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Science, Technology and Innovation in Europe

EU27 R&D spending stable at 1.84% of GDP in 2006

5% of the workforce in the EU27 are scientists and engineers

In 2006, the **EU27** spent 1.84% of GDP on Research & Development[1] (R&D). In 2005, R&D intensity (i.e. R&D expenditure as a percentage of GDP) was also 1.84% and in 2000 it was 1.86%. In 2006, R&D expenditure in the **EU27** amounted to more than 210 billion euro, compared with 170 billion euro in 2000.

Eurostat, the Statistical Office of the European Communities publishes the 2008 edition of **Science, Technology and Innovation in Europe**[2]. This publication covers a wide range of indicators in line with the strategic goals set out by the European Council in the Lisbon strategy aiming to turn the European union by 2010 into the most competitive and dynamic knowledge-based economy in the world. The indicators include R&D expenditure, R&D personnel, patents, venture capital, high-tech external trade and other indicators related to high-tech and knowledge intensive sectors of the economy.

In this News Release Eurostat presents a limited selection of the data available in the publication.

R&D intensity varies from 0.4% of GDP in Cyprus to 3.8% in Sweden

In 2006, the highest R&D intensity in the **EU27** was registered in **Sweden** (3.82% of GDP) and **Finland** (3.45%), followed by **Germany** (2.51%), **Austria** (2.45%) and **Denmark** (2.43%). The Member States with the lowest R&D intensity were **Cyprus** (0.42%), **Romania** (0.46%), **Bulgaria** (0.48%) and **Slovakia** (0.49%).

The highest increases in R&D intensity between 2000 and 2006 were found in **Austria** (from 1.91% to 2.45%), **Estonia** (from 0.61% to 1.14%) and the **Czech Republic** (from 1.21% to 1.54%).

Together, **Germany** (58 billion euro in 2006), **France** (38 bn) and the **United Kingdom** (32 bn in 2005) spent around 60% of total R&D expenditure in the **EU27**.

Highest proportion of scientists and engineers in Belgium, Ireland and Finland

In 2006, 4.8% of the labour force in the **EU27** worked as scientists or engineers[3]. The highest shares of scientists and engineers were found in **Belgium** (7.9%), **Ireland** (6.8%), **Finland** (6.7%), **Sweden** (6.5%) and **Denmark** (6.0%), and the lowest shares in **Portugal** (2.7%), **Bulgaria**, **Austria** and **Slovakia** (all 3.0%).

R&D expenditure and scientists and engineers in the EU27

	R&D expenditure, (mio euro)	R&D intensity, R&D expenditure as % of GDP			Scientists and engineers, % of labour force,
	2006*	2000	2005	2006	2006**
EU27	212 837e	1.86e	1.84	1.84e	4.8e
Belgium	5 798p	1.97	1.84	1.83p	7.9
Bulgaria	121	0.52	0.49	0.48	3.0
Czech Republic	1 761	1.21	1.41	1.54	3.3
Denmark	5 349p	2.24	2.45	2.43p	6.0
Germany	58 231p	2.45	2.48	2.51p	5.7
Estonia	151p	0.61	0.93	1.14p	4.0
Ireland	2 306	1.12	1.26	1.32	6.8
Greece	1 223p	:	0.58	0.57p	4.3
Spain	11 382p	0.91	1.12	1.16p	4.6
France	37 983p	2.15b	2.13	2.12p	4.8
Italy	15 599	1.05	1.10	:	3.1
Cyprus	62p	0.24	0.40	0.42p	4.2
Latvia	112	0.44	0.56	0.69	3.4
Lithuania	191	0.59	0.76	0.80	4.1
Luxembourg	497p	1.65	1.57	1.47p	5.6
Hungary	900	0.78	0.94	1.00	4.2
Malta	28p	:	0.54	0.55p	3.9
Netherlands	9 168p	1.82	1.73e	1.72p	5.6
Austria	6 324p	1.91e	2.41e	2.45p	3.0
Poland	1 513	0.64	0.57	0.56	5.2
Portugal	1 201	0.76e	0.81	:	2.7
Romania	444	0.37	0.41	0.46	4.0
Slovenia	486p	1.41	1.46	1.59p	5.5
Slovakia	217	0.65	0.51	0.49	3.0
Finland	5 761	3.34	3.48	3.45	6.7
Sweden	11 691	:	3.89b	3.82	6.5
United Kingdom	31 828	1.85	1.76	:	4.9

* Italy, Portugal and United Kingdom 2005
** Luxembourg 2005
: Data not available
b Break in series
e Estimated value
p Provisional value

Highest employment in high- and medium high-tech manufacturing in Lombardia and Stuttgart

In 2006 in the **EU27**, 12 million workers were employed in medium high-tech manufacturing[4] and 2.3 million in high-tech manufacturing[4], the equivalent of 5.5% and 1.1% respectively of total employment.

The leading region in the **EU27** and **EFTA** in terms of employment in high- and medium high-tech manufacturing was **Lombardia** in Italy with 448 000 people employed in 2006, followed by **Stuttgart** in Germany (377 000) and **Cataluña** in Spain (286 000). **Germany** dominated the top 20 list with eleven regions, followed by **Italy** (5) and **France** (2).

Stuttgart had the highest relative employment in high- and medium high-tech manufacturing with 19.9% of total employment, followed by **Karlsruhe** (17.2%) also in Germany. In the top 20 list, **Germany** had eleven regions, including the eight highest positions, followed by the **Czech Republic** (4), **France** and **Hungary** (2 each).

Top 20 EU27 and EFTA regions*, employment in high- and medium high-tech manufacturing, 2006

Region	Employment, 000'			Region	% of total employment		
	High-tech	Medium high-tech	Total		High-tech	Medium high-tech	Total
Lombardia (IT)	71	377	448	**Stuttgart (DE)**	2.0	17.9	19.9
Stuttgart (DE)	38	339	377	**Karlsruhe (DE)**	2.9	14.3	17.2
Cataluña (ES)	26	261	286	**Tübingen (DE)**	2.7	14.2	16.9
Oberbayern (DE)	58	212	270	**Braunschweig (DE)**	2.2	14.6	16.7
Île de France (FR)	79	181	261	**Niederbayern (DE)**	2.0	13.8	15.9
Veneto (IT)	44	180	224	**Oberpfalz (DE)**	4.1	11.3	15.4
Karlsruhe (DE)	37	183	220	**Freiburg (DE)**	4.9	10.5	15.4
Emilia-Romagna (IT)	33	185	218	**Unterfranken (DE)**	1.2	14.1	15.3
Düsseldorf (DE)	36	181	218	**Nyugat-Dunántúl (HU)**	5.1	9.4	14.5
Piemonte (IT)	26	190	216	**Severovýchod (CZ)**	2.3	11.8	14.1
Köln (DE)	20	166	186	**Rheinhessen-Pfalz (DE)**	1.4	12.7	14.1
Rhône-Alpes (FR)	39	145	184	**Közép-Dunántúl (HU)**	4.2	9.5	13.7
Darmstadt (DE)	27	147	174	**Alsace (FR)**	1.6	12.0	13.6
Denmark	22	141	162	**Západné Slovensko (SK)**	2.5	10.8	13.4
Arnsberg (DE)	18	141	160	**Schwaben (DE)**	2.5	10.7	13.1
Freiburg (DE)	50	109	159	**Strední Morava (CZ)**	1.9	10.9	12.8
Tübingen (DE)	23	123	145	**Oberbayern (DE)**	2.7	10.0	12.7
Rheinhessen-Pfalz (DE)	13	116	129	**Franche-Comté (FR)**	2.2	9.9	12.1
Braunschweig (DE)	15	102	117	**Strední Cechy (CZ)**	1.3	10.7	12.0
Lazio (IT)	27	88	116	**Jihozápad (CZ)**	2.5	9.5	12.0

* No data for Liechtenstein and Bulgaria.

Highest employment in KIS in Île de France and Lombardia

In 2006 in the **EU27**, 70 million people were employed in knowledge intensive services[5] (KIS) and 7 million in high-tech KIS[5], the equivalent of 32.6% and 3.3% respectively of total employment.

The regions in the **EU27** and **EFTA** with the highest number of people employed in KIS were **Île de France** in France (2.1 million people employed) and **Lombardia** in Italy (1.4 million). The dominance of **German** regions was less apparent in terms of those employed in KIS than high-tech manufacturing: **Germany** had five regions in the top 20 list, followed by **Spain**, **France** and the **United Kingdom** (3 each).

In relative terms the highest employment in KIS were found in **Stockholm** in Sweden with 56.7% of total employment and in **Inner London** (56.6%) in the United Kingdom. **Sweden** had five regions in the top 20 list, followed by the **United Kingdom** (4).

Top 20 EU27 and EFTA regions*, employment in knowledge intensive services (KIS), 2006

Region	Employment, 000'			Region	% of total employment		
	High-tech KIS	Other KIS	Total		High-tech KIS	Other KIS	Total
Île de France (FR)	321	1823	2 144	**Stockholm (SE)**	8.4	48.3	56.7
Lombardia (IT)	162	1190	1 352	**Inner London (UK)**	4.9	51.6	56.6
Denmark	118	1105	1 223	**Oslo og Akershus (NO)**	7.2	46.7	53.9
Outer London (UK)	120	1018	1 138	**Outer London (UK)**	5.5	46.5	51.9
Madrid (ES)	165	953	1 118	**Bruxelles/Brussels (BE)**	5.5	45.6	51.2
Cataluña (ES)	94	842	936	**Åland (FI)**	:	50.7	50.7
Rhône-Alpes (FR)	77	768	845	**Surrey, E & W Sussex (UK)**	5.8	44.1	49.9
Düsseldorf (DE)	105	708	813	**Utrecht (NL)**	5.9	42.9	48.8
Oberbayern (DE)	111	694	805	**Övre Norrland (SE)**	3.3	44.9	48.1
Lazio (IT)	109	689	798	**Berks, Bucks and Oxfords (UK)**	9.2	38.6	47.8
Zuid-Holland (NL)	82	687	769	**Nord-Norge (NO)**	2.3	45.3	47.7
Andalucia (ES)	59	709	769	**Berlin (DE)**	4.3	43.2	47.5
Darmstadt (DE)	110	648	759	**Zürich (CH)**	5.1	42.4	47.5
Köln (DE)	87	670	757	**Mellersta Norrland (SE)**	4.3	43.0	47.3
Inner London (UK)	64	671	735	**Noord-Holland (NL)**	4.4	42.7	47.1
Berlin (DE)	63	631	694	**Sydsverige (SE)**	4.6	41.7	46.3
Surrey, E & W Sussex (UK)	75	566	641	**Île de France (FR)**	6.9	39.2	46.1
Noord-Holland (NL)	60	579	640	**Östra Mellansverige (SE)**	4.6	41.3	45.9
Prov-Alpes-Côte d'Azur (FR)	67	508	575	**Vlaams Brabant (BE)**	6.2	39.7	45.8
Mazowieckie (PL)	75	496	571	**Trøndelag (NO)**	3.0	42.8	45.8

* No data for Liechtenstein and Bulgaria.
: Data not available
Exceptions to the reference year: 2005 for PL and CH.

1. The EU goal in Research and Development expenditure, as set by the Lisbon summit strategy, is to achieve by 2010 a R&D intensity of at least 3% for the EU as a whole. Please note that the R&D expenditure and R&D intensity figures presented in this News Release take into account the most recent data available in the Eurostat database.
2. **Eurostat**, "***Science, technology and innovation in Europe"*** 2008 edition, can be downloaded free of charge in PDF format. Paper copies can be ordered through the Eurostat website at **http://ec.europa.eu/eurostat**.
3. **Scientists and engineers** includes people working in specific occupations listed in "Physical, mathematical and engineering" occupations (ISCO-88 COM code 21) as mathematicians or civil engineers and in "Life science and health" occupations (ISCO-88 COM code 22) as biologists or medical doctors.
4. **High- and medium high-tech manufacturing** includes all employment in the following industries: chemical and chemical products (including pharmaceuticals, medicinal chemicals and botanical products), office machinery and computers, radio, television and communication equipment and apparatus, medical, precision and optical instruments, watches and clocks, aircraft and spacecraft, machinery and equipment n.e.c., electrical machinery and apparatus n.e.c., motor vehicles, trailers and semi-trailers and other transport equipment. **High-tech manufacturing** includes only pharmaceuticals, medicinal chemicals and botanical products; office machinery and computers; radio, television and communication equipment and apparatus; medical, precision and optical instruments, watches and clocks and aircraft and spacecraft.
5. **Knowledge intensive services (KIS)** includes all employment in water transport; air transport; post and telecommunications; financial intermediation; real estate activities; renting of machinery and equipment and of personal and household goods; computer and related activities; research and development; other business activities; education; health and social work as well as recreational, cultural and sporting activities. **High-tech KIS** includes only post and telecommunications, computer and related activities as well as research and development.

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