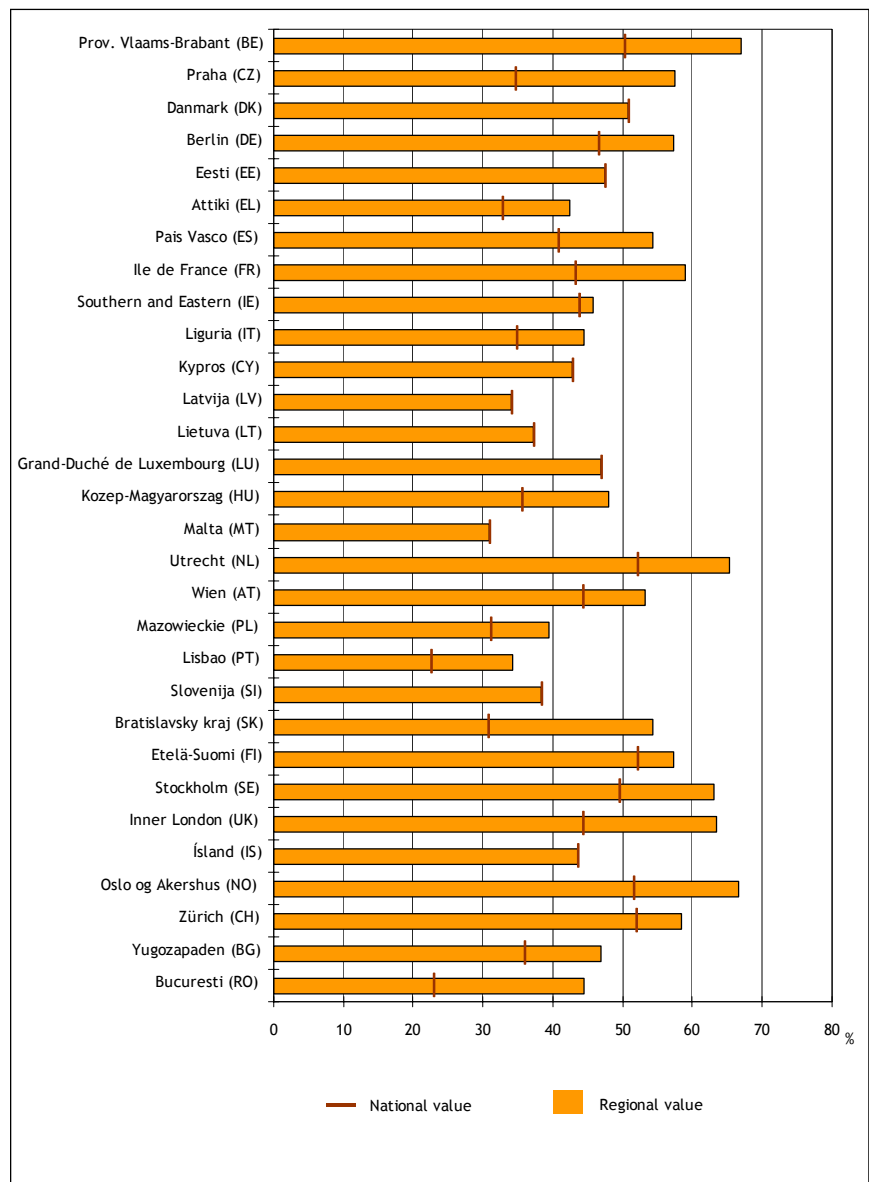


# Regional concentration of S&T labour force in the EU

## Main Findings

- The Belgian region of Province Vlaams-Brabant had the highest proportion (67.0%) of S&T labour force as a share of the total labour force in 2004.
- The highest concentrations of S&T labour force are mostly found in EU capital regions or in other economically strong regions.
- Germany has many regions with a high proportion of persons employed in S&T.
- 30 EU regions at NUTS level 1 had more than half of the persons employed in S&T out of total employment in services.

Figure 1: S&T labour force as % of the total labour force at national level and for the top national region at NUTS level 2 in EU-25, EEA, Switzerland and Candidate countries, 2004



Source: Eurostat HRST data base

Exception to the reference year: NL 2003.  
No available data for HR and TR.

## Statistics in focus

### SCIENCE AND TECHNOLOGY

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Figure 1 shows the share of the S&T labour force in the total labour force for the leading regions of each EEA country, Bulgaria, Romania and Switzerland. The Province of Vlaams-Brabant in Belgium was the top region in Europe with the highest share of S&T labour force (67.0%), closely followed by Utrecht in the Netherlands (65.3%) and Oslo og Akershus in Norway (66.50%). Of all the regions shown, Malta had the smallest share of S&T labour force in the

total labour force, with 30.8%, followed by Latvia, with 34.0%.

Some European countries' top regions showed ratios well above the national level, such as in the Czech Republic and Slovakia. In contrast, the top Finland region was close to the national S&T labour force employment ratio.

## Bruxelles-Capitale was the leading region in Belgium and Europe in terms of the share of S&T labour force in the total labour force.

Table 2: S&T labour force categories - Top and bottom regions in EU-25 at NUTS level 1 in terms of S&T labour force as % of the total labour force, share of women, 2004, and annual average growth rate for 1999-2004

Region (NUTS level 1)	S&T labour force (HRST)				Persons employed in S&T with S&T education (HRSTC)				S&T labour force with S&T education (HRSTE)				Persons employed in S&T (HRSTO)			
	Total in 1000	% of Women	% of active population	AAGR 1999-2004	Total in 1000	% of Women	% of active population	AAGR 1999-2004	Total in 1000	% of Women	% of active population	AAGR 1999-2004	Total in 1000	% of Women	% of active population	AAGR 1999-2004
Bruxelles-Capitale (BE)	277	49.9	64.5	6.5	98	48.9	22.9	1.7	252	50.1	58.8	7.4	123	48.7	28.6	1.3
Île de France (FR)	3 357	50.1	62.4	6.0	1 235	49.0	23.0	3.1	2 658	51.7	49.4	6.9	1 933	47.2	35.9	3.0
Baden-Württemberg (DE)	1 049	50.3	60.4	4.1	379	50.5	21.8	1.5	788	47.5	45.4	4.1	641	53.8	36.9	2.6
Åland (FI)	8	35.7	59.5	8.1	:	:	:	:	6	:	41.0	10.5	5	:	34.1	3.1
West-Nederland (NL)	2 149	47.1	54.6	7.2	820	47.3	20.8	5.5	1 500	45.3	38.1	9.6	1 468	49.0	37.3	4.1
Sachsen (DE)	1 171	50.7	53.5	4.9	399	59.2	18.2	2.2	980	47.6	44.8	5.5	590	61.7	27.0	2.2
Comunidad de Madrid (ES)	1 517	49.3	52.3	9.4	665	48.4	22.9	10.4	1 335	50.1	46.1	10.1	847	47.3	29.2	9.0
Noreste (ES)	1 041	47.6	52.3	9.5	391	52.0	19.7	9.1	945	48.2	47.5	10.5	487	50.0	24.5	7.4
Hessen (DE)	1 510	43.7	51.8	4.8	511	38.3	17.5	3.1	992	36.8	34.0	5.5	1 029	47.6	35.3	3.4
London (UK)	1 894	46.4	51.5	5.1	763	44.6	20.7	2.8	1 501	47.2	40.8	4.7	1 156	44.3	31.4	4.0
Vlaams Gewest (BE)	1 388	48.0	51.3	5.8	549	52.6	20.3	3.6	1 150	50.4	42.5	6.5	788	47.7	29.1	3.4
Mecklenburg-Vorpommern (DE)	453	51.3	51.1	5.4	128	61.2	14.5	-1.0	354	49.0	39.9	4.6	228	60.6	25.7	2.6
Brandenburg (DE)	689	51.8	50.9	4.5	223	59.4	16.5	0.5	544	47.4	40.2	3.8	368	62.8	27.2	2.9
Hamburg (DE)	441	47.8	50.9	3.8	154	42.5	17.7	4.6	268	41.8	31.0	5.3	326	50.2	37.6	3.0
Thüringen (DE)	616	52.1	50.5	3.7	208	56.1	17.0	0.9	480	48.1	39.4	3.5	343	60.2	28.2	2.1
Dunantul (HU)	401	56.6	30.7	5.1	142	56.6	10.9	5.8	267	51.7	20.5	7.5	276	61.3	21.1	3.3
Poludniowy (PL)	1 061	59.1	30.6	4.7	400	58.7	11.5	4.4	747	54.3	21.5	9.3	714	64.0	20.6	0.8
Slovenska Republika (SK)	803	57.2	30.4	5.5	235	55.6	8.9	5.4	425	50.2	16.1	9.4	613	61.4	23.2	3.2
Poludniowo-Zachodni (PL)	490	57.8	29.4	4.3	183	61.7	11.0	4.7	345	54.6	20.7	8.5	328	63.3	19.7	0.9
Isola (IT)	717	49.5	29.2	4.9	234	49.8	9.6	3.5	374	52.4	15.2	4.4	578	47.7	23.5	4.6
Malta (MT)	46	39.1	29.1	:	18	45.9	11.8	:	29	45.4	18.5	:	35	37.4	22.3	:
Wschodni (PL)	864	57.7	28.8	4.7	312	61.1	10.4	6.2	614	57.1	20.5	9.9	562	60.2	18.8	1.0
Polnocny (PL)	688	57.0	28.5	4.7	260	59.6	10.8	7.5	482	55.2	20.0	10.3	466	60.4	19.3	1.5
Voreia Ellada (EL)	434	48.3	28.4	6.6	207	48.9	13.6	5.5	381	48.1	24.9	6.5	260	49.2	17.0	5.8
Polnocno-Zachodni (PL)	777	56.7	27.9	5.1	281	59.7	10.1	10.3	536	54.3	19.2	12.1	522	60.8	18.8	1.8
Nisia Aigaiou, Kriti (EL)	127	45.9	26.5	13.9	61	47.9	12.6	13.3	110	45.4	22.8	14.5	78	48.1	16.3	12.7
Kentriki Ellada (EL)	245	45.5	23.8	12.1	115	48.3	11.2	8.1	213	45.7	20.7	11.7	147	47.4	14.3	9.4
Continente (PT)	1 133	51.4	21.6	10.9	514	60.9	9.8	9.6	810	59.2	15.4	13.4	837	49.6	16.0	8.0
Região Autónoma da Madeira (PT)	22	58.5	18.9	18.8	11	:	9.0	:	14	64.0	12.3	:	18	58.2	15.6	16.5
Região Autónoma dos Açores (PT)	17	54.3	15.4	6.3	:	:	:	:	9	:	8.2	:	14	:	13.0	4.2

Exceptions to the reference periods: NL 2003/1999; IE 2004/2000; MT 2004/2002.  
Break in series: PT 2004.

Source: Eurostat HRST data base

Table 2 provides data on the top and bottom 15 regions (at NUTS 1 level) within the EU-25 in 2004.

The top 15 regions are mostly capital regions or major economic clusters. Bruxelles-Capitale (BE) had the highest share of S&T labour force in terms of the total labour force in 2004, with 64.5%. Baden-Württemberg (DE), the first German region in the top 15, is in third position, with 60.4%. The share of persons employed in S&T in terms of labour force was much smaller, between 25% and 38% for the top 15 EU regions.

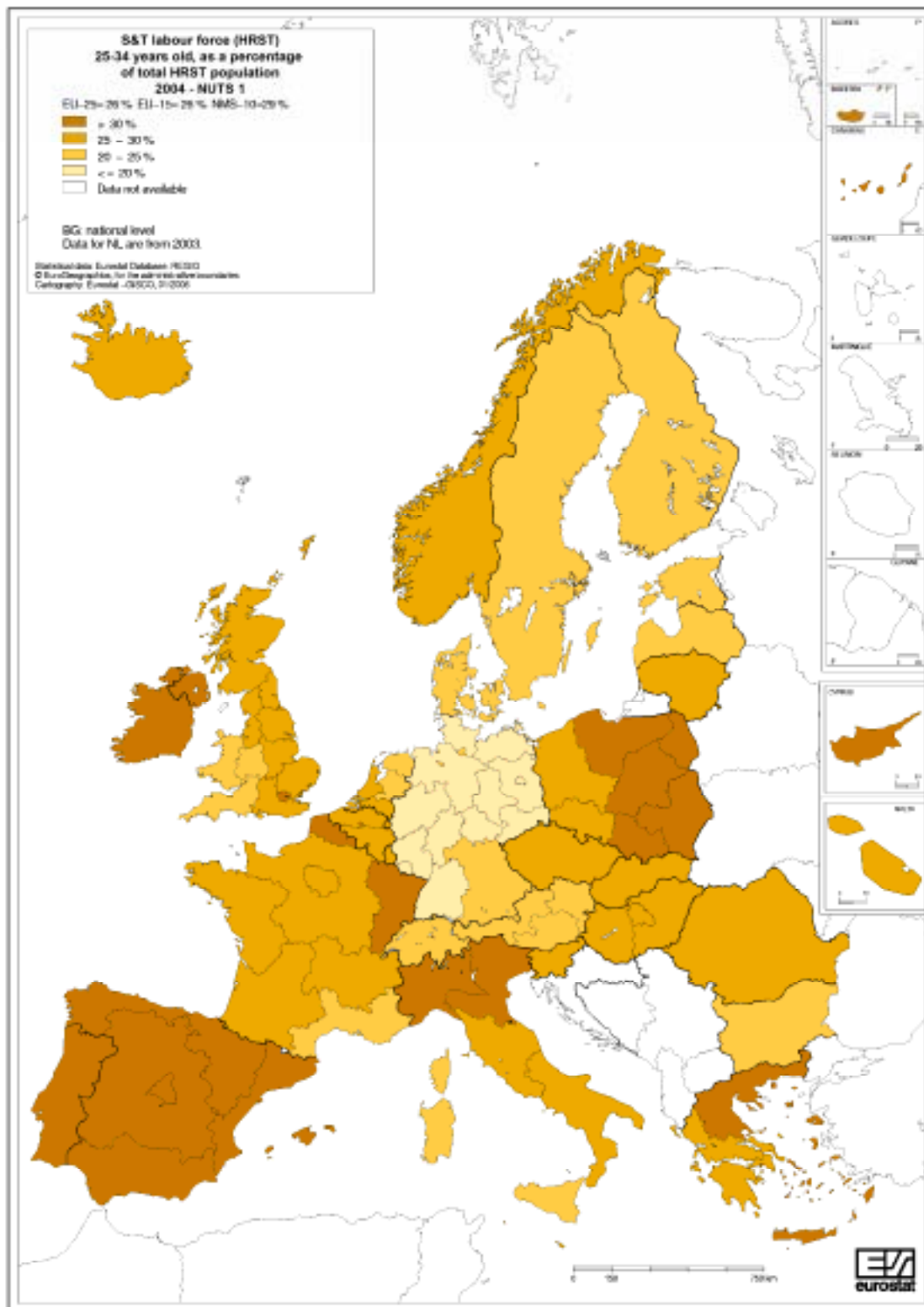
At the other end of the scale, Poland recorded the highest number of regions in the bottom 15 regions, with a total of 5 regions. Portugal followed with the bottom three regions. Continente, Região Autónoma

de Madeira and Região Autónoma dos Açores had 21.6%, 18.9% and 15.4% of S&T labour force as a proportion of their total labour force.

Looking at the annual average growth rates – AAGR – between 1999 and 2004, the bottom 15 regions appear to be more dynamic than many of the top regions. The 3 Portuguese regions had the fastest growth rates, Região Autónoma de Madeira's AAGR being the highest in the EU at 18.8% between 1999 and 2004 for the S&T labour force and 16.5% for persons employed in S&T. Bruxelles-Capitale (BE) had an annual average growth rate of only 6.5% in terms of S&T labour force. The percentage of human resources in S&T grew even less in the top region in Germany, Baden-Württemberg (DE).

Differences in the share of women appear in all S&T labour force categories in all regions listed in Table 2. Among the top 15 EU regions the share of the female S&T labour force was often lower than in the bottom 15 EU regions. Indeed, whereas Île de France (FR) registered

51.7% women in the S&T labour force with S&T education, the figure was 64.0% in Região Autónoma de Madeira (PT). This is also true for persons employed in S&T, where the less developed regions in terms of S&T employees often had a higher percentage of women.



Source: Eurostat HRST data base

## German regions with a high proportion of persons employed in S&T in the manufacturing sectors

**Table 4: Part 1 - Regional top 30 at NUTS level 1 for persons employed in S&T in the manufacturing sectors in EU-25, 2004**

Region (NUTS level 1)	Manufacturing total			High technology manufacturing			Medium high technology manufacturing			Medium low technology manufacturing			Low technology manufacturing		
	in 1000	% of total employment	AAGR	in 1000	% of total employment	AAGR	in 1000	% of total employment	AAGR	in 1000	% of total employment	AAGR	in 1000	% of total employment	AAGR
			1999-2004 in %			1999-2004 in %			1999-2004 in %			1999-2004 in %			1999-2004 in %
Île de France (FR)	248	49.5	-1.2	63	76.4	2.4	99	55.6	-3.1	23	36.1	-5.1	63	35.5	0.3
Méditerranée (FR)	74	34.3	5.0	18 u	69.5 u	8.4	22	38.4	3.3	10 u	20.0 u	-2.8	23	28.7	9.0
Berlin (DE)	52	34.2	-2.1	10	46.9	-5.8	23 u	37.9 u	-0.2	:	:	:	16	30.8	-2.4
Hamburg (DE)	34	31.6	-2.2	:	:	:	11	31.3	-7.2	:	:	:	17	35.4	5.2
Ostösterreich (AT)	63	28.9	8.2	9	44.3	-4.5	24	39.9	12.3	13	20.9	7.5	19	23.2	13.3
London (UK)	67	27.9	-1.1	:	:	:	15	21.7	-3.2	:	:	:	39	31.4	-0.2
Sud-Ouest (FR)	109	27.8	7.4	11 u	55.2 u	0.2	51	43.8	3.3	17 u	20.0 u	19.3	30	17.6	14.8
Hessen (DE)	159	27.2	0.6	29	48.7	1.4	87	33.6	-0.7	21	16.5	2.9	23	16.1	2.8
Manner-Suomi (FI)	121	27.1	2.9	25	54.1	7.3	35	30.0	3.1	20	20.3	-0.9	41	22.2	2.3
Baden-Württemberg (DE)	431	26.5	3.8	63	38.8	2.9	253	32.6	5.9	50	16.5	0.6	65	16.8	0.3
Bruxelles-Capitale (BE)	5	26.2	-11.9	:	:	:	3 u	41.3 u	-5.8	:	:	:	:	:	:
Sverige (SE)	178	26.1	-1.3	28	59.7	-1.5	79	30.5	-1.4	23	15.3	1.8	49	21.4	-2.4
Comunidad de Madrid (ES)	93	26.0	4.5	13	41.8	4.3	36	35.0	3.7	5 u	8.4 u	-2.5	39	23.3	6.4
Bremen (DE)	13	25.9	2.9	:	:	:	7 u	33.2 u	:	:	:	:	:	:	:
Danmark (DK)	108	24.9	2.9	10	37.5	6.7	45	32.9	2.1	18	20.3	5.9	35	19.1	1.5
Bayern (DE)	395	24.7	2.7	49	39.0	3.1	225	32.0	1.7	49	15.7	9.5	72	15.8	1.6
Südosterreich (AT)	38	24.7	19.8	6 u	46.4 u	12.0	14	32.2	28.1	12	23.5	19.3	6 u	13.3 u	15.6
Westösterreich (AT)	74	24.6	16.3	7 u	43.4 u	10.5	27	33.9	18.1	22	23.1	14.2	18	16.7	19.3
Schleswig-Holstein (DE)	45	24.6	-0.2	7 u	35.4 u	:	22	34.1	1.7	7 u	23.8 u	:	8 u	12.2 u	-8.2
South East (UK)	115	24.6	-0.5	23	35.9	-4.8	45	28.1	-4.0	13	14.4	0.0	34	22.2	10.9
Niedersachsen (DE)	178	24.2	3.9	18	34.8	8.8	89	28.4	2.8	29	20.8	4.8	42	18.3	3.8
Région Wallone (BE)	41	24.0	-4.4	:	:	:	17	32.9	-7.1	11	20.7	-2.6	10	17.1	0.0
Centre-Est (FR)	145	23.6	2.6	23	50.8	2.0	73	38.2	5.8	32	15.7	0.5	18 u	10.1 u	-3.6
Rheinland-Pfalz (DE)	98	23.4	0.8	11	39.1	-0.2	57	32.6	1.7	14	15.0	-1.5	15	12.9	0.9
Bassin Parisien (FR)	200	23.3	6.2	17 u	53.8 u	2.4	95	30.9	7.4	46	19.5	3.6	43	15.0	8.2
Zuid-Nederland (NL)	75	23.3	1.5	16 u	43.8 u	-5.6	26	30.1	5.1	10 u	15.8 u	-3.8	23	16.9	7.1
West-Nederland (NL)	81	22.9	1.7	:	:	:	23	27.5	-3.0	14	20.5	5.5	40	21.2	5.4
Vlaams Gewest (BE)	120	22.7	3.7	11	40.2	0.2	51	29.8	1.9	26	20.5	11.2	32	15.7	3.2
Nordrhein-Westfalen (DE)	367	21.7	0.0	34	37.3	0.6	181	31.4	0.7	85	15.2	-0.6	66	14.4	-1.2
Est (FR)	108	21.4	4.6	17 u	62.2 u	14.1	43	22.6	-0.4	23	17.3	6.9	25	16.3	8.0

Exception to the reference year: NL 2003.  
AT provisional value and break in series in 2004.

Source: Eurostat HRST data base

The map on page 3 shows the share of the younger S&T labour force (25-34 year-olds) among all human resources in the S&T labour force. For most of the regions, the proportion of the S&T labour force in the 25-34 bracket was between 25% and 30%. There are national disparities in some countries, however.

In Germany, for example, the share of this younger S&T labour force group was less than 20% for the 13 regions. At the opposite end of the scale, this share was more than 30% in all Spanish regions (with a ratio of 34% to 38%). In Ireland, the S&T labour force in the 25-34 age group was also more than 30% of the total S&T labour force. The same is true for 4 Polish regions (Poludniowy, Centralny, Polnocny, Wschodni), whereas in the remaining 2 Polish regions (Poludniowo-Zachodni and Polnocno-Zachodni) it was between 25% to 30% of the total S&T labour force.

The biggest regional gap between the highest and lowest S&T labour force shares in the younger age group can be seen in France. In Est and Nord-Pas-de-Calais (FR) more than 30% of the total S&T labour force were between 25 and 34 years old. At

the opposite end of the scale, in Méditerranée (FR) this proportion fell to under 20%.

Table 4 (Parts 1 and 2) gives the number of persons employed in S&T in the manufacturing industries and services sectors at regional level. The table shows the top 30 NUTS 1 regions for persons employed in S&T in the manufacturing and the services sectors.

In terms of persons employed in S&T as a share of total regional employment, German regions led the way in the manufacturing sectors: 10 out of 30 regions with the highest shares were German. 6 regions out of 30 were French, with Île de France (FR) and Méditerranée (FR) first and second with shares of 49.5% and 34.3% respectively.

The high technology manufacturing sector often has higher needs for persons employed in S&T, with shares of up to 76.4% of total regional employment. These ratios were much smaller in the medium-low technology manufacturing and low technology manufacturing sectors. In the former the highest percentage of sectoral persons employed in S&T was 36.1% in Île de France (FR) and the lowest 8.4% in Madrid (ES).

**Table 4: Part 2 - Regional top 30 at NUTS level 1 for persons employed in S&T in the Knowledge-intensive services sectors in EU-25, 2004**

Region (NUTS level 1)	Services Total			Knowledge-intensive financial services			Knowledge-intensive high-technology services			Knowledge-intensive market services			Other knowledge-intensive services		
	in 1000	% of total employment	AAGR 1999-2004 in %	in 1000	% of total employment	AAGR 1999-2004 in %	in 1000	% of total employment	AAGR 1999-2004 in %	in 1000	% of total employment	AAGR 1999-2004 in %	in 1000	% of total employment	AAGR 1999-2004 in %
Berlin (DE)	567	49.5	3.4	18 u	43.6 u	3.3	39	59.2	3.4	87	48.4	3.0	278	74.8	4.8
Hamburg (DE)	284	45.7	4.0	22	59.2	5.4	20	55.4	8.7	59	48.5	9.1	107	68.6	2.1
Grand-Duché de Luxembourg (LU)	65	45.0	4.7	11	58.0	3.8	3	49.9	1.8	7	44.8	3.9	21	69.9	2.3
Hessen (DE)	834	44.3	4.1	62	40.3	1.5	65	54.6	8.5	124	46.7	4.2	319	66.2	5.1
Sverige (SE)	1430	44.2	4.9	73	82.0	2.8	133	65.1	4.9	222	49.7	5.5	645	50.3	4.2
West-Nederland (NL)	1311	43.9	4.3	94	60.4	3.8	87	50.1	5.3	246	49.0	7.7	579	64.9	3.3
Bremen (DE)	83	43.5	2.4	:	:	:	:	:	:	11 u	44.2 u	4.3	37	66.5	3.5
Thüringen (DE)	278	43.2	1.9	10 u	45.6 u	0.0	11 u	43.3 u	:	23	42.2	8.6	139	69.3	0.2
Baden-Württemberg (DE)	1233	43.1	3.2	64	36.4	5.2	96	55.8	5.2	163	48.2	5.9	543	65.2	2.4
Nordrhein-Westfalen (DE)	2148	43.0	3.8	116	44.7	3.2	125	52.4	7.5	264	48.0	6.9	945	66.7	4.9
Sachsen (DE)	496	42.9	2.5	12 u	32.5 u	:	29	50.8	10.9	65	48.4	0.7	241	69.3	3.3
Rheinland-Pfalz (DE)	483	42.5	4.2	26	35.9	4.2	31	56.5	12.7	46	44.2	1.2	218	67.0	6.0
Centralny (PL)	753	42.5	:	60	66.0	:	51	51.2	:	85	38.8	:	301	68.6	:
Niedersachsen (DE)	931	42.4	3.7	39	35.6	-0.3	47	49.4	9.0	92	42.8	2.5	413	67.0	4.2
Bayern (DE)	1525	42.1	3.9	98	40.1	3.8	110	55.0	4.4	196	47.4	3.6	641	64.8	4.3
Danmark (DK)	836	41.8	3.5	48	61.3	5.4	64	56.8	1.3	108	53.5	2.0	425	55.4	3.8
Schleswig-Holstein (DE)	365	41.7	2.3	17 u	40.4 u	-1.2	16 u	42.5 u	0.2	43	45.6	4.6	161	66.5	4.7
Saarland (DE)	117	41.7	2.5	7 u	42.3 u	:	5 u	37.0 u	:	16 u	54.0 u	8.5	46	62.2	1.9
Slovenija (SI)	210	41.6	7.3	14 u	62.7 u	10.4	12 u	48.3 u	7.5	21	44.3	8.8	97	71.9	6.4
Brandenburg (DE)	319	41.6	3.8	13 u	43.0 u	2.8	11 u	37.6 u	:	36	45.6	3.0	144	70.2	2.0
Noord-Nederland (NL)	237	41.6	4.8	13	62.5	1.6	9	41.4	8.8	36	45.1	11.5	135	64.4	3.8
Wschodni (PL)	449	41.0	:	23 u	65.4 u	:	10 u	29.0 u	:	29 u	41.5 u	:	230	68.3	:
Oost-Nederland (NL)	491	41.0	3.7	30	62.1	-0.1	25	41.9	5.6	71	46.5	5.2	264	64.7	4.0
Nord-Ovest (IT)	1646	40.8	8.3	120	52.8	5.2	125	57.0	6.6	367	53.4	15.2	667	73.0	5.3
Mecklenburg-Vorpommern (DE)	203	40.8	4.2	7 u	50.0 u	:	6 u	44.3 u	:	24	41.1	16.2	97	69.7	4.3
Közép-Magyarország (HU)	362	40.6	5.0	23	66.9	-0.6	38	57.9	14.7	50	41.8	7.3	158	67.8	4.1
Ile de France (FR)	1614	40.1	3.6	85	33.8	3.3	252	69.2	6.3	273	38.5	4.3	569	60.5	1.9
Ceska Republika (CZ)	1054	40.0	4.3	64	68.3	5.6	72	50.0	5.4	136	58.5	6.8	453	66.6	4.1
Sachsen-Anhalt (DE)	266	39.6	1.7	11 u	48.8 u	2.6	6 u	36.9 u	:	20	38.5	3.2	131	69.3	1.8
Centro (IT)	1270	39.5	7.1	96	63.9	6.7	116	59.6	14.3	232	51.9	12.6	532	74.3	4.8

Exception to the reference year: NL 2003.

Source: Eurostat HRST data base

Looking at the annual average growth rates (AAGR) in the manufacturing sectors between 1999 and 2004, the leading European region (Île de France, FR) recorded a reduction of persons employed in S&T. With regard to the total manufacturing sector, this reduction was even stronger in other regions (such as Hamburg or Berlin, both in DE) whereas Südösterreich (AT) had an AAGR of close to 20% during the observation period.

Table 4, Part 2, shows the top 30 NUTS 1 European regions in terms of persons employed in S&T in the services sectors in 2004, together with the respective annual average growth rates (AAGR).

Of the 42 million employed in S&T working in services, slightly more than half (21.8 million) work in the 30 regions shown in the table.

As in manufacturing, Germany, with 16 of the 30 leading regions, was also broadly represented in services. 3 German regions can be found among the first five leading regions. Berlin (DE) was first with a share of persons employed in S&T as a percentage of total employment of 49.5%, followed by Hamburg (DE) with 45.7%. Luxembourg comes third with a

proportion of persons employed in S&T as a percentage of total employment of 45%. The top 30 go down to the Italian region of Centro, which still has almost 40% of the regional workforce employed in S&T as professionals and technicians.

As with manufacturing, the highest shares of persons employed in S&T are found in the other knowledge-intensive services, which comprise the education, health and social work sectors. This sub-sector also provided most of the jobs for persons employed in S&T in services in absolute terms.

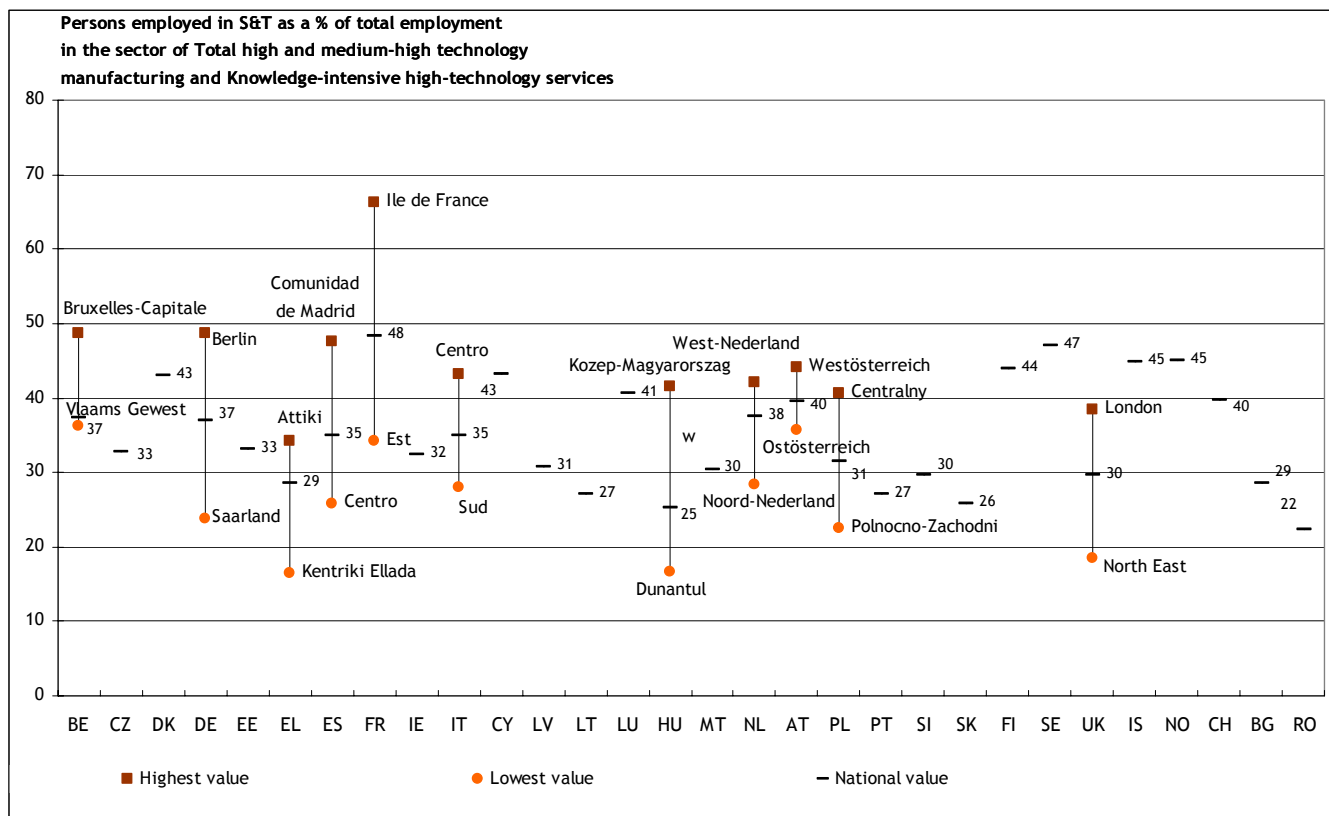
The proportion of persons employed in S&T as a percentage of total employment in the latter sector was over 60% for most of the regions. Berlin (DE) and Centro (IT), ranking first and 30th, had the highest shares, with 74.8% and 74.4% respectively.

Based on the regional AAGR, most of the 30 leading European regions increased their S&T employment rates in services both in general and in the sub-sectors. The highest AAGRs in services were observed in Italy, in the regions of Nord-Ovest (8.3%) and Centro (7.0%). Sachsen-Anhalt (DE) had the lowest AAGR of the 30 leading European regions with only 1.7%.



## Close to 70% of total employment in Île de France are employed in S&T in High technology manufacturing and Knowledge-intensive high-technology Services

**Figure 5: Regional disparities in terms of persons employed in S&T as a percentage of total employment at NUTS level 1 in the sector of economic activity “Total high and medium-high technology manufacturing and Knowledge-intensive high-technology services” in EU-25, EEA, Switzerland and Candidate Countries, 2004**



Exception to the reference year: NL 2003.  
No available data for HR and TR.

Source: Eurostat HRST data base

Figure 5 summarises the proportion of persons employed in S&T in total high and medium-high technology manufacturing and knowledge-intensive high-technology services and shows the regional disparities of this employment in relation to total employment in the regions concerned. Where available, data are given for all EEA and EU candidate countries.

The national relative averages of persons employed in S&T (also shown in the figure) as a percentage of total employment in these sectors are between 25% and 50%. France had the highest national ratio with 48%, closely followed by Sweden (47%). At the opposite end of the scale, the lowest national shares of persons employed in S&T in this sector were recorded in Romania (22%) and Hungary (25%).

The regions with the highest proportion of persons employed in S&T as a percentage of total employment were often found in capital regions or important economic clusters in Europe. Île de France (FR) — with 66.3% — had the highest share in this aggregated sector. At the other end of the

scale, Attiki (EL) only had a share of 34.2% of persons employed in S&T out of total employment.

France also showed a large disparity between its top and lowest performing regions: Est (the lowest French region) had half as many persons employed in S&T as professionals and technicians as the top French region (Île de France), with a proportion of persons employed in S&T out of total employment of 34.3% against 66.3%.

In some countries the dispersion between the leading national region and the bottom national region is much lower. In Austria, for example, Westösterreich recorded a share of 44.2% and Ostösterreich 35.7%, which are very close to the national average of 40%.

Another country with low dispersion is Belgium, where Vlaams Gewest (BE) had the lowest share of persons employed in S&T out of total employment (36.3%). This share was close to the national average. At the same time, Bruxelles-Capitale showed a certain concentration of persons employed in S&T, with a ratio of 48.6% of total employment.

## ➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

### 1. Human resources in science and technology—HRST

HRST (S&T labour force) and its sub-groups are measured using characteristics of educational achievement and occupation and follow the guidelines of the *Canberra Manual*.

#### • Persons employed in S&T: Human Resources in Science and Technology — Occupation (HRSTO)

Individuals who are employed in an S&T occupation as professionals and technicians (ISCO '88 COM codes 2 or 3).

#### • S&T labour force with S&T education: Human Resources in Science and Technology — Education (HRSTE)

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

#### • Persons employed in S&T with S&T education: Human Resources in Science and Technology — Core (HRSTC)

Individuals who have successfully completed education at the third level in an S&T field of study (ISCED '97 version levels 5a, 5b or 6) and are employed in an S&T occupation as professionals and technicians (ISCO '88 COM codes 2 or 3).

#### • Scientists and Engineers: S&E

Physics, mathematical and engineering occupations (ISCO '88 COM code 21); life sciences and health occupations (ISCO '88 COM code 22).

#### Reference manual

*Manual on the measurement of human resources devoted to S&T — Canberra Manual*, Eurostat/OECD, 1994.

### 2. NACE

Data presented by sector of economic activity are based on the statistical classification of economic activities in the European Community, NACE Rev.1.1., with the following details:

#### Manufacturing (15 to 37)

##### High and medium-high technology manufacturing

24 Manufacture of chemicals and chemical products; 29 to 35 Manufacture of machinery and equipment n.e.c.; man. of electrical and optical equipment; man. of motor vehicles, trailers and semi-trailers; man. of other transport equipment

##### Low and medium-low technology manufacturing

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; 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; 36 to 37 Manufacturing n.e.c.

#### Services (50 to 99)

##### Total knowledge-intensive services

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

##### Knowledge-intensive high-tech. services

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

##### Knowledge-intensive market 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

##### Knowledge-intensive financial services

65 to 67 Financial intermediation

##### Other knowledge-intensive services

80 Education; 85 Health and social work; 92 Recreational, cultural and sporting activities

#### Less knowledge-intensive services

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 organisations and bodies

#### Agriculture, hunting, forestry, fishing, mining and quarrying (01-14)

#### Utilities and construction (40, 41 and 45)

(Two-digit codes refer to NACE divisions)

### 3. Data source

Where not otherwise indicated, the data presented are derived from the **European Union Labour Force Survey (EU LFS)**. The most recent data were extracted in October 2005 and refer to the spring quarter of 2004. These HRST indicators can be found in Eurostat's HRST domain of NewCronos, Theme 9.

#### Quality of the data

The guidelines on the sample size reliability of the data established by the EU LFS are applied to the HRST database. Therefore, breakdowns for which quality levels are considered insufficient are either flagged as not available or unreliable.

### 4. Country codes

EU: European Union, including the 25 Member States (EU-25): Belgium (BE), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Greece (EL), Spain (ES), France (FR), Ireland (IE), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK).

EEA: European Economic Area.

BG: Bulgaria; RO: Romania; TR: Turkey; IS: Iceland; NO: Norway; CH: Switzerland.

### 5. Nomenclature of territorial units for statistics — NUTS

The Nomenclature of Territorial Units for Statistics — NUTS — was established to provide a single, uniform breakdown of territorial units for the production of regional statistics for the European Union. NUTS is a five-level hierarchical classification comprising three regional and two local levels. In this way, NUTS subdivides each Member State into a whole number of NUTS 1 regions, each of which is in turn subdivided into a whole number of NUTS 2 regions, and so on.

In the present edition of Statistics in Focus data are presented at NUTS 1 or NUTS 2 level on the basis of the NUTS 2003 version.

Exceptions can be found for the Czech Republic, Ireland and Malta, which are classified at NUTS 1 level. Denmark, Estonia, Cyprus, Latvia, Lithuania, Luxembourg, Slovenia and Iceland are classified at NUTS 2 level, which explains their presence amongst the regions.





















### 6. Statistical abbreviations and Symbols

: not available                      b                      break in series  
s                      Eurostat estimate                      u                      Unreliable value

## Further information:

Data: [EUROSTAT Website/Home page/Science and technology/Data](http://ec.europa.eu/eurostat/home)

### Science and technology

-  Research and development
-  Survey on innovation in EU enterprises
-  High tech industry and knowledge based services
-  Patent statistics
-  **Human Resources in Science & Technology**
  -  **Stocks of HRST at the national and regional levels; unemployment for HRST and non-HRST**
    -  Annual data on HRST and sub-groups of HRST at the national level
    -  **Annual data on HRST and sub-groups of HRST at the regional level**
      -      Annual data on HRST and sub-groups of HRST at the regional level (NUTS 2)
      -      Annual data on employed HRST at the regional level, by sector of activity (NUTS 1)
      -      Annual data on HRST and sub-groups of HRST at the regional level by age (NUTS 1)

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