (2)	72 (2)	58 (2)	26 (2)	230	49	557	37
NL	54 467	64	:	:	14 829	:	20 045	73	51 766	43
AT	37 516	59	3 706	69	10 637	67	6 973	65	17 794	61

Exceptions to the reference year:
(1) 2001.
(2) 2000.
(3) 1999.

Source: Eurostat - High-tech statistics

	Manufacturing						Services			
	Total		High tech		Medium high tech		High tech knowledge intensive		market knowledge intensive	
	Value added	Labour productivity	Value added	Labour productivity	Value added	Labour productivity	Value added	Labour productivity	Value added	Labour productivity
PL	38 673	16	2 498	19	7 498	16	:	:	:	:
PT	18 208	20	1 065	39	3 280	27	4 053	74	7 070	22
SI	4 478	17	622	29	:	:	507	23	976	19
SK	4 018	10	207 (1)	9 (1)	1 236	10	846	18	1 035	15
FI	29 655	69	7 034	127	5 736	57	4 735	57	8 804	53
SE	43 364	55	6 518	62	:	:	11 506	54	26 926	54
UK	229 042 (1)	59 (1)	38 136 (1)	78 (1)	54 947 (1)	58 (1)	90 951	73	208 946	55
BG	1 795	3	146	6	398 (1)	3 (1)	783	12	321	3
HR	:	:	:	:	:	:	:	:	:	:
RO	6 620	4	320	7	1 558	4	1 583	11	1 111	6
TR	:	:	:	:	:	:	:	:	:	:

Exceptions to the reference year:
(1) 2001.

Source: Eurostat - High-tech statistics

Table 8.2 **Employment (in thousands) in manufacturing sector in 1999 and 2004, and AAGR 1999-2004, in the EEA countries, Candidate Countries and Switzerland**

	Total		High tech		Medium high tech		Annual average growth in % (1999-2004)		
	1999	2004	1999	2004	1999	2004	Total	High tech	Medium high tech
EU-25	:	36 265 s	:	2 218 s	:	11 023 s	:	:	:
EU-15	31 662	29 845 s	2 116	1 914 s	9 822	9 550 s	-1.2	-2.0	-0.6
BE	739 b	718	30 b	32	258 b	233	-0.6	1.7	-2.0
CZ	1 306	1 275	56	61	360	361	-0.5	1.8	0.1
DK	512	434	27	27	146	137	-3.3	-0.1	-1.3
DE	8 574	8 201	627	651	3 297	3 331	-0.9	0.8	0.2
EE	121	144	6	11	17	20	3.5	10.7	3.8
EL	569	570	8	7	79	89	0.0	-1.3	2.4
ES	2 769	3 035	88	92	704	776	1.9	0.8	2.0
FR	4 239	4 053	329	295	1 299	1 275	-0.9	-2.1	-0.4
IE	291	280	52	50	65	69	-0.8	-0.8	1.4
IT	4 869	4 901	213	232	1 358	1 443	0.1	1.7	1.2
CY	37	36	:	:	3	3	-0.4	:	5.6
LV	174	166	:	:	8	14	-1.0	:	11.3
LT	282	255	10	12 u	50	28	-1.9	3.6	-11.1
LU	21	18	1 u	1 u	2	2	-3.3	-1.1	-7.3
HU	933	895	71	101	247	222	-0.8	7.4	-2.1
MT	:	29	:	6	:	5	:	:	:
NL	1 099	1 055	93	54	262	208	-0.8	-10.3	-4.5
AT	753	674	67	48	176	180	-2.2	-6.4	0.4

Source: Eurostat - High-tech statistics

	Total		High tech		Medium high tech		Annual average growth in % (1999-2004)		
	1999	2004	1999	2004	1999	2004	Total	High tech	Medium high tech
PL	:	2 772	:	69	:	600	:	:	:
PT	1 121	1 004	19	23	153	158	-2.2	3.2	0.6
SI	276	270	8 u	10 u	66	69	-0.4	4.4	0.9
SK	546	577	20	34	121	150	1.1	11.0	4.5
FI	470	445	48	46	121	116	-1.1	-0.6	-0.9
SE	754	684	72	46	263	258	-1.9	-8.3	-0.4
UK	4 882	3 774	444	310	1 639	1 276	-5.0	-7.0	-4.9
IS	23	22	:	:	2	3	-1.0	:	6.7
NO	306	263	13	12	94	77	-3.0	-3.0	-3.9
EEA	:	36 549	:	2 231 s	:	11 103 s	:	:	:
CH	622	589	87	81	206	196	-1.1	-1.6	-1.0
BG	:	709	:	13	:	124	:	:	:
HR	:	304	:	5 u	:	69	:	:	:
RO	2 162	2 089	35	38	608	490	-0.7	2.1	-4.2
TR	:	:	:	:	:	:	:	:	:

Source: Eurostat - High-tech statistics

Table 8.3 **Employment (in thousands) in services sector in1999 and 2004, and AAGR 1999-2004, in the EEA countries, Candidate Countries and Switzerland**

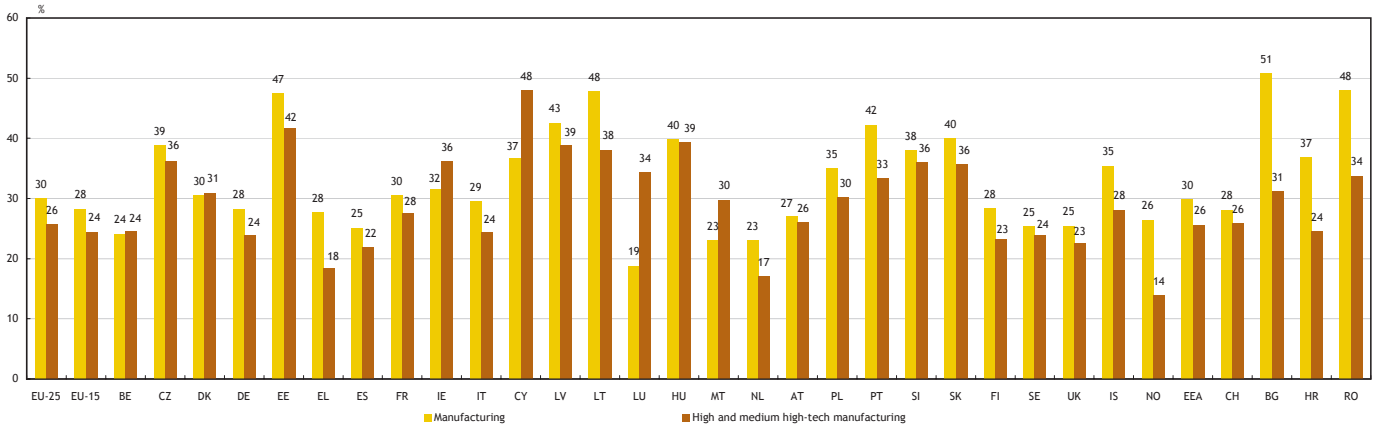
	Total		Knowledge intensive (KIS)		High tech KIS		Annual average growth in % (1999-2004)		
	1999	2004	1999	2004	1999	2004	Total	Knowledge intensive (KIS)	High tech KIS
EU-25	:	129 517 s	:	64 116 s	:	6 460 s	:	:	:
EU-15	103 036	113 408 s	49 938	56 862 s	4 996	5 752 s	1.9	2.6	2.9
BE	2 864 b	3 027	1 464 b	1 597	128 b	163	1.1	1.7	4.8
CZ	2 551	2 634	1 076	1 150	146	144	0.6	1.3	-0.2
DK	1 882	1 998	1 125	1 160	122	112	1.2	0.6	-1.7
DE	22 845	23 544	10 797	11 831	1 015	1 187	0.6	1.8	3.2
EE	347	354	166	164	15	14	0.4	-0.3	-1.2
EL	2 369	2 811	872	1 077	60	81	3.5	4.3	6.0
ES	8 990	11 448	3 483	4 659	311	453	5.0	6.0	7.8
FR	15 629	17 333	7 814	8 754	862	972	2.1	2.3	2.4
IE	996	1 212	497	614	64	66	4.0	4.3	0.7
IT	12 825	14 574	5 404	6 786	559	688	2.6	4.7	4.2
CY	191	241	66	88	4	7	4.7	6.1	12.7
LV	568	607	241	251	22	29	1.3	0.8	6.1
LT	841	796	390	359	34	28	-1.1	-1.7	-3.8
LU	133	145	67	71	6	6	1.7	1.2	-0.8
HU	2 221	2 406	965	1 109	104	116	1.6	2.8	2.1
MT	:	100	:	42	:	4	:	:	:
NL	5 368	5 743	2 970	3 290	273	337	1.4	2.1	4.3
AT	2 354	2 494	1 028	1 143	98	95	1.2	2.1	-0.6

Source: Eurostat - High-tech statistics

	Total		Knowledge intensive (KIS)		High tech KIS		Annual average growth in % (1999-2004)		
	1999	2004	1999	2004	1999	2004	Total	Knowledge intensive (KIS)	High tech KIS
PL	:	7 274	:	3 324	:	292	:	:	:
PT	2 516	2 904	910	1 136	59	70	2.9	4.5	3.7
SI	455	504	205	228	19	24	2.1	2.2	4.3
SK	1 156	1 194	515	539	58	50	0.6	0.9	-3.2
FI	1 532	1 637	873	962	99	109	1.3	2.0	1.9
SE	2 917	3 237	1 840	2 024	193	205	2.1	1.9	1.2
UK	19 813	21 299	10 793	11 761	1 146	1 208	1.5	1.7	1.1
IS	102	110	59	67	6	7	1.4	2.7	3.2
NO	1 647	1 718	952	1 037	88	89	0.9	1.7	0.2
EEA	:	131 345 s	:	65 220 s	:	6 556 s	:	:	:
CH	2 622	2 818	1 389	1 575	146	158	1.5	2.5	1.6
BG	:	1 670	:	659	:	81	:	:	:
HR	:	845	:	332	:	31	:	:	:
RO	3 188	3 376	1 231	1 306	156	139	1.2	1.2	-2.2
TR	:	:	:	:	:	:	:	:	:

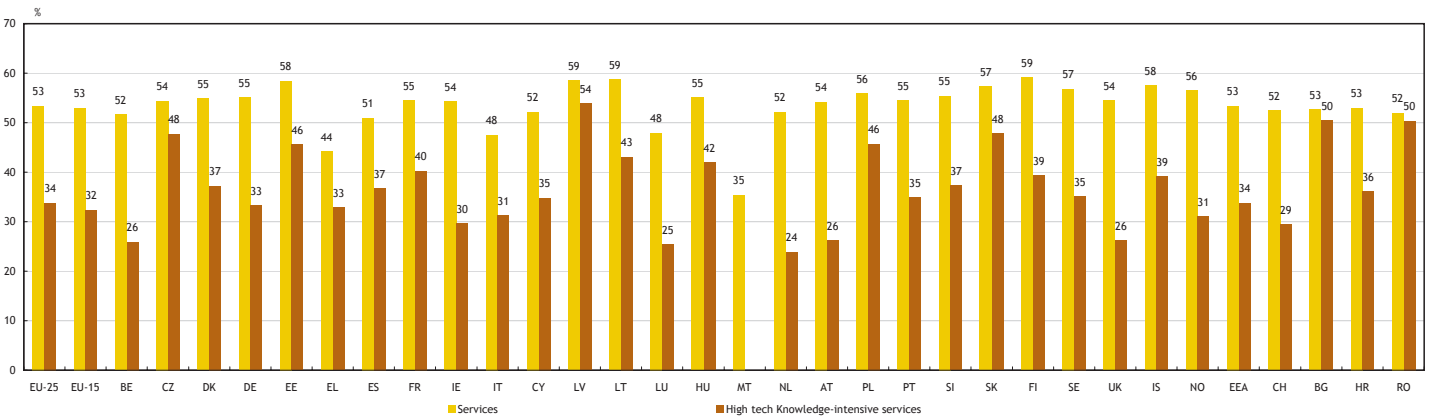
Source: Eurostat - High-tech statistics

Figure 8.1 Percentage of female persons employed in the high and medium high technology and manufacturing sectors in the EEA countries, Candidate Countries and Switzerland — 2004



Source: Eurostat - High-tech statistics

Figure 8.2 Percentage of female persons employed in the high tech knowledge-intensive services and services sectors in the EEA countries, Candidate Countries and Switzerland — 2004



Source: Eurostat - High-tech statistics

Table 8.4 **High tech exports as a percentage of total exports in the EEA countries, Candidate Countries, Switzerland, Japan and United States — 1990 to 2004**

	High-tech exports as % of total exports							
	1990	1995	1999	2000	2001	2002	2003	2004
EU-25	:	:	20.4	21.4	21.1	18.8	18.4	18.2
EU-15	14.3	15.6	19.5	20.6	20.4	18.2	17.7	17.7
BE	3.9	5.5	7.9	8.7	9.0	7.5	7.4	7.0
CZ	:	:	7.8	7.8	9.1	12.3	12.4	13.5
DK	10.0	10.0	13.9	14.4	14.0	15.0	13.4	13.1
DE	10.7	11.6	14.2	16.1	15.8	15.2	14.8	14.8
EE	:	:	10.1	25.1	17.1	9.8	9.4	9.9
EL	1.5	3.1	5.5	7.5	5.6	6.7	7.4	7.1
ES	5.3	5.6	5.9	6.4	6.1	5.7	5.9	5.7
FR	16.7	19.3	24.0	25.5	25.6	21.9	20.7	20.0
IE	28.7	35.0	39.4	40.5	40.8	35.3	29.9	29.1
IT	7.1	7.4	7.5	8.5	8.6	8.2	7.1	7.1
CY	:	:	4.0	3.0	4.0	3.5	4.2	15.9
LV	:	:	2.3	2.2	2.2	2.3	2.7	3.2
LT	:	:	2.1	2.6	2.9	2.4	3.0	2.7
LU	:	:	15.1	20.6	27.9	24.7	29.6	29.1
HU	:	:	19.4	23.1	20.4	20.8	21.8	24.6
MT	:	:	55.7	64.4	58.1	56.5	55.5	55.9
NL	10.2	15.0	21.9	22.8	22.3	18.7	18.8	16.9
AT	7.2	10.3	11.9	14.0	14.6	15.7	15.3	14.8

Source: Eurostat - High-tech statistics

	High tech exports as % of total exports							
	1990	1995	1999	2000	2001	2002	2003	2004
PL	:	:	2.3	2.8	2.7	2.4	2.7	2.7
PT	3.5	4.6	4.4	5.6	6.9	6.4	7.5	7.5
SI	:	:	3.7	4.5	4.8	4.9	5.8	5.2
SK	:	:	3.5	2.9	3.1	2.6	3.3	4.6
FI	6.4	12.6	20.7	23.5	21.1	20.9	20.6	17.7
SE	11.4	12.7	17.8	18.7	14.2	13.7	13.1	13.8
UK	18.6	21.8	27.3	28.9	29.8	28.6	24.4	22.7
IS	0.8	1.9	2.1	1.7	1.3	1.7	2.0	2.4
NO	4.1	3.8	4.5	3.3	3.6	4.6	3.7	3.5
EEA	:	:	:	:	:	:	:	:
CH	14.9	16.1	20.2	19.9	21.1	21.7	22.4	22.2
BG	:	:	1.7	1.6	1.8	2.6	2.9	2.5
HR	:	:	:	:	:	:	:	:
RO	:	:	2.8	4.6	5.0	3.1	3.3	3.1
TR	:	:	3.4	4.0	3.2	1.6	1.8	1.9
JP	23.3	25.3	25.1	27.0	24.7	23.1	22.8	:
US	25.4	25.9	30.1	30.0	28.7	28.0	27.0	:

Source: Eurostat - High-tech statistics

9 - GENERAL DATA

Table 9.1 **Population, GDP and employment in the EEA countries, Candidate Countries, Switzerland, China, Japan and the United States — 1999 and 2004**

	Population on first January in millions		GDP at current prices in thousand million EUR		Employment in millions		Unemployment rate in %		Unemployment rate in % female	
	1999	2004	1999	2004	1999	2004	1999	2004	1999	2004
EU-25	450.0	:	8 382.0	10 266.5	:	193.6	:	10.20	:	11.23
EU-15	375.0	:	8 053.4	9 790.4	155.6	164.7	10.41	9.06	12.42	10.06
BE	10.2	10.4	235.7	283.8	4.0	4.1	9.48	7.94	11.36	9.01
CZ	10.3	10.2	55.3	86.2	4.7	4.7	9.27	8.95	11.25	10.70
DK	5.3	5.4	162.4	194.4	2.7	2.7	5.43	5.51	6.25	5.73
DE	82.0	82.5	2 012.0	2 215.7	36.1	35.5	9.71	12.02	10.17	11.21
EE	1.4	1.4	5.2	9.0	0.6	0.6	13.10	11.09	11.15	9.43
EL	10.9	11.0	117.8	165.3	4.0	4.3	13.44	11.38	22.21	18.85
ES	39.7	42.2	565.4	837.6	14.6	17.9	18.31	12.47	29.54	17.97
FR	58.5	59.9	1 366.5	1 648.4	22.5	24.4	13.61	9.51	16.15	10.69
IE	3.7	4.0	90.6	148.6	1.6	1.8	6.17	4.68	5.93	4.02
IT	56.9	57.9	1 108.0	1 351.3	20.6	22.4	13.24	8.57	19.43	11.39
CY	0.7	0.7	9.0	12.4	0.3	0.3	:	4.46	:	5.44
LV	2.4	2.3	6.8	11.1	1.0	1.0	15.95	10.97	15.45	11.63
LT	3.5	3.4	10.2	17.9	1.5	1.4	15.46	12.80	13.69	13.11
LU	0.4	0.5	18.7	25.7	0.2	0.2	2.27	4.84	2.90	7.89
HU	10.3	10.1	45.1	80.8	3.8	3.9	7.45	6.19	6.64	6.25
MT	0.4	0.4	3.7	4.3	:	0.1	:	7.53	:	9.30
NL	15.8	16.3	374.1	488.6	7.6	8.1	3.76	4.88	5.11	5.30
AT	8.0	8.1	200.0	237.0	3.7	3.7	3.61	5.08	3.69	5.68

Employment and unemployment: 1st quarter for FR 1999.

Source: Eurostat, OECD - MSTI 2005/1

	Population on first January in millions		GDP at current prices in thousand million EUR		Employment in millions		Unemployment rate in %		Unemployment rate in % female	
	1999	2004	1999	2004	1999	2004	1999	2004	1999	2004
PL	38.7	38.2	154.4	195.2	14.9	13.7	14.01	23.57	15.17	24.64
PT	10.1	10.5	112.7	135.0	4.9	5.1	4.81	6.77	5.35	7.74
SI	2.0	2.0	19.9	25.9	0.9	0.9	7.87	6.34	8.07	6.91
SK	5.4	5.4	19.1	33.1	2.1	2.1	18.98	22.85	18.89	24.38
FI	5.2	5.2	121.0	149.7	2.3	2.4	13.24	11.54	14.25	11.87
SE	8.9	9.0	235.8	279.0	4.1	4.3	8.24	7.17	7.35	6.59
UK	59.4	59.7	1 374.5	1 715.8	26.7	27.9	6.41	4.80	5.42	4.35
IS	0.3	0.3	7.9	9.9	0.2	0.2	1.99	4.49	2.86	2.70
NO	4.4	4.6	148.4	201.4	2.3	2.3	3.37	4.44	3.31	4.07
EEA	454.7	:	8 538.3	10 477.7	:	196.0	:	10.13	:	11.13
CH	7.1	7.4	248.6	287.9	3.9	4.0	3.24	4.50	3.70	4.98
BG	8.2	7.8	12.2	19.5	:	3.0	:	13.67	:	13.12
HR	:	:	18.7	27.6	:	1.6	:	15.86	:	18.04
RO	22.5	21.7	33.4	58.9	11.0	9.3	6.65	8.36	5.85	6.55
TR	65.8	71.3	173.1	239.9	21.8 e	21.0 e	:	:	:	:
CN	1 257.9	:	798.5	:	713.9	:	:	:	:	:
JP	126.5	:	4 183.1	3 757.7	66.7	65.3 e	:	:	:	:
US	271.6	:	8 696.2	9 433.5	135.8	141.6 e	:	:	:	:

Employment and unemployment: 1st quarter for PL 1999.

Source: Eurostat, OECD - MSTI 2005/1

METHODOLOGICAL INFORMATION

R&D EXPENDITURE AND PERSONNEL

1. Concepts

The definitions of R&D personnel and R&D expenditure are taken from the *Frascati Manual* OECD, 2002. For further details, see the *Frascati Manua*l, 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**

  The business enterprise sector includes - *Frascati Manual*, § 163 - 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**

  The government sector includes - *Frascati Manual*, § 184 - 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**

  This sector is composed of - *Frascati Manual*, § 206 - all universities, colleges of technology and other institutes of post-sec dary 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**

  This sector includes - *Frascati Manual*, § 194 - 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 Manua*l, § 389 ff.

3. Figures in purchasing power standards - PPS

Purchasing power parities are based on comparisons of the prices of representative and comparable goods or services recorded in the 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. The figures published in this publication are based on current purchasing power standards.

4. R&D intensity

The R&D intensity is the R&D expenditure expressed as a percentage of GDP.
For the computation of the R&D intensity at the national level (EEA countries), GDP from national account is used as reference data. At the regional level, GDP data are taken from the regional accounts. Both data series were extracted from NewCronos - Eurostat 29/08/2005.

5. Aggregates

EEA28: Liechtenstein is not included.
Additional information on the methodology used may be found at Eurostat's reference database:

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

SCIENCE AND TECHNOLOGY IN REGIONS

Regional data are treated at Eurostat according with the guidelines established by The *Regional Dimension of R&D and Innovation Statistics and Experimental Development - Regional Manual*, European Commission, 1996 as well as from the *Frascati Manual* OECD, 2002 (§ 355 and §422).

1. Nomenclature of territorial units for statistics - NUTS

The data presented are broken down according to the Nomenclature of Territorial Units for Statistics (NUTS) classification.

The NUTS is a five-level hierarchical classification comprising three regional and two local levels. In this way, NUTS subdivides each Member State into NUTS 1 regions, each of which is in turn subdivided into NUTS 2 regions, and so on.

In the present publication all data are presented at NUTS 2 level on the basis of the NUTS 2003 version. The exceptions are indicated in the tables or figures.

For Denmark, Estonia, Cyprus, Latvia, Lithuania, Luxembourg, Malta and Slovenia the national level coincides with the NUTS 2 level.

2. Growth domestic product (GDP) at the regional level

The data for R&D expenditure as a percentage of GDP at the regional level presented in this publication is based on the reference year 2002 since regional GDP data for 2003 was not available yet.

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 (until 2003) and Hungary, therefore EU-25 and EEA exclude them.

HUMAN RESOURCES IN SCIENCE AND TECHNOLOGY (HRST)

Statistics on Human Resources in Science and Technology - HRST - can 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 of the labour force and the latter indicates to what degree this demand is likely to be met in the future.

HRST is defined according to the Canberra Manual as a person fulfilling one of the following conditions:

- Successfully completed education at the third level in a S&T field of study;
- Not formally qualified as above, but employed in a S&T occupation where the above qualifications are normally required.

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

- the *International Standard Classification of Education* - ISCED;
- the *International Standard Classification of Occupation* - ISCO.

According to the Canberra Manual, the six broad S&T fields of study are: Natural sciences, Engineering and technology, Medical sciences, Agricultural sciences, Social sciences and humanities, and Other fields (Canberra Manual, § 71).

See also Eurostat's reference database (http://europa.eu.int/newcronos) under Science and Technology / Human Resources in Science & technology.

Stocks and inflows

HRST Stocks provide information on the number of HRST at a particular point in time. In this publication, stock data relate to the employment status as well as the occupational and educational profiles of individuals in quarter 2 of any given year. HRST stock data and their derived indicators are extracted and built up using data from the EU Labour Force Survey - EULFS. The EULFS is based upon a sample of the population. All results conform to Eurostat guidelines on sample-size limitations and are therefore not published if the degree of sampling error is likely to be high, and flagged as unreliable if there degree of reliability is too small.

The basic 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);
- 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 are
- 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.

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 period. The number of graduates from a country's higher education system represents the main inflow into the national stock of HRST.

HRST education inflow data are extracted from the Eurostat Education database building on the UOE data collection on education statistics.

This publication includes the following totals and sub-totals,

Field of education ISCED 1997:

Total:
Sum of fields of study

Science and Engineering (S&E):
Life sciences, Physical sciences, Mathematics and statistics, Computing, Engineering and engineering trades, Manufacturing and processing, Architecture and building (educational field 42, 44, 46, 48, 52, 54, 58).

The sectors of economic activity, as used for Figure 5.4 and Table 5.5 are defined as such, with reference to their respective NACE-codes:

- Agriculture, hunting, forestry, fishing, mining and quarrying (NACE 01 to 14)
- Low-technology (NACE 15+16+17+18+19+20+21+22+36+37)
- Medium low technology(NACE 23+25+26+27+28+35.1)
- Transport and storage (NACE I60 to I63)
- Wholesale and retail trade, hotels and restaurants, private households (NACE G, H, P)
- Electricity, gas, water supply and construction (NACE E and F)
- Manufacturing total (NACE D)
- High and medium high technology manufacturing (NACE 24+29+30+31+32+33+34+35-35.1)
- Other community, social, personal service activities (NACE O)
- Total (TOTAL)
- Public administration, extra-territorial organizations and bodies (NACE L and Q)
- Total services (NACE G to Q)
- Financial intermediation, real estate, renting and business activities (NACE J and K)
- Health and social work (NACE N)
- Knowledge-intensive high-technology services (NACE 64+72+73)
- Education (NACE M)

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

INNOVATION

1. Community Innovation Statistics 2002/2003

The Community Innovation Statistics (CIS) 2002/2003 provide some limited information on the characteristics of innovation activity at enterprise level, where an innovation is a new or significantly improved product (good or service) or the introduction of a new or significantly improved process. The data was compiled by countries on a voluntary basis. Therefore no harmonised methodology or questionnaire was used at national level. The data is therefore not fully comparable, on the one hand between countries and on the other hand with statistics based on other Community Innovation Surveys.

The CIS 2002/2003 survey was carried out in 15 of the 25 EU Member States, as well as Norway, Romania and the Russian Federation.
The statistical unit is the enterprise, as defined in the Council Regulation on statistical units (Council Regulation (EEC) N° 696/93 of 15 March 1993, OJ N° L76 of the 3 March) or as defined in the statistical business register.
For further information on definitions and methodologies, see the metadata in Eurostat's reference database (under Science and Technology / Survey on innovation in EU enterprises).

2. Classification system and conformity with official standards

Enterprises are classified by type of innovation activity:

Innovation: an innovation is a new or significantly improved product (good or service) introduced to the market or the introduction of a new or significantly improved process within an enterprise. Innovations are based on the results of new technological developments, new combinations of existing technology or the utilisation of other knowledge acquired by the enterprise. Innovations may be developed by the innovating enterprise or by another enterprise. However, purely selling innovations wholly produced and developed by other enterprises is not included as an innovation activity.

Product innovators: introduced new and significantly improved goods and/or services with respect to their fundamental characteristics, technical specifications, incorporated software or other immaterial components, intended uses, or user friendliness. Changes of a solely aesthetic nature and the pure sale of product innovations wholly produced and developed by other enterprises are not included.

Process innovators: implemented new and significantly improved production technologies or new and significantly improved methods of supplying services and delivering products. The outcome of such innovations should be significant with respect to the level of output, quality of products (goods or services) or costs of roduction and distribution. Purely organisational or managerial changes are not included.

Enterprises with innovation activity (propensity to innovate): enterprises that introduce new or significantly improved products (goods or services) to the market or enterprises that implement new or significantly improved processes. Innovations are based on the results of new technological developments, new combinations of existing technology or the utilisation of other knowledge acquired by the enterprise. The term covers all types of innovator, namely product innovators, process innovators, as well as enterprises with only on-going and/or abandoned innovation activities.

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

Eurostat uses a breakdown of the manufacturing and the services sectors according to technological intensity and based on NACE rev. 1.1 at 3-digit level.
Further details on this classification can be found in the methodological information on High-Technology (page 118).

PATENTS

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 previously disseminated. Two data bases were used previously 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) will be used for production on the Eurostat webpage.

The new system of data production is as follows:

- Eurostat continues the production of patent statistics (source: Eurostat/EPO) which was already started some years ago. This data is however now produced in using the priority year of the application, and not more the year of filing as previously. The data values are however similar.
- The data on EPO applications with data source OECD is not more disseminated by Eurostat. This data is in general lower compared to the data released by Eurostat. This is due to the fact that all PCT applications designated to the EPO (= applications done in accordance to the procedure under the Patent Co-operation Treaty) are taken into consideration by Eurostat and only partially by the OECD.
- Eurostat has implemented the changes described above as only one single data source is used now (as described above) and as the data produced reflects better the innovation and R & D performance of an economy.

For all further details please see also the Eurostat metadata on patent statistics disseminated on the webpage.
Data are also broken down in technological areas of High technology as shown in this publication. High technology is broken down in six technical fields:

1. Computer and automated business equipment;
2. Micro-organism and genetic engineering;
3. Aviation;
4. Communication technology;
5. Semi-conductors;
6. Lasers.

1. 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.

2. 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 2004, but data for 2003 and 2004 are provisional and are not shown in this publication. EPO data refers to all patent applications by priority year.

3. 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 2004, but data from 1999 onwards are provisional and are not shown in this publication. Due to data availability, USPTO data refers to patents granted as opposed to applications, which is the case of EPO data.

HIGH-TECHNOLOGY

1. Sources and definitions

1.1. SBS indicators

Data on value added and labour productivity are based on Structural Business Statistics. For all further details please see also the Eurostat metadata on high-technology statistics disseminated on the webpage Eurostat's reference database under:
Industry, trade and services / Industry, trade and services - horizontal view / structural Business Statistics (Industry, Construction, Trade and Services).

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

Labour productivity refers to the value added at factor costs per person employed.

1.2. Employment in high-tech - EHT

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 webpage Eurostat's reference database under:
Science and technology / High tech industry and knowledge based services / statistics Statistics on high-tech industries and knowledge-intensive services / High-tech industries and knowledge-intensive services: employment statistics.

1.3. High-tech trade

High-tech trade data have been taken from 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.

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 (Please note that for EHT data, due to restrictions of the data source, a different but derived classification based on NACE at 2-digit level was used (Further details can be found in the methodological information on HRST - page 114).

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.

Market services less KIS
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

ABBREVIATIONS and SYMBOLS

AGR . . . . . .Annual Growth Rate
AAGR . . . . . .Annual Average Growth Rate
BERD . . . . . .Business Enterprise intramural expenditure on R&D
BES . . . . . .Business Enterprise Sector
CC . . . . . .Candidates Countries
CIS 2002/2003 . . . . . .Community Innovation Survey 2002/2003
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 Patents Office
ESA . . . . . .European System of Accounts
EU/EU-25 . . . . . .European Union (25 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 for R&D
GDP . . . . . .Gross Domestic Product
GERD . . . . . .Gross Domestic Expenditure on R&D
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 Technological Indicators (OECD)
NABS . . . . . .Nomenclature for the analysis and comparison . . . . . .of science budgets and programmes
NACE . . . . . .Statistical classification of economic activities . . . . . .in the European Communities
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
S&E . . . . . .Science and Engineering
S&T . . . . . .Science and Technology
SME . . . . . .Small and Medium sized Enterprises
USPTO . . . . . .United States Patent and Trademark Office
WIPO . . . . . .World Intellectual Property Organisation

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
: . . . . . .data not available
- . . . . . .not applicable or real zero
0 . . . . . .less than fifty percent of the unit used
2000-2004 . . . .period of several calendar years (e.g. from 1.1.2000 to 31.12.2004)
2002/2003 . . . . . .academic year (e.g. from 1.9.2002 to 31.8.2003)

COUNTRIES ABBREVIATIONS

EU Member States

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

Candidate countries

BG . . . . . Bulgaria
HR . . . . . Croatia
RO . . . . . Romania
TR . . . . . Turkey

Other countries

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

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