

# R&D expenditure in Europe

First preliminary data:  
EU-25 R&D expenditure as a share of GDP  
stable at 1.9% in 2004

## Statistics in focus

SCIENCE AND  
TECHNOLOGY

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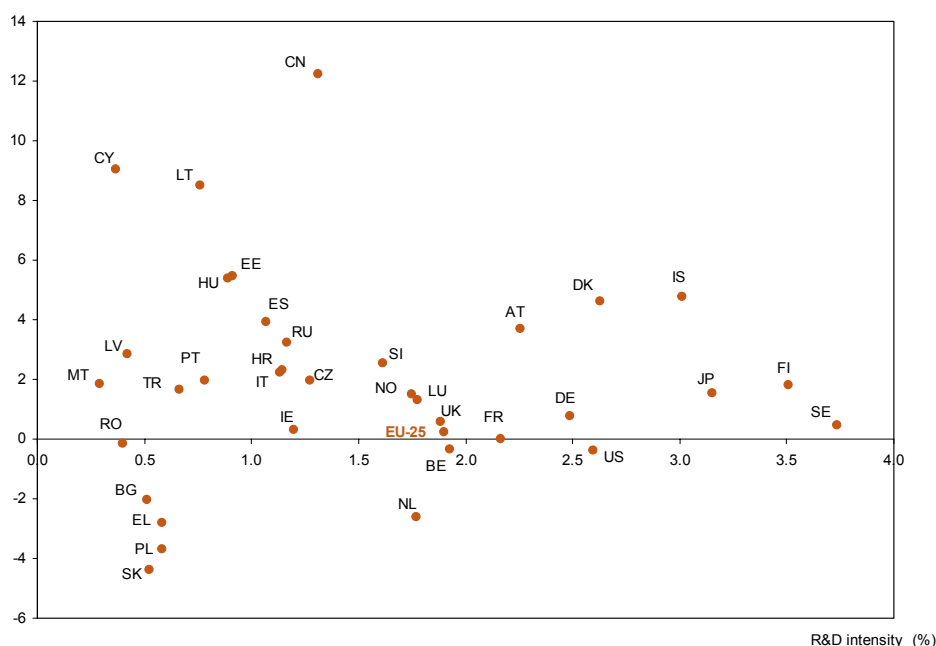
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Figure 1: R&D intensity (R&D expenditure as a % of GDP) in 2004 and annual average growth rate (AAGR) of the R&D intensity (1999-2004)

R&D intensity AAGR  
1999 - 2004 (%)



Source: Eurostat, OECD

R&D intensity: R&D expenditure as a percentage of GDP

Exceptions to the reference year 2004: IT, LU, PT, UK, NO, CN, JP and US.

Exceptions to the reference period 1999-2004: IT, PT, UK, NO, CN, JP, and US: 1999-2003

MT: 2002-2004

LU: 2000-2003;

HR: 2002-2003

Eurostat estimation: EU-25. National estimation: DE, AT, SI. Provisional data: DK, FR, NL, EE, EL, CY. Forecast: BE

## Main findings

In 2004, 1.90 % of GDP (almost EUR 200 billion) was spent on Research & Development (R&D) in the EU-25. The highest R&D intensities, above the 2010 target of 3 % set at the Lisbon Summit in 2000, were observed in Sweden (3.74 %), Finland (3.51 %) and Iceland (3.01 %).

EU-25 R&D expenditure grew by 2.7 % per year between 2001 and 2004 in nominal terms.

The Business sector was the major source of financing of R&D, providing 54 % of funding, ahead of the Government sector with 35 %.

Within the Business sector, Manufacturing is the biggest R&D spending sector, just ahead of the Service sector.

In the EU-25, the proportion of R&D allocated to applied research is high compared to the United States, Japan and China in which R&D expenditure is more focused on experimental development.

In 2002, eight European regions recorded an R&D intensity of more than 3 %: Braunschweig in Germany (7.1 %) leads, ahead of Pohjois-Suomi in Finland (4.2 %).

## EU-25 R&D expenditure stable at 1.90 % of GDP in 2004

In 2004, 1.90 % of GDP was spent on R&D in the EU-25. This proportion remained stable between 1999 and 2004. At country level, R&D intensity (i.e. R&D expenditure as a % of GDP) increased for the majority of Member States between 1999 and 2004. Cyprus and Latvia (along with China) stand out particularly with an annual average growth rate (AAGR) of over 8 %. However their R&D intensity is far below the levels reached by the leading EU-25 countries, Sweden and Finland.

Only three countries combine high R&D intensity level (over 2.2 %) and high AAGR (above 4 %). i.e. Iceland, Denmark and Austria.

R&D intensities above the 2010 target of 3 % set by the Lisbon Strategy, were observed in Sweden (3.74 %), Finland (3.51 %), Japan (3.15 %) and Iceland (3.01 %). The AAGR for these countries is moderate, less than 2 % between 1999 and 2004, except for Iceland.

For Germany, France and the United Kingdom – the 3 big EU-25 Member States in terms of absolute R&D expenditure – the increase in R&D intensity was modest over the same period. This trend is comparable to other major economies. R&D intensity grew modestly in Japan and even decreased slightly in the US.

In the Business enterprise sector (BES), the highest R&D intensities were recorded in 2004 in the Nordic countries (Table 1). Finland leads with 2.75 %, preceding Sweden (2.46 %), Denmark (1.81 %) and Germany (1.75 %).

The R&D intensity in the Business sector in the EU-25 was 1.22 % in 2004. Compared to other major economies, EU-25 comes behind Japan (2.36 %) and the US (1.79 %), but is ahead of China (0.82 %).

## In nominal terms, EU-25 R&D expenditure grew by 2.7 % per year between 2001 and 2004

In 2004, nearly EUR 200 billion were spent on R&D in the EU-25 compared to EUR 250 billion in the United States, EUR 120 billion in Japan and EUR 16 billion in China (Table 1).

**Table 1: Total R&D expenditure and Business enterprise R&D expenditure in million euro and as a percentage of GDP, 2001 - 2004**

	Total R&D expenditure						Business enterprise R&D expenditure						EU25
	Millions of Euro			as a % of GDP			Millions of Euro			as a % of GDP			
	2001	2003	2004	2001	2003	2004	2001	2003	2004	2001	2003	2004	
<b>EU25</b>	<b>180 175 s</b>	<b>188 600 s</b>	<b>195 042 sp</b>	<b>1.93 s</b>	<b>1.92 s</b>	<b>1.90 sp</b>	<b>117 066 s</b>	<b>120 581 s</b>	<b>125 172 sp</b>	<b>1.26 s</b>	<b>1.23 s</b>	<b>1.22 sp</b>	
BE	5 373	5 177	5 465 f	2.11	1.92	1.93 f	3 921	3 608	3 747 f	1.54	1.34	1.32 f	BE
CZ	832	1 013	1 100	1.22	1.26	1.28	501	618	701	0.74	0.77	0.81	CZ
DK	4 265 r	4 851 r	5 112 p	2.40	2.59 r	2.63 p	2 934	3 355 r	3 516 p	1.65	1.79 r	1.81 p	DK
DE	52 002	54 538	55 100 e	2.46	2.52	2.49 e	36 332	38 029	38 800 p	1.72	1.76	1.75	DE
EE	49	67	83 p	0.73	0.82	0.91 p	16	23	32 p	0.25	0.28	0.36 p	EE
EL	841	951 p	967 p	0.64	0.62 p	0.58 p	278	286 p	285 p	0.21	0.19 p	0.17 p	GR
ES	6 227	8 213	8 946	0.92	1.05	1.07	3 261	4 443	4 865	0.48	0.57	0.58	ES
FR	32 887	34 569	35 648 p	2.20	2.18	2.16 p	20 782	21 646	22 409 p	1.39	1.37	1.36 p	FR
IE	1 315	1 610 r	1 780 r	1.12	1.16 r	1.20 r	917	1 076	1 150 e	0.78	0.77	0.77 e	IE
IT	13 572	14 769	:	1.11	1.14	:	6 870	6 979	7 501 p	0.56	0.54	0.56 p	IT
CY	27	41	46 p	0.26	0.35	0.37 p	5	9	9 p	0.05	0.08	0.08 p	CY
LV	38	38	47	0.41	0.38	0.42	14	13	21	0.15	0.13	0.19	LV
LT	91	111	137	0.68	0.68	0.76	27	23	29	0.20	0.14	0.16	LT
LU	:	426	:	:	1.78	:	:	379	:	:	1.58	:	LU
HU	548	693	721	0.95	0.95	0.89	220	255	297	0.38	0.35	0.37	HU
MT	:	11	12 u	:	0.27	0.29 u	:	4 p	:	:	0.08 p	0.10 u	MT
NL	8 090	8 376	8 657 p	1.81	1.76	1.77 p	4 712	4 804	4 982 p	1.05	1.01	1.02 p	NL
AT	4 393	4 975 e	5 346 e	2.04	2.19 e	2.26 e	:	:	:	:	:	:	AT
PL	1 323	1 036	1 139	0.64	0.56	0.58	474	284	327	0.23	0.15	0.17	PL
PT	1 038	1 020	:	0.85	0.78	:	330	338	:	0.27	0.26	:	PT
SI	341	377 e	418 e	1.56	1.54 e	1.61 e	197	222 e	249 e	0.90	0.90 e	0.96 e	SI
SK	149	169	174	0.64	0.58	0.53	101	93	86	0.43	0.32	0.26	SK
FI	4 619	5 005	5 253	3.38	3.48	3.51	3 284	3 528	3 684	2.41	2.45	2.46	FI
SE	10 459	10 642	10 426	4.27	3.98	3.74	8 118	7 886	7 667	3.31	2.95	2.75	SE
UK	30 254	30 092	:	1.89	1.88	:	20 392	19 778	:	1.27	1.24	:	UK
IS	261	274	297	3.08	2.97	3.01	153	142	167	1.81	1.54	1.70	IS
NO	3 037	3 411	:	1.60	1.75	:	1 814	1 960	:	0.96	1.00	:	NO
<b>EEA</b>	<b>183 473 s</b>	<b>192 285 s</b>	<b>199 014 sp</b>	<b>1.93 s</b>	<b>1.92 s</b>	<b>1.90 sp</b>	<b>119 034 s</b>	<b>122 683 s</b>	<b>127 519 sp</b>	<b>1.25 s</b>	<b>1.22 s</b>	<b>1.22 sp</b>	<b>EEA</b>
CH	6 852	:	:	2.57	:	:	5 065	:	:	1.90	:	:	CH
BG	71	89	99	0.47	0.50	0.51	15	18	23	0.10	0.10	0.12	BG
HR	:	292	:	:	1.14	:	:	114	:	:	0.45	:	HR
RO	177	203	235	0.39	0.40	0.40	109	118	130	0.24	0.23	0.22	RO
TR	1 172	:	:	0.72	:	:	395	:	:	0.24	:	:	TR
CN	14 063	16 444	:	1.07	1.31	:	8 499	10 256	:	0.65	0.82	:	CN
JP	143 015	119 748	:	3.07	3.15	:	105 364	89 783	:	2.26	2.36	:	JP
RU	4 025	4 899 r	5 473	1.18	1.29 r	1.17	2 829	3 353	3 780	0.83	0.88	0.81	RU
US	306 786	251 577 p	:	2.71	2.59 p	:	223 900	173 366 p	:	1.98	1.79 p	:	US

Source: Eurostat, OECD

Exceptions to the reference year 2003: Total sectors and BES: 2000: CH  
EU-25 and EEA: Eurostat estimates

HU - Total sectors - 2003 & 2004: Including expenditures not allocated to R&D units  
LU - Total sectors - 2003: Include 2001 data for HES sector.  
US: Excludes most or all capital expenditure

More than 60 % of total R&D expenditure was spent in 3 EU countries: Germany (EUR 55 billion), France (EUR 36 billion) and the United Kingdom (EUR 30 billion). The total amount of R&D expenditure for these countries remained more or less stable between 2001 and 2004, rising moderately in nominal terms for Germany and France, less than 3 %, while a small decrease was observed in the United Kingdom. The biggest increases in nominal terms were observed in Estonia (19 %), Cyprus (18 %), Lithuania (14 %) and Spain (13 %).

In real terms, EU-25 R&D expenditure increased by 1.3 % over the same period; at national level the most important growth rates were observed in Estonia (16%), Cyprus (15%) and Lithuania (12%).

Germany, France and the United Kingdom were also the top R&D investors in the BES, with EUR 39 billion, EUR 22 billion and EUR 20 billion respectively. More than 65 % of EU-25 R&D expenditure in the BES took place in these 3 countries. Small economies recorded the highest increases in their R&D expenditure in nominal terms in the BES: Estonia (25 %), Cyprus (21 %), Malta (20 %) and Latvia (15 %).

The weight of the different sources of financing for R&D remained unchanged in 2004 for the EU-25 compared to the previous year. The Business sector still contributed the lion's share with 54 %, but this percentage ranks behind Japan (75 %), the United States (63 %) and China (60 %). The Government sector (GOV) comes in second position and provided 35 % of the EU-25 R&D funds against 31 % in China and 30 % in the US, but only 18 % in Japan. For all the major economies, the funding from abroad was small, less than 2 %, except in the EU-25 where it amounted to 9 % (Table 2).

The structure of R&D funding is much more diversified among EU-25 countries. The Business sector predominates, but in 11 countries, most of them new Member States, government funding was the major financing source of R&D activity in 2003. BES funding is especially high in 3 countries, Luxemburg, Finland and Germany, which have already reached the second Lisbon Summit target of two thirds of R&D expenditure financed by the business sector.

**Table 2: Total R&D expenditure and Business enterprise R&D expenditure (BERD) by sources of funds in 2003, in million EUR and as a percentage of total**

Sources of funds	Total R&D expenditure					Business enterprise R&D expenditure					Sources of funds
	TOTAL	BES	GOV	Other national sources	Abroad	BES	GOV	Other national sources	Abroad	TOTAL	
	Millions of Euro	as a % of total				as a % of total				Millions of Euro	
EU25	188 600 s	54 s	35 s	2.3 s	9 s	81 s	8 s	0.0 s	11 s	120 581 s	EU25
BE	5 177	60	22	5.1	13	82	5	0.0	13	3 608	BE
CZ	1 013	51	42	2	5	81	12	1.6	5	618	CZ
DK	4 944	61	27	2.7	10	87	2	0.0	11	3 449	DK
DE	54 538	66	31	0.3	2	92	6	0.1	2	38 029	DE
EE	67	33	49	3.3	15	87	6	0.1	7	23	EE
EL	951	31	47	3.8	18	89	4	0.1	8	286	GR
ES	8 213	48	40	5.8	6	83	11	0.2	5	4 443	ES
FR	34 569	51	35	6.3	8	78	11	0.1	10	21 646	FR
IE	1 623	59	29	2.8	9	87	3	0.5	9	1 076	IE
IT	9 779	43	51	:	6	76	14	0.1	10	6 979	IT
CY	41	20	60	6	14	88	2	0	10	9	CY
LV	38	33	46	0	20	64	16	0	20	13	LV
LT	111	17	65	5	14	54	10	:	36	23	LT
LU	426 p	80 p	11 p	0	8 p	89 p	3 p	0	8 p	379 p	LU
HU	693	31	58	0.4	11	71	6	0.3	22	255	HU
MT	12	19	60	0	22	75	17	0	8	3	MT
NL	8 376	51	37	1	11	81	4	0	15	4 804	NL
AT	4 975 e	44 e	35 e	0	21 e	64	6	0	30	3 131	AT
PL	1 036	30	63	2.4	5	83	15	0.3	1	284	PL
PT	1 020	32	60	3	5	89	5	0	5	338	PT
SI	377 e	59 e	35 e	1.4 e	4 e	93 e	5 e	0.1 e	2 e	222 e	SI
SK	169	45	51	1	3	75	22	1	2	93	SK
FI	5 005	70	26	1.1	3	96	3	0.1	1	3 528	FI
SE	10 642	65	23	4.3	7	86	6	0.2	8	7 886	SE
UK	30 092	44	31	5.4	19	63	11	0.0	26	19 778	UK
IS	274	44	40	1.5	14	77	4	0.0	20	142	IS
NO	3 411	49	42	1.5	7	81	10	0.0	9	1 960	NO
EEA	191 907 s	54 s	35 s	2 s	9 s	81 s	8 s	0.1 s	10 s	122 683 s	EEA
CH	6 852	69	23	3	4	91	2	1	6	5 065	CH
BG	89	27	67	1	6	98	0	0	1	18	BG
HR	292	42	56	0	2	96	2	0	3	114	HR
RO	203	45	48	1.5	5	67	28	0.3	4	118	RO
TR	1 280	41	51	7	1	94	3	1	2	367	TR
CN	16 444	60	30	8	2	87	5	5	3	10 256	CN
JP	119 748 e	75	18 e	7 e	0	98	1	1	0	89 783	JP
RU	4 899	31	60	0.6	9	38	52	0.2	10	3 353	RU
US	251 577 p	63 p	31 p	6 p	:	90 p	10 p	0	:	173 366 p	US

Source: Eurostat, OECD

Exceptions to the reference year 2003: All sectors: 2002: MT and TR; 1996: IT  
 BES: 2002: AT, MT and TR. US: Excludes most or all capital expenditure  
 EU-25 and EEA: Eurostat estimates. Other national sources: Higher education sector (HES) and private non profit sector (PNP).

The Business sector plays a major role in financing R&D expenditure in the BES itself; 81 % of BES R&D in the EU-25 was self-financed by businesses in 2003 (Table 2). In Japan, the business sector financed nearly all the R&D in the BES (98 %). The levels observed in the United States are 90% and 87 % in China.

At EU level, Finland (96 %), Slovenia (93 %) and Germany (91 %) recorded the highest self-funding of the BES. In general, very high business funding percentages close to the EU average were observed in many Member States and the share fell below 70 % in 4 countries only: Latvia and Austria (64 %), the United Kingdom (63 %) and Lithuania (54 %). For these latter countries, this low business R&D funding is balanced with rather high funding coming from abroad, compared to the other Member States. The highest funding from abroad in the BES was observed in Lithuania (36 %). It represented more than one quarter of the total in the other 3 countries. The overall weight of government financing in BES is minor in the EU-25. It is not negligible in Slovakia (22 %), Malta (17 %) and Latvia (16 %).

## Most R&D expenditure in the BES was in the manufacturing sector

The highest share of Business R&D is carried out in the manufacturing sector. The proportion of R&D expenditure in manufacturing varied broadly among countries, from 28 % of total R&D expenditure for Iceland to 91% for Germany in 2003. Three of the top five EU countries in terms of R&D intensity are ranked in the top five countries with the most important R&D expenditure in manufacturing: Sweden, Finland and Germany (Table 3).

The share of the R&D expenditure in the service sector varied from 9 % for Germany to 70 % for Iceland. For the major economies, this sector is of secondary importance compared to R&D expenditure in the manufacturing sector. In 2003, it represented 9 % for Germany, 21 % for the United Kingdom and 25 % for Italy.

R&D expenditure in the other economic sectors accounts for less than 8 % for all countries, with one exception: Agriculture, hunting and forestry for Romania. The latter also recorded 8 % of R&D expenditure in mining and quarrying, while Lithuania had the highest percentage of R&D expenditure on electricity (7 %).

Table 3: R&D expenditure by selected economic activity (NACE) in the Business enterprise sector in 2003, million EUR

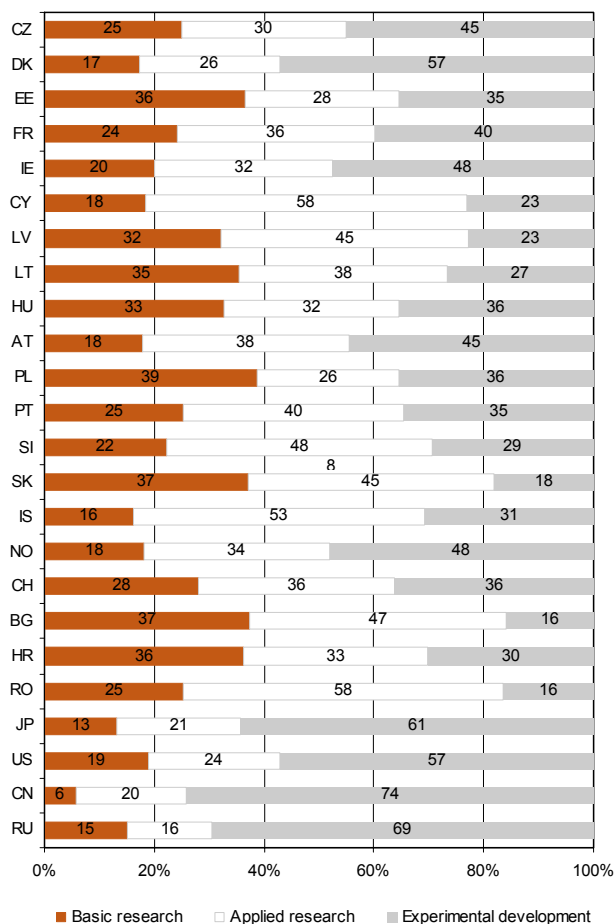
	Business R&D expenditure –Millions of Euro						Total
	Agriculture, hunting and forestry	Mining and quarrying	Manufacturing	Electricity, gas & water supply	Construction	Services sector	
EU25	:	:	79 595 s	:	:	18 183 s	120 581 s
BE	46	6	2 834	26	57	638	3 608
CZ	2	1	393	0	8	214	618
DK	:	:	2 044	:	11	1 388	3 449
DE	72	25	34 581	81	30	3 239	38 029
EE	:	:	10	:	1	12	23
EL	1	2	188	0	1	94	286
ES	30	14	2 375	56	70	1 898	4 443
IE	3	0	667	0	0	406	1 076
IT	:	26	5 150	34	14	1 755	6 979
CY	0	:	4	0	0	5	9
LV	:	:	4	:	0	9	13
LT	:	1	14	2	:	7	23
LU	:	:	179	0	:	200	379
HU	5	0	196	2	1	51	255
MT	:	0	2	0	0	0	3
NL	68	95	3 750	24	29	840	4 804
AT	2	3	2 273	14	12	828	3 131
PL	9	12	194	2	18	48	284
PT	1	1	151	3	4	179	338
SI	0 e	6 e	192 e	0 e	0 e	25 e	222 e
SK	2	0	37	:	:	54	93
FI	1	6	2 800	8	41	672	3 528
SE	23	7	6 336	54	:	1 466	7 886
UK	174	81	15 224	99	44	4 156	19 778
IS	3	0	40	1	1	96	141
NO	42	111	890	7	31	878	1 960
CH	:	:	3 935	:	10	1 120	5 065
BG	0	0	9	0	0	9	18
HR	4	:	10	0	3	97	114
RO	17	9	73	3	1	15	118
TR	3	1	318	3	0	43	367
RU	4	11	216	:	0	2 945	3 176

Source: Eurostat

Exceptions to the reference year 2003: MT, AT, CH, TR and RU: 2002

EU-25: Eurostat estimation; does not include FR; 2002 data for MT and AT

**Figure 2: Breakdown of total R&D expenditure by type of activity, in 2003, percentage**



Source: Eurostat  
 Exceptions to the reference year AT: 2002

### Applied research more important in the EU-25 compared to the United States, Japan and China

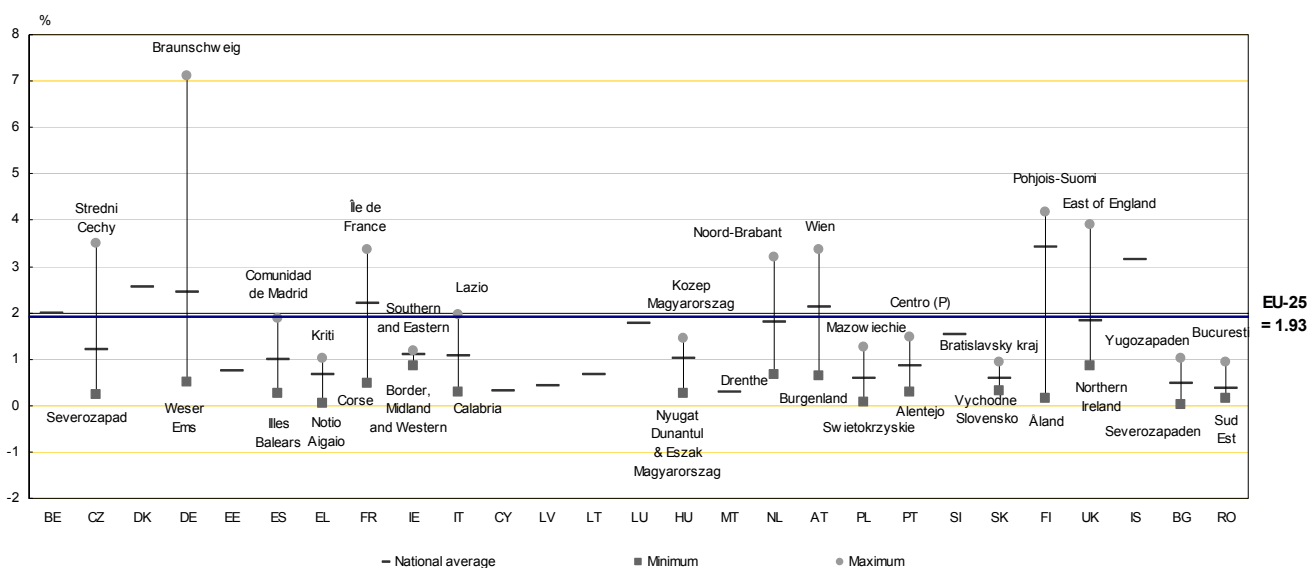
In the EU-25, applied research represented a large part of total R&D expenditure when compared to the United States, Japan and China (Figure 2), where R&D expenditure is more focused on experimental development. Among the EU-25 countries, only in Denmark did the percentage of experimental development reach the level of the US. Basic research is more important in the EU-25 countries compared to the United States, Japan and China, and accounts for more than one third of total R&D expenditure in many new Member States.

### Braunschweig has highest R&D intensity in the EEA

Eight European regions recorded an R&D intensity of more than 3 % of in 2002. Braunschweig (7.1 %) leads, ahead of Pohjois-Suomi (4.2 %), East of England (3.9 %), Stredni Cechy (3.5 %), Vienna and Île de France (3.4 % respectively). Large differences exist between the top regions for each country, as shown in Figure 3. For instance, 7 top regions or countries (classified at NUTS 2 level) have an R&D intensity below 1%, a difference of over 6 percentage points compared to Braunschweig. 14 top regions or countries have an R&D intensity lower than 1.93 %.

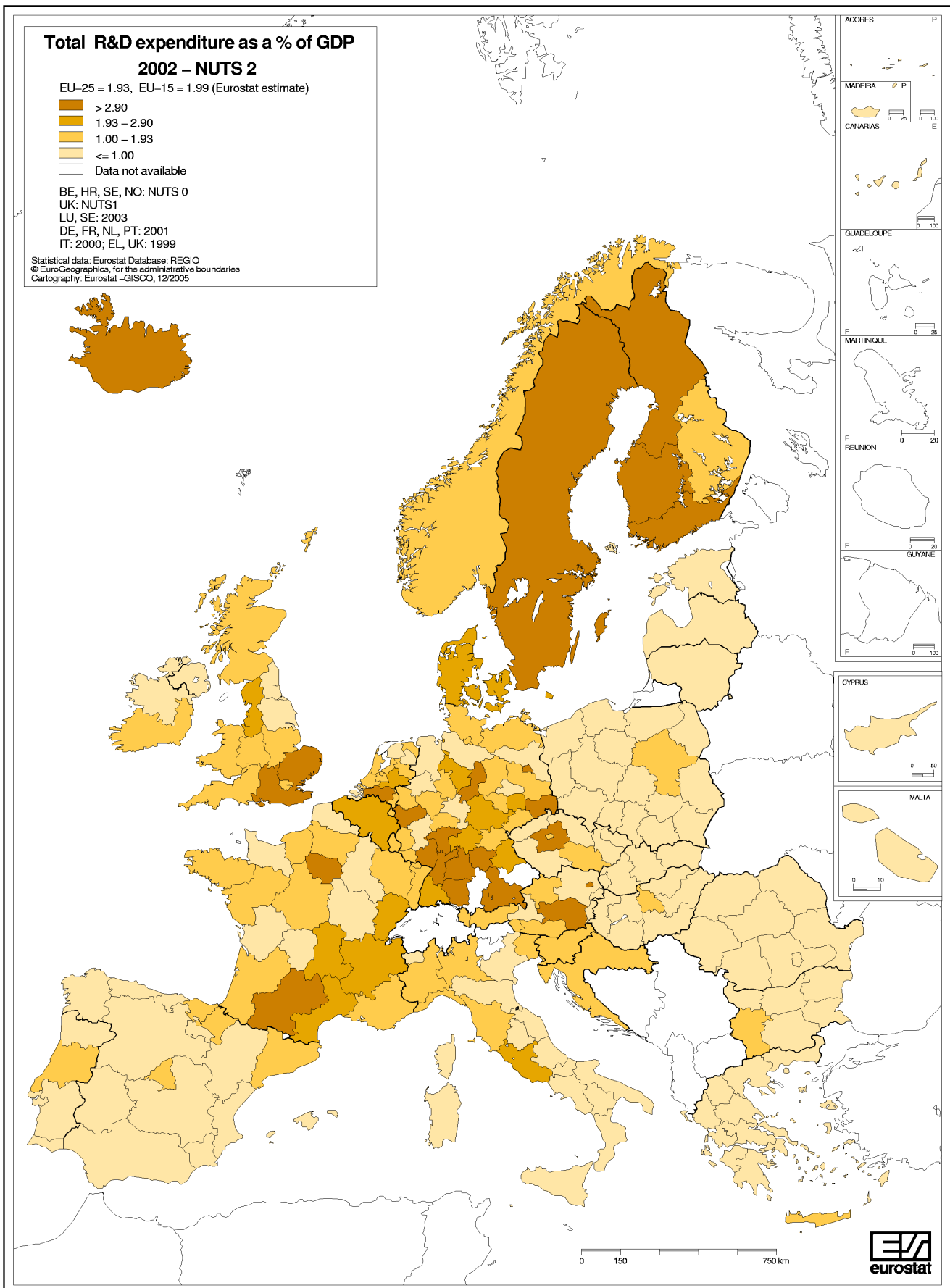
The regions with high R&D intensities (above 2.9%) are mainly located in Germany (11 regions), Finland (3), France, Austria and the United Kingdom (2 regions each), Netherlands, Sweden and Czech Republic (1 region each). As illustrated in Map 1, very low proportions of GDP were spend on R&D in the southern and eastern regions of Europe.

**Figure 3: Regional disparities in terms of Total R&D expenditure as a percentage of GDP at NUTS level 2 in 2002**



Exceptions to the reference year: LU, SE: 2003; DE, FR, NL, PT: 2001; IT and CH: 2000; EL and UK: 1999  
 NUTS1 level: UK; Countries classified at NUTS level 2: CY, DK, EE, IS, LT, LU, LV, MT and SI

Map 1: Total R&D expenditure as a percentage of GDP at NUTS level 2 in 2002



## ➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

### RESEARCH AND DEVELOPMENT — R&D

#### ▪ Definition

Research and experimental development — R&D — activities comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications.

#### ▪ Institutional classifications

Internal expenditure and R&D personnel are broken down with reference to the four institutional sectors in which the R&D takes place: Business enterprise sector (BES), Government sector (GOV), Higher education sector (HES) and Private non-profit sector (PNP).

##### The business enterprise sector — BES

With regard to R&D, the business enterprise sector includes: all firms, organizations 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 institutions mainly serving them — Frascati Manual, §163.

##### The government sector — GOV

In the field of R&D, the government sector includes: all departments, offices and other bodies which furnish but normally do not sell to the community those common services, other than higher education, which cannot otherwise be conveniently and economically provided, and administer the state and the economic and social policy of the community (public enterprises are included in the business enterprise sector) as well as PNPs controlled and mainly financed by government — Frascati Manual, § 184.

##### The higher education sector — HES

This sector comprises: all universities, colleges of technology and other institutes of post-secondary education, whatever their source of finance or legal status. It also includes all research institutes, experimental stations and clinics operating under the direct control of or administered by or associated with higher education establishments — Frascati Manual, § 206.

##### The private non-profit sector — PNP

This sector covers: non-market, private non-profit institutions serving households (i.e. the general public) and private individuals or households — Frascati Manual, § 194.

#### ▪ R&D indicators: R&D expenditure

##### Current EUR

Current EUR values are obtained for the Eurozone by recalculating former national currency values on the basis of the fixed exchange rate and then applying the average exchange rate for the year in question. As a result, the values for countries appearing in tables quoted in national currencies differ from those quoted in current EUR for years before 1999, except in the case of Greece (2001). Current EUR values for non-Eurozone countries are obtained by directly applying the average exchange rate for the year in question.

##### R&D expenditure in real terms

R&D expenditure in real terms is calculated from expenditure expressed in million constant 1995 Purchasing Power Standard (PPS) and with 1995 constant prices. PPS is an artificial currency that reflects differences in national price levels that are not taken into account by exchange rates. Aggregates expressed in PPS are derived by dividing aggregates in current prices by the corresponding PPS exchanges rates).

##### R&D intensity and GDP

R&D intensity represents the R&D expenditure as a percentage of GDP. It is calculated by relating R&D expenditure in current national currencies to GDP for the sectors and years in question.

At the national level, the GDP used for the calculation of R&D intensity correspond to the table 'a\_gdp\_c' in NewCronos whereas at the regional

level the table is 'e2gdp95'. In terms of time series, GDP data at the regional level for 2003 will only be available in 2006 which explain that the regional R&D intensity is available only for the reference year 2002.

The release date for both GDP tables was 28/08/2005.

Eurostat implemented the allocation of FISIM in the annual European aggregates starting with the first regular release on 30 November 2005. Before that date, there was no allocation of FISIM in euro-zone and EU25 aggregates. As a consequence, European aggregates for GDP were not the sum of Member States' published data.

##### European aggregates

For R&D expenditure, EU totals are calculated as the sum of the national data by sector. If data are missing, estimates are first made for the country in question, reference period, institutional sector or relevant R&D variable, as appropriate.

##### R&D expenditure by sources of funds

Sources of funds are subdivided into five sources of funds: Business Enterprise, Government, Higher Education, Private non-profit and Abroad.

##### R&D expenditure in Business enterprises sector by NACE

The low share of services may occur in some countries due to the limited coverage of the service industries in R&D surveys and measurement difficulties associated with services.

##### R&D expenditure by type of activity

The classification covers basic research, applied research and experimental development — Frascati Manual, §238-256.

### NOMENCLATURE OF TERRITORIAL UNITS FOR STATISTICS — NUTS

The NUTS is a five-level hierarchical classification comprising three regional and two local levels. 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. NUTS version: 2003.

### SOURCES

United States, Japan and China: OECD, *Main Science and Technology indicators* – MSTI 2005/1.

### GENERAL ABBREVIATIONS

EEA: European Economic Area

AAGR: Annual average growth rate in percentage.

AGR: Annual growth rate in %

Formulaes:  $AAGR_{T, T-n} = [(X_T/X_{T-n})^{1/n} - 1] \times 100$

$AGR_{T, T-1} = [(X_T/X_{T-1}) - 1] \times 100$

Where X = value, T = time, n = period.

p: provisional value

e: estimated value

s: Eurostat estimate

r: revised value

f: forecast

b: break in series

': not available

### REFERENCE MANUALS

• *Standard method proposed for research and experimental development surveys* — Frascati Manual, OECD, 2002.

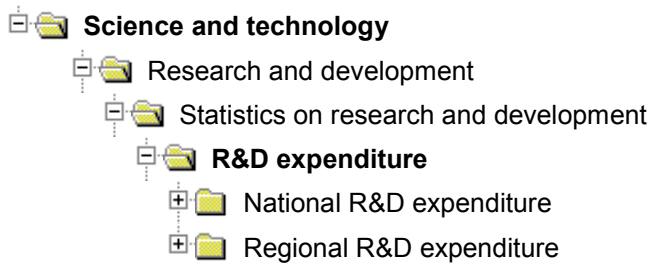
• *The Regional Dimension of R&D and Innovation Statistics and Experimental Development* — Regional Manual, European Commission, 1996.

### DATA AVAILABILITY

Data presented in this Statistics in Focus reflect the data availability in Eurostat's reference database as of 8 December 2005.

## Further information:

Data: [EUROSTAT Website/Home page/Science and technology/Data](#)



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### European Statistical Data Support:

Eurostat set up with the members of the 'European statistical system' a network of support centres, which will exist in nearly all Member States as well as in some EFTA countries.

Their mission is to provide help and guidance to Internet users of European statistical data.

The complete details concerning this support network can be found on our Internet site:

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This document has been produced in collaboration with Christophe Zerr