



# Statistics on science and technology

**Data 1991-2001**

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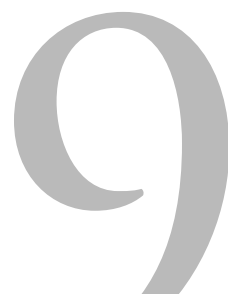
## Part A



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The opinions expressed are those of the individual authors alone and do not necessarily reflect the position of the European Commission.

## Maps

GISCO, Eurostat

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on behalf of the national organisations responsible for official mapping of the displayed countries.

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As well as the following institutions:

- **DG Research – European Commission**,
- **European Patent Office** – EPO,
- **Organisation for Economic Co-operation and Development** – OECD.

**I**n the Barcelona summit, the European council remarked that a significant boost of the overall R&D and innovation effort in the Union would be necessary in order to close the gap between the EU and its major competitors. In this context, it set the objective of increasing the overall spending on R&D and innovation in the Union to around 3 % of GDP by 2010, with two-thirds of this new investment to come from the private sector.

*Statistics on Science and Technology 2003*, prepared by the *Research and development, methods and data analyses* unit of Eurostat, provides data that allow for the continuous reporting and analysis of the situation of R&D in Europe. In particular, this publication presents the latest developments in the field of R&D expenditure, R&D personnel, Government R&D appropriations and Patents, and is a follow up of the former *Research and Development: Annual Statistics*, which was first published in 1993. Other science and technology indicators collected by Eurostat are excluded from this publication and may be found in Eurostat's reference database, *NewCronos*.

Responding to developments in the policy and scientific communities, *Statistics on Science and Technology 2003* provides some additional information on relevant indicators as compared to the 2001 edition. Data and trends are provided not only for patent applications to the European Patent Office – EPO, but also for patents granted by the United States Patent and Trademark Office – USPTO. Additional data on the number of researchers amongst total R&D personnel are analysed for the European Union and beyond.

As in the 2001 edition, in an effort to provide users of Eurostat data with more detailed information, certain indicators at the regional level are presented at the NUTS 2 level. Although limitations of space have prevented the inclusion of complete time series in all cases, these data can be found in the CD-ROM version of this publication and are, of course, available in Eurostat's reference database, *NewCronos*.

Comprehensive methodological notes are provided in their own section for clearer data utilisation, providing such information as the source, reference unit and coverage of the data, the time series available or any country specific methodological changes in the collection procedures.

All the information in this publication is based on data supplied to Eurostat by the Member States, by the Research DG of the European Commission, by the European Patent Office – EPO, by the United States Patent and Trademark Office – USPTO – and by the OECD. We express our thanks to our colleagues in the Member States (and in Iceland and Norway), the Commission Services, the EPO, the USPTO and the OECD for their excellent co-operation and their willingness to help in meeting the ever-growing demand for information on S&T.

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# Introduction

The indicators presented in *Statistics on Science and Technology 2003*, by the Statistical Office of the European Communities – Eurostat, allow the continuous reporting and analysis for a close monitoring of recent performances and the identification of current and potential areas of concern.

The data, which cover R&D expenditure, R&D personnel, Government budget appropriations or outlays for R&D and patents, are as comprehensive, comparable and as up to date as possible.

Their focus is on the 15 European Union Member States and, to a lesser extent, the European Economic Area. To provide high-level international comparison, the United States and Japan are also considered, where possible. At the other end of the scale, a regional analysis across the EU countries is provided.

This publication, intended for both generalists and specialists, is organised as follows. The first Part presents an analysis of the recent trends in R&D and patenting. In Part 2, the accompanying methodological information is provided in some detail for more specialist users. Part 3 presents tables containing both original data and derived indicators, providing users with the opportunity to conduct their own analyses on the Research and Development situation in Europe and beyond. Within R&D expenditure and personnel or patents, data are organised according to geographical detail, with national data being presented before NUTS 2 level regional data.

Given the numerous sources of data involved, the time series differ according to indicator. However, the first considered year for most indicators in this publication is 1991. In any case, the goal of this publication remains the same throughout: to provide the most detailed and coherent time series analysis possible.

Consistency with the analyses conducted in previous publications is also maintained, whilst seeking to complement these aspects with further research. A number of important innovations have been introduced to this publication.

The first is an extended reporting of the data, with data on patents now also presented for patents granted by the United States Patent and Trademark Office – USPTO. Data on high technology patents are now also provided broken down by high technology group.

The data series in national currency included in this publication refer to national currencies at 1 January 2002 and therefore include 'Euro fixed' series for Eurozone countries along with non-Eurozone countries series that continue to be expressed in DKK, SEK, GBP, and USD for example. To maintain the possibility of using data in national currency for time series analysis also for the period prior to the adoption of the Euro, data were converted from the former national currency series by applying the irrevocably fixed Euro exchange rate for the entire time series presented – including years before the adoption of the Euro. This means that these series cannot be used in general for comparisons over space. In particular, users are warned about the possible misunderstanding in using these data for geographical comparisons or aggregations of Eurozone countries for periods prior to the adoption of the Euro. For such purposes it is advisable to use the series in current Euro, which have been calculated by using the current exchange rates.

Concerning the data series in real terms, unlike in previous years when data were presented in constant Euro, data in this publication are given in PPS at 1995 prices.

In an effort to provide users with a set of rigorous and comprehensive methodological notes, Part 2 of this publication presents in some detail the information behind the data. For each variable – GBAORD, R&D expenditure and personnel or patents – Part 2 specifies the appropriate definitions, sources, reference units, time series, geographical coverage, method of calculation, etc. Also documented in this section are the country specific notes, such as breaks in series or methodological changes.

Due to constraints of space, the comprehensive statistical tables used for the analysis are not always available in the paper version of the present publication. Instead, they are provided in their entirety in the electronic version of *Statistics on Science and Technology 2003*. Electronic versions of this publication can be obtained by visiting the Eurostat Web-site at:

<http://www.europa.eu.int/comm/eurostat>.

Readers should note that the data used for the analyses of *R&D in Europe – Part 1* are those available in the third quarter of 2002. They may not correspond exactly with those in the tables in Part 3, or in Eurostat's *NewCronos* database, when these have been subsequently updated.

## Government budget appropriations or outlays for R&D — GBAORD

In Part 1, Chapter 1 documents the main trends of GBAORD in the EU and EEA, first placing Europe in an international context and then concentrating on developments at the national level. In 2001, budget appropriations in the Member States of the European Union totalled roughly EUR 67 400 million, a rise of around EUR 3 300 million in nominal terms on 2000 – or 3 % in real terms, i.e. corrected for inflation. Although GBAORD as a percentage of GDP in the EU showed a downward trend through out the nineties, a slight improvement was registered in 2000 and 2001. Comparisons with the US and Japan reveal that Japan has caught up both the EU and the US to a significant degree since the end of the '80s, registering almost systematic higher year-on-year absolute growth. Nevertheless, the US still retains the highest values of government budgeting to R&D activities.

Within the EU, Finland and France show the highest proportions of government budgeting to R&D activities, both as a proportion of their GDPs and total general government expenditure. Spain and Portugal, on the other hand, have shown the highest growth rate over the last five years and are approaching the EU average.

Changing trends are also evident in the socio-economic objectives of these funds. The importance of budgeting towards 'Defence' declined during the 90s. So too have 'Agricultural production and technology' and 'Exploration and exploitation of the earth'. Meanwhile, 'Research financed from general university funds' has continued to see budgetary increases, as has 'Protection and improvement of human health'.

## R&D expenditure and personnel

Chapter 2 gives the most recent trends in both R&D expenditure and personnel. In 2001, EUR 171 billion at current prices were spent on R&D in EU-15, displaying a rise of 2.9 % compared to the previous year in real terms. Despite this increase, the gap between the EU and both the US and Japan remains stable when R&D expenditure as a share of GDP is compared for each institutional sector. In 2001, the EU devoted 1.94 % of its GDP to R&D expenditure against 1.93 % in 2000. Meanwhile, this percentage reached 2.98 % in Japan and 2.70 % in the United States in 2000. Concerning the distribution across institutional sectors, most of the R&D expenditure corresponds to the business enterprise sector, which in 2001 accounted for 66 % of the total in EU-15, 71 % in Japan and 75 % in the United States in 2000. At the Member State level, as for the previous year, Sweden (1999 data) and Finland (2001 data) performed best, with 3.78 % and 3.67 % of their respective GDP being devoted to R&D expenditure.

R&D personnel is also increasing in the EU: In 2001, there were 1.8 million people in full-time equivalent or 2.4 million in head count engaged in R&D, which represented 1.41 % of the EU's labour force in 2001, compared to 1.38 % in 2000. Amongst R&D personnel, the number of researchers in EU-15 increased to 960 000 persons (FTE) in 2001, an increase of over 100 000 researchers since 1995. Within the EEA, most researchers are employed in Germany, whereas the highest proportion of researchers on total R&D personnel is observed in Portugal (76 %) and Norway (72 %). With regard to the gender distribution, women are unequally represented in R&D personnel, in particular when they are researchers and employed in the business enterprise sector.

At the regional level, German regions concentrate most R&D activity in Europe, both in terms of volume and as a percentage of GDP. With Oberbayern (D) as the leading region, the 6 first classified German regions represent 16 % of the total R&D expenditure in Europe (current EUR). In terms of R&D expenditure as a share of GDP, Braunschweig (D) is, with 6.34 % in 1999, the first region in Europe and shows a very strong increase of about 1.5 percentage points during the previous 2 years.

Braunschweig remains in the leading position in the business enterprise sector with 4.60 % of its GDP devoted to R&D expenditure in this sector. Açores (P) is in the lead in the government sector and Trøndelag (NO) in the higher education sector with 2.12 and 1.63 % of their respective GDP devoted to R&D.

## Patenting activities in the EEA, Japan and the USA

As documented in Chapter 3, patent applications to the European Patent Office have been increasing in the second part of the 90's. In 2000 there were 57 473 patent applications to the EPO from inventors resident in the EU, 43 761 from inventors resident in the US and 18 780 from Japanese resident inventors. Note that the EU Member States may have a home advantage.

Within Europe, Germany is leading, accounting for 42.4 % of total European patent applications in 2000, followed by France (14.4 %) and the UK (12.9 %). In relative terms, the country with the highest number of patent applications per million inhabitants was Sweden (346) followed by Finland (320). Both countries outperformed Germany, France and the UK and their ratios more than doubled the EU and US ones.

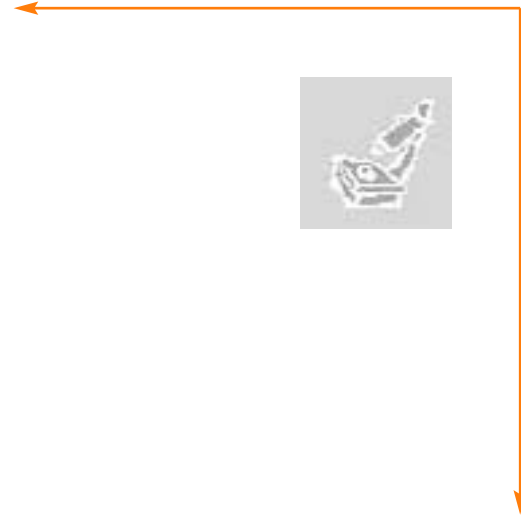
At the regional level, inventors from the French capital region of Île de France applied for most patents in absolute terms (3 424 patent applications), followed by those from the southern German regions of Oberbayern (3 092) and Stuttgart (2 533). Oberbayern was the region with the highest proportion of patent applications per million inhabitants (767) in the EU.

Among the patent applications to the EPO, an increasing proportion relates to high technology areas. Throughout the 1995-2000 period, high tech patent applications in Europe grew at an annual average growth rate of 22.0 %, compared to 10.9 % of patent applications overall. This increase for high tech patents was evident not just for the EU, but also for patent applications made to the EPO by Japan and the US.

In 2000, the USPTO published 86 563 patents granted to US inventors, 31 643 patents granted to Japanese inventors and 27 783 patents granted to inventors resident in the EU. Within the EU, Germany accounted for 39.4 % of the total patents granted, the UK for 15.4 % and France for 15.2 %.

The number of patents granted by the USPTO to EU inventors has been growing in all Member States, especially during the second part of the nineties. When taking population into consideration, in 2000, Sweden was leading (196 patents granted per million inhabitants), followed by Germany (133) and Luxembourg (133).





# **R&D** IN EUROPE: **ANALYSIS**

## **PART 1**



# Chapter 1

## Government budget appropriations or outlays on Research and Development — GBAORD

### 1.1. Introduction

Government budget appropriations or outlays on R&D — GBAORD — are a way of measuring government support to R&D activities. They include all appropriations allocated to R&D in central government or federal budgets. Provincial or state government should be included only 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 sector, but also government-financed R&D in the business enterprise, private non-profit and higher education sectors, as well as abroad (i.e. international organisations). Data are collected according to the guidelines outlined in the OECD's *Proposed standard Practice for surveys of research and experimental development — Frascati Manual, 2002*.

GBAORD data do not consider the amount of money actually spent, but are based on budget provisions, and so should be seen as intentions of spending. This is why 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. The process of political consensus about public expenditures creates gaps between budgets and final expenditures — gaps in terms of time and amount of resources. The reporting unit also differs between GBAORD and R&D expenditure: the reporting unit for GBAORD is the Government, whereas for R&D expenditure the reporting unit is the performer of the R&D activity. However, since there is a greater time lag for data on final R&D expenditure, data are usually collected from budget statistics in order to provide timely indicators.

Data are collected at the national level and the procedure can be articulated in a two step process:

- within the budget statistics, it is first necessary to identify the budget items that involve R&D;
- the R&D content of these budget items must then be measured or estimated.

Government R&D appropriations 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. These data reflect policies at a given moment in time and the concomitant priorities of the policy makers when allocating their budgets. These data are hard to collect because they are not obtained from *ad hoc* surveys, but from national budget statistics. More specifically, the difficulty is due to the fact that national budgets already have their own terminology and methodology and therefore do not accord entirely with the Eurostat guidelines and the methodology proposed by the *Frascati Manual*.

The 1983 version of NABS applies to all the figures up until the 1992 final budgets and the 1993 provisional budgets. The 1993 version applies from the 1993 final and the 1994 provisional budgets onwards. As a result of the revision of NABS, some caution should be employed when comparing the data for some NABS headings with those of earlier years. The greatest differences are to be found in chapters 1, 3, 5, 7, 10 and 11 of NABS (1). Furthermore, not all countries transpose their data directly to NABS: some follow other compatible classifications — OECD, Nordforsk, which

are then converted to the NABS classification — see Table 8.2., p.115 of the *Frascati Manual*, OECD 2002.

The analysis in this chapter covers the period 1991 to 2001, with provisional data for 2001. The chapter is divided into two main sections. The first section takes an international perspective and compares the respective trends in the EU (2), Japan and the USA. The second section begins by analysing the evolution of GBAORD for the EU, Iceland and Norway, and then presents some specific developments in the Member States by means of individual country reports.

### 1.2. GBAORD — an international perspective 1991-2001

This section considers government budgeting to R&D activities in the European Union compared to that of Japan and the United States. Overall levels of GBAORD are examined as well as breakdowns by socio-economic objectives.

#### 1.2.1. Total GBAORD

At the beginning of the 1990s, the USA allocated more funds to R&D activities, as a percentage of GDP, than EU-15 and Japan. At this time, the GBAORD of the EU-15 and the United States were respectively twice and two and a half times greater than that of Japan. Figure 1.1. clearly shows this substantial difference at the beginning of the 1990s, but it also helps show the convergence in the appropriations allocated to R&D over the course of the decade.

In terms of nominal value (current EUR), the USA GBAORD in 1991 was approximately EUR 53 billion, or four to five times higher than that of Japan. In 2000, this same ratio is down to 2.5.

Between 1991 and 2001, Japan's GBAORD rose by 65 % in real terms (1995 PPS) whereas those of the USA and the EU-15 remained virtually stable.

After correction for inflation, absolute year-on-year growth was thus higher for Japan, which had annual growth rates of between 2 % and 12 % whereas the EU-15 and the United States recorded rates, which fluctuated between positive and negative growth.

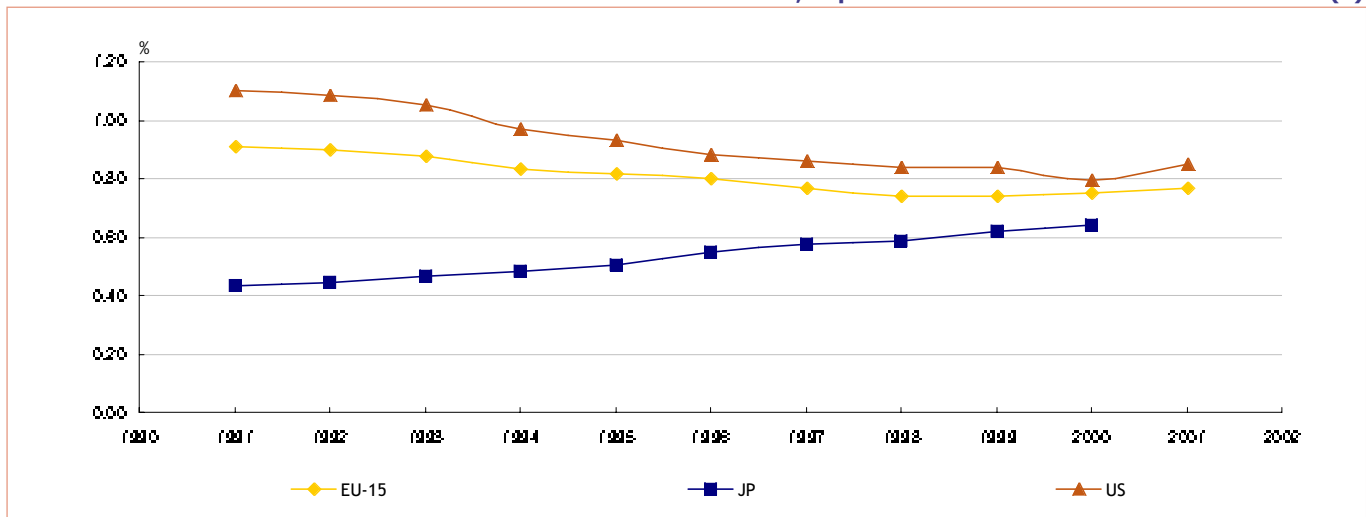
(1) These NABS chapters cover the following fields:

Chapter 1 — Exploration and exploitation of the Earth;  
Chapter 3 — Control and care of the environment;  
Chapter 5 — Production, distribution and rational utilisation of energy;  
Chapter 7 — Industrial production and technology;  
Chapter 10 — Research financed from General University Funds (GUF);  
Chapter 11 — Non-oriented research.

(2) No data exist for Luxembourg and therefore EU-15 totals in this chapter exclude Luxembourg.

Figure 1.1.

GBAORD as a % of GDP  
EU-15, Japan and the United States — 1991-2001 (1)

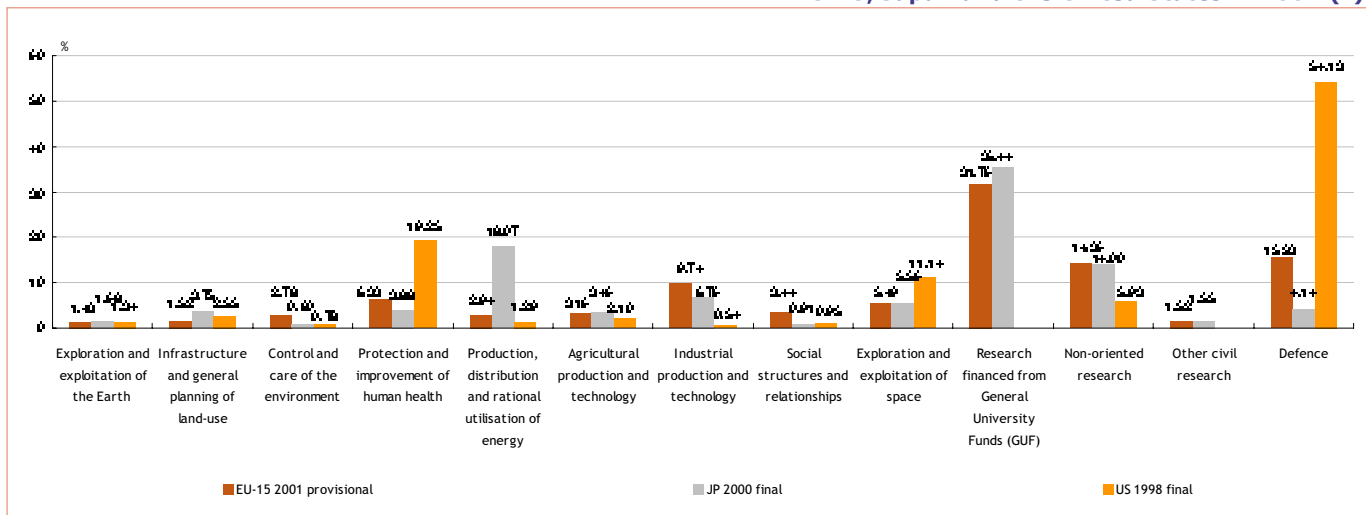


(1) EU-15 2000 — Eurostat estimate; EU-15 2001 — Eurostat estimate based on provisional data.  
US 2001 — provisional data.

Sources: Eurostat, OECD (JP, US).

Figure 1.2.

Distribution of GBAORD by socio-economic objective in %  
EU-15, Japan and the United States — 2001 (1)

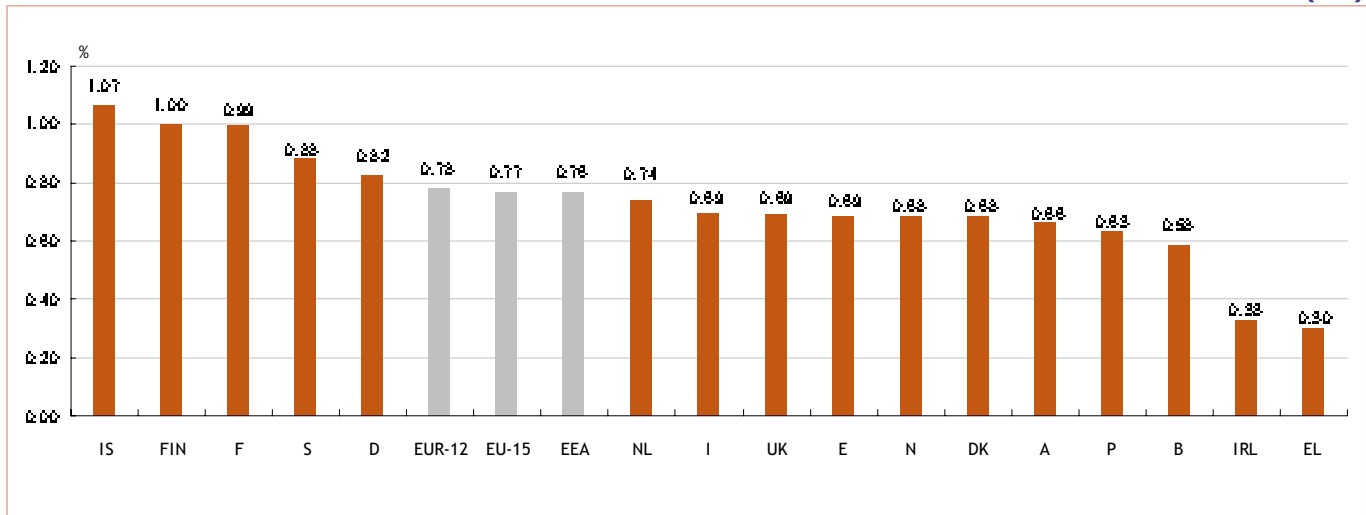


(1) EU-15 — Eurostat estimates based on provisional data.

Sources: Eurostat, OECD (JP, US).

Figure 1.3.

GBAORD as a % of GDP  
EEA countries — 2001 (1, 2)

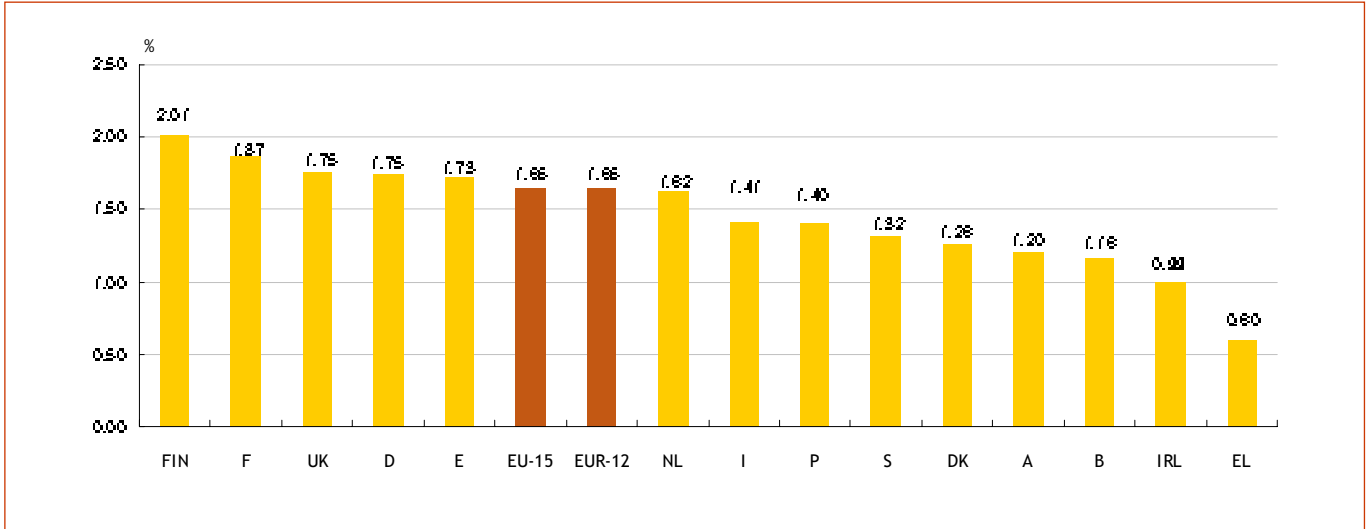


(1) EEA, EU-15 and EUR-12 — Eurostat estimates based on provisional data.  
(2) Exceptions to the 2001 reference year — DK and E: 2000 provisional.

Source: Eurostat.

Figure 1.4.

GBAORD as a % of total general government expenditure  
EU-15 countries — 2000 (1)

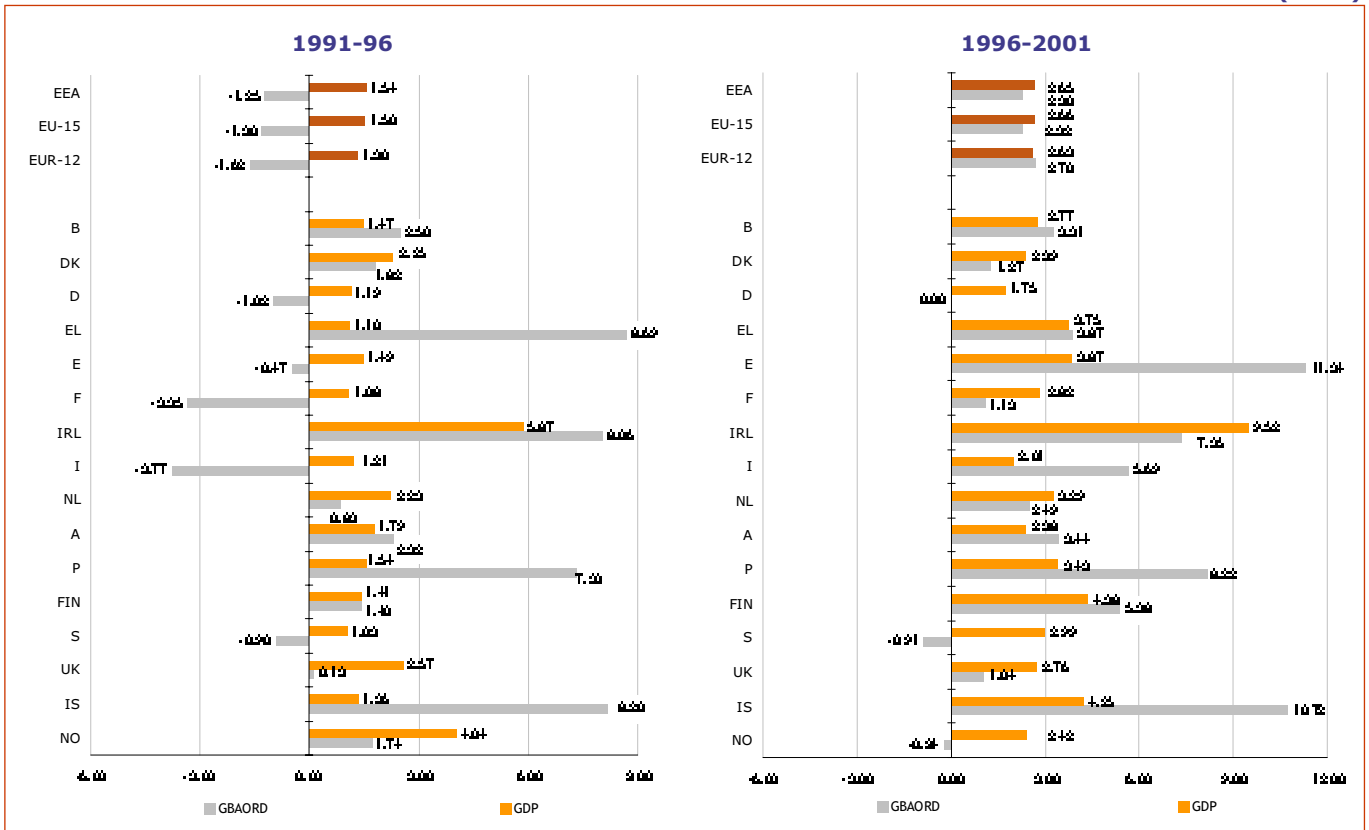


(1) EU-15 and EUR-12 — Eurostat estimates.  
DK and E: provisional data.

Source: Eurostat.

Figure 1.5.

Annual average growth rates for GBAORD and GDP  
EEA countries — 1991-96 and 1996-2001 (1, 2, 3)



(1) EEA, EU-15 and EUR-12 2001 — Eurostat estimates based on provisional data.  
(2) Growth rates calculated using data expressed in constant 1995 PPS.  
(3) Exceptions to the 1996-2001 years — DK and E: 1996-2000.

Source: Eurostat.

## 1.2.2. GBAORD by socio-economic objective

Not only does the level of budgeting towards R&D activities vary from one geographical entity to another, but the objectives are also different.

GBAORD is broken down into socio-economic objectives, thus providing information on changing trends and attitudes towards different types of R&D activities.

Figure 1.2. displays these different attitudes to budgetary appropriations (EU-15 = 2001, USA = 1998 and JP = 2000).

In 2001, as in previous years, 'Research financed from general university funds (GUF)' accounted for the lion's share of EU GBAORD (31.8 %). 'Non-oriented research' and 'Defence' claimed 14.4 and 15.5 % respectively of budgetary appropriations allocated to R&D. 'Industrial production and technology' represented 9.7 % of total EU GBAORD in 2001. 'Exploration and exploitation of the earth', 'Infrastructure and general planning of land-use' and 'Other civil research' were the socio-economic objectives with the lowest budgets at 1.4, 1.5 and 1.5 % respectively.

In Japan, 'Research financed from GUF' was also the leading socio-economic objective (in 2000) with 35.4 % of total GBAORD. A further 18.1 % was allocated towards 'Production, distribution and rational utilisation of energy', which includes such research as 'Radioactive waste management' and 'Renewable energy sources'. The lowest proportion of budgeting in Japan was allocated towards 'Control and care of the environment' which accounted for 0.8 % of total GBAORD in 2000.

In the United States, over half of all GBAORD in 1998 was allocated to 'Defence' (54.1 %). 'Protection and improvement of human health', which comprises such sub-chapters as 'Medical research' and 'Preventive medicine', took up almost a fifth of government budgeting to R&D activities and 'Exploration and exploitation of space' just over a tenth. No data are available for 'Research financed from GUF' and 'Other civil research' for the USA.

## 1.3. GBAORD — an European perspective

This section is split into two main parts. The first examines the trends and developments in total GBAORD at national level for the Eurozone countries, EU-15 and the EEA. The second part evaluates the socio-economic priorities of these same countries. Finally, a section looks at the individual situations in these countries via the country reports.

## 1.3.1. Total GBAORD

GBAORD in the EU represented 0.77 % of GDP, but this figure conceals differences between the Member States. Figure 1.3. shows that in 2001 (provisional data) the greatest efforts in terms of R&D funding were made by Iceland, Finland and France, with 1.07, 1.00 and 0.99 % of GDP respectively. In Sweden and Germany, there was also more emphasis placed on government budgeting towards R&D activities than the EU average of 0.77 %. Ireland and Greece, on the other hand, allocated fewer budgetary appropriations to R&D, their respective figures of 0.33 and 0.30 % of GDP being around two-fifths of the Community average. The nine other EEA countries fell within 0.74 % (Netherlands) and 0.58 % (Belgium) of GDP.

In terms of the percentage of total general government expenditure — see Figure 1.4. — GBAORD provides a proxy of the relative emphasis that governments place on funding R&D. Once again Finland, France and Germany are amongst the countries which budgeted most to R&D activities at 2.01, 1.87 and 1.75 % respectively of total general government expenditure in 2000. The UK and Spain also budgeted more than the EU average (1.65 %) at 1.75 and 1.73 % of public expenditure, although their activities fell short of the EU average when measured against GDP.

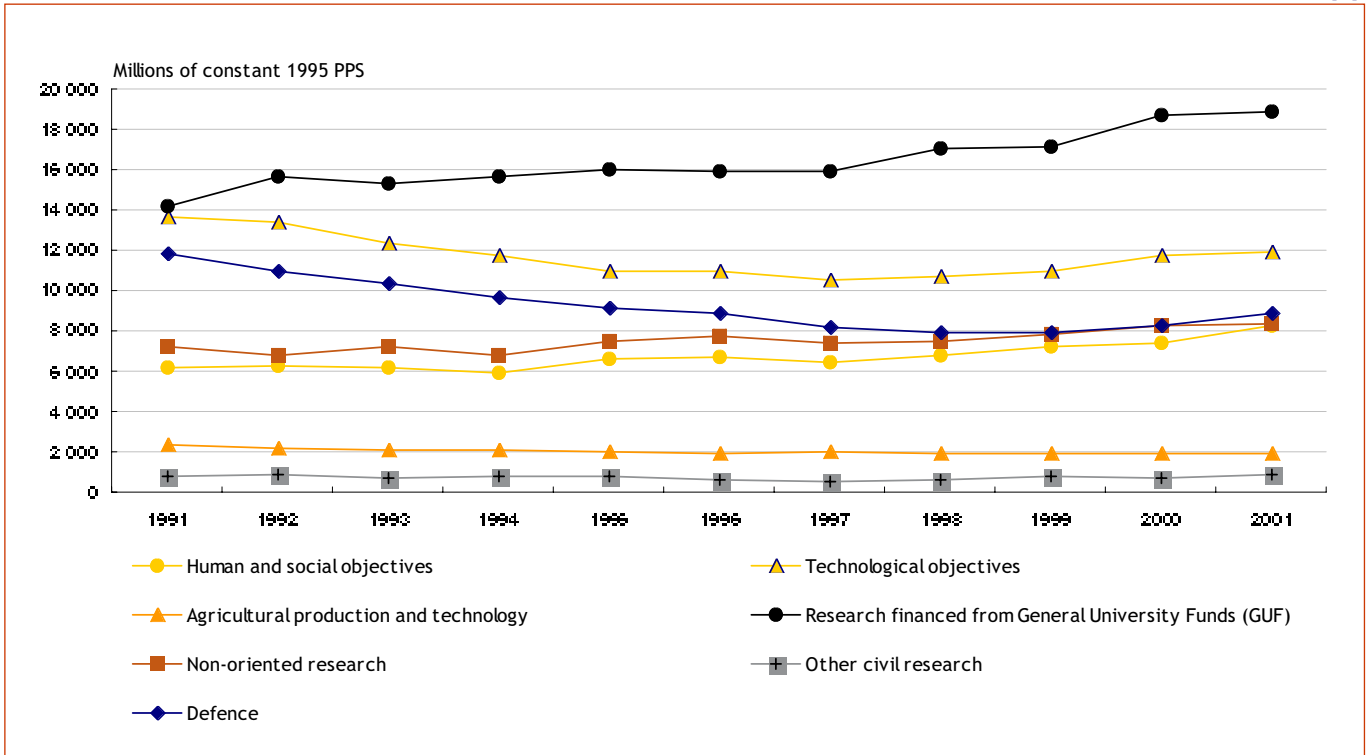
Figure 1.5. shows that the increase for Spain followed a period (1996-2001) that witnessed strong increases in GBAORD. The annual average growth rate of GBAORD in real terms was 11.3 % during this period, whereas it was negative (- 0.5 %) for the period from 1991 to 1996. Similarly, Italy's GBAORD, which recorded negative annual growth rates (- 3.8 %) over the period from 1991-96, grew appreciably during the period 1996-2001 with an annual average growth rate of 5.7 %. France is in a similar situation, although the growth in annual rates is less pronounced, rising from - 3.4 to 1.1 %.

Ireland, Portugal and Greece increased their budgeting to R&D activities over the two periods with annual average growth rates of 7.7, 7.8 and 6.3 % respectively. The same applies for Austria, Belgium, Denmark, Finland, the United Kingdom and Iceland, although it should be noted that the increase in Iceland during the period 1996-2001 came mainly in 1999 and 2000. Sweden recorded negative annual average growth rates of around - 0.9 % between 1991 and 2001, whilst Germany moved from a slightly negative growth rate between 1991 and 1996 to more or less zero growth between 1996 and 2000. In Norway, finally, GBAORD rose during the first period and then fell thereafter.

Whilst, generally speaking, EU GBAORD remained relatively stable over this 10-year period, this is as a result of the increase in government budgeting to R&D activities during the period from 1996-2001, which offset the reductions in these same appropriations made during the previous five years.

Figure 1.6.

GBAORD by grouped socio-economic objective in millions of constant 1995 PPS  
EU-15 – 1991-2001 (1)



(1) EU-15 2000 — Eurostat estimate; EU-15 2001 — Eurostat estimate based on provisional data.

Source: Eurostat.

Table 1.1.

Distribution of GBAORD by socio-economic objective in %  
EEA countries — 2001 (1, 2)

NABS	EU-15	EUR-12	B	DK	D	EL	E	F	IRL	I	NL	A	P	FIN	S	UK	EEA	IS	NO
1. Exploration and exploitation of the Earth	1.42	1.45	0.06	1.29	1.75	2.29	1.29	0.77	0.26	1.00	0.26	2.21	1.74	1.29	0.27	1.49	1.43	-	2.15
2. Infrastructure and general planning of Land-use	1.50	1.32	0.79	1.04	1.67	2.25	0.65	0.64	1.04	0.41	2.03	1.79	0.15	2.14	2.31	1.23	1.52	7.55	2.34
3. Control and care of the environment	2.77	2.99	2.66	2.79	2.14	4.22	2.67	2.69	1.29	2.29	2.22	1.59	4.75	2.19	0.20	2.62	2.77	0.75	2.79
4. Protection and improvement of human health	6.33	5.02	1.41	1.29	4.01	7.47	4.22	2.79	2.03	2.29	2.11	2.23	7.16	2.44	0.29	14.23	6.34	0.67	7.16
5. Production, distribution and rational utilization of energy	2.93	3.47	2.79	1.29	2.49	1.25	2.64	2.23	-	2.64	2.00	0.64	0.24	2.71	2.22	0.47	2.91	2.46	2.03
6. Agricultural production and technology	2.19	2.77	2.51	12.42	2.41	2.03	4.21	2.12	11.41	1.00	2.17	2.27	12.26	2.57	2.14	2.06	2.23	22.25	0.24
7. Industrial production and technology	9.67	11.25	26.09	6.29	12.09	0.27	15.01	4.29	21.16	14.00	12.24	2.07	12.24	27.42	2.17	0.27	2.74	2.51	12.66
8. Social structures and relationships	3.29	3.07	2.27	11.16	4.22	2.24	0.29	0.01	7.01	4.29	2.22	2.00	2.79	2.22	6.26	2.47	2.51	20.75	7.11
9. Exploration and exploitation of space	5.49	6.22	11.73	2.79	4.29	0.29	2.22	2.00	-	7.29	2.42	0.14	0.29	2.16	2.49	2.26	2.42	-	2.23
10. Research financed from General University Funds (GUF)	21.03	22.57	12.25	20.29	20.29	10.69	21.29	21.69	12.24	12.74	25.46	20.71	25.22	25.22	25.22	12.29	21.09	-	27.22
11. Non-oriented research	14.25	15.00	26.06	17.03	12.14	10.25	7.22	12.22	21.24	0.76	12.63	12.79	0.23	14.06	-	12.74	14.27	16.76	2.22
12. Other civil research	1.27	1.29	4.16	-	0.25	0.77	1.23	2.21	-	-	4.22	2.71	2.66	-	15.10	0.42	1.24	-	-
13. Defence	15.66	11.29	0.24	0.27	7.15	0.29	20.19	22.24	-	4.03	2.19	-	1.25	1.26	12.19	24.29	15.44	-	4.24
<b>Total civil appropriations</b>	<b>24.24</b>	<b>22.19</b>	<b>26.76</b>	<b>22.43</b>	<b>22.25</b>	<b>22.61</b>	<b>22.22</b>	<b>22.76</b>	<b>122.00</b>	<b>25.27</b>	<b>27.01</b>	<b>122.00</b>	<b>22.75</b>	<b>22.44</b>	<b>21.01</b>	<b>25.11</b>	<b>24.26</b>	<b>122.00</b>	<b>25.16</b>
<b>Total appropriations</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(1) EEA, EU-15 and EUR-12 — Eurostat estimates based on provisional data.

(2) Exceptions to the 2001 reference year — DK and E: 2000 provisional.

Source: Eurostat.

### 1.3.2. GBAORD by socio-economic objective

Figure 1.2. shows the distribution of GBAORD by socio-economic objective for EU-15, the USA and Japan. Figure 1.6., in turn, highlights the evolution of these different socio-economic objectives within the EU.

The social and human objectives encompass 'Infrastructure and general planning of land-use' (NABS 02), 'Control and care of the environment' (NABS 03), 'Protection and improvement of human health' (NABS 04) and 'Social structures and relationships' (NABS 08). The technological objectives are made up of 'Exploration and exploitation of the Earth' (NABS 01), 'Production, distribution and rational utilisation of energy' (NABS 05), 'Industrial production and technology' (NABS 07) and 'Exploration and exploitation of space' (NABS 09).

The key objective in the EU is 'Research financed from General University Funds (GUF)'. During the period 1991-2001, it rose significantly from 25.2 to 31.8 % (EUR 18910 million) of the EU-15's total GBAORD. This growth was primarily at the expense of the 'Technology' and 'Defence' objectives, which fell from 24.3 and 21.1 % to 20.1% (EUR 11911 million) and 15.7 % (EUR 8851 million) of EU GBAORD respectively between 1991 and 2001.

The 'Human and social' and 'Non-oriented research' objectives showed little change over this period and followed a similar trend in rising from 12.9 and 11.0 % to 14.1 (EUR 8250 million) and 14.0 % (EUR 8350 million) respectively.

Finally, the 'Other civil research' and 'Agricultural production and technology' objectives, which accounted for around 1.3 to 4.2 % of total EU GBAORD, remained fairly stable between 1991 and 2001.

Looking at the situation more closely using Table 1.1., it can be seen that 'Research financed from General University Funds (GUF)' is the main priority in over half of the Member States. At EU level, it alone accounts for almost one-third of GBAORD. In Austria, the figure is over 60 %. In Germany, Denmark, Greece, Italy, and the Netherlands, it makes up around or at least 40 % of GBAORD.

The other priorities at EU level are mainly 'Non-oriented research' and 'Defence' which each claim about 15 %. With regard to defence, the appropriations allocated are below the Community average – and 10 % of national GBAORD – in 10 of the Member States. However, 'Defence' is the priority objective for Spain, France and the United Kingdom, where it accounts for 30.2, 23.2 and 34.9 % respectively. In Sweden, it is not the national priority, but nevertheless accounts for almost one-fifth of total GBAORD.

In Belgium, Finland and Ireland, the 'Industrial production and technology' objective is important. Its share of the total national GBAORD in these countries is 24.1, 27.4 and 21.2 % respectively, which is significantly higher than the Community average of 9.7 %.

Another priority for Denmark, Ireland and Portugal is 'Agricultural production and technology', their allocations of around 12.4 to 14.4 % of total GBAORD being around four times higher than the Community average. A closer analysis would suggest that this is linked to the importance of fisheries in these countries.

In Iceland, this same objective ('Agricultural production and technology') even accounts for over one-fifth of total GBAORD, giving it second-highest priority after 'Social structures and relationships'. In Norway, as in the majority of the Member States, 'Research financed from General University Funds' is the national priority.



## 1.4. Specific developments in the EEA — Country reports

This section presents the specific developments in the Member States on the basis of the country reports where these are available. Data for some socio-economic objectives are grouped according to the following plan:

- 'Human and social objectives' NABS groups:
  2. Infrastructure and general planning of land-use,
  3. Control and care of the environment,
  4. Protection and improvement of human health,
  8. Social structures and relationships.
- 'Technological objectives' NABS groups:
  1. Exploration and exploitation of the earth,
  5. Production, distribution and rational utilisation of energy,
  7. Industrial production and technology,
  9. Exploration and exploitation of space.

Readers should refer to Table 34 in Part 3 of this publication to obtain the relevant exchange rates applicable to non-Eurozone countries when converting the national currency figures into EUR.

### 1.4.1. Belgium

Table 1.2. presents the percentage breakdown of government R&D budget appropriations for the 1999 and 2000 financial years (final budgets) and for 2000 and 2001 (provisional budgets), carried out by the different Belgian public authorities.

The final budget for the 2000 financial year totalled EUR 1 423.228 million, which is an increase of EUR 41.140 million over 1999.

The following remarks refer to the final budget data for 1999 and 2000.

It can be seen that over one-third of Belgian government R&D activities (almost 40 %) have technological objectives (NABS 1+5+7+9), with just over half of these resources being the responsibility of the regions.

22.9 % of government R&D activities were devoted (2000) to industrial production and technology (NABS 7). The Flemish Community was responsible for over half of this figure.

11.9 % of government R&D activities were devoted (2000) to the exploration and exploitation of space (NABS 9). These activities are the sole responsibility of the Federal Authority.

Just over 24 % of these government R&D activities are allocated to non-oriented research, with half these appropriations falling to the Flemish Community, followed by the Federal Authority and the French Community.

Just under a quarter of Belgian government R&D activities come from general university operating funds; the bulk of these funds are the responsibility of the Communities.

It can be concluded that between 1999 and 2000 (or even 2001), there were, in general, only slight variations by objective or by group of NABS objectives.

Looking at the period from 1989 to 2001, it can be seen that within total GBAORD:

- the importance of 'Technological objectives' (NABS 1+5+7+9) increased the most (from 35 % in 1989 to 39 % in 2001); this percentage is the highest in the EU;
- 'Research financed from General University Funds' (NABS 10) fell from 24 % in 1989 to 19 % in 2001.

### The context

Belgium's federal structures – which arose from the reforms of 1980, 1988, and 1993 – give primary responsibility for basic and university research to the Communities, while the Regions are primarily responsible for supporting industrial and technological research. The Federal Government has particular responsibility for the federal scientific and cultural establishments, space research, thematic research programmes linked to federal competencies, nuclear research and Belgian participation in the activities of the international research bodies.

The Interministerial Conference for Science Policy – CIMPS – and its administrative bodies are the instruments for dialogue between the Government, the Regions and the Communities.

**Table 1.2. Distribution of GBAORD by grouped socio-economic objective in % Belgium — 1999-2001**

Groups of NABS objectives		Final budgets		Initial budgets	
		1999	2000	2000	2001
2+3+4+8	Human and social objectives	9.30	10.40	10.80	10.20
1+5+7+9	Technological objectives	39.70	38.90	38.10	39.90
6	Agricultural production and technology	3.10	3.00	3.00	2.90
10	Research financed from General University Funds (GUF)	19.40	19.30	19.20	19.40
11	Non-oriented research	22.80	24.10	23.90	24.10
12	Other civil research	6.30	4.40	4.70	4.20
13	Defence	0.40	0.30	0.40	0.20
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts may not equal total due to rounding.

Source: Federal Office for Scientific, Technical and Cultural Affairs,



## Priorities

### At federal level

Scientific support for the preparation of federal policies (particularly in the area of sustainable development and promotion of the information society); ongoing support for networks of excellence ('interuniversity poles of attraction'); support for the implementation of space programmes

### At regional and community level

Flemish Community/Region: increased support for public funding of R&D in order to reach total R&D spending of 2 % of gross regional product in 2000; modernisation and improvement of the system of R&D financing; promotion of high-technology sectors and encouragement of the dissemination of technology; promotion of the social aspects of technology.

French-speaking Community: increase in the appropriations for research in the field of higher education and, more specifically, in university institutions.

Walloon Region: maintenance of, or increase in, the overall R&D effort and in assistance to leading-edge technological sectors, in particular technological sectors with high employment potential.

Brussels-Capital Region: promotion of SME access to R&D and of networking of regional R&D potential; greatest possible integration of R&D results into the economic processes of the region.

## 1.4.2. Greece

### Changes in GBAORD in nominal and real terms

In 2000, the GBAORD budget (final data) amounted to EUR 420.1 million. Compared to EUR 349.4 million in 1999, the GBAORD budget registered an increase of 20.2 % in nominal terms and 16.3 % in real terms. In 2000, GBAORD as a percentage of GDP, reached a historical peak rising from 0.31 % in 1999 to 0.35 % – See Table 1.3.

However, provisional data for 2001 indicate a probable decline of GBAORD (- 6.6 % in nominal terms and - 9.5 % in real terms). The absolute figures of GBAORD amount to EUR 392.2 million (current prices) and EUR 380.1 million (constant prices 2000). This decline should be attributed in the first place to a temporary decrease of the inflow of structural funds in Greece. As a matter of fact, 2001 was the last year of financing through the 2nd CSF – Community

Support Framework – while the financing through the 3rd CSF started to be substantial only in 2002.

### Most important socio-economic objectives

During the period under review, 'Research financed from GUF' remains by far the most important recipient of government R&D financing. It accounts for the largest share of GBAORD although its contribution was characterised by a downward trend between the years 1999 (48.9 %) and 2000 (43.0 %). This trend was reversed in 2001 and its share in GBAORD reached 48.7 %. As a matter of fact, in 2001, for which provisional data are available 'Research financed from GUF' was the only objective which registered an increase both in nominal and in real terms (+ 5.8 and + 2.5 % respectively).

The second most important objective of the Greek government R&D financing proves to be 'Non-oriented research'. Its share in GBAORD increased from 7.8 % in 1999 to 11.3 % in 2000 and then dropped down to 10.6 % in 2001 (provisional data). Moreover 'Non-oriented research' registered an impressive increase in absolute figures between 1999 and 2000 (+ 74.7 % in nominal and + 68.9 % in real terms), which can be attributed to the increased financing through the structural funds of a great number of research projects (e.g. under the program PENED) just aiming at maintaining research capacity in the higher education institutes, research centres and institutes.

'Industrial production and technology' showed a progressive decrease during the period 1999-2001 both as part of the overall government R&D financing and in absolute figures; this may be due to the fact that the major research programs in this category have attained a post-maturity phase with lower rates of financing while, in the meantime, the launching of new programmes under the 3rd CSF moves slowly.

As far as it concerns the trends in the financing of biotechnology and information technologies, the absence of data for NABS objective 10, due to special methodological aspects of the estimation of GUF, leads to underestimation of their importance in overall R&D government budgets.

Table 1.3. shows the breakdown of GBAORD by broad NABS objectives for the reference years 1999 and 2000 (final budgets) and for the reference year 2001 (provisional budget). The share of the group 'Human and social objectives' shows an upward trend while the share of the group 'Technological objectives' is in decline (in absolute figures, however, it remains rather stable).

Table 1.3.

Distribution of GBAORD by grouped socio-economic objective in % Greece – 1999-2001

Groups of NABS objectives	Final budgets		Initial budgets	
	1999	2000	2000	2001
2+3+4+8 Human and social objectives	18.70	23.10	18.25	20.60
1+5+7+9 Technological objectives	18.30	15.30	20.00	13.20
6 Agricultural production and technology	7.10	6.10	6.95	5.80
10 Research financed from General University Funds (GUF)	48.90	43.00	45.78	48.70
11 Non-oriented research	7.80	11.30	7.95	10.60
12 Other civil research	0.30	0.80	0.30	0.80
13 Defence	0.90	0.40	0.77	0.40
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts may not equal total due to rounding.

Source: GSRT.

Table 1.4.

Distribution of GBAORD by grouped socio-economic objective in %  
France — 1998-2001

Groups of NABS objectives		Final budgets			Initial budgets
		1998	1999	2000	2001
<b>2+3+4+8</b>	Human and social objectives	9.20	9.50	8.70	10.10
<b>1+5+7+9</b>	Technological objectives	22.50	22.80	22.70	20.80
<b>6</b>	Agricultural production and technology	3.80	3.90	3.00	2.10
<b>10</b>	Research financed from General University Funds (GUF)	17.10	18.00	18.20	21.60
<b>11</b>	Non-oriented research	19.90	20.10	21.80	19.80
<b>12</b>	Other civil research	2.50	2.40	2.90	2.30
<b>13</b>	Defence	25.00	23.40	22.70	23.20
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: MENRT.

Table 1.5.

Distribution of GBAORD by grouped socio-economic objective in %  
Ireland — 1999-2001

Groups of NABS objectives		Final budgets		Initial budgets	
		1999	2000	2000	2001
<b>2+3+4+8</b>	Human and social objectives	11.00	12.00	13.27	18.00
<b>1+5+7+9</b>	Technological objectives	31.00	22.00	21.54	13.00
<b>6</b>	Agricultural production and technology	21.00	15.00	14.41	23.00
<b>10</b>	Research financed from General University Funds (GUF)	24.00	20.00	19.24	18.00
<b>11</b>	Non-oriented research	13.00	33.00	31.54	28.00
<b>12</b>	Other civil research	:	:	:	:
<b>13</b>	Defence	:	:	:	:
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: Forfas.

Table 1.6.

Distribution of GBAORD by grouped socio-economic objective in %  
Italy — 1998-2001

Groups of NABS objectives		Final budgets			Initial budgets
		1998	1999	2000	2001
<b>2+3+4+8</b>	Human and social objectives	13.30	17.80	12.30	14.10
<b>1+5+7+9</b>	Technological objectives	23.00	21.40	25.90	27.60
<b>6</b>	Agricultural production and technology	1.90	1.80	2.20	1.80
<b>10</b>	Research financed from General University Funds (GUF)	48.00	45.30	47.80	43.70
<b>11</b>	Non-oriented research	11.10	11.20	10.00	8.80
<b>12</b>	Other civil research	-	-	-	-
<b>13</b>	Defence	2.70	2.50	0.80	4.00
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: ISTAT.

### 1.4.3. France

Responsibility for co-ordinating national research and development policy lies with the Ministry responsible for Research via the BCRD (civil research and development budget). R&D budget appropriations do not come from the CRDB alone, but also from university funds and the research budget of the Ministry of Defence. As of 2000 and the changes in the method of calculating civil pensions in universities, the latter account for a larger share. The reduction in the defence budget has come to an end. In 2000, it was comparable to the 1999 budget and it started to increase again thereafter.

Table 1.4. shows the breakdown in % of government budget appropriations for R&D for the 1998 to 2000 financial years (final budgets) and for 2001 (provisional budget).

Total final budget appropriations in 2000 amounted to EUR 13 842 million; this total is not directly comparable to that of previous years on account of the new method of calculating civil pensions in universities. It would be reasonable to assume that if the method had remained the same, total budget appropriations would have risen by just over 1 % in value, i.e. a variation which is much lower than that for GDP. This situation can be explained by the trend in defence appropriations, with the BCRD having seen a 2.0 % increase in value between 1999 and 2000.

There was a sharp increase in value of over 5 % in 2001. The upsurge in budgetary appropriations for defence explains 57 % of the overall increase, with the rest falling to the civil R&D budget, which rose in value terms by 3.8 %.

The trends in the pattern of the BCRD by socio-economic objectives largely explain those in budget appropriations.

- 1 The prime objective of R&D government budget appropriations is the 'general advancement of knowledge'. They comprise general university funds and 'non-oriented research'.
- 2 Technological objectives occupy second place in terms of civil budget appropriations; their share has remained stable for three years at almost 23 %, with 'exploration and exploitation of space' accounting for half of these objectives. In 2000 and 2001, the amounts are comparable with increased efforts in the field of industry.
- 3 The share of human and social objectives was identical in 2000 and rose significantly in 2001 when a number of large establishments became more actively involved in the fields of environment and health.

### 1.4.4. Ireland

The total budgetary allocation to R&D in 2001 amounted to EUR 378 million, an increase of EUR 59.8 million over the 2000 level. In real terms, there has been a 37 % increase in funding since 1999. A breakdown by socio-economic objectives is provided in Table 1.5.

Funding for 'exploration and exploitation of the earth' has increased from EUR 1.3 million in 2000 to 11.4 million in 2001. This is an increase of over 900 % and can be attributed mainly to extra funding of EUR 10.1 million from the Department of Public Enterprise. This will fund a seabed survey (EUR 9.5 million) and a geological survey (EUR 0.6 million) which will be undertaken by the Geological Survey of Ireland.

Funding for 'infrastructure and general planning of land use' has increased almost threefold from EUR 3.4 million in 2000 to EUR 10.1 million in 2001. A large component of this increase is accounted for by an increase of EUR 5 million from the Higher Education Authority (HEA) for buildings for R&D.

Appropriations for environmental objectives have increased from EUR 4.6 million in 2000 to EUR 6.4 million in 2001. This increase of almost EUR 2 million is composed of extra funding from the Higher Education Authority for environmental research.

Funding for the 'protection and improvement of human health' from the Department of Health & Children has increased by EUR 2.7 million over the 2000 figure. In real terms there has been an increase of 187 % in appropriations for human health since 1999.

'Agricultural production & technology' appropriations have almost doubled, with an increase of EUR 40.9 million since 2000. This increase is comprised of an extra EUR 28.4 million from the Department of Agriculture for agricultural production and food research and EUR 13 million for fisheries innovation from the Department of the Marine.

'Industrial production and technology' has seen a decrease in funding of EUR 11.6 million over the 2000 figure. The funding for this objective amounted to EUR 76.3 million in 1999 and the decrease in real terms since then amounts to EUR 26.5 million.

There is an increase of EUR 2.7 million over the 2000 funding for 'social structures and relationships'. (One of the programmes previously categorised in this chapter is no longer deemed to be R&D, this is why the 1999 and 2000 figures have changed).

'Research financed from General University Funds' has seen an increase of EUR 5.9 million, from EUR 63.3 million in 2000 to EUR 69.2 million in 2001. The majority of this increase has been in the social and human sciences categories.

Funding for 'non-oriented research' has increased in real terms by 291 % since 1999 and can be attributed to extra funding from the HEA and Science Foundation Ireland.

### 1.4.5. Italy

In 2000, the final GBAORD budget amounted to EUR 7 656 million. Final data for 2000 registered a significant positive difference (+ 13.3 %) on provisional 2000 data. First of all, this is due to the revision of GUF data (see methodological notes in Part 2), which increased 27.3 % with regard to provisional data. 'Protection and improvement of human health' (+ 11.6 %) and 'Agricultural production and technology' (+ 19.4 %) marked a recovery of the allocations. 'Exploration and exploitation of the earth' presented a slight decrease (- 2.4 %) – See Table 1.6.

The final 2000 budget presents an important increase on the 1999 budget, that is + 25.9 % in nominal terms (and + 23.2 % in real terms, at 1995 prices). The better performance of 'Protection and improvement of human health' (+ 18.6 %) is due to the investment of the Department of health and the performance of 'Agricultural production and technology' (+ 24.1 %) to the increased allocations of the research institutes. CNR (the biggest research agency of the country), which finances every socio-economic objective, and ENEA (National Agency for New Technologies and Environment) received less funds in nominal terms (- 0.9 and - 5.3 % respectively). The two big institutes devoted to physical sciences (National Institute of Nuclear Physics and National Institute of Physics of the Matter) register better performances (+ 5.3 % together in 2000 in front of 1999) and balance to a certain extent the negative trend of the big agencies.

Higher allocations of GBAORD are due mainly to the Departments of Health and of Education, University and Research (MIUR): the objective of 'Protection and improvement of human health' registered an important increase (+ 16.3 %) and the 'Industrial production and technology' registered a sharp jump (+ 126.7 %). Moreover, MIUR plays an important role also in the resources devoted to 'Exploration and exploitation of space' (+ 9 %) (appropriations to the ESA) and to 'Non-oriented research' (through the Fund for basic research, + 6.5 %). The other objectives registered small variations in nominal terms. Major investment in R&D to 'Non-oriented research' produced a growth of the chapter (+ 3.9 %). 'Research financed from GUF', which covers 47.8 % of the whole GBAORD, marked an increase of 0.9 %.

Table 1.7.

Distribution of GBAORD by grouped socio-economic objective in %  
Netherlands — 2000-2002

Groups of NABS objectives		Final budgets		Initial budgets	
		2000	2001	2001	2002
<b>2+3+4+8</b>	Human and social objectives	13.70	14.90	13.80	14.70
<b>1+5+7+9</b>	Technological objectives	21.40	18.00	20.00	17.80
<b>6</b>	Agricultural production and technology	3.10	3.70	3.20	3.10
<b>10</b>	Research financed from General University Funds (GUF)	44.90	46.30	46.90	47.90
<b>11</b>	Non-oriented research	10.30	10.70	10.60	10.60
<b>12</b>	Other civil research	4.80	4.80	4.80	4.60
<b>13</b>	Defence	2.20	1.70	2.20	1.70
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: CBS.

Table 1.8.

Distribution of GBAORD by grouped socio-economic objective in %  
Austria — 1998-2001

Groups of NABS objectives		Final budgets			Initial budgets
		1998	1999	2000	2001
<b>2+3+4+8</b>	Human and social objectives	8.28	7.81	7.69	8.21
<b>1+5+7+9</b>	Technological objectives	9.77	10.38	10.97	12.07
<b>6</b>	Agricultural production and technology	2.81	2.97	2.87	2.57
<b>10</b>	Research financed from General University Funds (GUF)	65.73	65.18	65.42	60.71
<b>11</b>	Non-oriented research	13.25	13.66	13.36	13.79
<b>12</b>	Other civil research	0.08	-	0.08	2.71
<b>13</b>	Defence	-	-	-	-
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: ÖSTAT.

Table 1.9.

Distribution of GBAORD by grouped socio-economic objective in %  
United Kingdom — 1998-2001

Groups of NABS objectives		Final budgets		Initial budgets	
		1998	1999	2000	2001
<b>2+3+4+8</b>	Human and social objectives	22.00	22.60	22.10	20.80
<b>1+5+7+9</b>	Technological objectives	5.40	5.00	5.70	7.90
<b>6</b>	Agricultural production and technology	4.90	4.20	4.10	3.00
<b>10</b>	Research financed from General University Funds (GUF)	19.00	18.70	19.40	20.70
<b>11</b>	Non-oriented research	11.90	11.30	12.00	13.80
<b>12</b>	Other civil research	0.90	0.30	0.30	0.30
<b>13</b>	Defence	36.80	37.90	36.30	33.90
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: ONS.

Considering the increasing trend both of finalised and non-finalised research – including the resources devoted to 'Non-oriented research' and to 'Research financed from GUF', the purpose of the Government to play a role in the recovery of Italian GBAORD emerges.

In 2001, provisional data amounted to EUR 8 441 million with an increase of 10.2 % on final 2000 data. There was a general increase of the objectives. The most important positive variation has occurred in 'Infrastructure and general planning of land-use' (+ 88.3 %), 'Social structures and relationships' (+ 52.9 %) and 'Defence' (this objective multiplied fivefold). The exception to the growth is registered in 'Agricultural production and technology' (- 10.2 %), due mainly to the incompleteness of data, and in 'Non-oriented research' (- 3.9 %).

The reorganisation of faculty courses in Universities is ongoing yet, but the autonomy facilitates their approaching to the market.

The National Research Council (CNR) of Italy completed its reorganisation, by reducing the number of its institutes and pursuing the criterion of excellence and efficiency. Unfortunately, its endowment is steady in real terms.

MIUR established measures in order to increase the financing through FAR (a special Fund for the Facilities to Research).

#### 1.4.6. The Netherlands

Central government budget appropriations for R&D shows a nominal increase of EUR 174 million between the figures of the budgetary years 2000 and 2001 (final budget) and EUR 247 million between 2001 and 2002 (provisional budget).

The final budget for 2001 amounts to EUR 3.4 billion in current terms, while the provisional budget for 2002 is only a fraction higher than the 2001 one. The difference is + EUR 21.8 million, an increase of 0.6 % in nominal terms, but a decrease in real terms.

Comparing the relative positions of the different objectives there seems to be only small changes apparent – See Table 1.7. The decreasing share of the 'technological' objectives is caused by the decreasing share of the research on 'Exploration and exploitation of the earth', energy research (both decreasing in nominal terms) and research on 'Industrial production and technology' (stable budget in nominal terms). Also decreasing is the share of defence research – a decrease in nominal terms too.

The share of the government budget devoted to general university funds shows an upward development up to a level of 47.5 % in the budget of 2002. The share of 'Non-oriented research' (10-11 %) remains stable. This 'Non-oriented research' is performed within institutes of the research council NWO – Netherlands Organisation for Scientific Research, of the KNAW – Royal Netherlands Academy of Arts and Sciences – and within the international research organisations like CERN and ESA.

#### Priorities

Important fields within S&T policy are genomics, nanotechnology and information and communication technologies. The research council NWO has been made responsible for a programme on genomics research for the period 2001-2006. ICT is a major topic in science and technology policy. In 2000 a White Paper was published 'Competitiveness with ICT-competences'. Based on this paper a special task force was installed. This task force advised to double the volume of public research in this field and to reinforce the exchange between public ICT-research and the private sector. Every second year a broad ICT-benchmark is performed, partly oriented to knowledge and innovation.

Nanotechnology is one of the themes to be funded from the extra budget for knowledge.

#### 1.4.7. Austria

Public R&D funding totalled EUR 1.287 billion (final budget) in 2000. This means that public R&D expenditure rose nominally by 0.5 % in 2000 compared with 1999.

The 2001 provisional budget earmarks State funds of EUR 1.401 billion for R&D for the 2001, which represents an increase of 8.8 % compared with the value of the final budget for 2000 (EUR 1.287 billion).

In the provisional Federal budget for 2001, a total of EUR 508.7 million, which can be placed in reserve, is listed for the 'Research and Technology Offensive' and earmarked for R&D expenditure in 2001, 2002 and 2003. If all these funds were then to be taken into account in 2001, this would seriously distort the estimates of the federal authorities' proportion of funding not just for 2001 and 2002 but also for subsequent years. The estimate of the federal authorities' proportion of funding produced by *Statistik Austria* only therefore takes account of the EUR 130.2 million which, according to the information available to date on payments actually made, was spent in 2001.

Up to the year 2002, there was basically no change in the special Austrian situation in which some 65 % of the Federation's total R&D expenditure is allocated to NABS Chapter 10 'Research funded from GUF' owing to the dominant position of the universities in State sector research – see Table 1.8. In 2001, the shares of the research objective groups 'Industrial production and technology' (with that of the 'Technological objectives' group rising to 12.0 %) and 'Other civil research' (2.7 %) will increase because the above-mentioned EUR 130.2 million for the 'Research and Technology Offensive' have been allocated to the NABS objectives. At the same time, the share of 'Research funded from GUF' will fall in 2001 to 60.7 %, although in 2002 its share will be back up again to a level of just under 66 %.

Public R&D funding in 2002 will total EUR 1.283 billion according to the provisional Federal budget (= provisional budget for 2002; excluding funds from the '2001 Research and Technology Offensive').

#### 1.4.8. United Kingdom

Data on government expenditure and employment on Research and Development are collected by means of an annual survey of central government departments. The results of the latest survey are available in the OST's Science, Engineering and Technology Statistics 2002 on the Internet at <http://www.dti.gov.uk/ost/>.

Total net Government expenditure on R&D in 2000-2001 was GBP 6563 million. This represents 2.4 % of total Central Government expenditure and 0.69 % of Gross Domestic Product. The expenditure on R&D in 2000-01 increased in cash terms by GBP 371 million (6.0 %) on 1999-2000.

Table 1.9. shows UK Government expenditure on R&D in 'Defence' has increased. In 2000-2001 expenditure on defence was GBP 2 384 million, which was GBP 37 million (2 %) up on the previous year.

After 'Defence' the biggest category of R&D expenditure in 2000-2001 was 'Social Sciences & Humanities', which continues to show an increase in expenditure from GBP 1 398 million in 1999-2000 to GBP 1 452 million in 2000-01. The increase in this area from 1995-96 onwards is due in part to the fact, that for 1995-96 UK NHS figures have been obtained from the Department of Health and the Scottish Office on the basis of the Culyer directive, which for the first time confirmed the extent of R&D spending in the NHS.

Table 1.10.

Distribution of GBAORD by grouped socio-economic objective in %  
Iceland — 1998-2001

Groups of NABS objectives		Final budgets			Initial budgets
		1998	1999	2000	2001
<b>2+3+4+8</b>	Human and social objectives	61.26	60.10	60.22	66.72
<b>1+5+7+9</b>	Technological objectives	3.25	6.66	6.04	4.96
<b>6</b>	Agricultural production and technology	22.91	29.69	28.16	22.66
<b>10</b>	Research financed from General University Funds (GUF)	-	-	-	-
<b>11</b>	Non-oriented research	12.58	14.66	16.69	16.76
<b>12</b>	Other civil research	-	-	-	-
<b>13</b>	Defence	-	-	-	-
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: The Statistical Bureau of Iceland.

Table 1.11.

Distribution of GBAORD by grouped socio-economic objective in %  
Norway — 1999-2001

Groups of NABS objectives		Final budgets		Initial budgets	
		1999	2000	2000	2001
<b>2+3+4+8</b>	Human and social objectives	19.60	19.30	19.30	19.40
<b>1+5+7+9</b>	Technological objectives	18.90	18.70	18.90	20.20
<b>6</b>	Agricultural production and technology	8.70	8.90	9.00	8.90
<b>10</b>	Research financed from General University Funds (GUF)	39.30	39.60	39.00	37.30
<b>11</b>	Non-oriented research	8.10	8.60	8.80	9.30
<b>12</b>	Other civil research	-	-	-	-
<b>13</b>	Defence	5.40	5.00	5.00	4.90
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

NB: Sum of constituent parts  
may not equal total due to rounding.

Source: Statistics Norway.



All other categories also showed a rise in expenditure between 1999-2000 and 2000-2001. 'Technological objectives' increased by 21.2 % from GBP 308 million to GBP 373 million, 'Research financed from GUF' rose by 10.3 % from GBP 1 157 million to GBP 1 276 million and 'Non-oriented research' increased by GBP 88.8 million (12.7 %). 'Other Civil Research' and Agriculture increased by 8.5 % and 2.3 % respectively in the same period.

#### 1.4.9. Iceland

In the Table 1.10. the development of chosen NABS groups are shown in % from 1998 to 2001. It should be noted that all years but 2001 are reported from the final budget. In 2001, data from the provisional budget are reported. These usually increase by about 20 % by the time they become final budgets.

The objective 'Social Structures and relationships' increases markedly after 1997. Generally speaking it can be stated that most objectives are rather stable but the objective of 'Protection and improvement of human health' is clearly increasing, as can be seen in the R&D statistics.

#### 1.4.10. Norway

##### Specific developments In GBAORD in Norway — 1999-2001

Net Government Budget Appropriations or Outlays for R&D (GBAORD) in the provisional budget for 2001 amounted to NOK 10.1 billion. In current prices this was an increase of NOK 436 million from the final budget for 2000, or 4.5 %. In real terms, this means less than 1 % growth, and a deterioration in the

GBAORD trend compared to the development between the final budgets from 1999 to 2000, with a growth of 7.8 (current) and 2.5 % (fixed) respectively. The relatively weak 2001 budget proposal occurred despite the Government goal of lifting the level of the Norwegian R&D expenditure as a share of GDP to the OECD average by 2005. This ambitious plan involves increase and reallocation of GBAORD, including the build-up of a new foundation for research and innovation. The chances of reaching the goal also seem hampered by an extraordinarily strong GDP growth in Norway, courtesy of increased oil revenue

As shown in Table 1.11., 37 % of net Norwegian GBAORD in 2001 was allocated through 'General University Funds (GUF)'. Universities are thus by far the most prominent recipients of Government R&D funding, though the ratio seems to be on the decrease over the past couple of years. Largely, this decrease is due to finalisation of a few large building projects. At the same time there is an increase in the share of funds for 'Technological objectives', which account for one fifth of total GBAORD. The growth is largely explained by the introduction of a new funding instrument for industrial R&D and innovation (FUNN). The overall technology share largely equals the 'human and social objectives' share, which has been relatively stable over the period. Stability also applies to R&D with agricultural objectives. The slight decline in the 'Defence' share of total GBAORD is consistent with general foreign policy trends of recent years. The slight increase in the share of 'Non-oriented research' is mainly attributable to the build-up of the new foundation for research and innovation, mentioned above, the dividend of which is allocated via the Research Council of Norway.

# Chapter 2

## R&D expenditure and personnel

### 2.1. Introduction

R&D activities are often considered a catalyst for economic growth. They 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 (1). The basic statistical variables are R&D expenditure and R&D personnel, which are measured annually or else every two years, both at national and regional levels (2).

Two manuals are used as methodological reference works for R&D surveys: the *Frascati Manual* and the *Regional Manual* (3). They provide a model for obtaining comparable statistics between countries.

R&D expenditure corresponds to the measurement of 'intramural' expenditure, i.e. all expenditure on R&D within a statistical unit or sector of the economy, whatever the source of funds – *Frascati Manual*, paragraph 335.

Data on R&D personnel relate to the quantity of human resources directly devoted to R&D activities plus those who provide services directly related to R&D – *ibid.* paragraph 279. They are measured in terms of full-time equivalent (FTE) and head count (HC).

Intramural R&D expenditure and R&D personnel are broken down by institutional sector, i.e. by sector engaged in R&D. In this publication, four sectors are used to calculate indicators of R&D activity: the business enterprise sector, the government sector, the higher education sector and the private non-profit sector. However, given the minor role played by the latter sector in all countries save Portugal, it has not been systematically included in all the analyses in this chapter, nor in the Tables in Part 3.

New indicators were introduced last year in the field of R&D statistics, such as R&D personnel by profession and by sex. These data series have been expanded, as have the European aggregates for researchers. Not all of these series appear systematically in this publication, but they are available on the CD-ROM and on the *NewCronos* database.

From a methodological viewpoint, one minor change has been made in the monetary units for R&D expenditure as constant ECU/EUR at 1995 exchange rates and prices have been replaced by PPS – purchasing power standard, also at constant 1995 exchange rates and prices.

(1) *Standard method for surveys on research and experimental development* – *Frascati Manual*, OECD, 1993.

(2) For the first time this year, the R&D data include those of Luxembourg.

(3) *The regional dimension of R&D statistics and of innovation* – *Regional Manual*, Eurostat, 1996.

(4) The data for the European aggregates are estimated.

Finally, this Chapter is divided into three main parts: R&D activities in Europe compared to the USA and Japan – two other main poles of the world economy; current trends in R&D activities within the European Economic Area; and R&D in Europe's regions. The analysis pertains to the period 1991-2001.

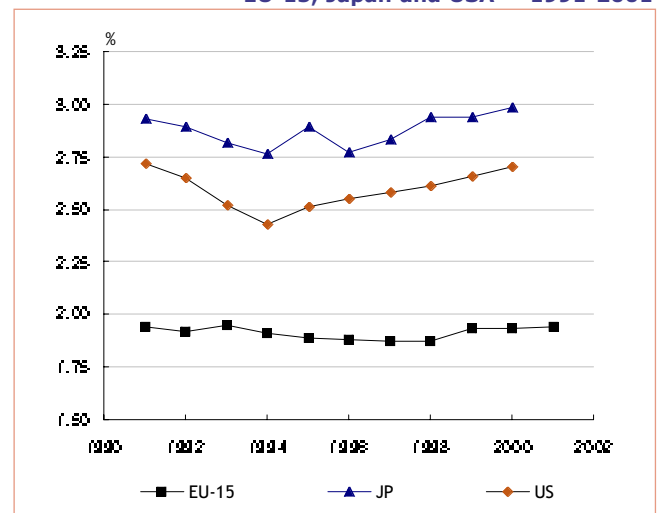
### 2.2. Future prospects for R&D at the international level

The gap between Europe and the United States and Japan is still there

#### 2.2.1 R&D expenditure

In 2001, the EU-15 spent 1.94 % of its GDP on R&D (4). Despite being up slightly on the previous year, the gap which separated Europe's performance in 2000 from those of Japan (2.98 %) and the USA (2.70 %) grew wider. Over the last decade, this proportion of R&D expenditure in GDP has remained relatively stable for the European Union, fluctuating within a narrow band of between 1.87 and 1.95 %, with 2001 seeing the EU-15 on the way back up to its maximum level of expenditure in terms of % of GDP recorded in 1993. At a higher level of expenditure in % of GDP, the United States are in exactly the same situation with expenditure virtually the same as the level recorded in 1991, before the figures fell in the period up to 1994. Japan, on the other hand, bucks this trend because, as in 1998 and 1999, it recorded levels of expenditure in terms of % of GDP, which it had never achieved before. The trend in both Japan and the United States shows a steady and positive increase in expenditure as % of GDP over the second half of the decade – Figure 2.1.

Figure 2.1. R&D expenditure as a % of GDP all sectors EU-15, Japan and USA – 1991-2001



Sources: Eurostat, OECD (JP, US).



The lower proportion of GDP allocated by the EU-15 to R&D expenditure is mainly explained, at a more detailed level, by the significant gap observed in the business sector where 0.8 points separate the European Union from the United States and Japan. In this sector, the percentages are 1.26 % for the EU-15, as against 2.04 % for the USA and 2.11 % for Japan (5).

In the joint public sector made up of government and higher education, the EU-15, Japan and the USA devote an identical proportion of GDP to R&D expenditure. The trend is stable, or even slightly downwards, over the last decade – Figure 2.2.

In volume terms, the European Union spent EUR 171 billion on R&D in 2001, as against 287 billion for the USA and 154 billion for Japan in 2000. The general trend for each entity is up on the previous year. R&D expenditure rose by 2.9 % for the EU-15, by 3.9 % for Japan and by 6 % for the USA (measured in real terms).

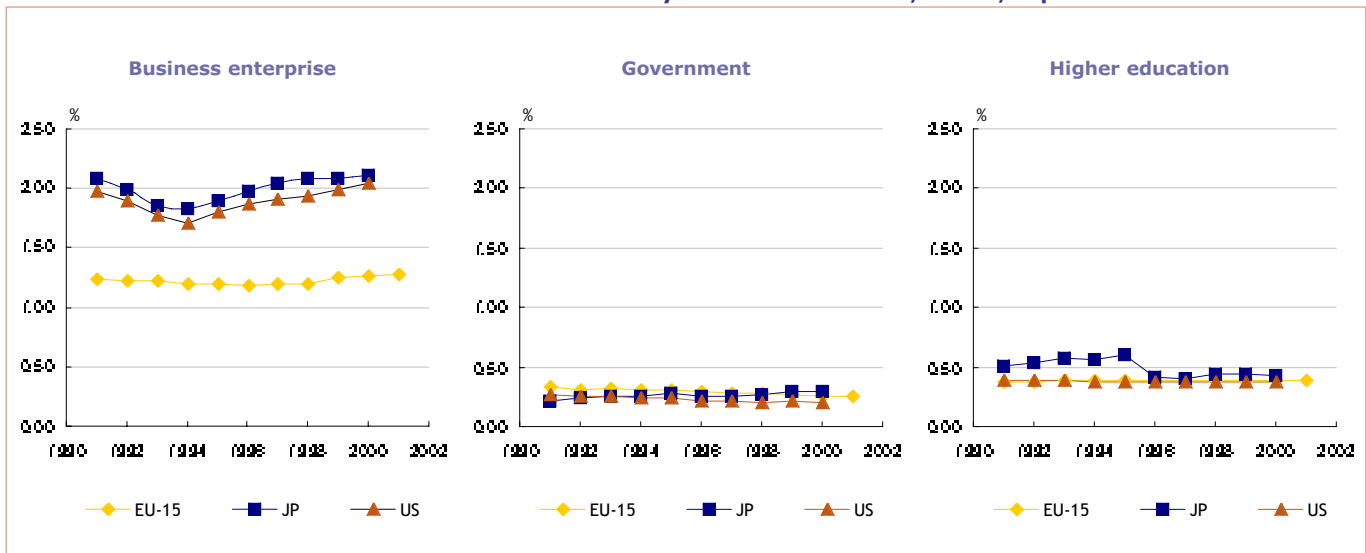
There are different driving forces behind these increases. For the EU-15 and the USA, the main factor behind this increase is the business sector where expenditure rose by 3.6 % and 6.9 % respectively. In Japan, on the other hand, the bulk of this increase was attributable to the Government and higher education sectors (4.2 % in each sector).

Most R&D activities are conducted in the enterprise sector, which accounted for 75 % of the expenditure (in current EUR) in the USA in 2000. This proportion is lower in Japan (71 %) and only reaches 66 % in the EU-15 – Figure 2.3.

(5) One of the objectives announced at the Barcelona Council was to raise R&D expenditure in the EU to 3 % of GDP by 2010 – European Commission, March 2002.

Figure 2.2.

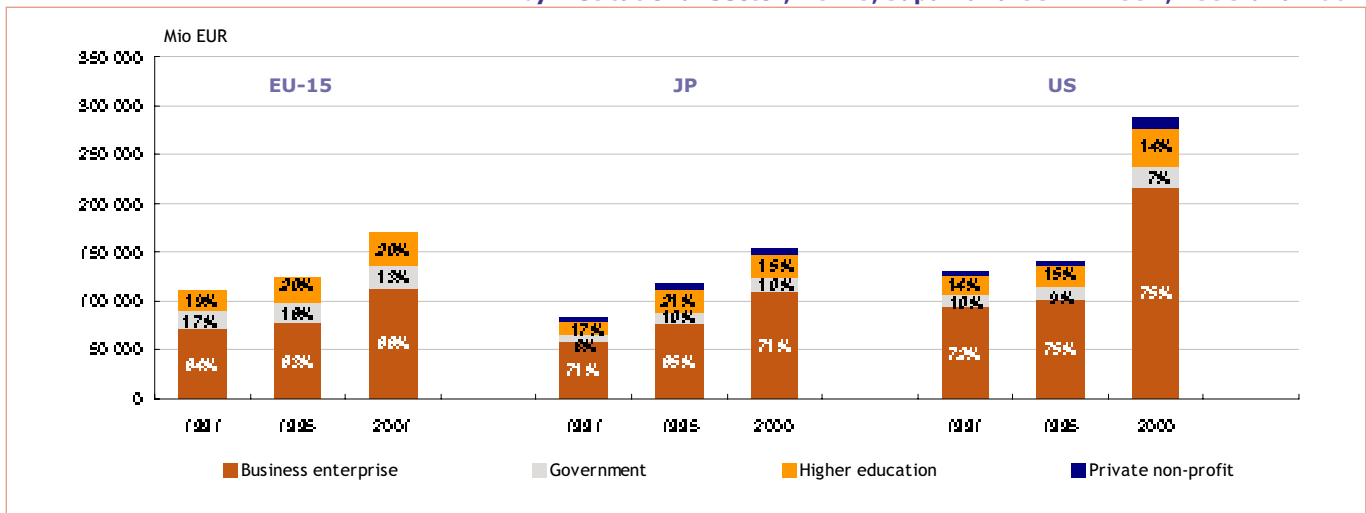
**R&D expenditure as a % of GDP by institutional sector, EU-15, Japan and USA – 1991-2001**



Sources: Eurostat, OECD (JP, US).

Figure 2.3.

**R&D expenditure in millions of EUR by institutional sector, EU-15, Japan and USA – 1991, 1995 and 2001**



Sources: Eurostat, OECD (JP, US).

## 2.2.2 R&D personnel

### Further increase for EU-15

In 2001, almost 1.8 million people expressed in full-time equivalent units (FTE) worked in the field of research in Europe, all sectors combined, which represents a volume increase of 1.58 % over the previous year. This increase continues the upward trend which began in 1997 – Figure 2.4.

Measured in terms of head count (HC), R&D personnel in EU-15 topped the 2.4 million mark for the first time in 2001, accounting for 1.41 % of the labour force, as against 1.38 % in 2000.

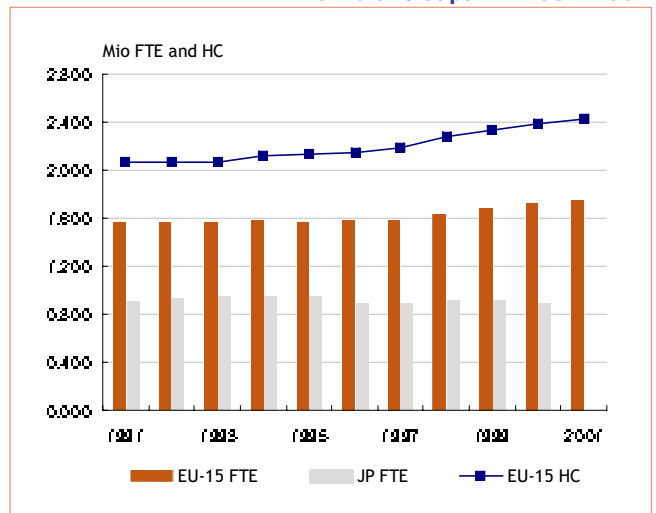
Japan recorded a slight dip in employment in 2000, with 897 000 people being employed in R&D, as opposed to 919 000 in 1999. This fall contrasted with the increase in R&D expenditure, which rose by almost 3 % over the same period.

The number of researchers continued to rise in the European Union in 2001 to reach a total of 960 000 (FTE). In volume terms, this works out at an increase of over 100 000 researchers (FTE) in the course of the last 5 years. This proportion is still nonetheless lower than that observed in the United States where 1.1 million researchers (FTE) were recorded in 1997. The 13 % rise in the number of researchers (FTE) between 1995 and 1997 in the USA is higher than in Europe. In Japan, on the other hand, the number of researchers has been relatively stable at around 650 000 over the last 3 years – Figure 2.5.

Broken down by institutional sector, the USA differs from the EU-15 and Japan due to the predominance of researchers (FTE) in the business enterprise sector. In the USA, this sector accounted for 82 % of all researchers in 1997 as against 65 % in Japan in 2000 and 50 % in EU-15 in 2001. The breakdown of total personnel also varies from one entity to the next, with, for example, 72 % of all R&D personnel (FTE) in the business enterprise sector in Japan being researchers, as against 50 % for EU-15. For total R&D personnel, no data are available for the USA.

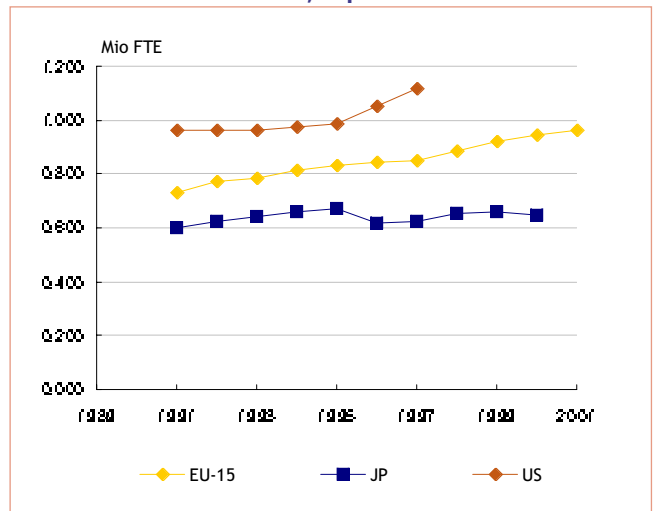
The proportion of researchers in the public sector is higher in Europe than in Japan and the United States – Figure 2.6.

Figure 2.4. R&D personnel in FTE and HC all sectors EU-15 and Japan – 1991-2001



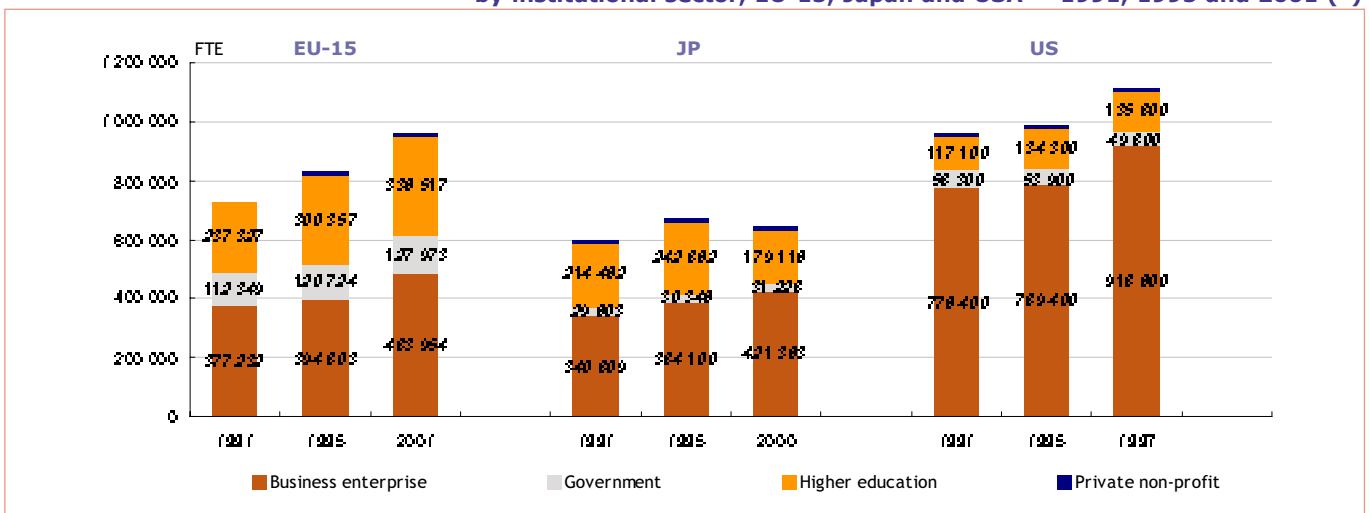
Sources: Eurostat, OECD (JP).

Figure 2.5. Researchers in FTE all sectors EU-15, Japan and USA – 1991-2001



Sources: Eurostat, OECD (JP, US).

Figure 2.6. Researchers in FTE by institutional sector, EU-15, Japan and USA – 1991, 1995 and 2001 (1)



(1) Exceptions to the 2001 reference year – JP: 2000 and US: 1997.

Sources: Eurostat, OECD (JP, US).

## 2.3. R&D activity in Europe

### 2.3.1 R&D expenditure

#### The Nordic countries step up their efforts

In 2001, Finland and Sweden – with 3.67 and 3.78 % respectively – spent the largest proportions of their GDP on R&D expenditure in Europe, all sectors combined. These figures were both increases, especially for Finland which was 0.3 points up on the previous year.

Generally speaking, the majority of European countries have recorded an increase in R&D intensity (i.e. the % of GDP devoted to R&D expenditure), with the figures for Iceland, for example, rising by over 0.2 percentage points. France, Ireland, United Kingdom and Norway are the only exceptions to this trend. Substantial differences do, however, remain among the different EEA countries, despite the increases recorded by the low R&D intensity countries, as there are still over 3 points separating Sweden from Greece and Portugal. The latter two countries, along

with Spain, Ireland or Italy are still well below the Community average (1.94 %).

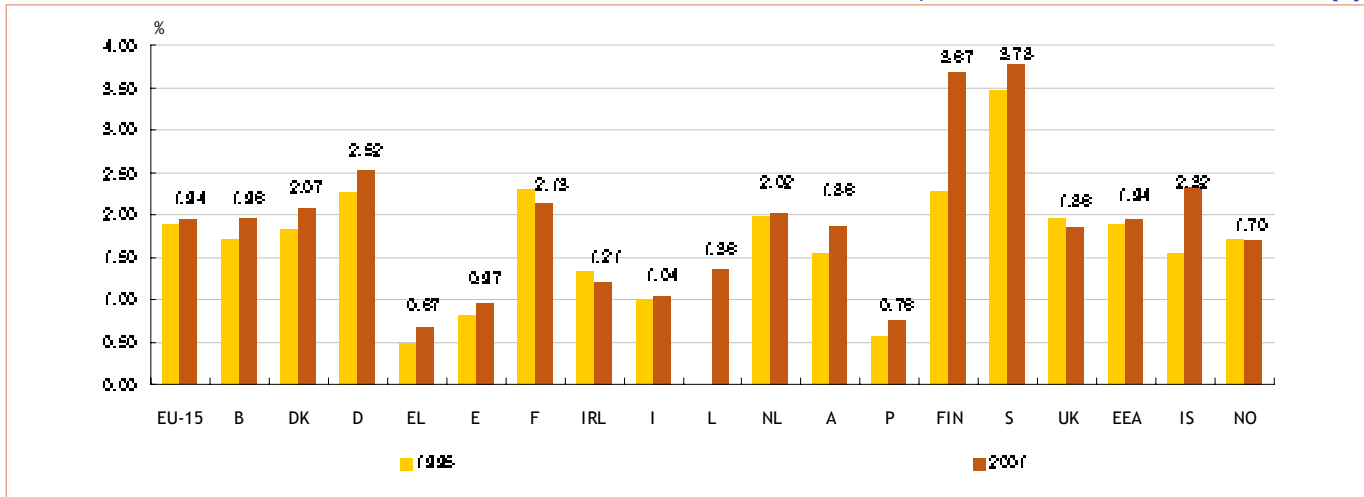
Of those countries with the highest volumes of R&D expenditure, Germany alone increased its R&D intensity, compared both to the previous year and over the last 6 years. France and the United Kingdom, on the other hand, saw their shares of GDP devoted to R&D expenditure stabilise or even drop – Figure 2.7.

These same trends can be found in the business enterprise sector, which generally accounts for two-thirds of total R&D expenditure by volume. Sweden and Finland are again at the top of the table with respective figures of 2.84 % and 2.88 %, which are higher than those for the United States and Japan. It is also in Finland, as well as in Iceland, that the highest increases – of over 0.25 points – have been recorded.

The disparities in this sector remain substantial, with four countries – Greece, Spain, Italy and Portugal – still over 0.75 points short of the Community average for R&D intensity – Figure 2.8.

Figure 2.7.

R&D expenditure as a % of GDP  
all sectors, EEA countries – 1995 and 2001 <sup>(1)</sup>

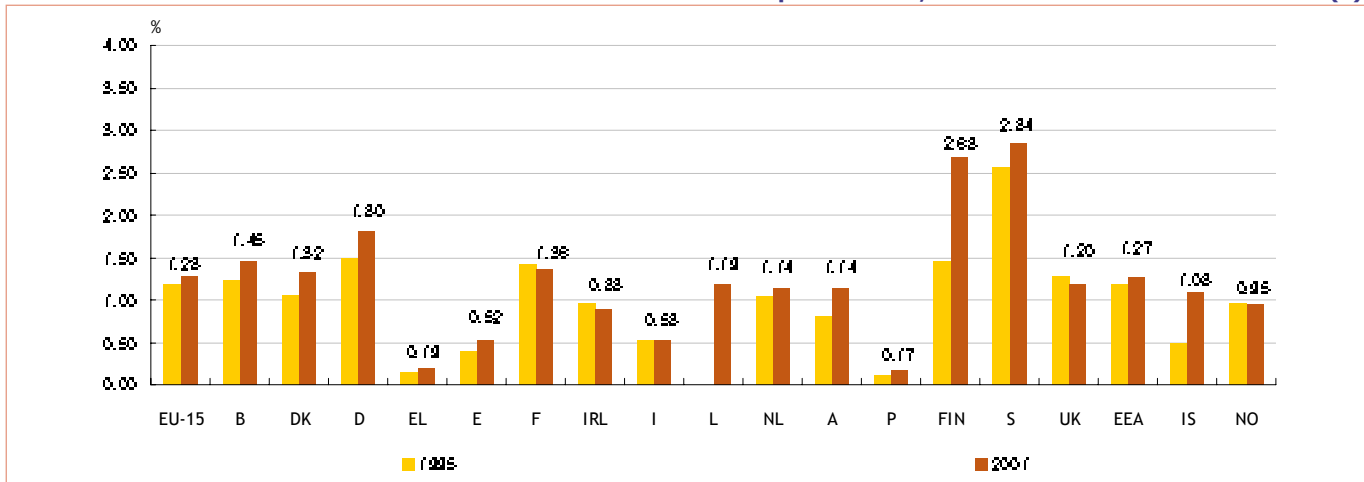


<sup>(1)</sup> Provisional data.  
Estimated data: EU-15, EEA, B, DK, D, EL, E, F, IRL and A.  
Exceptions to the 2001 reference year – UK: 2002; DK and F: 2000; B, EL, IRL, I, NL, P, S, IS and NO: 1999.

Source: Eurostat.

Figure 2.8.

R&D expenditure as a % of GDP  
business enterprise sector, EEA countries – 1995 and 2001 <sup>(1)</sup>



<sup>(1)</sup> Provisional data: L and US.  
Estimated data: EU-15, EEA, B, DK, D, E and F.  
Exceptions to the 2001 reference year – UK: 2002; B, DK and F: 2000; EL, IRL, NL, P, S, IS and NO: 1999; A: 1998.  
Exceptions to the 1995 reference year – A: 1993.

Source: Eurostat.

Germany, with EUR 52 billion, the United Kingdom (31 billion) and France (30 billion), record the highest volumes of R&D expenditure in Europe, accounting for almost two-thirds of the EU-15's total expenditure in 2001 – Table 2.1. Their expenditure was up on the previous year, but at a lower rate than that observed for the European Union where the annual growth rate (AGR) for 2001 was 2.9 %.

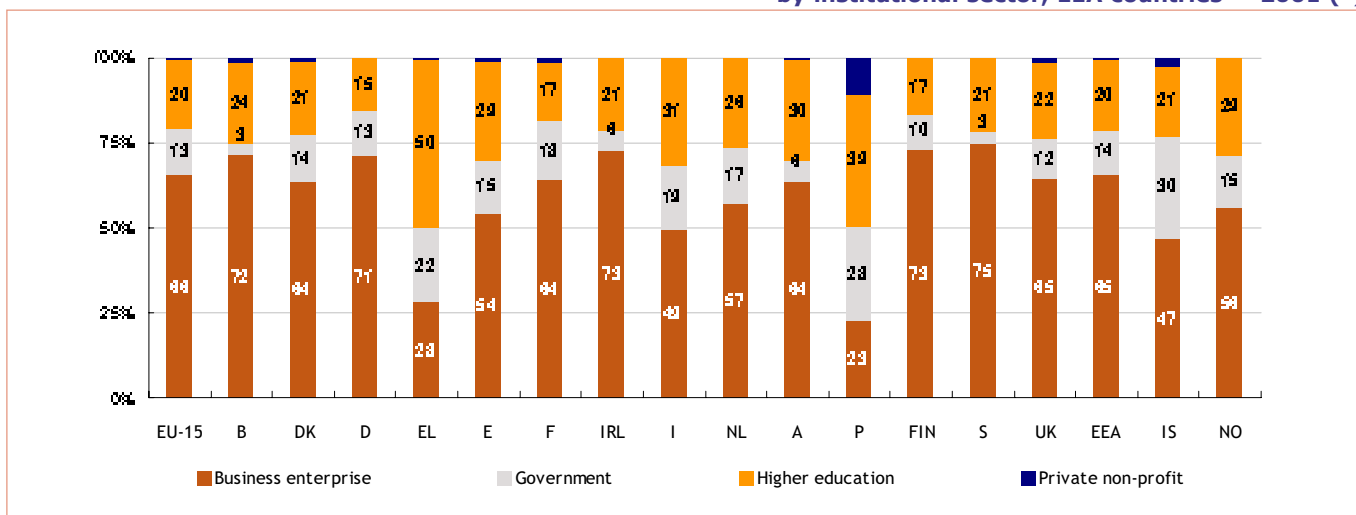
Looking at all sectors combined, the most notable growth rates, both annually and over the period from 1995-2001, were seen in Iceland and Finland, and also in Portugal and Greece where the

average annual growth rate (AAGR) between 1995 and 2001 was over 10 % – Table 2.2.

The volume of expenditure is not broken down in the same way among the different institutional sectors in the different countries, and the extreme values lie very far apart. Thus, for example, whereas the business enterprise sector accounts for over 60 % of expenditure in a majority of countries, this figure is 23 % of total R&D expenditure in Portugal and 75 % in Sweden (current EUR). Greece and Portugal stand out in particular for the substantial proportion of public sector spending on R&D compared to other EEA countries – Figure 2.9.

Figure 2.9.

R&D expenditure as a % of total expenditure by institutional sector, EEA countries – 2001 (1)



(1) Exceptions to the 2001 reference year  
 UK: 2002; DK and F: 2000; B, EL, IRL, I, NL, P, S, IS and NO: 1999; A 1998.  
 Calculations in EUR.

Sources: Eurostat, OECD (JP, US).

Table 2.1.

**R&D expenditure in million EUR and in millions of constant 1995 PPS by institutional sector, EEA countries, Japan and USA — 2001 (1)**

	EU-15	B	DK	D	EL	E	F	IRL	I	NL	A	P	FIN	S	UK	EEA	IS	NO	JP	US
In millions EUR																				
All sectors	170 702 s	+ 610 e	2 664 e	2 074 e	736 e	6 273 e	20 132 e	1 075 e	11 224 e	7 522 e	2 221 e	615 e	+ 960 f	6 600 e	21 207 f	174 162 s	100 e	2 116 e	152 222 e	207 222 p
Business enterprise	112 250 s	2 665 f	2 222 e	2 720 e	227 e	2 406 e	12 207 e	704 e	6 112 e	4 222 e	2 116 e	122 e	2 615 f	6 116 e	20 122 f	114 048 s	200 e	1 222 e	109 176 e	212 222 p
Government	22 022 s	122 e	122 e	6 010 e	172 e	270 e	2 222 e	222 e	2 111 e	1 222 e	210 e	222 e	215 f	222 e	2 722 f	22 210 s	27 e	277 e	12 216 e	21 122 p
Higher education	24 110 s	1 122 e	770 e	6 022 e	222 e	1 222 e	2 040 e	222 e	2 222 e	1 222 e	1 000 e	211 e	222 f	1 212 e	6 072 f	22 110 s	22 e	700 e	22 222 e	20 222 p
In millions of constant 1995 PPS																				
All sectors	144 240 s	+ 222 e	2 272 e	12 222 e	222 e	6 271 e	22 207 e	1 222 e	11 222 e	6 222 e	2 222 e	1 027 e	+ 122 e	6 722 e	22 222 e	142 110 s	121 e	1 770 e	24 222 e	222 222 p
Business enterprise	94 100 s	2 222 e	1 611 e	21 122 e	222 e	2 222 e	12 222 e	721 e	6 122 e	2 222 e	1 211 e	227 e	2 012 e	2 072 e	14 222 e	92 222 s	71 e	222 e	22 722 e	122 222 p
Government	12 222 s	122 e	222 e	2 722 e	222 e	1 222 e	2 222 e	222 e	2 222 e	1 222 e	122 e	222 e	222 e	222 e	2 222 e	12 222 s	12 e	272 e	2 222 e	12 222 p
Higher education	22 110 s	1 222 e	212 e	6 022 e	122 e	1 222 e	2 112 e	222 e	2 222 e	1 222 e	1 000 e	212 e	222 e	1 212 e	6 072 e	22 110 s	22 e	700 e	12 222 e	20 222 p

(1) Exceptions to the 2001 reference period  
 B (BES), DK, D, F, IRL (GOV), JP and US: 2000;  
 B (excluding BES), EL, IRL (excluding GOV), I (All sectors and HES), NL, P, S, IS and NO: 1999;  
 A: 1998.

Sources: Eurostat, OECD (JP, US).

Table 2.2.

**Annual growth rate and annual average growth rate for R&D expenditure by institutional sector, EEA countries, Japan and USA — 1995-2001 (1)**

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	EEA	IS	NO	JP	US
All sectors																					
AGR 2001 (%)	2.9	0.7	2.3	2.2	.	5.9	1.4	0.3	-1.0	.	3.2	4.5	.	0.3	5.5	1.5	2.9	10.1	.	3.9	0.0
AAGR 1995-2001 (%)	3.3	0.0	5.2	3.5	12.0	0.7	1.0	0.7	2.0	.	4.2	5.4	11.5	12.9	5.1	1.7	3.3	10.1	3.0	2.0	5.7
Business enterprise sector																					
AGR 2001 (%)	3.0	7.5	3.0	3.2	.	0.3	2.7	7.3	5.0	.	12.9	.	.	12.9	4.1	1.1	3.0	21.3	.	4.2	0.9
AAGR 1995-2001 (%)	4.1	0.4	7.4	4.3	11.1	3.3	2.0	7.2	1.7	.	0.2	0.2	13.3	12.0	5.4	1.0	4.1	27.3	2.7	3.3	0.3
Government sector																					
AGR 2001 (%)	1.3	2.3	-7.3	0.3	.	3.2	-0.7	2.3	-2.4	24.0	-4.2	.	.	1.4	2.5	-1.3	1.3	-3.5	.	4.2	2.7
AAGR 1995-2001 (%)	0.3	5.0	0.3	0.7	7.0	3.4	-2.3	-1.5	0.3	.	1.9	-0.2	12.9	3.7	2.2	-0.3	0.3	10.1	0.1	2.5	0.9
Higher education sector																					
AGR 2001 (%)	2.0	4.7	7.3	-1.0	.	4.9	-1.3	7.5	-0.3	-23.0	4.5	.	.	2.3	11.3	5.0	2.0	-0.2	.	1.7	3.2
AAGR 1995-2001 (%)	3.1	0.0	2.3	0.3	15.2	5.2	1.0	2.1	3.2	.	1.3	3.0	12.7	10.0	4.5	3.9	3.1	3.4	5.5	-5.0	3.3

NB: AGR — annual growth rate;  
 AAGR — annual average growth rate over the period 1995-2001;  
 Calculations in PPS — Purchasing Power Standards — at 1995 constant prices.

(1) Exceptions to the 2001 reference period  
 B (BES), DK, D, F, IRL (GOV), JP and US: 2000;  
 B (excluding BES), EL, IRL (excluding GOV), I (All sectors and HES), NL, P, S, IS and NO: 1999;  
 A: 1998.

Exceptions to the 1995-2001 reference period  
 B (BES), DK, F, IRL (GOV), JP and US: 1995-2000;  
 B (except for BES), EL, IRL (BES), I (All sectors), NL, P, S, IS and NO: 1995-99;  
 UK: 1995-2002;  
 A (except for All sectors): 1993-98.

Sources: Eurostat, OECD (JP, US).

### 2.3.2 R&D personnel

All sectors combined, the Nordic countries employed the highest proportion of R&D personnel as a percentage of the labour force in the European Economic Area in 1999, often one percentage point higher than the European average (1.4 %). Iceland tops the table with 2.7 % of its labour force employed in R&D, ahead of Finland (2.6 %) and Sweden (2.4 %). These countries also recorded the highest increases over the last 5 years, Iceland being up 0.7 points over the period from 1995-99, Finland adding 0.6 and Sweden 0.3.

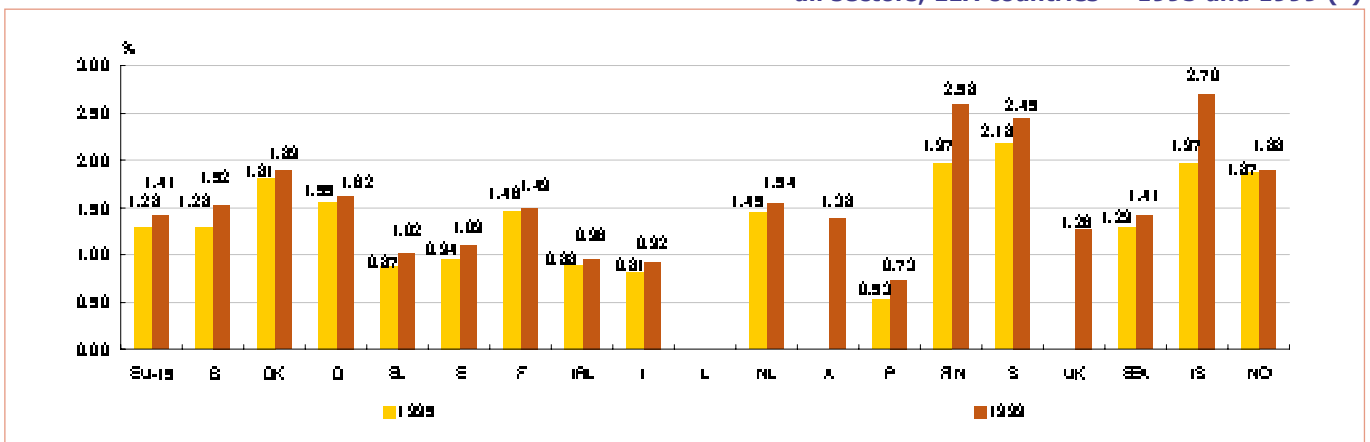
Large disparities persist between the extremes in Europe. Four countries – Greece, Spain, Ireland and Italy – post figures of around 1 % for R&D personnel as a percentage of the labour force, whereas the proportion for Portugal is only 0.7 %.

These countries are, however, similar to all other European countries in that they did record positive medium-term growth between 1995 and 1999. These upward trends mirror those for R&D expenditure other than in France, Ireland and, to a lesser extent, Norway, where R&D expenditure as a % of GDP was down over the same period – Figure 2.10.

In terms of volume, 3 countries account for three-quarters of the R&D personnel working in Europe: Germany employs the most with 488 000 workers in FTE, followed by France with 307 000 and the United Kingdom with 278 000 – Figure 2.11. The year-on-year trend is up for all EEA countries in FTE, with the exception of Sweden where numbers were down slightly on 1998. These developments, as noted earlier, are along the same lines as those observed for R&D expenditure by volume, including the case of Italy, which, however, saw a fall in its number of R&D personnel and expenditure.

Figure 2.10.

R&D personnel as a % of the labour force all sectors, EEA countries – 1995 and 1999 (1)

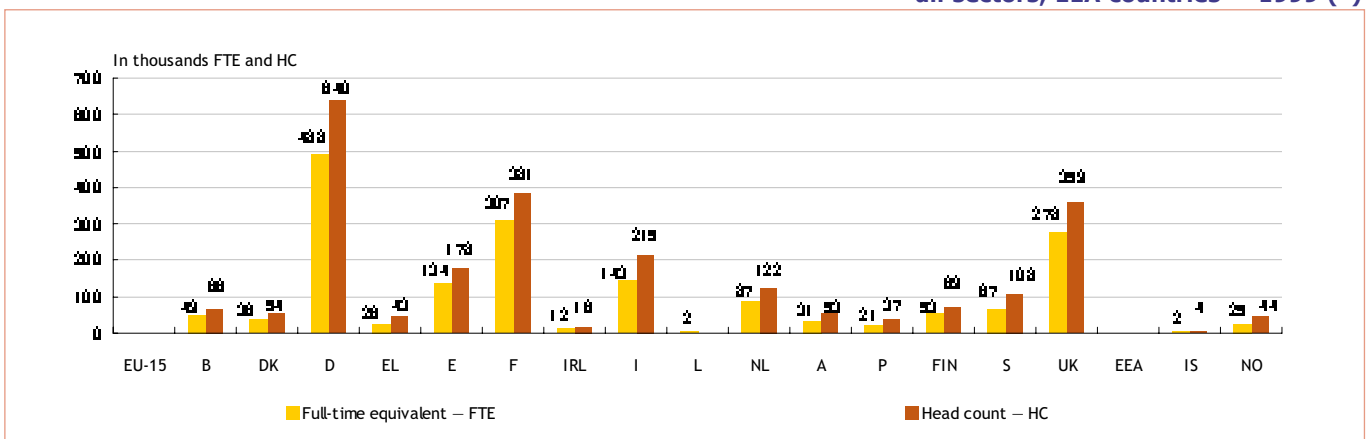


(1) Exceptions to the 1999 reference year  
EU-15 and EEA: 2001; D and FIN: 2000; F and A: 1998; EL: 1997; UK: 1993.

Source: Eurostat.

Figure 2.11.

R&D personnel in FTE and HC all sectors, EEA countries – 1999 (1)



(1) Exceptions to the 1999 reference year  
FTE: E and L: 2001; D and FIN: 2000; F and A: 1998; UK: 1993;  
HC: D and FIN: 2000; F and A: 1998; EL: 1997; UK: 1993.

Source: Eurostat.

**Researchers In Europe:  
Increase in numbers**

In 1999, Germany, with almost 260 000 FTE researchers, was home to over one-quarter of all researchers in the EEA, all sectors combined, as against 18 % in both France and the United Kingdom. This predominance is exactly the same in the business enterprise sector – Table 2.3. In trend terms, the number of FTE researchers was up on the previous year in all the EEA countries in 1999, for all sectors combined and for the business enterprise sector. The United Kingdom was the sole exception for the latter sector.

The proportion of researchers in the total R&D personnel figure varies by over 30 percentage points across the different EEA

countries. All sectors combined, it swings from 76 % for Portugal in 1999 to 46 % for Italy. A similar pattern can be observed in the business enterprise sector.

All sectors combined, this percentage is lowest in those countries with the largest number of researchers (by volume) in Europe. Germany, France and the United Kingdom, therefore, have a lower ratio than the 55 % recorded for the EU-15. This remains true for the business enterprise sector except in the United Kingdom – Figure 2.12.

These findings are reversed when it comes to research support staff – i.e. technicians and administrative staff.

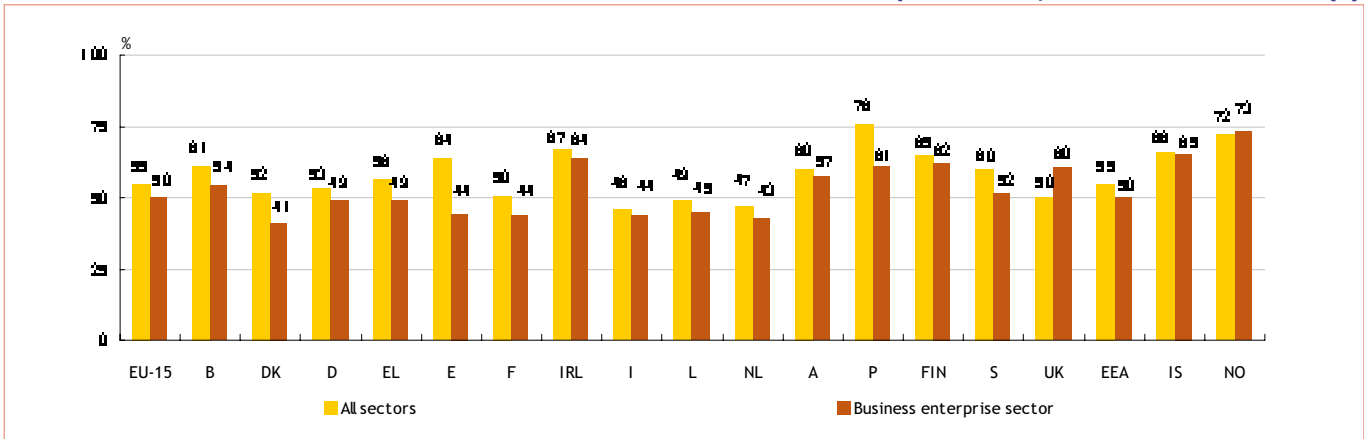
**Table 2.3. Researchers in FTE all sectors and business enterprise sector, EEA countries – 1999 (1)**

EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	EEA	IS	NO
All sectors																		
259 240 s	300 219 e	18 430	250 214 e	14 000	266 670 e	135 000	8 217 e	64 000	1 100	40 000	10 715	15 752	32 677	39 921	158 200 e	260 570 s	1 577 e	18 294
Business enterprise sector																		
160 254 s	180 011 f	8 575	150 210	2 225	200 669 e	75 310	5 291	26 192	900	19 350	11 716	1 994	17 300	22 622	88 000 f	164 738 s	626	9 737

(1) Exceptions to the 1999 reference year  
 All sectors — UK: 2002; EU-15 and EEA: 2001; D and E: 2000; IRL: 1999; F, A and UK: 1998;  
 Business enterprise sector — UK: 2002; EU-15 and EEA: 2001; B, D, E and UK: 2000; IRL: 1999; A: 1998.

Source: Eurostat.

**Figure 2.12. Proportion of researchers in FTE all sectors and business enterprise sector, EEA countries – 1999 (1)**



(1) Exceptions to the 1999 reference year  
 All sectors — EU-15, EEA and L: 2001; D and E: 2000, F and A: 1998; UK: 1993;  
 Business enterprise sector — UK: 2002; EU-15, EEA and L: 2001; B, D and E: 2000; A: 1998.

Source: Eurostat.

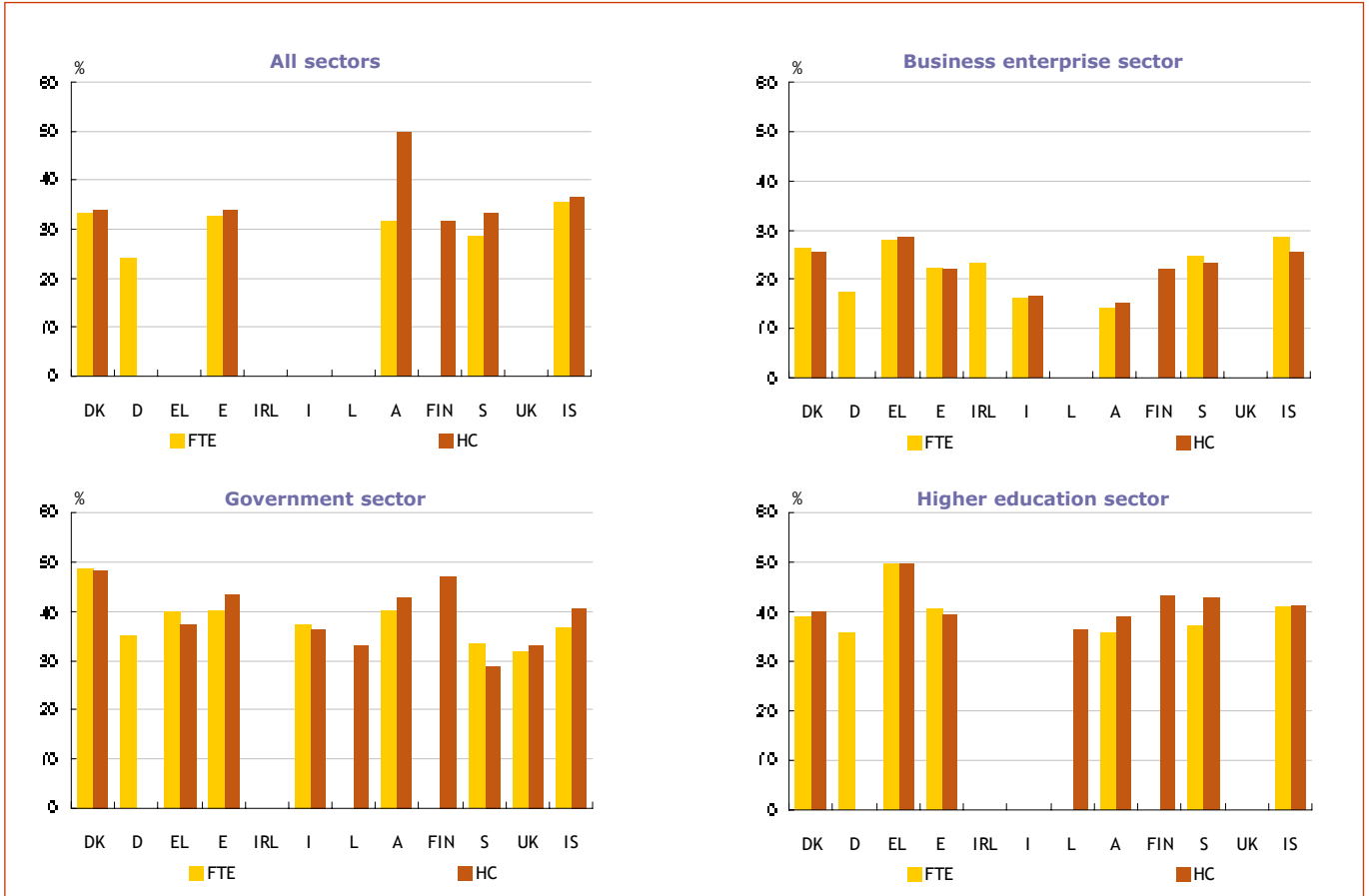
**Female R&D personnel: seeking a balance**

Women are generally under-represented in the field of R&D, both in terms of total personnel – Figure 2.13. – and as researchers – Table 2.4. In the first case, the proportion of female staff is, with the exception of Austria, below 40 % of the total for all sectors combined (FTE and HC). This score falls to less than 30 % in the business enterprise sector, plunging to its lowest level in Austria, Italy and Germany where it does not get above 20 %. The imbalance is less pronounced in the public sector, where values

range between 30 and 50 %. Gender equality is almost reached in the Government sector where Denmark, Finland and Spain in descending order exceed 44 % (FTE) and in the higher education sector by Greece, Finland and Sweden.

Amongst researchers, the trends are similar by institutional sector, with women being generally under-represented. The only countries to stand out are Portugal in the Government sector (54 %) and in the higher education sector (46 %) and Greece in the higher education sector (45 %).

**Figure 2.13. Female staff as a % of total R&D personnel, calculated in FTE and HC by institutional sector, EEA countries – 1999 (1)**



(1) **Exceptions to the 1999 reference year for FTE**  
 All sectors — A: 1998;  
 BES — I and A: 1998;  
 GOV — UK: 2002; DK and E: 2000; I and A: 1998;  
 HES — DK and E: 2000; A: 1998.

**Exceptions to the 1999 reference year for HC**  
 All sectors — FIN: 2000; A: 1998;  
 BES — I and A: 1998;  
 GOV — L: 2001; DK, E and UK: 2000; I and A: 1998;  
 HES — L: 2001; DK, E and FIN: 2000; A: 1998.

Source: Eurostat.

**Table 2.4. Female staff as a % of researchers, calculated in FTE and HC by institutional sector, EEA countries – 1999 (1)**

	Unit	DK	D	EL	E	IRL	I	L	A	P	FIN	S	UK	IS	NO
All sectors	FTE	28	14	40	32	.	.	.	14	.	.	.	.	32	.
Business enterprise sector	FTE	21	10	24	20	21	.	.	9	.	.	.	.	29	.
Government sector	FTE	35	22	33	38	.	39	.	30	54	.	.	22	32	.
Higher education sector	FTE	29	21	45	39	.	.	.	23	46	.	31	.	37	.
All sectors	HC	28	.	41	33	.	.	.	13	.	29	.	.	33	33
Business enterprise sector	HC	20	.	24	19	.	.	.	9	.	18	.	.	23	20
Government sector	HC	35	.	37	38	.	39	30	32	55	38	.	23	37	39
Higher education sector	HC	28	.	44	39	.	.	39	28	45	37	33	.	35	34

NB: Ratio calculated on the basis of R&D personnel (women + men) and not of total personnel.

(1) **Exceptions to the 1999 reference year for FTE**  
 All sectors — A: 1998; EL: Eurostat estimation;  
 BES — A: 1998;  
 GOV — UK: 2002; DK and E: 2000; I and A: 1998;  
 HES — DK and E: 2000; A: 1998.

**Exceptions to the 1999 reference year for HC**  
 All sectors — A: 1998; EL: Eurostat estimation;  
 BES — A: 1998;  
 GOV — L: 2001; DK, E and UK: 2000; I and A: 1998;  
 HES — L: 2001; DK and E: 2000; A: 1998.

Source: Eurostat.



## 2.4 R&D activity in the regions

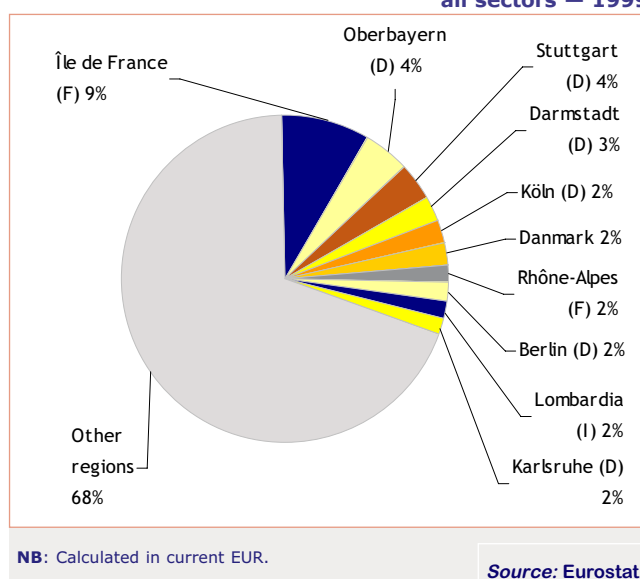
### 2.4.1 R&D expenditure

#### Inequalities still exist

Looking at all sectors together, the most intense levels of R&D activity in Europe are still found in the German regions in 1999. In absolute terms (current EUR), 6 German regions, headed by Oberbayern, featured among Europe's top 10. Between them, they accounted for 16 % of total R&D expenditure in Europe – Figure 2.14. The only other regions to feature in this ranking are two French regions, one Italian and Denmark, which is classified as a single region (6).

The regional disparities – both within countries and within Europe – seemed to have increased since the previous year, with over 6 points separating the level of research intensity in Europe's leading region, Braunschweig (D), from its weakest regions. Within the Community, significant imbalances are also in evidence, with the gaps between the leading regions in each country varying from 2 to 5 points. At the other end of the scale, with the exception of Itä-Suomi (FIN), regions with a low level of research intensity are grouped together in a narrow bracket of 0.5 points – Table 2.5.

Figure 2.14. Proportion of R&D expenditure accounted for by the top 10 EEA regions all sectors – 1999



(6) The ranking for the Île de France should be weighted to take account of the significant number of head offices of large firms to which R&D activities are attributed.

Table 2.5.

Disparities in R&D expenditure as a % of GDP by region all sectors – 1999

Regions with high R&D intensity					Regions with low R&D intensity				
Country	Region	Current			Region	Current			
		% of GDP	EUR Mio	Constant 1995 PPS Mio %		% of GDP	EUR Mio	Constant 1995 PPS Mio %	
<b>EU-15 – 1999</b>									
DK	Danmark	2.00	3 404	2 514 1.89					
D	Braunschweig	4.34	2 484	2 117 1.59	Weser-Ems	0.53	285	225 0.17	
	Stuttgart	4.34	5 843	4 808 3.55	Niederbayern	0.44	117	90 0.07	
EL	Kriti	1.03	45	79 0.09	Dytiki Makedonia	0.08	3	3 0.00	
	Attiki	0.97	419	420 0.39	Notio Aigaio	0.09	2	2 0.00	
E	Comunidad de Madrid	1.82	1 589	1 782 1.30	Baleares	0.25	39	39 0.03	
	Pais Vasco	1.15	414	459 0.34	Ceuta y Melilla (ES)	0.00	0	0 0.00	
F	Midi-Pyrénées	3.73	1 399	1 848 1.32	Champagne-Ardenne	0.40	142	125 0.09	
	Île de France	3.53	13 424	11 890 8.79	Corse	0.40	19	17 0.01	
I	Lazio	1.39	2 229	2 242 1.69	Molise	0.29	14	14 0.01	
	Piemonte	1.03	1 594	1 574 1.19	Calabria	0.27	85	99 0.05	
NL	Noord-Brabant	2.87	1 494	1 354 1.00	Drenthe	0.82	54	50 0.04	
	Limburg (NL)	2.38	559	511 0.38	Friesland	0.59	71	99 0.05	
A	Wien – 1998	3.24	1 829	1 459 1.14	Niederösterreich – 1998	0.84	139	174 0.14	
	Steiermark – 1998	2.53	594	531 0.41	Burgenland – 1998	0.19	3	7 0.01	
P	Acores (PT)	2.81	43	84 0.05	Algarve	0.44	19	22 0.02	
	Lisboa e Vale do Tejo	0.38	437	523 0.43	Madeira (PT)	0.38	10	13 0.01	
FIN	Pohjois-Suomi	4.23	474	417 0.31	Itä-Suomi	1.47	174	159 0.11	
	Uusimaa (Suuralue)	4.03	1 304	1 599 1.17	Åland	0.09	1	0 0.00	
UK	Eastern	3.59	4 525	3 743 2.79	Yorkshire and Humber	0.92	340	785 0.57	
	South East	2.94	8 021	4 904 3.62	Northern Ireland	0.38	299	219 0.19	
IS	Iceland	2.32	133	151 0.11					
NO	Trøndelag – 1997	4.13	344	259 0.21	Nord-Norge – 1997	1.03	105	77 0.09	
	Hedmark og Oppland – 1997	3.19	219	190 0.13	Sør-Østlandet – 1997	0.33	90	45 0.04	

NB: The nomenclature of territorial units for statistics (NUTS) classifies Denmark and Iceland at NUTS level 2. The UK regions are classified at NUTS level 1.

Source: Eurostat.

**The top 10 European regions with high research intensity: German regions are well placed**

When all sectors are considered together, 5 German regions feature amongst Europe's leading ten in 1999. Braunschweig (D) is the chart-topper with 6.3 % of GDP devoted to R&D expenditure, an increase of over 1.5 points between 1997 and 1999. The top 10 rankings are otherwise unchanged apart from one new entry in the form of Trøndelag (NO). Overall, the levels of research intensity for all the regions presented in the classification are higher than the previous year. Taking all 4 sectors presented together, there are 10 countries represented in the regional rankings for research intensity.

Braunschweig's strong performance is primarily due to its substantial increase in the business enterprise sector where its R&D expenditure as a percentage of GDP rose from 2.9 % in 1997 to 4.6 % in 1999. In volume terms (EUR), however, it only stands at a third of that of the second region, Stuttgart.

It is also in the business enterprise sector, as well as the Government sector, that Europe's leading regions in terms of research intensity account for the most R&D expenditure by volume, at over 22 % (constant PPS) as opposed to just 6 % for the higher education sector.

The German regions are also well represented in the Government sector, with 5 regions headed by Berlin. The highest levels of research intensity are, however, notched up by Açores (P) with 2.12 %, Flevoland (NL) with 2.08 % and Midi-Pyrénées (F) with 1.90 %. The gaps between the leading regions and the chasing pack are also much wider in this sector and in the higher education sector when compared to the situation observed in the business enterprise sector.

The ranking in the higher education sector is more diversified, with six countries being represented as opposed to just three in the business enterprise sector. Trøndelag (NO) heads the list with a research intensity of 1.63 %, followed by Groningen (NL) on 1.40 %. The United Kingdom, for which regional data at NUTS level 2 are again available, has 2 regions included in this classification.

Table 2.6.

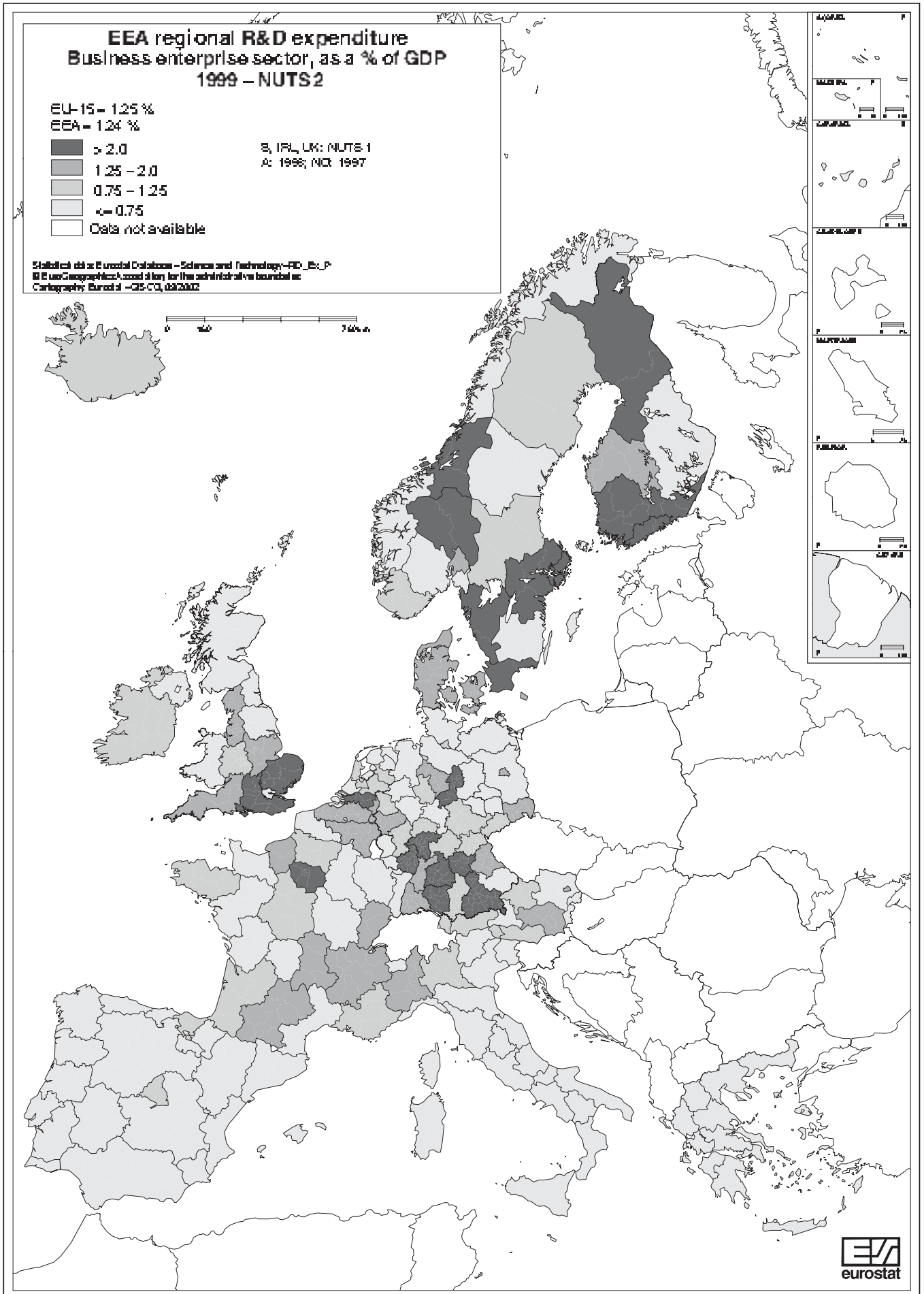
**Regions with a high level of R&D expenditure as a % of GDP by institutional sector, EEA countries – 1999**

All sectors					Business enterprise sector								
Country	Region	Current		Constant 1995 PPS		Country	Region	Current		Constant 1995 PPS			
		% of GDP	EUR Mio	Mio	%			% of GDP	EUR Mio	Mio	%		
<b>EU-15 – 1999</b>					<b>1.33</b>	<b>154 237</b>	<b>1 383 390</b>	<b>10 0 00</b>	<b>EU-15 – 1999</b>				
D	Braunschweig	6.34	2 434	2 117	1.96	D	Braunschweig	4.60	1 760	1 500	1.78		
D	Stuttgart	4.34	3 640	4 308	2.99	D	Stuttgart	4.28	3 104	4 240	3.00		
D	Oberbayern	4.76	3 343	3 979	4.12	S	Västssverige	4.22	1 628	1 222	1.32		
FIN	Pohjois-Suomi	4.29	474	417	0.31	S	Stockholm	4.16	2 480	1 947	2.24		
D	Tübingen	4.23	1 328	1 584	1.19	D	Oberbayern	3.78	3 199	4 282	3.09		
NO	Trøndelag – 1997	4.13	346	299	0.21	D	Tübingen	3.48	1 911	1 237	1.43		
FIN	Uusimaa (Suuralue)	4.09	1 304	1 536	1.17	FIN	Pohjois-Suomi	3.14	347	309	0.29		
F	Midi-Pyrénées	3.73	1 368	1 643	1.22	S	Sydsverige	3.02	284	660	0.30		
D	Berlin	3.62	2 788	2 296	1.74	UK	Eastern – NUTS 1	3.01	2 329	2 184	2.34		
UK	Eastern – NUTS 1	3.56	4 928	3 740	2.78	D	Rheinessen-Pfalz	2.78	1 280	1 060	1.28		
Government sector					Higher education sector								
Country	Region	Current		Constant 1995 PPS		Country	Region	Current		Constant 1995 PPS			
		% of GDP	EUR Mio	Mio	%			% of GDP	EUR Mio	Mio	%		
<b>EU-15 – 1999</b>					<b>0.27</b>	<b>21 529</b>	<b>19 133</b>	<b>10 0 00</b>	<b>EU-15 – 1999</b>				
P	Açores (P)	2.12	39	52	0.27	NO	Trøndelag – 1997	1.63	129	100	0.23		
NL	Flevoland – 1998	2.08	100	94	0.40	NL	Groningen	1.40	204	133	0.37		
F	Midi-Pyrénées	1.90	743	881	1.44	A	Wien – 1998	1.11	582	501	1.34		
D	Berlin	1.00	782	840	1.28	D	Giessen	0.91	269	173	0.32		
D	Karlsruhe	0.93	724	816	1.21	A	Steiermark – 1998	0.91	214	190	0.70		
D	Dresden	0.97	271	231	1.20	UK	Eastern Scotland	0.80	410	204	0.31		
D	Braunschweig	0.97	379	323	1.83	FIN	Pohjois-Suomi	0.82	91	80	0.23		
I	Lazio	0.98	1 037	1 094	3.70	D	Halle	0.82	119	93	0.29		
F	Languedoc-Roussillon	0.99	330	326	1.79	UK	Inner London	0.80	1 403	1 040	0.34		
D	Brandenburg	0.73	323	279	1.40	NL	Utrecht	0.79	282	242	0.28		

**NB:** The regional classifications have been carried out on the basis of the intensity of research calculated with the latest figures available for GDP at regional level, which are those for 1999. Regional GDP for the UK is estimated.

Source: Eurostat.

Map 2.1.



## 2.4.2. R&D personnel

### 8 regions are home to one-quarter of R&D personnel — FTE — In Europe

There are relative similarities in presenting regional R&D from the angles of R&D personnel and R&D expenditure in relation to the labour force and GDP respectively when the analysis is focussed on the best-performing regions. For this reason, Table 2.7. highlights European regions where it is possible to observe the highest concentrations, in volume terms, of R&D personnel in Europe in 1999.

There is a significant regional concentration of R&D personnel in Europe. Across all the sectors, 9 regions, led by Île de France (F), employed 25 % of the total R&D personnel in EU-15 in 1999. On a sectoral basis, this trend is most in evidence in the business enterprise sector where 3 German regions, two French and Denmark, which is classified as a NUTS level 2 region, are also home to one quarter of those working in R&D. This concentration is less pronounced in higher education where the leading 10 regions only account for 20 % of the total. It is in this sector too that the disparities between the extremes are the least

pronounced. Leaving aside the Île de France, the second and tenth regions are separated by just 0.5 points, which is a much smaller margin than in the other two sectors.

In terms of volume, whereas the Île de France tops the list of European regions when it comes to the employment of R&D personnel regardless of the sector in question, it is the German regions, led by Oberbayern, which generally dominate R&D. The dominance of the German regions is particularly great in the business enterprise sector, whereas in the Government sector Lazio (I) and Comunidad de Madrid (E) edge them out. The higher education sector is notable for the presence of Spanish regions like Cataluna, French regions like Rhône-Alpes alongside Île de France, as well as regions from Portugal (Lisboa de Vale do Tejo) and Italy (Lombardia).

Four regions stand out in particular as intersectoral research centres with high R&D human resource potential: these are Île de France (F) and Köln (D) which are present in the four institutional sectors, and Oberbayern (D) and Rhône-Alpes (F) which appear in both the public and private sectors.

Table 2.7.

Regions with a high concentration of R&D personnel in FTE by institutional sector — 1999

All sectors				Business enterprise sector			
Country	Region	FTE	%	Country	Region	FTE	%
<b>EU-15 — 1999</b>				<b>EU-15 — 1999</b>			
F	Île de France — 1998	128 888	7.43	F	Île de France — 1998	79 888	23.9
D	Oberbayern	99 388	3.94	D	Oberbayern	49 388	4.34
D	Stuttgart	44 488	2.80	D	Stuttgart	33 388	4.10
D	Darmstadt	33 788	2.29	D	Darmstadt	32 388	3.33
DK	Danmark	39 888	2.11	DK	Danmark	21 088	2.29
E	Comunidad de Madrid — 2000	33 788	1.99	F	Rhône-Alpes — 1998	19 088	2.11
D	Köln	33 488	1.93	I	Lombardia	13 301	1.98
F	Rhône-Alpes — 1998	31 978	1.94	D	Köln	18 388	1.74
I	Lombardia	30 884	1.81	S	Stockholm	14 788	1.53
D	Berlin	29 270	1.73	D	Düsseldorf	14 229	1.52
Government sector				Higher education sector			
Country	Region	FTE	%	Country	Region	FTE	%
<b>EU-15 — 1999</b>				<b>EU-15 — 1999</b>			
F	Île de France — 1998	13 194	7.22	F	Île de France — 1998	31 018	8.98
I	Lazio	14 378	9.87	E	Cataluña — 2000	9 488	1.39
E	Comunidad de Madrid — 2000	11 388	4.90	F	Rhône-Alpes — 1998	9 188	1.94
D	Köln	9 188	3.91	E	Comunidad de Madrid — 2000	8 484	1.89
D	Berlin	9 088	3.93	P	Lisboa e Vale do Tejo	8 294	1.71
P	Lisboa e Vale do Tejo	9 014	3.98	I	Lombardia	8 228	1.70
D	Oberbayern	8 294	3.28	D	Köln	8 088	1.89
D	Karlsruhe	7 048	2.73	DK	Danmark — 2000	7 988	1.99
NL	Zuid-Holland — 1998	7 088	2.80	E	Andalucía — 2000	7 147	1.42
DK	Danmark — 2000	9 719	2.28	D	Berlin	8 791	1.99

Source: Eurostat.

## 2.5. Specific developments in the EEA — Country reports

The following reports have been drawn up by the national statistical institutes. The analyses are based on the countries' own data. These data can differ from those presented elsewhere in this publication and in the *NewCronos* database, particularly with regard to calculating derived indicators or growth rates, for example. The origin of these differences is mainly to be found in the methodologies employed in the different countries.

More detailed information on these methodologies is available from the national statistical institutes and from Eurostat.

### 2.5.1. Belgium

#### Trend in R&D expenditure

In 1999, gross domestic expenditure on R&D in Belgium amounted to 1.98 % of GDP. This proportion, which represents around EUR 4 618 million (at current prices) had risen by almost 0.3 % since 1993.

With 72 % of total R&D activity, the business enterprise sector is the main sector carrying out R&D. It is also the leader in terms of financing R&D, accounting for 67 % in 1999.

The federal and regional authorities financed around 23 % of Belgium's R&D. Despite the fact that services account for over 70 % of GDP, over 80 % of the R&D is conducted in the industrial sector. The chemicals and pharmaceuticals sectors are the focus of over one-third of R&D carried out by enterprises.

At international level, Belgium's efforts in the field of R&D are currently well above the European Union average of 1.85 %, but still far short of the figures obtained by those countries carrying out the most R&D.

#### Trend in R&D personnel

Total R&D personnel is an indicator of the importance of human resources directly allocated to R&D activities. In 1999, total R&D personnel made up 1.13 % of the labour force in Belgium, having risen substantially during the period 1993-99 at an average annual growth rate of 5.1 %. This performance is due in part to the revision of the statistical methodology used in the business enterprise sector which is the main sector for employment in R&D, with its share of close to 62 %. Researchers make up 61 % of total R&D personnel, all sectors combined, and 54 % in the business enterprise sector.

Together with the higher education sector, businesses are responsible for the steady growth in total R&D personnel. In the business enterprise sector, employment in R&D makes up 0.77 % of total domestic employment. At sectoral level, over half of the R&D personnel working in the business employment sector are employed in the electrical equipment and electronics, computing, chemicals and pharmaceuticals sectors. In addition, at least 12 % of employment in these sectors is in R&D work. Even though services account for over 70 % of total employment in Belgium, less than 1 % of employment in this sector is in the field of R&D activities.

At international level, Belgium lies above the European Union average with regard to R&D personnel. R&D personnel indicators as a proportion of the labour force show that Belgium has continued to consolidate its position over the last decade.

### 2.5.2. Greece

#### R&D trends at the national level

##### Total R&D

In 1999 GERD in Greece amounted to EUR 760 million. If compared with GERD in 1997 (EUR 492 million) an increase of 54 % in nominal terms and 43 % in real terms is observed. Over the entire period under review, 1995-1999, an increase of 96 % in nominal terms and 56 % in real terms has been recorded for the GERD — in 1995 the GERD amounted to EUR 389 million. GERD expressed as a percentage of GDP has been improving constantly rising from 0.49 % in 1995 to 0.51 % in 1997 and 0.68 % in 1999.

Table 2.8. shows that in 1999 the greater part of Greece's R&D expenditure was financed by the state — government sector plus General University Fund, GUF, with a contribution of 51 % in 1999, followed by the business enterprise sector (24 %) and the EU-Framework Programme plus Structural Funds — 24 %.

The importance of the inflow of funds coming from abroad especially through the Framework Programme proves the 'openness' of the Greek RTD system via intensified international co-operations at all levels.

In terms of research performance, the higher education sector comes first with a contribution in the total R&D expenditure of 49.5 % in 1999, followed by the business enterprise sector (28.5 %) and the government sector (21.7 %).

During the period 1997-99, the share of the business enterprise sector in GERD has increased both in terms of financing and in terms of performing — Table 2.9.

**Table 2.8.** Distribution of R&D expenditure by source of financing in % Greece — 1997 and 1999

	State	BES	Funds from abroad			PNP	Total
			European Union FP	Other SF	funds		
1997	55.8	21.8	12.4	11.8	10.5	100	
1999	50.8	24.2	10.2	13.8	10.8	100	

NB: Country — includes GOV and GUF;  
FP: Framework Programme;  
SF: Structural Funds.

Source: GSRT.

**Table 2.9.** Distribution of R&D expenditure by sector of performance in % Greece — 1997 and 1999

	GOV	BES	HES	PNP	Total
1997	23.4	25.8	50.8	10.4	100
1999	21.7	28.5	49.5	10.3	100

Source: GSRT.

### Total R&D personnel

In 1999, total R&D personnel rose by 32 % from 43 252 persons in 1997 to 57 108. There was a slighter increase (31 %) of R&D personnel expressed in FTE which rose from 20 158 in 1997 to 26 382 in 1999 – Table 2.10. This trend is the result of different developments of R&D personnel in the three main institutional sectors which will be examined in the next paragraphs.

**Table 2.10. R&D personnel in FTE and HC all sectors Greece – 1997 and 1999**

Full-time equivalent – FTE		Head count – HC	
1997	1999	1997	1999
20 158	26 382	43 252	57 108

Source: GSRT.

### New R&D policy measures

An evaluation of the research centres supervised by the General Secretariat for Research and Technology – GSRT – has been implemented in 2000. 27 projects aiming to upgrade the already existing research units into centres of excellence have already been approved under the Operation Programme – OP – ‘Competitiveness’. A broad range of financial schemes under the O.P. ‘Competitiveness’ are addressed to the public research centres.

### New Legislation

The new Law 2919/2001, which partly amends the Law 1514/1985 ‘on the development of the scientific and technological research’ gives emphasis to the linkage of research and production. It constitutes the basis for the 2000-2006 planning period of the GSRT. It provides incentives for the exploitation of new knowledge and research results, and establishes financial incentives for the construction of technology parks and high-tech firm incubators. The new law also foresees the creation/reorganisation of four research/technological agencies. Finally it has provisions for the reorganisation of the research framework in the defence sector.

### Analysis of R&D trends

Expenditure on R&D of the government sector institutions rose to EUR 165 million in 1999 compared with EUR 115 million in 1997 – a relative increase of 43 % in nominal terms and 32 % in real terms – and with EUR 99 million in 1995 – a relative increase of 66.6 and 32.5 % respectively.

The ratio GOVERD/GDP climbs to 0.15 % in 1999 from 0.12 % in 1997 and 0.13 % in 1995.

In 1999 there was a decrease in comparison with 1997 of the R&D personnel of the government sector – expressed in HC, head count – from 9 773 persons in 1997 to 7 911 persons in 1999 (- 19.1 %). There was also a marginal decrease of - 1.1 % of R&D personnel expressed in FTE – 4 431 in 1999 compared with 4 481 in 1997.

Between 1995 and 1999, the number of R&D personnel in HC decreased by 2 348 persons (- 22.84 %). As for the FTE, it shrank to a far lesser degree – 477 persons or - 9.72 %.

This is primarily due to the change of methodology in the estimations of R&D expenditure and R&D personnel in the Ministry of Culture, Department of Archaeology.

Finally the percentage of FTE in the total labour force of the country amounts to 0.12 % in 1995, 0.11 % in 1997 and 0.10 % in 1999. Expressed in HC, the respective figures are 0.24, 0.23 and 0.18 %.

In regional terms, the R&D expenditure of the government sector remains highly concentrated, with 89.7 % in 1999 of the total expenditure being spent in three regions which are, by order of relative weight: Attiki, Kriti and Kentriki Makedonia – compared with 87.5 % in 1995. Especially Attiki increases its share in the total R&D government expenditure from 56 % in 1995 to 63 % in 1999.

There is a similar regional distribution of R&D personnel; the share of the above three regions in total R&D personnel, expressed in FTE, amounts to 87 % in 1999. The concentration of R&D personnel, expressed in HC, in these same regions is slightly less pronounced (72 %).

### Higher Education sector

#### New R&D policy measures

A broad range of financial schemes under the OP ‘Competitiveness’ are addressed to the universities.

The Operational Programme ‘Education’ under the 3rd Community support frameworks – CSF – will also fund university research through post-graduate studies by EUR 100 million from 2002 to 2008.

#### New Legislation

The GSRT has adopted a new Presidential Decree, 17/2001, for the financial support of research spin-offs. A new Law, 2916/2001, was introduced by the Ministry of Education aiming at restructuring the Higher Education sector by upgrading the Technical Educational Institutions and bringing them to the level of universities. In the future, this might have indirect implications in the research activities of the sector.

The Ministry of Education is elaborating a new law for graduate studies and research which has not been adopted yet.

#### Analysis of R&D trends

The R&D expenditure of the higher education institutions – HEI – amounted to EUR 376 million in 1999, compared to EUR 249 million in 1997, registering an increase of 51 % in nominal terms and 40 % in real terms.

Between 1995 and 1997, the rise was more gentle and the respective ratios were 45 and 24 %. In the overall period 1995-99, the higher education sector registered an increase of 119 % in nominal terms and 74 % in real terms.

This upward trend in the Higher education sector is also confirmed by HERD expressed as a percentage of GDP, which reached 0.33 % in 1999, from 0.26 % in 1997 and 0.22 % in 1995.

R&D personnel rose by 47 % to 40 414 persons in HC in 1999 from 27 572 in 1997. There was a slightly lower increase (41 %) of R&D personnel expressed in FTE which rose from 12 294 persons in 1997 to 17 294 in 1999.

During the overall period 1995-99, the number of R&D personnel expressed in HC increased by 19 756 persons (96 %) and expressed in FTE by 7 879 person (84 %). This increase is primarily due to the rise of the number of contracted collaborators in the universities as well as the engagement of permanent staff in new or already existing university departments.

As to the percentage of FTE in the total labour force of the country, this ratio amounted to 0.22 % in 1995, 0.29 % in 1997 and 0.39 % in 1999. The percentage of R&D personnel in HC in the total labour force was 0.49, 0.65 and 0.91 % respectively.

The regional distribution of R&D expenditure of the HEI reflects their geographical distribution, in relation to their size. First



comes Attiki with a constantly decreasing share in the overall HERD during the period under review – 46 % in 1995, and 42 % in 1999. Second in importance is Kentriki Makedonia with an also decreasing share during the same period – 25 % in 1995 – and 23 % in 1999. Then follow the regions of Dytiki Ellada and Kriti with respective shares of 12 and 7 % in 1999. In the above four regions, 83 % of total research activities of HEI was performed in 1999 compared to 87 % in 1995.

### Business Enterprise sector

#### New R&D policy measures

R&D support to business enterprises is provided in the new OP 'Competitiveness' as well as in the new OP for 'Information Society' which are both financed by the 3rd Community Support Framework.

New schemes have been introduced which focus on strengthening research in enterprises and creating the necessary infrastructure for the exploitation of research results.

Some characteristic programmes under the OP 'Competitiveness' are mentioned below:

- PAVET** industrial research projects,
- HERON** employment of research personnel in enterprises,
- PEPER** demonstration projects,
- PRAXE** development of spin-offs by research institutions, universities or researchers,
- ELEFTHO** creation of technology parks, science parks and spin-off incubators.

#### Developments in the legal framework

- Presidential Decree 274/2000, *Conditions, Prerequisites and Financial Support for Projects and Programmes applied for by Industrial and other Productive Units*. It aims to readjust the legal framework for financial aid of the enterprises by the GSRT.
- Law 2843/2000, Article 28: Establishment of the *Fund for the Development of the New Economy* which aims to support financially venture capital companies, investing in early stage ventures and to strengthen prototype development programmes.
- Presidential Decree, 17/2001, for the financial support of new knowledge intensity enterprises (spin-off).
- Law 2992/2002, Article 10, which provides that research and development expenses are considered as deductible expenses (at a rate of 50 %) for the estimation of taxable profits of Greek enterprises.

#### Analysis of R&D trends

In the business enterprise sector, the R&D expenditure in 1999 amounted to EUR 216 million, which was 72 % higher than 1997, in nominal terms. In real terms after a decrease of - 5.5 % in 1997 compared with 1995, BERD presented a considerable increase in 1999, 59 % in comparison with 1997.

As for BERD's share to GDP, the increase for 1999 compared with 1997 is important (46 %), following a decrease of - 13.3 % in the 1995-97 period.

Total R&D personnel, in FTE, increased considerably in 1999, 39 % compared with 1997. Similarly, total R&D personnel as a percentage of the labour force increased in the same period by 33 %.

In head count, total R&D personnel increased by 8.6 % in the 1995-97 period while it increased by 50 % in the 1997-99 period.

#### Analysis of R&D activity at the regional level

BERD at current prices continues to be highly concentrated in Attiki (63.4 % in 1999, 64.8 % in 1997, 62.9 % in 1995). In real terms (at 1995 prices) Attiki's expenditure evolved from EUR 72 million in 1995 to 70.2 in 1997 and EUR 109.2 million in 1999 – it increased by 56 % between 1997 and 1999, while total BERD increased by 59 %.

Attiki, Kentriki Makedonia, Sterea Ellada and Peloponnisos sum 86 % in 1995, 87 % in 1997 and 91 % in 1999 of total BERD.

Total R&D personnel, in FTE, in the above four regions sum 86, 89 and 88 % in 1995, 1997 and 1999 respectively. Attiki's share in R&D personnel, in FTE, during the same period remains 64 % between 1995 and 1999 with an exception in 1997 (71 %).

**Table 2.11. Evolution of R&D expenditure and personnel, business enterprise sector Greece – 1995, 1997 and 1999**

Unit	1995	1997	1999
BERD at current prices in Mio EUR	114.8	125.3	216.5
BERD at constant prices in Mio EUR	114.8	108.3	172.1
BERD as a % of GDP	0.15	0.13	0.19
Total R&D personnel in FTE	3 100	3 291	4 577
Total R&D personnel in FTE as a % of labour force	0.07	0.08	0.10
Total R&D personnel in HC	5 285	5 759	8 811

Source: GSRT.

#### Private Non-Profit sector

This sector continues to play a minor role in the R&D activity of the country.

In 1999, the private non-profit institutions spent EUR 2.32 million to R&D. Their R&D expenditure expressed as a percentage of the GDP was only 0.002 %. The R&D personnel of the sector counted in 1999 for 172 persons (HC) or if expressed in FTE, for 80 persons.

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- Operational Programme for 'Competitiveness' 2000-2006, Official Document.

### 2.5.3. France

#### R&D in the French regions in 2000

R&D potential is concentrated in Île-de-France – 45.1 % of gross domestic expenditure on R&D – GERD – and one or two other regions, and there has been little change in the regional ranking.

In 2000, the Île de France had a predominant share with a GERD of EUR 13 474 million. Enterprises carry out 47.7 % of the R&D work. Publicly funded research plays a slightly smaller part with just 40.2 % of GERD.

For publicly funded research, the breakdown between public bodies and universities is quite different, with universities contributing to a lower concentration of R&D expenditure: 30.4 % of university expenditure is in the Île de France as against 44.6 % of expenditure in EPSTs – Public science and technology establishments – (47 % in the CNRS) and 43.7 % in EPICs – industrial and commercial public undertakings – in 2000.

22.8 % of all R&D expenditure – a GERD of EUR 6 803 million – was concentrated in three regions in 2000: Rhône-Alpes with EUR 3 281 million (11.0 % of the GERD), followed by Provence-Alpes-Côte d'Azur on EUR 1 807 million (6.0 %) and Midi-Pyrénées on EUR 1 715 million (5.7 %). The fall in Midi-Pyrénées compared to 1999 does not reflect a downward trend in research expenditure, but is the result of improvements in the way CNES – French Space Agency – contracts with enterprises are accounted for regionally.

Five other regions are responsible for 14.9 % of the GERD, or some EUR 4 455 million: Bretagne, Aquitaine, Languedoc-Roussillon, Centre and Pays de la Loire account for totals ranging from EUR 700 to EUR 1 000 million. The other 13 regions together spent EUR 5 149 million, or 17.2 % of total GERD.

The business enterprise sector's contribution to R&D is not identical across the regions, being lower than that of the public administrations in some regions: Languedoc-Roussillon, Provence-Alpes-Côte d'Azur, Midi-Pyrénées, Nord-Pas-de-Calais, Lorraine, Alsace and Poitou-Charentes.

The characteristics of the regional breakdown of R&D personnel are very different from those of the GERD distribution. Whilst the figures here do also show a higher concentration in the Île de

France for businesses, this region's share of the total has fallen, both for the business enterprise sector and for publicly funded research. The predominance of the Île de France started to wane in the 1990s, following decentralisation measures undertaken by the public bodies.

### 2.5.4. United Kingdom

In 2000, GBP 11.5 billion was spent on R&D performed within UK businesses – a rise of 2 % at current prices compared with the 1999 total. In real terms, using the GDP deflator, expenditure remained at GBP 11.5 billion and in 2000 represented approximately 1.2 % of GDP.

The South East continued to be the area with the largest R&D expenditure, with 26 % of the UK total of GBP 11.5 billion. The second largest region was Eastern with 24 % of the UK total. In comparison the area with the smallest R&D expenditure in England was the North East which had 1 % of the UK total.

The product group with the largest R&D expenditure was pharmaceuticals: expenditure in 2000 was GBP 2 846 million, nearly 25 % of all spending. Other major product groups were aerospace accounting for GBP 1 091 million (9 %) and radio and television and communication equipment, GBP 1 024 million (9 %).

Funding of R&D in UK businesses by the EU Commission through its schemes to support R&D in the European Union amounted to GBP 101 million in 2000. Other funding from overseas – i.e. excluding funds from the EU Commission – was GBP 2 369 million. Funding from the UK Government was GBP 1 013 million. Funding of R&D from businesses own funds was GBP 7 244 million in 2000, 63 % of the total.

Detailed final results of the survey of expenditure and employment relating to Business Enterprise Research and Development – R&D – in 2000 were published in January 2002 on the internet at: [www.statistics.gov.uk](http://www.statistics.gov.uk).

During the financial year 2000-2001 the UK government introduced tax credits for R&D performed by small and medium sized companies. As a consequence the size of the sample for the BERD survey was increased from 2000 to 4000 forms in order to monitor the impact of these incentives. At this stage a significant impact on the figures is unlikely.



## 2.5.5. Iceland

Latest survey data on R&D expenditures and personnel is from 1999, but the survey for 2001 was realised in spring of 2002. The development of R&D personnel is not as drastic as the development of expenditures.

The development of R&D expenditure from 1993 to 2001 – last two years are estimated – is as follows.

The increase in expenditures from 1997 to 1999 was about 45 % and mostly due to emerging new companies in the field of biotechnology research. It is expected that the increase of total R&D expenditures from 1999 to 2001 will be almost 30 % due to the same reasons as for the previous period. It is estimated that R&D expenditures as a share of GDP will reach 2.85 % in 2001. It is expected that other sectors than the business enterprise sector will not increase much. Rather stable development of expenditures is expected.

Some additional data on R&D in Iceland can be found at the web site of the Icelandic Research Council:  
[http://www.rannis.is/Hagtalur/Tolfraedi/Statistics/statistics\\_r&d.htm](http://www.rannis.is/Hagtalur/Tolfraedi/Statistics/statistics_r&d.htm).

**Table 2.12. R&D expenditure in thousand EUR by institutional sector Iceland 1993, 1995, 1997 and 1999-2001**

	GOV	BES	HES	PNP	All sectors
1993	302.3	537.9	373.8	52.7	1 366.6
1995	551.3	582.3	530.2	49.7	1 804.0
1997	232.7	825.8	898.3	32.7	2 140.3
1999	960.2	844.8	712.3	72.7	2 390.4
2000	-	-	-	-	2 460.2
2001	-	-	-	-	2 511.4

Source: The Statistical Bureau of Iceland.

# Chapter 3

## Patenting activities in the EEA, Japan and the USA

### 3.1. Introduction

Patents reflect part of a country's inventive activity. Patents also show the country's capacity to exploit knowledge and translate it into potential economic gains. In this context, indicators based on patent statistics are widely used to assess the inventive performance of the country or regions, despite the ongoing discussion concerning their adequacy (1).

The grounds for the assumption that a patent represents a codification of inventive activity rely on the novelty, utility and inventiveness that an invention requires to be subject to be patented. On the basis of this assumption, Eurostat collects patent statistics to build up indicators of R&D output.

This chapter analyses the structure and evolution of patenting in the EEA, Japan and the USA, by looking at patent applications to the European Patent Office – EPO – and patents granted by the United States Patent and Trademark Office – USPTO. The analysis covers the period from 1990 to 2000, 2000 data being provisional.

Patents statistics are very sensitive to the type of data collected and to the method used to count the patents. Therefore, data should be interpreted with caution, taking the following remarks into account:

The data presented in this chapter originate from two sources. On the one hand, data on patent applications to the EPO were extracted from the EPO's database and have been processed by Eurostat. On the other hand, data on patents granted by the USPTO have been extracted from the USPTO's database and treated by the Fraunhofer ISI – FhG-ISI.

It should be noticed that EPO data refer to patent applications by year of filing, whereas USPTO data concern patents granted by year of publication only. Although not all applications are granted, each application still represents technical effort by the inventor and therefore patent applications can be considered as an appropriate indicator of inventive potential. It takes on average just over four years for a patent to be granted at the EPO. In an effort to provide timely data therefore, Eurostat has chosen patent applications over patents granted. In the USA, however, only information on granted patents is published and therefore it is not possible to obtain data on applications. In the USPTO, patents take from two to five years to be granted.

When interpreting the data at the international level, the reader should bear in mind that due to a 'home' advantage, European countries may be prevailing in the European patent system, whereas the USA may be dominant in the US patent system. On the other hand, figures may also be influenced by the countries' industrial structures, as different industries have a different propensity to patent.

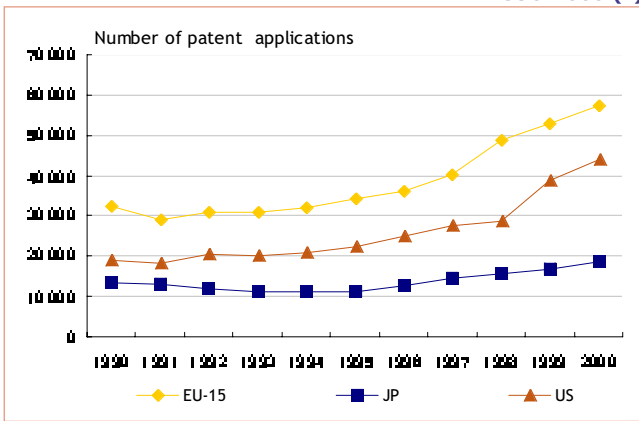
Due to methodological differences in the manner of processing the data, no cross sectional comparisons are advisable between the EPO and USPTO data. Differences in the data processing methods aside, it may be argued whether the position of EU Member States in the USA and Japan is comparable to that of the USA or Japan in the EU. This is directly linked to the complexity of the European patenting scenario, where the European patenting system (2) coexists with those of the Member States.

This has implications on the cost of patenting for European inventors, which has been proved to be three to five times more expensive than in the USA or Japan. The Commission estimated that whilst the overall cost of a European patent including translation costs and other fees is around EUR 49 900, Japanese and US patents cost on average EUR 16 450 and EUR 10 330 respectively (3).

For further explanations on the methodology used, please refer to Part 2.

- (1) See advantages and drawbacks of patents indicators in the methodological notes included in Part 2.
- (2) Please note that a European patent does not necessarily imply protection in the entire EU territory, but only at the designated states. This is not the case for US or Japanese patents, where one patent always covers the whole country.
- (3) See *Proposal for a Council Regulation of the Community patent*, Commission of the European Communities, Brussels 1.8.2000, COM(2000)412 final.

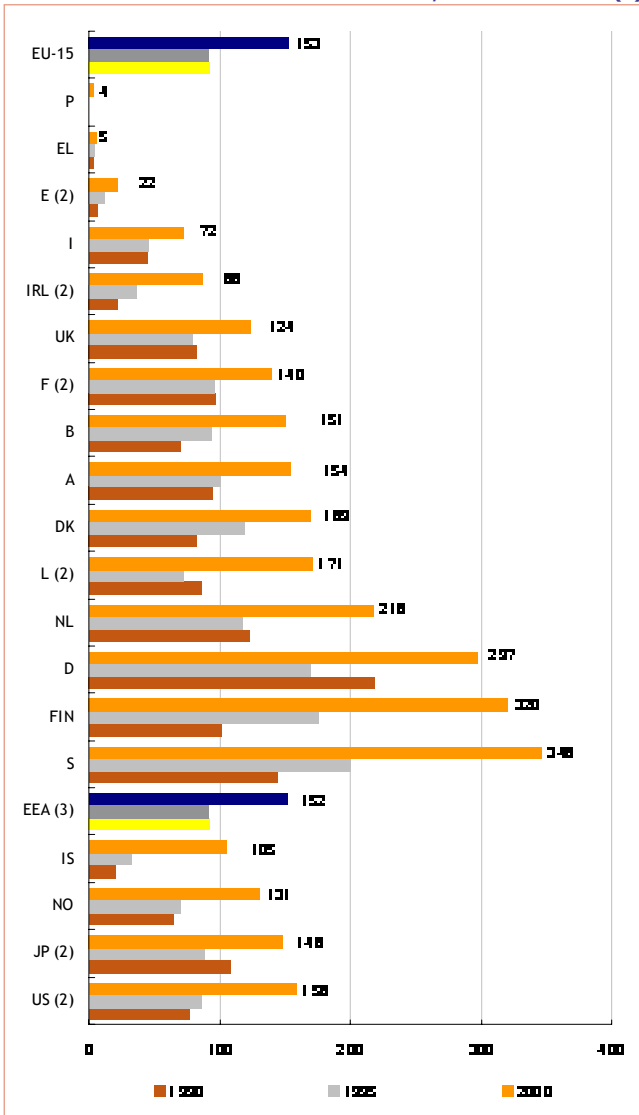
**Figure 3.1.** Evolution of patent applications to the EPO from EU-15, JP and the USA 1990-2000 (1)



(1) 2000 provisional data.

Source: Eurostat, data — EPO.

**Figure 3.2.** Evolution of patent applications to the EPO per million inhabitants from EEA countries, Japan and the USA 1990, 1995 and 2000 (1)



(1) 2000 provisional data.

(2) 2000 population data for E, F, IRL and L have been estimated by Eurostat.

2000 population data for JP and US: Source UN.

(3) In 2000, EEA excludes LI.

Source: Eurostat, data — EPO.

## 3.2. Patent applications to the EPO by year of filing

### 3.2.1. Total patent applications

#### Patent applications to the EPO at the national level

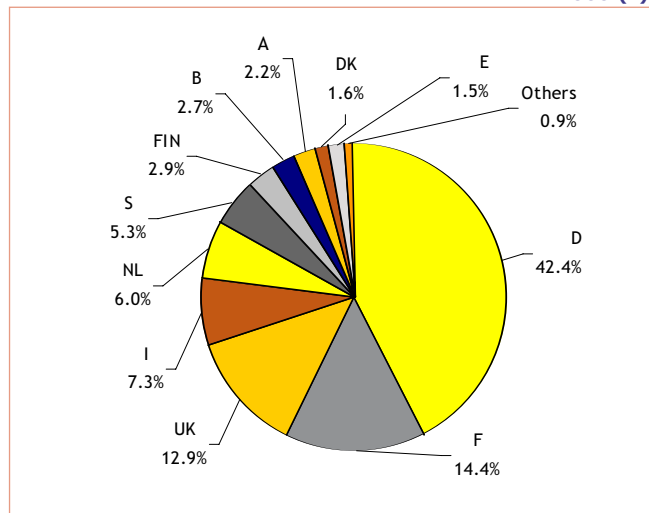
In 2000, the EPO received 57 473 patent applications from inventors resident in the EU, 43 761 from inventors resident in the USA and 18 780 from Japanese inventors. As shown in Figure 3.1., patent applications to the EPO from these three blocks have been growing steadily during the second part of the nineties. For the period 1995 to 2000, the USA registered the highest annual average growth rate (14.3 %). Meanwhile, Japanese and European patent applications to the EPO grew at rates of 11.1 and 10.9 % respectively.

Despite being ahead in absolute terms, the EU's position with regard to its competitors differs when patents are counted as a proportion of population and differences across the three blocks become smaller. In 2000, the USA registered 158 patent applications per million inhabitants, compared to 153 in the EU and 148 in Japan – Figure 3.2. Patent applications to the EPO from the three blocks increased from 1990 to 2000.

Within the EU and in absolute terms, the dominance of Germany is clear, as in 2000 it accounted for 42.4 % of total EU patent applications to the EPO. Following Germany were France and the UK, which accounted for 14.4 % and 12.9 % respectively. Together they comprise more than two thirds of the union total, showing therefore that innovative performance is skewed towards the large European Economies – Figure 3.3.

Figure 3.2. shows that in 2000, the country with the highest number of patent applications per million inhabitants was Sweden (346) followed by Finland (320). Both countries outperformed Germany, France and the UK in relative terms and their ratios more than doubled the EU and US ones. The ratios for all European countries grew during the 1990-2000 period, with the noticeable performance of Sweden and Finland.

**Figure 3.3.** Distribution of patent applications to the EPO from EU-15 by Member State 2000 (1)



(1) 2000 provisional data.

Source: Eurostat, data — EPO.

Map 3.1.

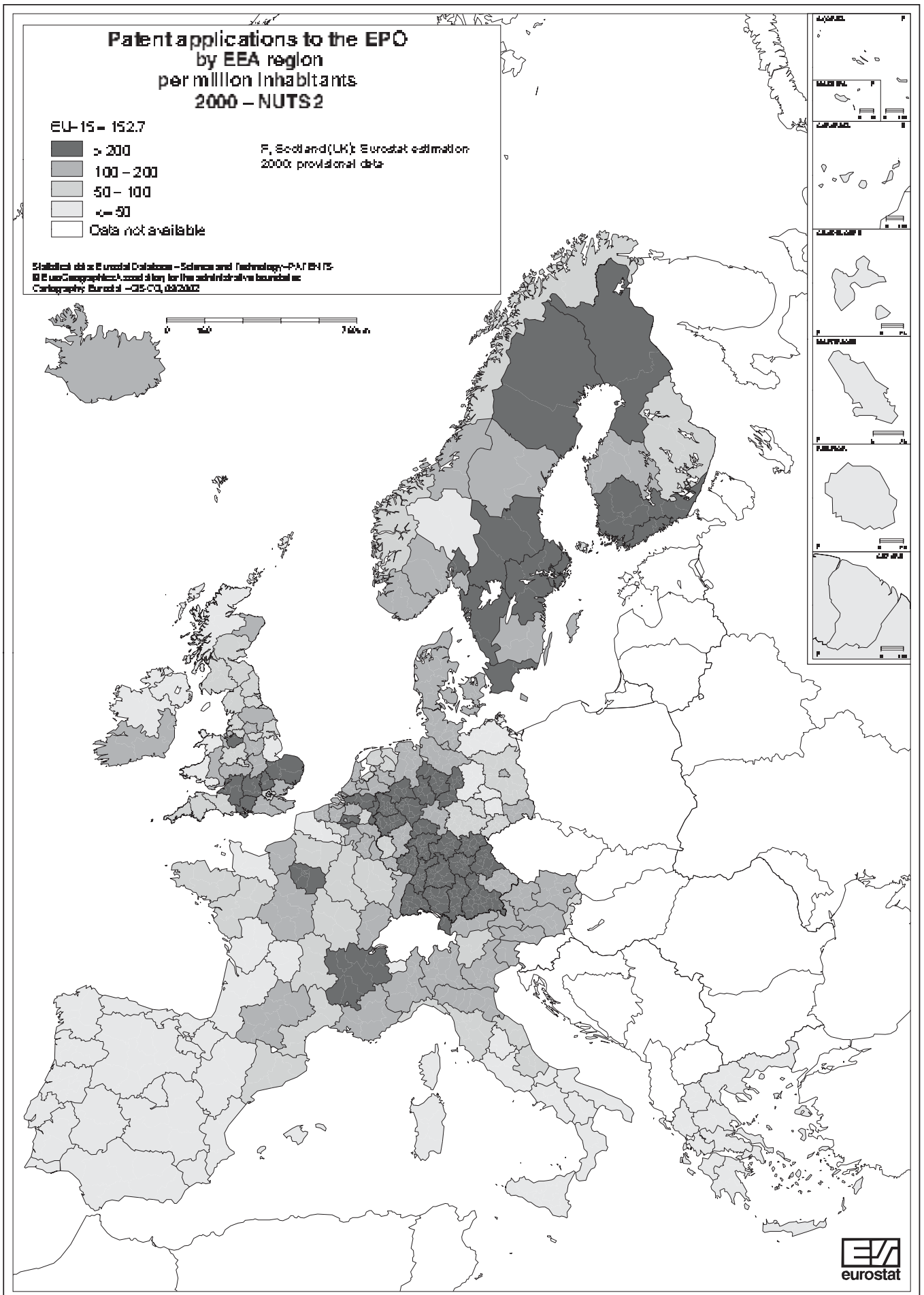


Table 3.1. shows the distribution of patent applications to the EPO by IPC section. Although different countries specialise in different sections, a general trend for a higher proportion of applications can be observed in 'performing operations; transporting' – which are related to automated activities formerly performed by human beings, such as hulling, husking etc., 'Human necessities' – mainly related to the daily life activities, such as agriculture, fishing, clothing, furniture, hand tools, etc., 'Electricity' – which includes telephonic, digital or pictorial communication – and 'Physics' – which comprises photography or computing. This could indicate either a high concentration of the related industries in European countries or a higher propensity to patent in such industries.

### Patent applications to the EPO at the regional level

At the regional level, inventors from the French capital region of Île de France applied for most patents in absolute terms

(3 424 patent applications), followed by those from the southern German regions of Oberbayern (3 092) and Stuttgart (2 533).

Map 3.1. gives an overview of the inventive performance of the European regions, at the NUTS 2 level, in terms of patent applications to the EPO per million inhabitants. It can be seen that southern German regions lead in total patenting.

In 2000, Oberbayern was the region with the highest proportion of patent applications per million inhabitants (767) in the EU. Some Dutch, Finnish, Swedish and Belgian regions also showed high patenting intensities.

Table 3.2. shows the leading patenting European regions in relative terms and the distribution of their applications to the EPO by IPC section. A higher degree of specialisation is noticeable in the leading European regions. In this sense, Dutch region Noord-Brabant and Finnish Uusimaa applied for almost half of their patents in the 'electricity' section, whereas Belgian Brabant Wallon and German Rheinhesen-Pfalz requested nearly half of their patents in the 'Chemistry; metallurgy' section.

Table 3.1.

Patent applications to the EPO by IPC section in 2000 (1)

Distribution of patent applications by IPC section in % (2)									Absolute total number
	A	B	C	D	E	F	G	H	
<b>EU-15</b>	<b>15.4</b>	<b>20.1</b>	<b>14.5</b>	<b>2.1</b>	<b>4.5</b>	<b>10.0</b>	<b>14.9</b>	<b>13.8</b>	<b>57 473</b>
B	15.8	18.5	31.2	3.9	3.3	5.9	12.1	11.8	1 548
DK	24.3	13.2	13.0	1.9	5.9	7.3	14.1	14.7	303
D	12.2	22.7	14.4	2.0	4.5	12.9	14.0	17.4	24 385
EL	33.3	23.0	9.7	0.0	11.0	2.8	14.5	5.9	55
E	24.2	22.9	13.9	1.9	7.5	9.8	10.0	12.9	872
F	18.5	19.2	14.5	1.3	3.9	8.7	15.2	13.9	8 272
IRL	22.5	11.2	8.7	0.0	3.7	3.4	26.7	23.8	391
I	20.7	23.1	10.8	3.4	5.7	10.0	9.9	11.5	4 172
L	5.1	32.1	21.2	1.3	0.5	13.7	11.8	9.3	74
NL	19.9	14.1	15.8	0.8	4.1	5.3	20.1	28.2	3 453
A	15.8	22.5	12.5	1.9	3.4	13.9	11.5	13.1	1 248
P	18.7	28.8	18.3	2.5	5.1	10.4	8.4	13.8	39
FIN	8.5	12.1	8.2	8.1	2.1	4.0	14.5	42.5	1 859
S	15.8	17.8	8.2	3.1	3.5	7.8	13.1	31.1	3 070
UK	19.4	14.5	17.1	1.2	4.8	7.4	19.7	15.8	7 384
<b>EEA</b>	<b>15.5</b>	<b>20.1</b>	<b>14.4</b>	<b>2.1</b>	<b>4.8</b>	<b>10.0</b>	<b>14.9</b>	<b>13.5</b>	<b>58 173</b>
IS	25.3	9.0	18.8	0.0	0.0	10.2	23.9	14.7	29
LI	29.8	23.8	19.8	0.0	8.8	8.8	1.8	1.2	29
NO	22.4	19.1	13.0	1.1	9.3	10.3	19.2	8.9	588
JP	9.3	15.3	18.5	1.3	0.8	7.8	21.9	27.1	18 780
US	19.0	11.7	13.0	1.0	1.8	4.7	23.8	19.9	43 791

(1) 2000 provisional data.  
(2) See meaning of IPC sections on page 173.

Source: Eurostat, data — EPO.

Table 3.2.

Top ten European regions in patenting relative to population in 2000 (1)

Ranking	Country	Region	Patent applications per million inhabitants	Distribution of patent applications by IPC section in % (2)						Absolute total number		
				A	B	C	D	E	F		G	H
1	D	Oberbayern	787	3.7	14.7	3.8	0.8	2.8	3.3	22.3	33.7	3 092
2	NL	Noord-Brabant	873	8.7	7.1	4.7	0.5	1.0	3.4	30.8	48.1	1 538
3	D	Stuttgart	847	4.3	28.7	2.9	2.5	4.0	22.4	13.8	17.8	2 533
4	FIN	Uusimaa (Suuralue)	534	7.9	11.3	9.7	3.9	1.3	3.0	14.5	48.8	308
5	SE	Stockholm	575	18.8	10.8	7.3	1.5	2.3	5.0	13.2	43.1	1 038
6	D	Mittelfranken	510	12.4	15.1	8.1	0.4	1.9	15.4	19.7	29.0	359
7	B	Brabant Wallon	508	27.8	7.0	47.8	3.4	0.3	2.2	7.5	4.4	177
8	D	Freiburg	470	15.1	13.8	18.1	1.2	4.7	12.9	12.4	13.1	999
9	D	Rheinhesen-Pfalz	468	14.8	17.5	45.7	1.5	1.7	3.9	8.4	3.7	933
10	D	Darmstadt	453	18.2	24.2	22.3	2.8	2.8	3.5	11.0	12.1	1 684
<b>EU-15</b>			<b>153</b>	<b>15.4</b>	<b>20.1</b>	<b>14.5</b>	<b>2.1</b>	<b>4.5</b>	<b>10.0</b>	<b>14.9</b>	<b>13.8</b>	<b>57 473</b>

(1) 2000 provisional data.  
(2) See meaning of IPC sections on page 173.

Source: Eurostat, data — EPO.

### 3.2.2. High tech patent applications

Patent applications to the EPO have been growing steadily during the second part of the nineties. However, this growth relates especially to the high technology fields. The definition of high tech followed by Eurostat is that of the *Trilateral Statistical Report*, a joint publication of the EPO, the JPO and the USPTO (4). Here, the following six technical fields are defined as high technology: computer and automated business equipment, micro-organism and genetic engineering, aviation, communication technology, semi-conductors and lasers. Each group is constructed by aggregating a list of IPC subclasses, which can be found in the methodological notes in Part 2.

#### High tech patent applications to the EPO at the national level

During the nineties, high tech patent applications to the EPO grew at annual average growth rates that for many countries doubled those of total patent applications. Throughout the period 1995-2000, high tech patent applications in Europe grew at an annual average growth rate of 22.0 %, compared to 10.9 % of patent applications overall – Table 3.3.

In 2000, 18.2 % of the patent applications to the EPO from the EU were made for high tech fields. This rate was below that of the USA and Japan, whose high tech patent applications amounted to 31.3 % and 24.6 % of their total applications respectively. In any case, the proportion of high tech patent applications from the EU has been on an upward trend since 1990 and almost doubled since then – Figure 3.4.

(4) See the 2000 report at: [http://www.european-patent-office.org/tws/tsr\\_2000/index.html](http://www.european-patent-office.org/tws/tsr_2000/index.html).

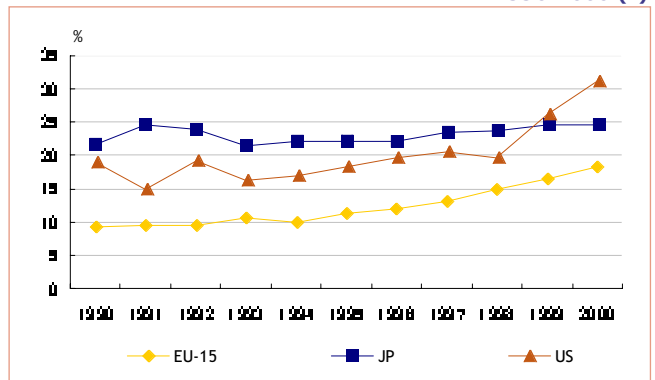
**Table 3.3. Annual average growth rates of high tech patent applications compared to the growth of patents overall (1)**

	Annual average growth rates			
	of high tech patents		of total patents	
	1990-95	1995-2000	1990-95	1995-2000
<b>EU-15</b>	<b>5.3</b>	<b>22.0</b>	<b>1.1</b>	<b>10.9</b>
B	10.0	15.0	0.4	10.2
DK	0.1	10.1	0.1	7.0
D	0.7	20.5	0.2	12.0
EL	-	5.0	0.1	5.1
E	20.0	21.0	11.1	12.0
F	1.0	17.4	0.2	0.2
IRL (2)	15.4	21.4	11.2	20.1
I	7.0	0.1	0.0	0.0
L	-	15.1	-2.2	20.4
NL	4.1	21.0	-0.2	12.0
A	10.7	10.0	2.1	0.1
P	-17.7	120.2	24.4	10.0
FIN	20.4	20.0	12.2	12.2
S	10.4	22.0	7.4	11.0
UK	1.2	10.2	-0.5	0.0
<b>EEA</b>	<b>5.2</b>	<b>22.0</b>	<b>1.1</b>	<b>11.0</b>
IS	22.5	20.0	11.2	20.1
NO	-2.0	21.0	2.0	14.0
JP	-3.0	12.4	-3.0	11.1
US	0.0	27.2	1.1	14.0

(1) 2000 provisional data.

Source: Eurostat, data — EPO.

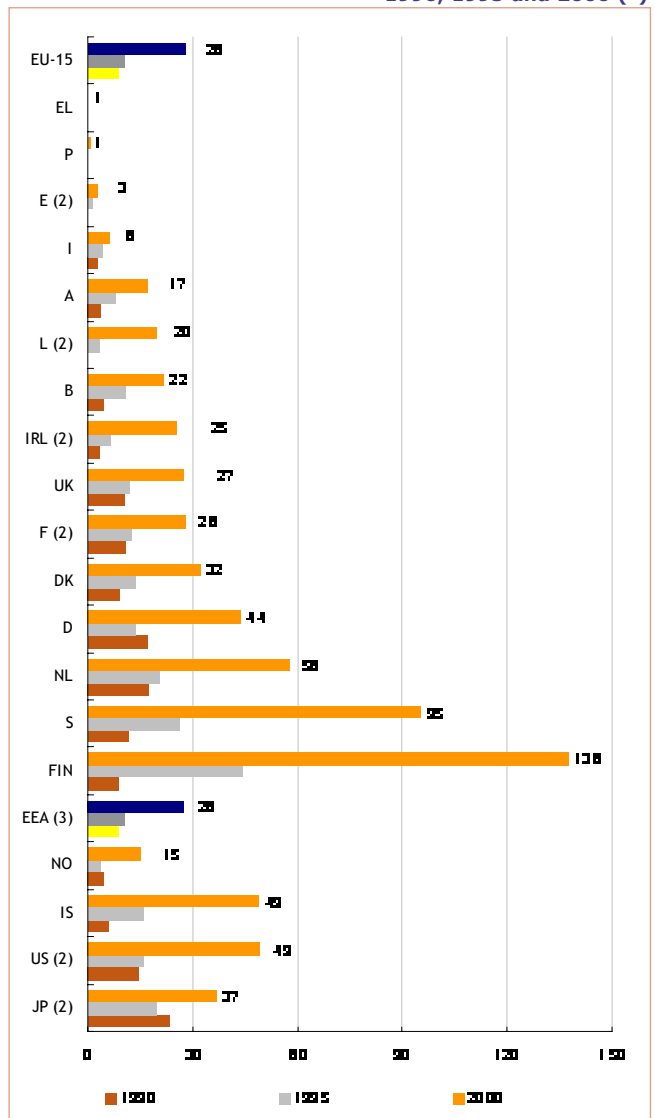
**Figure 3.4. Evolution of the % of high tech patent applications to the EPO from EU-15, Japan and the USA 1990-2000 (1)**



(1) 2000 provisional data.

Source: Eurostat, data — EPO.

**Figure 3.5. Evolution of high tech patent applications to the EPO per million inhabitants from EEA, Japan and the USA 1990, 1995 and 2000 (1)**



(1) 2000 provisional data.

(2) 2000 population data for E, F, IRL and L have been estimated by Eurostat. 2000 population data for JP and US: Source UN.

(3) In 2000, EEA excludes LI.

Source: Eurostat, data — EPO.

In absolute terms, high tech patent applications to the EPO from EU Member States amounted to 10 488 in 2000. This was ahead of Japan (4 629) but behind the USA (13 683). During the 1995-2000 period, high tech patent applications to the EPO from the USA grew the fastest (27.2 % per annum), followed by the EU (22.0 %) and Japan (13.4 %).

Figure 3.5. shows that, in relative terms, the EU recorded 27.8 high tech patent applications per million inhabitants in 2000, being outperformed by both the USA (49.5) and Japan (36.6).

Within the EU and in absolute terms, Germany (34.3 %), France (15.7 %) and the UK (15.6 %) accounted for a large amount of the total; however, the concentration of patenting in Germany seems to be less striking in high tech patenting than in patents overall.

As for total patenting, the dominance of the northern countries in Europe is confirmed when data are observed as a proportion of the population. In 2000, Finland was the country that retained the highest ratio (137.6 high tech patent applications per million

inhabitants), followed by Sweden (95.1) and the Netherlands (57.9).

In any case, high tech patent applications have been growing at a faster rate than total patent applications in all the European Member States with the exception of Italy, suggesting an increasing importance of high tech industries in Europe.

Concerning the composition of high tech patent applications, Table 3.4. shows that on average, the European Union and Japan applied for most high tech patents in the communication technology field. Micro-organism and genetic engineering was the largest high tech group for some countries like Denmark, Greece and Portugal, whereas computer and automated business equipment was the largest for Luxembourg, as it was for the USA.

A high level of specialisation may be observed in the high tech patenting top European countries, Finland and Sweden, where patent applications in the field of communication technology accounted for 80.2 % and 70.0 % of total high tech patent applications respectively. This may be explained by the strong presence of the mobile phone industry in these countries.

Table 3.4.

Distribution of high tech patent applications to the EPO by high tech group EEA, Japan and the USA in 2000 <sup>(1)</sup>

	High tech group in % <sup>(2)</sup>						Absolute total number
	AVI	CAB	CTE	LSR	MGE	SMC	
<b>EU-15</b>	<b>1.4</b>	<b>25.5</b>	<b>43.1</b>	<b>1.4</b>	<b>13.9</b>	<b>10.0</b>	<b>10 488</b>
B	0.7	19.9	35.6	0.7	34.5	3.6	224
DK	0.2	22.5	33.3	1.2	30.4	3.4	172
D	1.5	23.3	45.4	1.3	13.1	15.4	3 503
EL	0.0	33.6	19.4	0.0	30.2	7.3	8
E	5.8	23.8	35.2	0.0	24.7	6.0	121
F	1.3	29.9	42.6	2.4	13.6	9.7	1 647
IRL	0.0	40.9	46.6	2.3	6.7	3.0	98
I	2.0	33.6	34.4	4.1	10.3	15.7	358
L	0.0	46.3	46.2	0.0	7.4	0.0	9
NL	0.1	23.0	49.5	0.1	10.0	12.3	913
A	1.8	24.6	44.3	3.4	17.1	3.6	133
P	0.0	0.0	5.7	3.0	54.1	27.2	9
FIN	0.4	14.6	80.2	0.0	3.3	1.1	711
S	0.5	17.1	70.0	1.2	5.2	6.1	343
UK	2.3	31.3	41.2	1.2	19.3	3.7	1 633
<b>EEA</b>	<b>1.4</b>	<b>25.5</b>	<b>43.1</b>	<b>1.4</b>	<b>13.7</b>	<b>10.0</b>	<b>10 562</b>
IS	0.0	36.5	31.5	0.0	31.9	0.0	14
NO	3.3	25.2	51.0	0.0	20.5	0.0	63
JP	0.2	31.5	33.4	2.5	3.9	13.5	4 629
US	0.7	40.1	32.5	1.6	15.7	3.4	13 683

(1) 2000 provisional data.

(2) Technical fields defined as high technology:

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

Source: Eurostat, data — EPO.

### High tech patent applications to the EPO at the regional level

In 2000, the European regions with the highest number of patent applications in the high tech fields were the southern German region of Oberbayern (1 132), the French capital region of Île de France (854) and the Dutch region of Noord-Brabant (633).

As a proportion of each region's population, the Finnish region of Uusimaa, where Helsinki is located, was leading with 301.2 high tech patent applications per million inhabitants. Following Uusimaa were Stockholm (230.7) in Sweden and Noord-Brabant (268.6) in the Netherlands.

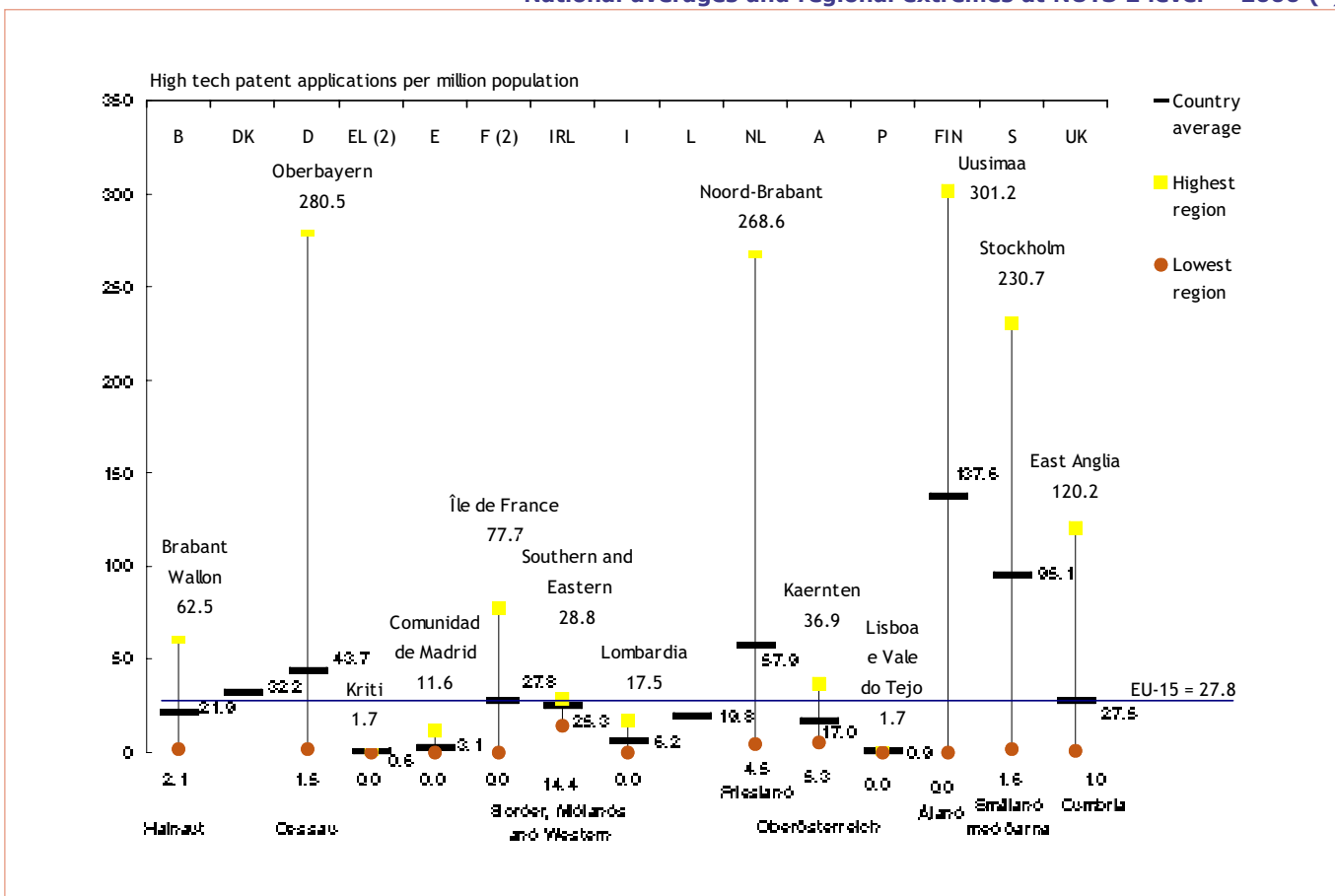
Figure 3.6. shows the national averages and regional extremes of high tech patent applications as a proportion of the population for each EU Member State. It can be seen that large disparities exist in Europe in terms of high tech patenting, not only at the Member State level, but also within regions of the same country.

As shown in Figure 3.6., in 2000, ten EU countries had at least one region above the EU average: Brabant Wallon (B), Denmark, Oberbayern (D), Île de France (F), Southern and Eastern (IRL), Noord-Brabant (NL), Kaernten (A), Uusimaa (FIN), Stockholm (S) and East Anglia (UK).

Regional disparities are more noticeable in the leading European countries. This is the case of Finland, where the highest region registered 301.2 high tech patent applications per million inhabitants (Uusimaa) and the lowest region applied for none (Åland). Similar disparities can also be seen in Germany, the Netherlands and Sweden.

Greek, Spanish, Italian and Portuguese regions seem to be still lagging with respect to the rest of Europe, as their region with highest high tech patenting intensity in 2000 was still below the EU average. The lowest region for each of these countries did not apply for any high tech patents that year.

**Figure 3.6. High tech patent applications to the EPO per million inhabitants in the EU National averages and regional extremes at NUTS 2 level — 2000 (1)**



(1) 2000 provisional data.  
 (2) 2000 regional population data for EL and F have been estimated by Eurostat.  
**NB:** For EL, E, F, I and P, the regions with lowest value are various.  
 For all of them the number of high tech patent applications per million population in 2000 was equal to zero.  
 These regions were:  
 • **EL:** Kentriki Makedonia, Dytiki Makedonia, Dytiki Ellada, Peloponnisos, Anatoliki Makedonia-Thraki, Thessalia, Ionia Nisia, Sterea Ellada, Voreio Aigaio, Notio Aigaio;  
 • **E:** Cantabria, La Rioja, Baleares, Murcia, Canarias, Extremadura, Ceuta y Melilla;  
 • **F:** Guyane, Corse, Martinique;  
 • **I:** Umbria, Molise;  
 • **P:** Alentejo, Açores, Madeira.

Source: Eurostat, data — EPO.



Table 3.5. shows the situation and composition of high tech patenting in the top three regions of each country, ranked according to their patenting activities in absolute terms.

It can be seen that the first region of most countries is quite ahead of the second one. See for example the great differences between the first and the second region in Germany, France or the Netherlands. Differences also remain in relative terms, although for many countries the gap is smaller.

Concerning the composition of high tech patent applications to the EPO from the top three regions of each country, there are five countries whose top three regions are most specialised in the communication technology field: Germany, Austria, Finland, Sweden and the UK. The level of specialisation is particularly high in the top regions of Finland and Sweden.

The technical fields of aviation and lasers seem to be the smallest for all the top European regions in high tech patenting.

Table 3.5.

Top regions in high tech patenting in absolute terms by Member State — 2000 (1)

Country	Ranking in EU-15	Region	High tech patent applications to the EPO								
			Absolute number	Per million inhabitants	% of total applications	Distribution by high tech group in % (2)					
						AVI	CAB	CTE	LSR	MGE	SMC
B	41	Antwerpen	58	34	21.1	0.0	22.8	58.2	0.0	15.0	4.1
	23	Vlaams Brabant	44	40	15.9	0.0	19.1	25.8	0.0	32.0	23.3
	45	Oost-Vlaanderen	40	32	21.8	0.0	12.4	29.7	0.0	52.2	4.9
DK	44	Denmark	172	32	19.0	0.2	22.5	33.3	1.2	28.4	3.4
D	2	Oberbayern	1 132	381	38.8	0.8	28.4	48.7	0.8	8.8	18.9
	12	Stuttgart	315	80	12.4	1.0	23.4	52.2	2.2	4.5	18.8
	20	Köln	224	52	14.5	0.0	23.1	48.5	2.0	17.7	10.7
EL	108	Attiki	5	2	14.8	0.0	41.3	23.8	0.0	25.3	9.5
	180	Kriti	1	2	50.0	0.0	0.0	0.0	0.0	100.0	0.0
	178	Ipeiros	0	1	100.0	0.0	0.0	0.0	0.0	100.0	0.0
E	22	Comunidad de Madrid	52	12	29.4	10.5	9.4	51.7	0.0	17.8	10.8
	128	Cataluna	37	8	12.0	0.0	88.8	15.1	0.0	18.4	0.0
	125	Comunidad Valenciana	7	2	8.2	0.0	27.2	40.9	0.0	28.5	3.4
F	14	Ile de France	854	78	24.9	0.7	27.5	51.3	3.5	12.8	4.2
	28	Rhône-Alpes	248	40	18.8	0.0	30.0	32.1	1.9	18.2	29.8
	32	Provence-Alpes-Côte d'Azur	182	40	27.8	3.2	54.3	25.9	0.3	4.1	12.2
IRL	48	Southern and Eastern	80	28	27.8	0.0	48.8	37.7	3.4	8.5	3.8
	72	Border, Midlands and Western	14	14	35.4	0.0	0.0	100.0	0.0	0.0	0.0
I	122	Lombardia	152	17	11.8	2.4	31.4	35.2	4.7	7.0	19.3
	110	Piemonte	33	8	8.8	1.2	42.5	39.5	8.4	2.8	7.5
	125	Sicilia	32	8	45.8	0.0	48.2	10.8	3.2	3.1	28.9
L	88	Luxembourg	9	28	11.8	0.0	48.3	48.2	0.0	7.4	0.0
NL	3	Noord-Brabant	103	388	39.9	0.0	29.9	54.1	0.2	0.8	15.1
	83	Zuid-Holland	78	21	14.3	0.8	18.3	39.8	0.0	40.0	3.3
	80	Noord-Holland	53	21	18.8	0.8	33.8	35.4	0.0	19.8	10.8
A	39	Wien	57	25	23.8	1.8	18.8	52.9	1.8	23.9	1.2
	74	Niederösterreich	24	15	11.8	0.0	27.4	40.4	7.0	23.0	2.1
	38	Kaernten	21	37	24.9	0.0	8.8	88.5	0.0	0.0	20.7
P	182	Lisboa e Vale do Tejo	8	2	30.7	0.0	0.0	0.0	0.0	84.7	35.3
	174	Norte	3	1	23.7	0.0	0.0	17.7	9.2	25.1	37.9
	178	Algarve	0	1	88.7	0.0	0.0	0.0	0.0	0.0	100.0
FIN	1	Uusimaa (Suuralue)	418	381	51.8	0.0	14.1	88.9	0.0	3.8	1.2
	8	Etelä-Suomi	188	100	37.3	1.1	14.9	88.4	0.0	3.5	0.1
	8	Pohjois-Suomi	88	154	54.4	0.0	12.8	81.7	0.0	3.2	1.5
S	4	Stockholm	418	221	40.1	0.2	11.2	78.2	1.9	4.9	5.5
	5	Sydsverige	198	157	34.9	0.5	23.3	71.3	0.0	3.8	1.2
	19	Östra Mellansverige	88	58	28.4	2.2	23.5	45.2	0.0	11.9	17.2
UK	7	East Anglia	285	128	38.8	0.1	24.9	48.0	0.9	18.0	8.1
	10	Gloucestershire, Wiltshire and North Somerset	197	90	39.1	5.1	25.8	48.9	0.4	7.7	2.0
	11	Hampshire and Isle of Wight	158	88	42.3	0.0	42.7	52.5	0.8	3.4	0.8
EU-15			10 480	28	13.2	1.4	24.9	42.1	1.4	12.8	19.8

(1) 2000 provisional data.

The top three regions of each country refer to the leading regions in absolute terms;

the column ranking in EU-15 gives the position of that particular region in the EU in relative terms — as a proportion of population — in a total of 198 regions.

(2) Technical fields defined as high technology:

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

Source: Eurostat, data — EPO.

### 3.3. Patents granted by the USPTO by year of publication

Figure 3.7. shows the evolution of patents granted by the USPTO to the EU, Japan and the USA. In 2000, the USPTO published 86 563 patents granted to US inventors, 31 643 patents granted to Japanese inventors and 27 783 patents granted to inventors resident in the EU.

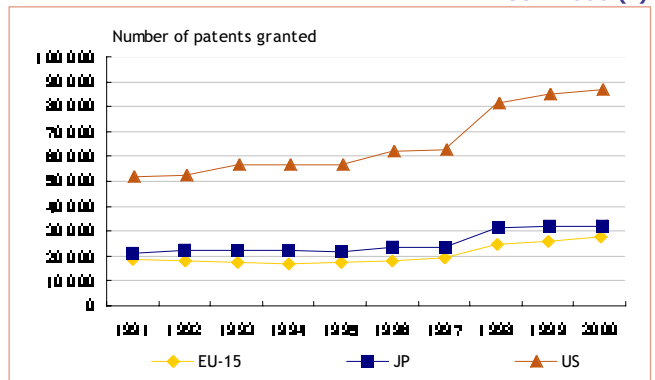
The United States dominance at home prevails even when population is taken into account, as in 2000 it retained the highest ratio (313.0 patents granted per million inhabitants). Japan registered a ratio of 250.1 patents granted per million inhabitants, whereas that of the EU equalled 73.8 – Figure 3.8.

Although the EU is lagging with respect to its competitors, patents granted by the USPTO to the EU have been growing increasingly since 1995. In fact, during the 1995 period, patents granted by the USPTO to EU inventors grew at an annual average growth rate of 9.9 %, whereas those of Japanese and US inventors grew at 7.6 and 9.0 % respectively.

Within the EU, Germany accounted for 39.4 % of the total patents granted, the UK for 15.4 % and France for 15.2 % – Figure 3.9. As was the case at the EPO, patenting in the USPTO is also largely skewed towards the large European Economies.

The number of patents granted by the USPTO to EU inventors has been growing in all Member States, especially during the second part of the nineties. When taking population into consideration, as shown in Figure 3.8., in 2000, Sweden was leading – 195.6 patents granted per million inhabitants, followed by Germany (133.4) and Luxembourg (133.1).

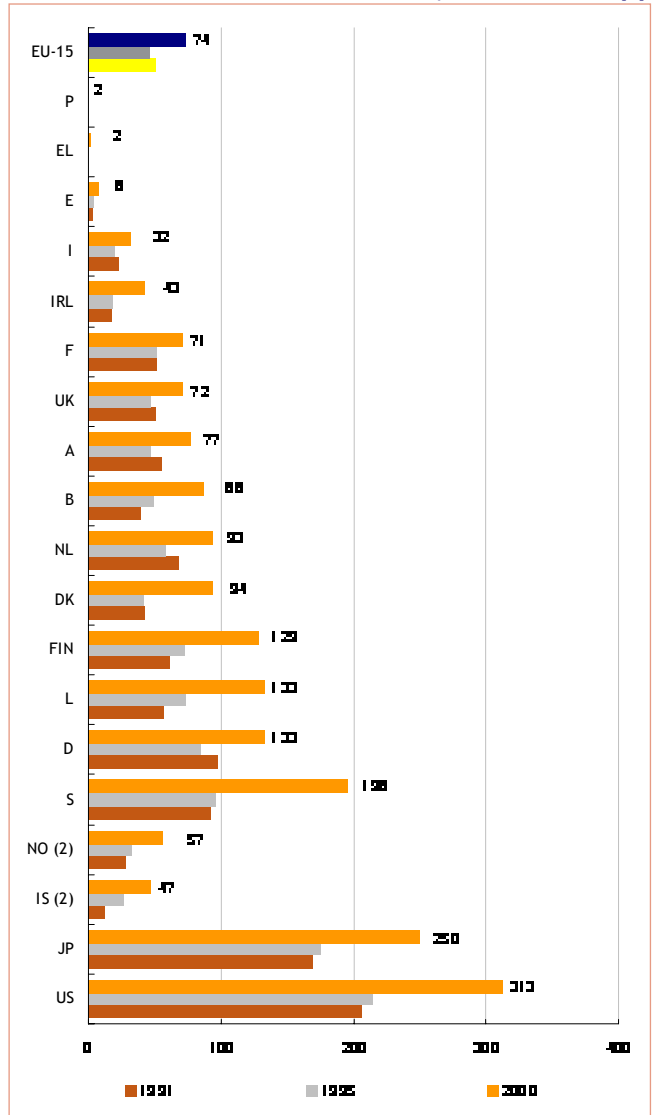
**Figure 3.7.** Evolution of patents granted by the USPTO to EU-15, JP and the USA 1991-2000 (1)



(1) 2000 provisional data.

Source: Eurostat, data — USPTO.

**Figure 3.8.** Evolution of patents granted by the USPTO per million inhabitants to EEA countries, Japan and the USA 1990, 1995 and 2000 (1)

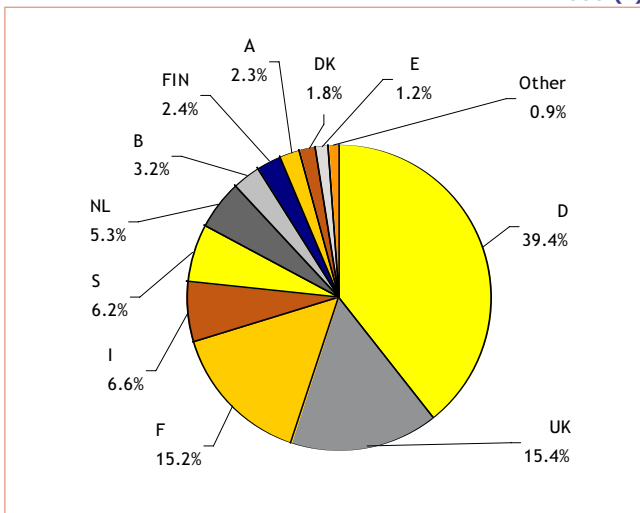


(1) 2000 provisional data.

(2) Exceptions to the reference year 2000 IS and NO: 1999.

Source: Eurostat, data — USPTO.

**Figure 3.9.** Distribution of patents granted by the USPTO to EU-15 by Member State in 2000 (1)



(1) 2000 provisional data.

Source: Eurostat, data — USPTO.



**PART 2**  
**DEFINITIONS**  
**AND**  
**METHODOLOGICAL**  
**NOTES**



# Part 2 – Chapter 1

## Government budget appropriations or outlays on Research and Development – GBAORD

Government budget appropriations or outlays for R&D 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 (i.e. in international organisations). 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.

### 1.1. General methodology

#### 1.1.1. Sources

GBAORD data are provided to Eurostat in national currency directly by the Member States of the European Union and the countries of the European Economic Area. Data for Japan and the United States are sent to Eurostat by the OECD.

The **exchange rates** applied to convert national currencies into current EUR are obtained from Eurostat's reference database *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain Exchange rates and interest rates,
- Collection Exchange rates,
- Group Euro/ECU exchange rates,
- Table Euro/ECU exchange rates – Annual data,
- Observation type Average type.

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain Auxiliary indicators (Population, employment and exchange rates),
- Table Auxiliary indicators (Euro exchange rates, PPP),
- Observation type eur\_nac EUR.

The data used for the conversion into **current PPS** are obtained from the following *NewCronos* sources:

- Theme 2\_Economy and Finance,
- Domain Auxiliary indicators (Population, employment and exchange rates),
- Table Auxiliary indicators (Euro exchange rates, PPP),
- Observation type pps\_nac PPS.

**GDP** data are obtained from the following *NewCronos* sources:

- Theme 2\_Economy and Finance,
- Domain National accounts – Aggregates Annual data,
- Collection GDP and main aggregates,
- Table GDP and main components – Current prices.

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain National accounts historical data (ESA 79),
- Collection National accounts – Aggregates Annual data (ESA 79),
- Group ESA aggregates at current prices,
- Table ESA aggregates at current prices – in ECU,
- Indicator Gross domestic product at market prices (GDPmp) (N1).

Data for the **GDP deflator** are obtained from *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain National accounts – Aggregates Annual data,
- Collection GDP and main aggregates,
- Table GDP and main components – Price indices,
- Indicator Gross domestic product at market prices (GDPmp) (N1).

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain National accounts historical data (ESA 79),
- Collection National accounts – Aggregates Annual data (ESA 79),
- Group ESA aggregates at current prices,
- Table ESA aggregates – value indices.

**Population data** are obtained from *NewCronos*:

- Theme 3\_Population and Social Conditions,
- Domain Labour force survey,
- Collection Population and households,
- Table Population by sex, age groups and marital status (unit thousand persons).

Data on **total general government expenditure** are obtained from *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain Government sector,
- Collection Main aggregates of general government, including total revenue and expenditure,
- Table Full table (t+8).

#### 1.1.2. Reference Unit

The reference unit for the GBAORD database is the national currency – including 'EUR fixed' series for Eurozone countries.

### 1.1.3. Indicators

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. Current EUR values for non-Eurozone countries are obtained by directly applying the average exchange rate for the year in question.

Data quoted in current PPS are obtained by applying the average exchange rate of the year in question to the national currency value.

Data measured in constant 1995 PPS are corrected for inflation using the GDP deflator – a Paasche index with 1995 = 100 as a base – of the country in question. The GDP deflator in general conforms to the 1995 European System of Accounts – ESA 95, available on *NewCronos*, Theme 2. The adjusted GDP deflator provided following ESA 79 was used in the case of incomplete series. Appropriate caution should be exercised when interpreting the results in such cases.

As with the GDP deflator, time series on GDP are built up using the two systems of European accounts. Where GDP data using ESA 95 were missing, the year on year growth rates of GDP in the ESA 79 system were applied retrospectively to the years for which data were missing in the ESA 95 national accounts database.

Data measured in per capita EUR and in per capita constant 1995 PPS are obtained by dividing the respective data measured in current EUR and in constant 1995 PPS by the population of the country in question for the year in question.

Data on total general government expenditure include all the aggregations listed in the following table.

#### Code in

#### NewCronos Section

- p2 Intermediate consumption,
- d1pay Compensation of employees, payable,
- d29pay Other taxes on production, payable,
- d3pay Subsidies, payable,
- d4pay Property income, payable,
- d5pay Current taxes on income, wealth, etc., payable,
- d62pay Social benefits other than social transfers in kind, payable,
- d6311\_d63121 Social transfers in kind = expenditure on products supplied to households via market producers,
- \_d63131pay
- d7pay Other current transfers, payable,
- d8 Adjustment for the change in net equity of households in pension funds reserves,
- d9pay Capital transfers, payable,
- p5 Gross capital formation,
- k2 Acquisitions less disposals of non-financial non-produced assets.

### 1.1.4. Classifications

GBAORD data are built up using the guidelines laid out in the *Proposed standard practice for surveys of research and experimental development – Frascati Manual*, OECD, 2002.

The main classification used in the GBAORD database is the NABS – *Nomenclature for the analysis and comparison of scientific programmes and budgets*, Eurostat, 1994.

The 1983 version of NABS applies to all the figures up until the 1992 final budgets and the 1993 provisional budgets. The 1993 version applies from the 1993 final and the 1994 provisional budgets onwards.

As a result of the revision of NABS, exact comparability between certain 1- and 2-digit NABS headings cannot be achieved. The greatest differences are to be found in chapters 1, 3, 5, 7, 10 and 11 of NABS.

These NABS chapters cover the following fields:

- Chapter 1: Exploration and exploitation of the Earth,
- Chapter 3: Control and care of the environment,
- Chapter 5: Production, distribution and rational utilisation of energy,
- Chapter 7: Industrial production and technology,
- Chapter 10: Research financed from General University Funds (GUF),
- Chapter 11: Non-oriented research.

Not all countries collect the data directly by NABS: some follow other compatible classifications – OECD, Nordforsk, which are then converted to the NABS classification – see Table 8.2., p. 115 of the *Frascati Manual*, 2002.

### 1.1.5. Time series

Eurostat's GBAORD database contains data from 1980 onwards, though availability differs according to country.

For the following countries, data for 2001 are provisional: Austria, Belgium, Finland, France, Germany, Greece, Iceland, Italy, the Netherlands, Norway, Portugal and the United Kingdom.

### 1.1.6. Geographical coverage

Data on GBAORD are available for Austria, Belgium, Denmark, France, Finland, Germany, Greece, Iceland, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, the UK and the US. Data are also available for European Commission budgets, Commission of the European Communities.

No GBAORD data exist for Luxembourg and therefore EU-15 totals exclude Luxembourg.

No GBAORD data exist for Liechtenstein and therefore EEA totals exclude Liechtenstein and Luxembourg.

### 1.1.7. Reliability of the data

Because of national revisions, some of the data shown for government R&D appropriations deviate from the figures in previous issues of this publication. Even in the case of derived indicators there are differences compared with previous issues, since the values of the reference parameters, such as the GDP deflator, have been revised.

### 1.1.8. Comparability of the data

Despite all efforts, the concepts and methods used by the individual Member States of the EU, the United States and Japan for collecting data on government R&D appropriations are not completely harmonised.

In interpreting the tables, some (national) peculiarities still have to be borne in mind, and the most important of these are indicated in the section 'Country specific notes'.

## 1.2. Country specific notes

### 1.2.1. Belgium

Belgium's federal structures – which arose from the reforms of 1980, 1988, and 1993 – give primary responsibility for basic and university research to the Communities, while the Regions are primarily responsible for supporting industrial and technological research. The Federal Government has particular responsibility for the federal scientific and cultural establishments, for space research, nuclear research, a broad area of agricultural research and Belgian participation in the activities of international research bodies.

The share of Research in the universities' total operating budgets was set at 43 % of total GBAORD between 1989 and 1992. This percentage had been applied to the Belgium system using the results of a Dutch study dating from the beginning of the 1980s. However, this approach did not take into account the peculiarities of both financing and the organisation of research in Belgium. Research has since been undertaken in order to determine a proportion which is closer to the reality of the Belgian system. The conclusion was that a rate of 25 % should be applied instead of 43 %. As a result, all the GBAORD data from 1989 onwards have been revised.

There were only minor variations by NABS objective or group between 1996 and 2000.

No data are available for sub-chapters of NABS.

No data are available for the breakdowns on biotechnology, information technology and developing countries.

No data are available for the other multilateral actions or grants to enterprises.

### 1.2.2. Denmark

Up until 1992, GBAORD data contained some non-government resources, but not thereafter. The effects of this methodological change are not known, but comparison of the data for the period before 1992 with the data from 1993 should be made with caution.

The way of funding PhDs was changed from 1993 to 1994, which makes it more difficult to compare objective 10 – Research financed from GUF – for 1993 and 1994.

The Ministry of Education has changed the way it estimates capital investment related to R&D for 1994 and the following years.

Some differences arise in the calculation of GBAORD by groups of objectives in both 1995 and 1996 compared to previous years.

In calculating the total for GBAORD, all external funds (non-general funds) at the level of institutions have been excluded. This is done to avoid double counting of funds originating from other sources within central government. As it is not possible in all cases to distinguish between external funds from private and public sources, the exclusion of external funds also means that all funds from private sources are in effect excluded.

GBAORD on biotechnology, information technology, and on developing countries are underestimated as it is not always possible to separate all funds – often part of larger programmes – devoted to these objectives.

Data are collected according to the Nordforsk chapters – Nordic Industrial Fund – and converted to NABS chapters. Therefore, the data cannot be classified according to the NABS sub-chapters.

### 1.2.3. Germany

As a result of unification and the restructuring of the research landscape thereafter, there are breaks in the time series between 1990 and 1991 (final budgets) as well as between 1991 and 1992 (provisional budgets).

Another break in series occurs between 1995 and 1996 (final budgets) and 1996 and 1997 (provisional budgets). This relates mainly to methodological improvements in the allocation of funds to and within NABS Chapters 7, 10, and 12.

The negative value in NABS chapter 12 – Other civil research – in 1997 is explained by a technical budgetary adjustment.

### 1.2.4. Greece

With regard to the breakdown of appropriations for funding biotechnology and information technology, the absence of data for the 'Research financed from General University Funds – GUF' objective – NABS 10 – is due to the special methodological aspects used in estimating the 'GUF'. This methodology results in an underestimation of their importance in total GBAORD.

### 1.2.5. Spain

Up until 1993, 'Research financed from general university funds' was estimated by applying a figure of 16 % of total university budgets. This factor has been adapted in several steps to bring it closer to reality: 20 % in 1994, 25 % in 1995.

For 1997, 'Production, distribution and rational utilisation of energy' includes the Spanish contributions to CERN.

The reductions in 'Non-oriented research' and 'Other civil research' between 1996 and 1997 are partly a result of improvements in the way the allocation of resources are recorded, with these two objectives previously tending to be a catch-all for R&D funding.

The 'Defence' figures for 1997 and 1998 are marked by the incorporation into the 'Defence' budget of large sums from the Ministry of Industry and Energy with a substantial industrial R&D content corresponding to the 'Promotion and Industrial Strategies for Defence' programmes, which accounts for the increase of almost 300 % in the 'Defence' budget over the three-year period.

### 1.2.6. France

There is a break in series between 1991 and 1992. The figures for the period up until 1991 are not fully comparable with those of the following years for two reasons: an improved methodology for compiling GBAORD data has been introduced and the legal status of the *France-Télécom* and *GIAT industries* has been changed.

### 1.2.7. Ireland

A new methodology was introduced in 1992, which results in only government funds being included in the analysis. Note that in Ireland the definition of government funds includes money received from the EU Community Support Framework in support of R&D activities. It is estimated that in 1997 one third of government funds for R&D come from the CSF, with Chapter 7 of the NABS – Industrial production and technology – significantly affected by the allocation of these funds.

### 1.2.8. Italy

The amount for 'Defence' is estimated for the 1998 final and 1999 provisional data.



In 2000, the figure for 'Research financed from general university funds' is the same as for 1999, due to an ongoing methodological review.

The National Statistical Institute – which conducts the R&D surveys of universities – has revised the data collection methodology for 1997, 1998 and 1999. These variations cause breaks in the historical series. For 2000 and 2001, the National Research Council's IRDS has estimated provisional data for the 'Research financed from General University Funds (GUF)' objective.

### 1.2.9. Netherlands

An effort has been made to harmonise the funding (GBAORD) and performance (Statistical Office) figures on university research. This results in higher figures for general university funds as part of GBAORD from 1996 (final budget) and 1997 (provisional budget) onwards.

### 1.2.10. Austria

No methodological changes were made over the period 1998-2002, thus ensuring that the data are comparable.

The classification of data by NABS Chapter is the result of converting data broken down using a national system to the OECD breakdown of data by socio-economic objective – Thanks to the use of appropriate tables of correspondence – the latter being equivalent to the NABS breakdown.

### 1.2.11. Finland

As a result of changes in methodology, there are breaks in the time series for Finland between 1990 and 1991 – due to the inclusion of pension contributions in the labour costs, and between 1994 and 1995: since 1995, universities and research organisations have to pay a rent for government buildings which was not the case before.

As data on R&D appropriations are collected according to the OECD classification and converted to NABS, the data cannot be divided into NABS sub-chapters.

### 1.2.12. Sweden

The methodology for measuring government R&D appropriations in Sweden has been subject to numerous changes in the '90s – in 1991, 1992, 1993 and 1995.

Up until 1994, the Swedish budgetary year ran from July to June. In 1995/96, the budgetary year was changed to the calendar year (January – December). Due to this change, the budgets for 1995 and 1996 are estimates based on the budget for the period July 1995 until December 1996.

No data are available for 1997.

As data on R&D appropriations are collected according to the NORDFORSK – Nordic Industrial Fund – classification and converted to NABS, the data cannot be divided into NABS sub-chapters.

### 1.2.13. United Kingdom

In 1995/96, a new methodology was used to calculate GUF figures, in respect of the Higher Education Funding Councils. Values have been revised for one year only (1993-94).

From 1995-96, the increase in 'human and social objectives' is due in part to the fact that UK National Health Service figures have been obtained from the Department of Health and the Scottish Office on the basis of the Culyer directive, which for the first time confirmed the extent of R&D spending in the NHS.

The budgetary year for central government differs from the calendar year.

### 1.2.14. Iceland

The data collection methodology has remained virtually unchanged since 1995. No data are available for sub-chapters of NABS. Further data on R&D in Iceland are accessible on the Icelandic Research Council web-site.

### 1.2.15. Norway

Data on R&D appropriations are collected according to the Nordforsk – Nordic Industrial Fund – classification and converted to NABS. The GBAORD analysis is not performed at a sufficient level of detail to allow information on the NABS sub-chapters.

The increase in technological objectives is largely due to the introduction of a new instrument for financing industrial R&D and innovation (FUNN).

### 1.2.16. United States

US data exclude the socio-economic objectives 'research financed from general university funds' and 'other civil research' and are therefore systematically underestimated. Comparisons with other countries should be made with caution.

US data concern federal or central government budgets only and exclude most or all capital expenditure. Data for total GBAORD are only available for 1999 and 2000. These data are provisional.

### 1.2.17. Japan

The figures for Japan are estimates made by the OECD Secretariat and recognised as official data by the Japanese Government. They include R&D in the social sciences and humanities and are thus only to some extent comparable with the data for other countries.

The R&D portion of military contracts is excluded.

### 1.2.18. Commission of the European Communities

The European Commission's budgets for R&D do not include the European Development Fund's resources for technological research. These funds are shown in the national budgets of the Member States of the EU.

There is a break between 1989 and 1990 in the time series for the final budgets of the European Commission, since from 1990 onwards the pro rata administrative costs are no longer included in the data.

An improved methodology has been adopted for the Fourth Framework Programme (1994-98) data which allows for the distribution by NABS sub-chapter of data previously included in Chapter 12 – 'Other civil research' – and the sub-chapters for 'General Research'.

# Part 2 — Chapter 2

## R&D expenditure and personnel

### 2.1. R&D expenditure and personnel as S&T indicators — General information

The basic methodological recommendations for R&D statistics are given in the *Proposed Standard Practice for Surveys of Research and Experimental Development — Frascati Manual*, OECD, 1994.

The regional aspects of R&D and innovation statistics are covered by *The Regional Dimension of R&D and Innovation Statistics — Regional Manual*, Eurostat, 1996.

The following definitions are mainly derived from these manuals. In principle, the R&D data in this publication are collected in line with these recommendations.

#### 2.1.1. Research and experimental development — R&D

Research and experimental development — R&D — comprises 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 — *Frascati Manual*, § 57.

This term covers three activities: basic research, applied research, and experimental development.

#### 2.1.2. Research and development input indicators

##### At the national level

##### Intramural expenditures

Intramural expenditures are all expenditures for R&D performed within a statistical unit or sector of the economy, whatever the source of funds. Expenditures made outside the statistical unit or sector but in support of intramural R&D (e.g. purchase of supplies for R&D) are included. Both current and capital expenditures are included.

##### R&D personnel

All persons employed directly on R&D should be counted, as well as those providing direct services such as R&D managers, administrators, and clerical staff.

For the purposes of regional statistics, these R&D definitions have been adapted to the region. See *The Regional Dimension of R&D and Innovation Statistics — Regional Manual*, Eurostat, 1996, Part C: First-Priority Indicators.

In accordance with international recommendations, figures for R&D personnel are indicated not only in full-time equivalent but also in head count.

##### R&D personnel by occupation

The standard international classification in this field is the *International Standard Classification of Occupation* — ISCO, 110, 1968, ILO, 1990.

- **Researchers — RSE**  
Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods, and systems, and in the management of the projects concerned.
- **Technicians and equivalent staff**  
Technicians and equivalent staff are persons whose main tasks require technical knowledge and experience in one or more fields of engineering, physical and life sciences, or social sciences and humanities. They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods, normally under the supervision of researchers. Equivalent staff performs the corresponding R&D tasks under the supervision of researchers in the social sciences and humanities.
- **Other supporting staff**  
Other supporting staff include skilled and unskilled craftsmen, secretarial and clerical staff participating in R&D projects or directly associated with such projects.

##### At the regional level

##### Intramural expenditure on R&D at the regional level — *Regional Manual*, § 134

Regional intramural expenditures are all expenditures for R&D performed within a statistical unit or a sector in a region, whatever the source of funds

##### R&D personnel

##### at the regional level — *Regional Manual*, § 151

All persons employed directly in R&D in a region should be counted, as well as those providing direct services such as R&D managers, administrators and clerical staff. Those providing an indirect service, such as canteen and security staff, should be excluded, even though their wages and salaries are included as an overhead cost in the measurement of R&D expenditure.

#### 2.1.3. Regional classification

The economic territory of each Member State of the EU has been divided according to a five-level hierarchical classification (three regional levels and two local levels) named the *Nomenclature of Territorial Units for Statistics* — NUTS. NUTS serves as a reference for the collection, development and harmonisation of Community regional statistics, for the socio-economic analysis of the regions and for drawing up Community regional policies. The NUTS is the territorial classification for R&D and innovation statistics at the regional level.

In general, NUTS sub-divides each Member State into a number of NUTS 1 regions, which are in turn subdivided into a number of NUTS 2 regions, and so on.

- NUTS 1 is the first level of disaggregation and is of major importance in Germany, where it equates to the *Länder*, and to a lesser extent in the UK, where it is equivalent to standard English regions or the countries of Scotland, Wales and Northern Ireland.



- NUTS 2 is the secondary level, with 206 regions within Europe. Denmark, Ireland and Luxembourg are level 1 and level 2 regions at the same time. For some countries, this tier corresponds to an effective form of regional government.
- NUTS 3 is the smallest regional level for which R&D or patent data are available. There are over 1 000 regions, usually conforming to a genuine administrative unit.

It is important to note that several regions can be classified at different NUTS levels at the same time: 8 regions are classified at the NUTS levels 1, 2 and 3; 17 regions at both NUTS 1 and 2 levels and 22 regions at NUTS levels 2 and 3.

The data presented in this Chapter correspond to level 2 of the NUTS nomenclature. Aggregated data at a higher level (NUTS 1) supplied by the Member States are available in the *NewCronos* database, Theme 9.

## 2.2. R&D expenditure and personnel — Sources and methods

### 2.2.1. Sources

R&D basic data are provided to Eurostat directly by the Member States of the European Union and the countries of the European Economic Area: National Statistical Offices, Research Councils, and Ministries responsible for R&D. Data for Japan and the United States are supplied to Eurostat by the OECD. The data are then checked, transformed, and the derived indicators are calculated.

The **exchange rates** applied to convert national currencies into current EUR are obtained from Eurostat's *NewCronos* reference database:

- Theme 2\_Economy and Finance,
- Domain Exchange rates and interest rates,
- Collection Exchange rates,
- Group ECU/Euro exchange rates,
- Table ECU/Euro exchange rates – Annual data,
- Observation type Average type.

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain Auxiliary indicators (Population, employment and exchange rates),
- Table Auxiliary indicators (Euro exchange rates, PPP),
- Observation type eur\_nac EUR.

**PPS** data are taken from *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain Auxiliary indicators (Population, employment and exchange rates),
- Table Auxiliary indicators (Euro exchange rates, PPP),
- Observation type pps\_nac PPS.

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain National accounts historical data (ESA79) Annual data,
- Collection National accounts – Aggregates Annual data (ESA 79),
- Group Economic and social indicators,
- Table Economic and social indicators associated to ESA aggregates,
- Indicator 1 PPS = ...national currencies.

**GDP** data are obtained from the following *NewCronos* sources:

- Theme 2\_Economy and Finance,
- Domain National accounts – Aggregates Annual data,
- Collection GDP and main aggregates,
- Table GDP and main components – Current prices.

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain National accounts historical data (ESA79),
- Collection National accounts – Aggregates Annual data (ESA 79),
- Group ESA aggregates at current prices,
- Table ESA aggregates at current prices – in ECU,
- Indicator Gross domestic product at market prices (GDPmp) (N1).

For **GDP** at the regional level the source is:

- Theme 1\_General statistics,
- Domain Regional statistics,
- Collection Economic accounts,
- Group Economic accounts – ESA95,
- Subject Gross domestic product indicators – ESA95,
- Table Gross domestic product (GDP) at NUTS level 2 – ESA95,
- Currency Millions of EURO (from 1.1.1999)/ Millions of ECU (up to 31.12.1998).

Where **lacking**, data were **completed** using *NewCronos*:

- Theme 1\_General statistics,
- Domain Regional statistics,
- Collection Economic accounts,
- Group Economic accounts – ESA79,
- Subject Gross domestic product indicators – ESA79,
- Table Gross domestic product (GDP) at NUTS level 2 – ESA79,
- Currency Millions of EURO (from 1.1.1999)/ Millions of ECU (up to 31.12.1998).

Data for the **GDP deflator** are taken from *NewCronos*:

- Theme 2\_Economy and Finance,
- Domain National accounts – Aggregates Annual data,
- Collection GDP and main aggregates,
- Table GDP and main components – Price indices,
- Indicator Gross domestic product at market prices (GDPmp) (N1).

Where **lacking**, data were **completed** using *NewCronos*

- Theme 2\_Economy and Finance,
- Domain National accounts historical data (ESA 79),
- Collection National accounts – Aggregates Annual data (ESA 79),
- Group ESA aggregates at current prices,
- Table ESA aggregates – value indices.

**Labour force data** have been taken from *NewCronos*:

- Theme 1\_General Statistics,
- Domain Regional statistics,
- Collection Community labour force survey,
- Table Active population by age and sex.

### 2.2.2. Reference Unit

The reference unit for the R&D expenditure database is the national currency – NAC.

The reference units for the R&D personnel database are full-time equivalent (FTE) and head count (HC).

- **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 counselling) should be counted as only 0.4 FTE.

- **Personnel in head count — HC**

Personnel in head count – HC: 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.

In this publication, HC data are used to calculate the more comparable derived indicator 'R&D personnel as a percentage of the labour force'.

### 2.2.3. Indicators

- **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 Eurozone countries appearing in tables quoted in national currencies, where the respective fixed national exchange rates have been applied, 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.

- **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 text are based on current purchasing power standards.

- **Current PPS**

Data quoted in current PPS are obtained by applying the average exchange rate for the year in question to the national currency value.

- **Constant 1995 PPS**

Data measured in constant 1995 PPS are first corrected for inflation using the GDP deflator – a Paasche index based on 1995 = 100 – of the country in question before applying the 1995 PPS exchange rate. The GDP deflator broadly correlates with the 1995 European System of Accounts (ESA 95) available on *NewCronos*, Theme 2. The adjusted GDP deflator provided for by ESA 79 was used in the case of incomplete series. In this case, it is important to take the normal precautions when interpreting the results.

- **GDP**

As with the GDP deflator, time series on GDP are built up using the two systems of European accounts. Where GDP data using ESA 95 were missing, the year on year growth rates of GDP in the ESA 79 system were applied retrospectively to the years for which data were missing in the ESA 95 national accounts database.

Two different sources are used: the GDP from Theme 2 – Economy and Finance – is used to calculate R&D intensity at national level whilst the GDP from Theme 1 – General Statistics – is used at regional level – please refer to the section on 'Sources'.

- **R&D personnel as a percentage of the labour force**

As recommended in Eurostat's *Regional Manual*, R&D personnel as a percentage of the labour force is calculated in head count. The labour force comprises all people aged 15 and over who are employed or unemployed but not inactive – inactive people are for example pupils, students, people in compulsory military service and retired people.

- **R&D intensity**

R&D intensity is calculated by relating R&D expenditure in current EUR to GDP.

- **EU totals**

EU totals are calculated as the sum of the country data by institutional sector for both R&D expenditure and personnel. If national data are missing, estimates are made for each country, year, institutional sector or R&D variable concerned.

This method is not applied to calculating R&D personnel in head count (HC).

At country level, estimates for the R&D personnel in full-time equivalent (FTE) serve as a basis for the HC calculation. For each country, institutional sector and year, an FTE/HC ratio is estimated on the basis of the personnel data available in both FTE and HC. This ratio is then applied to the FTE data, by country, sector and year, to calculate the missing HC data.

At EU level, an FTE/HC ratio is calculated, by year and by sector, on the basis of an average of the ratios estimated at country level.

The EEA aggregate does not include Liechtenstein.

### 2.2.4. Classifications

R&D data are built up using the guidelines laid out in the *Proposed standard practice for surveys of research and experimental development – Frascati Manual*, OECD, 1993, 2002.

## Institutional classifications

Internal 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: business enterprise, government, higher education and private non-profit institutions.

### The business enterprise sector — BES

With regard to R&D, the business enterprise sector includes — *Frascati Manual*, § 145:

- 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.
- The private non-profit institutes mainly serving them.

### The government sector — GOV

In the field of R&D, the government sector includes — *Frascati Manual*, § 168:

- 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);
- Non-profit institutes (NPIs) controlled and mainly financed by government.

### The higher education sector — HES

This sector is composed of — *Frascati Manual*, § 190:

- 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.

### The private non-profit sector — PNP

The fields covered by this sector include — *Frascati Manual*, § 178:

- Non-market, private non-profit institutions serving households (i.e. the general public);
- Private individuals or households.

With the exception of Portugal, the PNP sector accounts for less than 3 % of total R&D expenditure or personnel. For that reason, there are no tables compiled for the PNP. For some countries, the PNP is included in the GOV. This information can be found in the 'Country specific notes' section.

## 2.2.5. Time series

Eurostat's R&D database contains data from 1981 onwards, though availability differs according to country. Regional data start from 1985.

## 2.2.6. Geographical coverage

Data on R&D expenditure and R&D personnel are available for Austria, Belgium, Denmark, France, Finland, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden and the UK. For the USA, only data for researchers in FTE are available.

No R&D data exist for Liechtenstein and therefore EEA totals exclude Liechtenstein.

## 2.2.7. Reliability of the data

Because of national revisions, some of the data shown for intramural R&D expenditure deviate from the figures in previous issues of this publication. For R&D personnel, for instance, some figures which previously had to be estimated are now available from surveys, while for others it was possible to improve the estimation procedure (by using national conversion factors for the country in question). Even in the case of derived indicators, there are differences compared with previous issues where the values of reference parameters, such as the GDP deflator, have been revised.

## 2.2.8. Comparability of the data

Although the R&D expenditures and R&D personnel data are collected by surveys, which follow the guidelines and definitions outlined in the *Frascati manual* and the *Regional Manual*, the data are not completely comparable. Differences include interpretation of the definitions, different survey methodologies and peculiarities of national R&D systems.

R&D personnel problems occur mainly with calculations of full-time equivalent (FTE). In order to collect the FTE for certain employee groups such as R&D managers or graduate staff, the proportion of work undertaken on R&D has to be estimated for each individual, and the methods of estimation may differ from one country to another.

Particular attention should also be paid to the regional data. The collection of regional data is, in effect, faced with one major difficulty that could affect the comparability between regions and also give a distorted picture of regional R&D: measuring the R&D activity in the territorial unit where it is actually performed. This problem arises particularly in the business enterprise sector where, generally, the reporting unit is the legal entity. When R&D activity is not carried out at the territorial location of the reporting unit, the reporting unit might have problems in breaking down R&D expenditure and personnel over the different regions involved. According to the survey methods applied, the comparability of the data might be affected.

A second point concerns regional data and their comparability and relates to the availability of these data.

When presenting R&D activity at regional level, attention is mainly focused on the disparities between regions when it comes to R&D, and on regions, which are European research centres. Given that this type of analysis uses a classification by order of magnitude, it is important to remember that not all European regions are represented in all institutional sectors, nor for all the variables. The collection of regional data is in fact a difficult exercise that can put Member States under constraints that involve technical and political considerations as well as confidentiality. The classifications presented in *Part 1 – Analyses* should be read bearing this situation in mind.

Lastly, the reference indicator used to establish the ranking is the intensity of research (i.e. R&D expenditure in percentage of GDP) which has the advantage of taking into account the economic weight of each of the regions.

On a general level, some (national) peculiarities still have to be borne in mind when interpreting the tables, and the most important of these are indicated in the 'Country specific notes' section.

### 2.2.9. Availability of the data

The data used for the analyses of *R&D in Europe – Part 1* are those available in the third quarter of 2002. They may not correspond exactly with those in the tables in Part 3, or in Eurostat's *NewCronos* database, when these have been subsequently updated.

### 2.2.10. Country specific notes

#### For R&D expenditure

##### Belgium

The R&D expenditure of the *Centres Sectoriels de Recherche Collective*, a subsector of the business enterprise sector, could not be disaggregated at the regional level before 1994. It should also be noted that up until 1993, no figures were available for public undertakings in Belgium. However, from 1994 onwards, public enterprises are included in the BES.

##### Denmark

The delimitation of the government sector in Denmark does not agree entirely with the international methodological recommendations. Not all GOV data can be disaggregated to regions. Moreover, it should be noted that, in the BES, the figures for some regions of Denmark are combined with those of neighbouring regions for data protection reasons.

##### Germany

Because of German unification, there is a break in the time series between 1990 and 1991. In general, R&D expenditure is broken down in accordance with the location of employment of the R&D personnel. As an exception, the GOV data up until 1991 are broken down by the main location of the research institution. In 1992, a new survey framework, including additional survey units, was introduced in the GOV; therefore, there is another break in series between 1991 and 1992. The total of GOV expenditure includes R&D expenditure of German research institutions located abroad. From 1992 onwards, data for the PNP are included in the GOV. Not all data can be allocated to regions. Due to modifications to the survey method, there is a break in the HES series between 1994 and 1995.

##### Greece

An analysis of non-responses was introduced for the first time in 1999 in the business enterprise sector.

##### Spain

The survey unit in the business enterprise sector is the enterprise. If an enterprise has several establishments in at least two different regions, the intramural R&D expenditure of the enterprise is allocated to the regions concerned in accordance with the regional breakdown of the personnel. Only in 1986 was the R&D expenditure of enterprises allocated exclusively to the region in which the head office was situated. Part of the R&D expenditure in Spain cannot be disaggregated to the regional level. For the HES, from 1992 onwards the personnel costs of technicians and other staff are included, and the estimation procedure for other current and capital expenditure has been improved. Both these changes result in a break in the time series.

##### France

Due to the change of the legal status of *France Télécom* and *GIAT industries*, there is a break in the time series between 1991 and

1992, so that comparisons of the figures for the period before and after 1992 should be treated with caution. Not all of the intramural R&D expenditure – defence sector, some expenditure of the HES – can be disaggregated to the regional level.

##### Italy

There is a break in the time series for Italy between 1990 and 1991. Until 1990 the figures for BES and GOV represent the sum of intramural and extramural R&D expenditure, but from 1991 onwards only the intramural R&D expenditure. The pre-1991 data for Italy are thus only partly comparable with those of other countries. No data exist for the PNP sector in Italy.

##### Austria

Not all data can be disaggregated down to the regional level.

##### Portugal

The 1995 data have been revised. The revision of the data for 1995 is due to the fact that all the private non-profit institutes (PNP), which serve the BES have been reallocated to the BES. Data have thus been revised for the PNP and BES for R&D expenditure and R&D personnel.

##### Finland

Between 1990 and 1991, there is a break in the GOV and in the HES due to the inclusion of pension fees attached to salaries. PNP data are included in the GOV.

##### Sweden

The data of GOV and HES before 1997 refer to the fiscal year: July-June.

##### United Kingdom

Sufficiently reliable regional data can only be produced at the NUTS 1 level. The regional figures for the government sector are estimated on the basis of the data on R&D personnel in the individual regions. National Health Service R&D is included in GOV expenditure since 1995/96. In 1994, a new methodology was introduced in the BES to improve the collection of regional data; therefore, no direct comparisons can be made between data up to and including 1993 and from 1994 onwards. The new methods use grant income as a proxy for expenditure. The grants have been classified into three groups: 'research-oriented grants', 'teaching-oriented grants' and 'other grants'.

##### Ireland

The method of collecting data has been largely unchanged since 1995. Up until then, an exhaustive survey had been conducted on all institutional sectors. Since 1995, the methodology has changed for the BES sector, where the full census has been abandoned in favour of a sample survey of 1 000 enterprises chosen at random from a population of 4 to 5 thousand enterprises.

##### Norway

The regional breakdown is based on a national classification. PNP data is included in the GOV.

##### Japan

The data for Japan are taken from the OECD – *Main Science and Technology Indicators*.

## United States

The data for the USA are taken from the OECD – *Main Science and Technology Indicators*. The intramural R&D expenditure is slightly underestimated in comparison to the corresponding figures for other countries as the US methodology is slightly different from the international recommendations. In the business enterprise sector, for instance, depreciation is shown instead of the gross capital expenditure.

## For R&D personnel

### Belgium

See comments for R&D expenditure.

### Denmark

The delimitation of the government sector in Denmark does not correspond entirely with the international methodological recommendations. Some of the R&D personnel in the GOV cannot be allocated to the individual regions.

### Germany

See comments for R&D expenditure.

### Greece

Though there are no duplications in full-time equivalent, a small number exist in head count data since some non-permanent personnel may be occupied in more than one research institute.

Since 1999, there has been a breakdown by sex for R&D personnel in FTE and HC in the R&D survey.

### France

The national and the regional data on R&D personnel refer to the personnel 'remunerated by' the institutional sector. The total for all regions for the GOV and the HES (and hence the total of all sectors) thus differs from the values normally indicated for France as a whole. These data also differ from those in OECD publications – such as *Main Science and Technology Indicators* – where the national totals are indicated as 'working in the institution' even if the personnel is remunerated by another body.

Nor is it possible to break down all personnel data by region, particularly in the defence sector and for some personnel in the HES.

Due to the change of the legal status of *France Télécom* and *GIAT industries*, there is a methodological break in the time series between 1991 and 1992, so that comparisons of the figures for the period before and after 1992 should be made with caution.

### Ireland

No regional data are available for Ireland.

### Austria

Before 1995, no regional labour force data are available. This means that no percentages of R&D personnel in the total labour force can be calculated.

### Finland

There is a break in the series of the HES between 1990 and 1991 due to revised time budget coefficients. PNP data are included in the GOV.

## Sweden

Before 1995, no regional labour force data are available. This means that no indicator of R&D personnel in the total labour force can be calculated. Before 1997, the GOV data refer to the fiscal year (July to June). Before 1999, the HES data refer to the academic year (July to June). Not all data can be broken down by region.

## United Kingdom

See comments for R&D expenditure.

## Iceland

See comments for R&D expenditure.

## Norway

The regional breakdown is based on a national classification as there are no official NUTS categories for Norway. No regional labour force data are currently available. This means that no indicator of R&D personnel in the total labour force can be calculated. PNP data are included in the GOV.

## Japan

The data for Japan are taken from the OECD – *Main Science and Technology Indicators*.

After 1995, the data provided for R&D personnel are expressed in full-time equivalent and consequently the personnel costs are not overestimated as previously.

Up to and including 1995, data provided for R&D personnel and consequently labour cost data are overestimated by international standards. Data for researchers are expressed in number of persons regularly employed in R&D rather than in full-time equivalent. Studies by some Japanese authorities suggest that in order to calculate FTE, the number of researchers might be reduced by perhaps 40 % in the higher education sector and by about 30 % for the national total. That would reduce HERD by about 25 % and GERD by about 15 %. The OECD calculated, until 1998, the adjusted series for both expenditure and researchers for the higher education sector and the national total, and these data appear in the OECD publications *Main Science and Technology Indicators* and *Basic Science and Technology Statistics*, as well as various studies and analytical reports (1).

## United States

The data for the USA are taken from the OECD – *Main Science and Technology Indicators*.

(1) OECD, *R&D Sources and Methods Database*.



# Part 2 — Chapter 3

## Patents

Eurostat's patent database contains two collections of statistical data that describe the EU and US patenting systems respectively. Each collection originates from a different source and the methodologies used for processing the data are not the same.

These methodological notes are divided into three parts: Part 1 describes the general conceptual framework surrounding patent statistics. Part 2 focuses on Eurostat's patent applications to the EPO database and provides information on the sources, methods, variables, classifications, time series, geographical coverage, reliability and comparability of the data. Finally, Part 3 refers to the methodology applicable to the database on patents granted by the USPTO.

### 3.1. Patents as a S&T indicator — General information

Patents, as a legal instrument to protect invention, are strongly influenced by the legal system that surrounds them. The European patent framework in particular is rather complex, since national systems co-exist with the European patent and a third system, the Community patent, is currently under regulation. As a result of this, the process of patenting is not straightforward. This section aims to clarify the conceptual and legal frameworks in the field of patents, so as to facilitate understanding of the data contained in Eurostat's database and to provide some basic guidelines for the interpretation of patent data as an indicator of R&D output.

#### 3.1.1. What is a patent and what do indicators based on patents help to illustrate?

A patent is a legal title of industrial property granting its owner the exclusive right to exploit an invention commercially for a limited area and time. The patent confers its owner the right to stop others from, among other things, making, using or selling such invention without authorisation. In return for the exclusive right to exploit it, the technical details of the invention are published.

Technological change and innovation have become two main areas of economic analysis in the industrialised countries, as they are determining factors for the productivity and competitiveness of a nation. S&T activities are crucial for fostering technical innovation, and therefore there is an increasing interest for describing the countries' S&T activities in both quantitative and qualitative terms. In this context, S&T activities are mainly measured by using indirect input, output and impact indicators. It is in the framework of R&D output indicators that patent data are used.

Patentability requires novelty, inventiveness and industrial applicability of the invention. The assumption that a patent represents a codification of inventive activity is made on the basis of these three requirements. Through patent statistics one can see, not only part of a country's inventive activity, but also its capacity to exploit knowledge and to translate it into potential economic gains.

Although patents do not cover all kinds of innovation activity, they do account for a considerable part of it. However, patent

indicators should be complemented with other S&T indicators so as to obtain a complete view of the innovation activities of the countries and regions.

There are some good reasons that have made patents one of the most widely used source of data to construct indicators of inventive output. Patents have a close link to invention and cover a broad range of fields. Patent data are readily available from the various patent offices, containing very detailed information for a relatively long time series. Also, being closer to the time of invention, patent statistics can be more accurate than production or trade statistics, which may imply a greater time lag between actual innovation and commercialisation.

However, using patent indicators does also have several shortcomings. Not all inventions are patented and not all patents have the same value. Patent applications are influenced by the different national patent systems, which leads to differences in the propensity to patent across countries. But the propensity to patent varies also across firms and sectors; for example, industries such as aerospace make relatively little use of patents, whereas others such as chemistry and pharmaceuticals are heavy users of patents. Hence, patent statistics might be influenced by the country's industrial structure. A key factor influencing patenting statistics is the patentees' commercial strategy: if the owner of the invention wants to sell the new product on a given market, he will seek for patent protection in that market; if not, protection becomes less important. Consequently, patent applications are heavily influenced by trade flows.

In areas where technology changes rapidly, patent protection may be of little value because inventions quickly become obsolete and it takes a long time to grant a patent. Although patents cover a wide range of fields of technology, not all inventions can apply for patent protection; this is the case, for example, of computer software under the European Patent Convention (Article 52, paragraphs 2c and 3). Nonetheless, in February 2002, the European Commission submitted a proposal for a directive on the patentability of computer-implemented inventions <sup>(1)</sup>. In the context of the directive, computer software as such is excluded from patentability. In order to be patentable, the proposal requires that the invention implemented through the execution of software on a computer or similar apparatus, makes a contribution in a technical field that is not obvious to a person of normal skill in that field. Thus in Europe, unlike in the US, computer software will continue being protected by copyrights.

On the other hand, patent statistics have shown to be problematic for world-wide comparisons. This is because patent statistics are heavily influenced by the legal environment that is being taken into consideration. That is, the host country tends to be domineering due to a potential 'home advantage' effect.

In order to overcome comparability problems, the OECD has developed the concept of 'patent family'. A patent family is defined as a set of patents taken in various countries for protecting a single invention. The OECD collects data for the so

<sup>(1)</sup> Proposal for a directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, European Commission, Brussels, 20/02/2002, COM(2002)92 final.

called 'triadic families', i.e. a patent is a member of the patent families if and only if it is filed at the European Patent Office – EPO, the Japanese Patent Office – JPO – and is granted by the United States Patent and Trademark Office – USPTO <sup>(2)</sup>. The OECD is still conducting research for improving the methodology in the field. One of the aspects for improvement is the fact that, at present, its database does not fully reflect the true patenting activities in Europe – see section below, as it does not take the patents in the national offices of the EU Member States into account. As for the the Patent Co-operation Treaty – PCT and USPTO procedures for granting applications, it may take around five years until information is made available, patents counted by priority date pose a problem in terms of timeliness. As a result, another aspect under study is a method for forecasting patent families that should allow for more up-to-date statistics.

### 3.1.2. Patent systems in Europe

In the European Union, patent protection is currently provided by two systems: the European patent system and the national patent systems. The former is regulated by the Munich convention adopted in 1973, whereas national patent systems are defined by national laws. Patent protection in Europe can also be obtained via PCT, by filing the application at the World Intellectual Property Organisation – WIPO – and designating a European country or the EPO for protection.

In addition to the existing systems, the European Union is now willing to implement the 1975 Luxembourg agreement on the Community patent. After various attempts of implementation using international tools, the European Commission proposed a council regulation on the Community patent in 2000. Should this regulation be approved, a third system will enter into force: the Community patent system, which aims to establish a unitary and autonomous patent system for the entire European Union, coexisting with the actual European and national patent systems.

#### European Patent Convention Munich Convention

The *European Patent Convention* was signed in Munich in October 1973 and entered into force on 1 June 1978. The *Munich Convention* establishes a uniform patenting system for all countries signatory to the Convention, providing applicants with protection in as many of the signatory states as they wish on the basis of a single patent application and a single grant procedure <sup>(3)</sup>. Once granted, the European patent is protected under the national

law in each of the countries designated in the application. The *Munich Convention* created the European Patent Organisation – the legislative body – and the European Patent Office – the executive body <sup>(4)</sup>, establishing a centralised procedure for granting European patents.

At present, 27 countries have ratified the Convention: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Germany, Finland, France, Greece, Hungary, Italy, Ireland, Liechtenstein, Luxembourg, Monaco, the Netherlands, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey and the UK. European patent applications and patents can also be extended to countries signing agreements to that effect with the European Patent Organisation. The extension states at present are Albania, Latvia, Lithuania and the former Yugoslav Republic of Macedonia.

Although applying for a European patent is cheaper than applying for the patent in each of the National offices where protection is desired, its cost is still considerably higher than in Japan or the US. Recent figures published on the proposal for a regulation on the Community patent reveal that the cost of a European patent is three to five times higher than that of the American or Japanese one. The Commission estimated that whilst the overall cost of an European patent, including translation costs and other fees, is around EUR 49 900, Japanese and US patents cost on average EUR 16 450 and EUR 10 330 respectively <sup>(5)</sup>.

#### National patent systems

Each European country has its own national patent office, which grants patents that protect their owner within the national territory. These patents are awarded by the corresponding national authority and are ruled by national law. However, the national patent laws of all the Member States of the European Union have been de facto harmonised, as all the Member States are parties of the *Paris Convention* for the Protection of Industrial Property, the *European Patent Convention* and the *Agreement of Trade Related Aspects of Intellectual property Rights* – TRIPS agreement.

#### Patent Cooperation Treaty — PCT

The Patent Co-operation Treaty was signed in Washington on 19 June 1970 and came into force on 1 June 1978. The PCT allows for a filing of an international application to have the same effect as a national application in each of the contracting countries designated in the application. All the PCT applications are centralised through the World Intellectual Property Organisation – WIPO. At present, one hundred and seventy-nine States are members of the WIPO <sup>(6)</sup>, and therefore any applicant can designate for protection in all these states or a in a regional office such as the EPO. In the cases were the EPO is designated, the patent is known as a Euro-PCT patent <sup>(7)</sup>.

#### The Community patent

The Community Patent has its origins in the *Luxembourg convention* signed on 15 December 1975. Although the Convention was amended by an agreement in 1989 <sup>(8)</sup>, the *Luxembourg Convention* has not yet entered into force, since only France, Germany, Greece, Denmark, Luxembourg, the United Kingdom and the Netherlands have ratified the Convention. In view of the lack of effectiveness of the international convention and the discussions of the European Council in Lisbon in March 2000, where the importance of introducing a Community patent without delay was underlined, the European Commission proposed a Council regulation on the Community patent in August 2000 <sup>(9)</sup>.

<sup>(2)</sup> For further information on this subject see *Main Science and Technology Indicators*, Volume 2001/2, OECD, Paris, 2001. P 65.

<sup>(3)</sup> It takes on average just over four years for a patent to be granted. For further information on the European patent granting procedure see methodological notes in Eurostat's reference database *NewCronos* Theme 9, Domain Patents.

<sup>(4)</sup> See the European Patent Office's (EPO) web site at: <http://www.european-patent-office.org/>.

<sup>(5)</sup> See Proposal for a Council Regulation of the Community patent, Commission of the European Communities, Brussels 1.8.2000, COM(2000)412 final.

<sup>(6)</sup> See the list of members at <http://www.wipo.org/members/members/index.html>.

<sup>(7)</sup> For further information on the WIPO's patent granting procedure see methodological notes in Eurostat's reference database *NewCronos*, Theme 9, Domain Patents.

<sup>(8)</sup> Agreement relating to Community Patents, Luxembourg, 15 December 1989, Official Journal, N. L 401, 30.12.1989, p.1.

<sup>(9)</sup> Commission of the European Communities, Proposal for a Council Regulation on the Community Patent, Brussels 1.8.2000, COM(2000)412 final.



The difference between the council regulation and the Convention is that once approved, the regulation will be directly applicable to all the Member States, and therefore the Community patent system will enter into force. Also, the regulation tries to overcome the problems that have arisen in the context of the Convention (especially costs and jurisdiction). In this framework, the regulation proposes a Community patent characterised by unity and autonomy that arises from a body of Community patent law, affordable, with appropriate language arrangements and information requirements and that guarantees legal certainty. The Community patent system shall coexist with the national patent systems and the European patent system.

However, the proposal has not been approved yet. In the European Council meeting in Barcelona on 15 and 16 March 2002, the European Council reaffirmed the importance of the Community Patent and invited the Council to reach a common political approach. It was also stressed that the Community Patent must be an efficient and flexible instrument obtainable by businesses at an affordable cost, while complying with the principles of legal certainty and non-discrimination between Member States and ensuring a high level of quality.

The complex framework described above shows that invention owners are provided with multiple possibilities to protect themselves in Europe. Usually, a patent application is initially filed with the national patent office of the country in which the inventor's laboratory or company is located. The patent application is then provisionally protected until examination of the application is complete and the patent is either granted, rejected or withdrawn.

For various reasons, it could also be worthwhile to apply for patent protection in other countries. Within one year, the same invention can also be filed in other countries. This can either be done by filing a patent application in each desired country, by filing a regional application, e.g. with the EPO, for a number of European countries (based on the European Patent Convention), or by filing an international application under the Patent Co-operation Treaty. Besides the possibilities outlined above, direct filing for several countries either under the PCT-route or with the EPO (Euro-direct application) is also possible. In all cases, the protection starts from the date of first filing (priority date). In addition, inventors that are seeking protection outside Europe, can also apply for patents in other offices, such as the United States Patent and Trademark Office – USPTO – and the Japanese Patent Office – JPO.

## 3.2. Patent applications to the EPO — Sources and methods

### 3.2.1. Sources

The data contained in Eurostat's patent applications to the EPO database are an extraction from the database of the European Patent Office – EPO. This database excludes patent applications directly made to the National Patent Offices of the European Member States, the USPTO or the JPO.

Although EPO data alone do not give a complete view of the patenting activities in Europe, using data from the EPO guarantees the comparability of the data, as all applications filed with the European Patent Office follow the harmonised procedure of the European Patent Convention. When undertaking international assessments, one has to take into account that the figures may show higher values for the European countries compared to the US or Japan, as they may enjoy 'home advantage'. Nevertheless, the home advantage for the European countries at the EPO may not be

as strong as it is for the US or Japan at their respective offices. This is because Europeans face more complicated and expensive options when applying for a patent in Europe (i.e. they may apply first at the national patent office and after at the European Patent Office, and within the EPO, each additional country required for protection will imply additional fees and translation costs) compared to the US residents or the Japanese, who only need to apply for one patent to obtain protection in their entire national territory.

**Data on employment and population** used for the derived indicators have been obtained from Eurostat's reference database *NewCronos*. More specifically, labour force data to construct the derived indicator 'patents per million labour force' have been taken from the following sources:

For **labour force** data at the **national** level the source is:

- Theme 3\_Population and social conditions,
- Domain LFS,
- Collection Working population,
- Table Active population by age group and marital status.

For **labour force** data at the **regional** level the source is:

- Theme 1\_General Statistics,
- Domain Regional statistics,
- Collection Community labour force survey,
- Table Active population by age and sex.

**Population data** to construct the derived indicator 'patents per million inhabitants' have been extracted from the following sources:

For **population** data at the **national** level the source is:

- Theme 3\_Population and social conditions,
- Domain Demography,
- Collection Population,
- Table Population by sex and age on 1st January of each year.

For **population** data at the **regional** level the source is:

- Theme 1\_General Statistics,
- Domain Regional statistics,
- Collection Demographic statistics,
- Table Population on 1st January by sex and age group, from 1980.

When not available in *NewCronos*, reference data have been obtained from the *Main Science and Technology Indicators* – MSTI, except for Norway, for which regional population data have been obtained from the statistics Norway database:

<http://www.sbs.no>.

### 3.2.2. Reference Unit

The reference unit for this database is patent applications.

Although not all applications are granted, each application still represents technical effort by the inventor and therefore patent applications are considered to be an appropriate indicator of inventive potential. On the other hand, it takes on average just over four years for a patent to be granted at the EPO. In an effort to provide timely data, therefore, patent applications are chosen over patents granted.

### 3.2.3. Criteria to count patents

Different criteria can be chosen to count patents. Depending on the options made, the obtained indicators will have different value and different meaning. The criteria used by Eurostat for the data extraction from the EPO database refer especially to the regional potential for innovation, which are not necessarily the same as the criteria used by the EPO for its own use. Therefore, the national totals of European patent applications presented in this source may be somewhat different from those presented in the EPO's annual report.

Eurostat counts patent applications to the EPO according to the following criteria:

- **Type of patents covered**

Patent applications to the EPO include applications filed directly under the European Patent Convention and applications filed under the Patent Co-operation Treaty which designate the EPO for protection (Euro-PCT).

- **Reference year**

Patent applications to the EPO are counted according to the year in which they were filed at the EPO, since this is closer to the date invention than the year in which they were published. Although the closest date to invention is the priority year, i.e. the year in which the patent was first applied for at any patent office, no complete data are available for the most recent years. In an effort to provide timely and comprehensive data therefore, year of filing has been chosen over year of priority.

- **Geographical assignment of the patent**

To get an indication of the regional potential for innovation within the EU, the regional distribution of the patent applications is assigned according to the address of the inventor, i.e. the inventor's place of residence. This approach follows the methodological recommendations as given in *The Regional Dimension of R&D and Innovation Statistics – Regional Manual*, European Commission, 1996.

The assignment by the inventor's place of residence has been chosen in order to measure the inventive capacity of a region in contrast to the regional R&D performance. The regional R&D performance could be indicated by allocating the patents to the region of the institution in which R&D is performed and where inventions are developed. However, for institutions with several branches located in different regions, patent applications are generally filed through the headquarters and, therefore, an overestimation in favour of the region of the headquarters could be expected. The approach used here avoids this. However, some underestimation of the regional potential of innovation is still possible as not every inventor will register under the address where he/she is resident but rather the address of his/her enterprise or institution.

If one application has more than one inventor, the application is divided equally among all of them and subsequently among their regions, avoiding thus double counting. This might lead to some over- or underestimation of some regions as the different contributions of several inventors may not have the same weight.

- **Assignment to the IPC codes**

If a patent is assigned to more than one IPC code, the application is equally divided among all the IPC-subclasses (fractional counting). This approach avoids double counting – See further information on the IPC classification below.

### 3.2.4. Indicators

Data in this database are available only for one statistical variable, i.e. patent applications to the EPO. Then, on the basis of the number of patent applications, Eurostat calculates patent applications per million labour force and patent applications per million inhabitants.

Based on the data on patent applications, Eurostat also calculates data on patent applications in high technology fields. High tech patents are counted following the criteria established by the Trilateral Statistical Report, where the subsequent technical fields are defined as high technology: Computer and automated business equipment; micro-organism and genetic engineering; aviation; communications technology; semiconductors; lasers. The IPC subclasses corresponding to the above high tech fields are listed in the following table.

#### ~~IPC subclasses considered as high technology by high tech group~~

#### IPC

##### sub-class Definition

##### Computer and automated business equipment

- B41J Typewriters; selective printing mechanisms, i.e. Mechanisms printing otherwise than from a forme; correction of typographical errors,
- G06C Digital computers in which all the computation is effected mechanically,
- G06D Digital fluid-pressure computing devices,
- G06E Optical computing devices,
- G06F Electric digital data processing,
- G06G Analogue computers,
- G06J Hybrid computing arrangements,
- G06K Recognition of data; presentation of data; record carriers; handling record carriers,
- G06M Counting mechanisms; counting of objects not otherwise provided for,
- G06N Computer systems based on specific computational models,
- G06T Image data processing or generation, in general
- G11C Static stores.

##### Aviation

- B64B Lighter-than-air aircraft,
- B64C Aeroplanes; helicopters,
- B64D Equipment for fitting in or to aircraft; flying suits; parachutes; arrangements or mounting of power plants or propulsion transmissions,
- B64F Ground or aircraft-carrier-deck installations,
- B64G Cosmonautics; vehicles or equipment therefor.

##### Micro-organism and genetic engineering

- C12M Apparatus for enzymology or microbiology,
- C12N Micro-organisms or enzymes; compositions thereof; propagating, preserving or maintaining micro-organisms; mutation or genetic engineering; culture media,
- C12P Fermentation or enzyme-using processes to synthesise a desired chemical compound or composition or to separate optical isomers from a racemic mixture,
- C12Q Measuring or testing processes involving enzymes or micro-organisms ; compositions or test papers therefore; processes of preparing such compositions; condition-responsive control in microbiological or enzymological processes.

**Lasers**

- H01S Devices using stimulated emission.

**Semiconductors**

- H01L Semiconductor devices; electric solid state devices not otherwise provided for.

**Communication technology**

- H04B Transmission,
- H04H Broadcast communication,
- H04J Multiplex communication,
- H04K Secret communication; jamming of communication,
- H04L Transmission of digital information, e.g. Telegraphic communication,
- H04M Telephonic communication,
- H04N Pictorial communication, e.g. Television,
- H04Q Selecting,
- H04R Loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers; deaf-aid sets; public address systems,
- H04S Stereophonic systems.

**3.2.5. Classifications**

The main classifications used in the patent database are the International Patent Classification – IPC – and the *Nomenclature of Territorial Units for Statistics* – NUTS.

**International Patent Classification — IPC**

The International Patent Classification – IPC – is based on an international multilateral treaty<sup>(10)</sup> administered by the World Intellectual Property Organisation – WIPO. The IPC is used by the industrial property offices of more than 100 States, four regional offices and the International Bureau of WIPO.

According to the IPC classification, an invention is assigned to an IPC-class by its function or intrinsic nature, or by its field of application. IPC is therefore a combined function-application classification system in which the function takes precedence. A patent may contain several technical objects and therefore be designated to several IPC-classes. The IPC is structured into sections, classes, sub-classes, groups and sub-groups. In its seventh edition, the IPC divides technology into eight sections with approximately 69 000 sub-divisions<sup>(11)</sup>. Data are given by IPC section and class at the national level and by section at the regional level. However, data are treated at the subclass level.

**Nomenclature of Territorial Units for Statistics — NUTS**

Originally assigned by postal code at the EPO, patent data are regionalised by Eurostat according to the *Nomenclature of Territorial Units for Statistics* – NUTS. This nomenclature was established by Eurostat to provide a single uniform breakdown of territorial units for the production of regional statistics for the EU. The most detailed regional level data available is at NUTS level 3<sup>(12)</sup>. Data in Chapter 3 of Part 1 are analysed at the NUTS 2 level.

EEA regions correspond to the statistical territorial units proposed by Eurostat in statistical regions in the EFTA countries and the Candidate Countries (CC), Eurostat, November 2002.

**3.2.6. Time series**

Eurostat's patent database contains data from 1989 onwards. It should be noticed that for the PCT applications, the data on the country of residence of the applicant(s) and/or the inventor(s) is imputed into the EPO database only after their international publication. This means that these patent applications can only be ascribed to a country or region at least 18 months after the priority date – year in which the patent was first applied for at any patent office. Therefore provisional data may underestimate the real number of patent applications filed the n-1 year.

**3.2.7. Geographical coverage**

Data on patent applications to the EPO at the national level are available for Austria, Belgium, Bulgaria, Canada, Cyprus, the Czech Republic, Denmark, Estonia, France, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Slovakia, Slovenia, Spain, Sweden, Turkey, UK and US. Aggregates for EU-15, Eurozone12, EEA and ACC are also available.

Data at the regional level are available for all the Member States of the European Union plus Iceland, Liechtenstein and Norway. Data are available at the NUTS 1, 2 and 3 levels.

When data for any of these regions or countries mentioned above do not appear in the database, it means that the value corresponding to that country or region is equal to a real zero. This is because countries or regions only enter the database once they have applied for a patent to the EPO.

<sup>(10)</sup> The Strasbourg Agreement Concerning the International Patent Classification, which was concluded in 1971 and entered into force in 1975.

<sup>(11)</sup> For further detail on the IPC classification visit the WIPO web site: <http://www.wipo.int>.

<sup>(12)</sup> For further details refer to *Regions, Nomenclature Territorial Units for Statistics NUTS*, Eurostat, 1998.

### 3.2.8. Reliability of the data

The data contained in this database are reliable in terms of patenting activities in the framework of the EPO. However, as an indicator of innovative potential of the countries and regions, one has to bear in mind that these data refer only to patent applications to the European Patent Office and that therefore patent applications to the National Patent Offices in Europe are excluded. In this context, some authors <sup>(13)</sup> sustain that looking only at data on patent applications to the EPO may provide an underestimation of the real scope of innovative activities in the European Union.

In the original data received by Eurostat, some patents do not have a postcode assigned, therefore during the regionalisation process these patents are included in a 'Not registered by region' NUTS category. The country total is therefore the sum of all the regions at the NUTS 3 level and the 'Not registered by region' group. In any case, the percentage of not regionalised patents is rather small, for example in 2000 the highest percentage of non regionalised patents in the EU was 1.92 % for the UK.

### 3.2.9. Comparability of the data

#### Comparability between years and countries

The European Patent Office follows the harmonised procedure established by the European Patent Convention. As all the data contained in this database originate from the EPO database, comparability of the data is guaranteed both for a cross-country as well as a time series analysis.

#### Comparability with other sources

The patent applications in this database are counted according to specific criteria designed to measure innovative potential and therefore are not comparable with other sources that use different methods to build up the indicators. This is the case, for example, of the EPO's annual report or the patents granted by the USPTO database.

### 3.2.10. Availability of the data

The data used for the analyses of *R&D in Europe – Part 1* are those available in the third quarter of 2002. They may not correspond exactly with those in the tables in Part 3, or in Eurostat's *NewCronos* database, when these have been subsequently updated.

<sup>(13)</sup> Paul Schwander, *Lies, damned lies, and statistics – Is European innovation really lagging its competitors?*, 2001, [http://www.ipmatters.net/statistics/001113\\_lies.html](http://www.ipmatters.net/statistics/001113_lies.html).

## 3.3. Patents granted by the USPTO — Source and methods

### 3.3.1. Source

Data on patents granted by the USPTO have been extracted from the USPTO's database and treated by the Fraunhofer ISI – FhG-ISI – for the European Commission, DG Research.

Please notice that in this database the US is expected to be domineering as figures may be affected by a home advantage effect.

### 3.3.2. Reference unit

The reference unit for this database is the patent granted.

### 3.3.3. Criteria to count patents

The methodology used by the FhG-ISI is not harmonised with that of Eurostat and therefore comparisons across the two databases should be interpreted with caution.

USPTO data refer to patents granted as opposed to applications, which is the case of EPO data. Data are recorded by year of publication as opposed to the year of filing for EPO data. This is because patents in the US are only published once they are granted.

As it is done with the EPO data, patents are allocated to the country of inventor, using fractional counting in the case of multiple inventors.

### 3.3.4. Indicators

Data in this database are available only for one statistical variable, i.e. number of patents granted by the USPTO. Data are also available for patents granted per million inhabitants.

### 3.3.5. Time series

The patents granted by the USPTO database contains data from 1991 onwards.

### 3.3.6. Geographical coverage

Data on patents granted by the USPTO are available for the EEA countries, Candidate countries, Argentina, Australia, Brazil, Canada, Chile, China (excluding Hong Kong), Hong Kong (CN), India, Indonesia, Israel, Japan, Korea (Republic of), Malaysia, Mexico, New Zealand, Pakistan, Philippines, Russian Federation, South Africa, Singapore, Taiwan, Thailand, Ukraine, USA, and Venezuela.

For further information on patents granted by the USPTO:

See *Towards a European Research Area. Key Figures 2001 – Special edition. Indicators for benchmarking of national research policies*, DG RTD, 2001.



# Statistics on science and technology

**Data 1991-2001**

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## Part B



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# PART 3

# DATA



**Table 1A**

**Total Government budget appropriations or outlays on R&D**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>52 810 s</b>	<b>53 228 s</b>	<b>52 937 s</b>	<b>52 591 s</b>	<b>53 747 s</b>	<b>55 128 s</b>	<b>55 378 s</b>	<b>59 472 s</b>	<b>59 115 s</b>	<b>64 035 s</b>	<b>67 333 s</b>
EUR-12	41 734	43 173	42 762	42 568	43 356 s	43 933	44 367	45 423	46 734	50 343 s	53 107 s
CEC	1 646	1 762	2 047 b	2 028	2 293	2 591	2 664	2 562	2 441 p	.	.
B	307	310	334	1 018	1 063	1 141	1 221	1 208	1 332	1 423	1 433 pr
DK	6 253	6 263 b	6 751	6 308	7 156	7 573 p	8 066	8 580	9 045	8 861 p	.
D	15 067	15 003	16 045	15 315	16 177 b	16 461	16 003	16 017	16 322	16 253	16 973 pr
EL	100	103	126	150	230	263	294	303	349	420	392 p
E	1 736	1 349	1 339	1 908	2 125	2 196	2 442	2 949	3 323	4 137 p	.
F	14 193	13 779	13 634	13 640	13 193 b	13 105	12 557	12 703	12 302	13 342 r	14 561 p
IRL	113	126	139 r	130 r	163 r	190 r	195 r	209 r	249 r	319 r	373 p
I	5 565	6 233	5 559	5 321	5 663 p	5 710	6 222	6 137	6 079	7 657	8 441 p
NL	2 114	2 171	2 173	2 200	2 237	2 424	2 633	2 315	2 332	2 951 p	3 360
A	331	349	1 039	1 152	1 150	1 124	1 133	1 203 r	1 231 r	1 237	1 400 pr
P	224	312	334	339	364	436	477	541	644	713	773 p
FIN	300	340	331	337 b	330	330	1 134	1 250	1 275	1 291	1 350 p
S (1)	13 374 b	13 465 b	13 769	13 493	19 573 be	19 573 e	.	15 367	15 191	15 314 p	19 141 p
UK	4 995	5 044	5 337	5 200	5 575	5 759	5 392	5 707	6 175	6 510	6 370 p
<b>EEA</b>	<b>53 473 s</b>	<b>54 379 s</b>	<b>53 934 s</b>	<b>53 499 s</b>	<b>54 702 s</b>	<b>56 130 s</b>	<b>56 939 s</b>	<b>57 559 s</b>	<b>60 319 s</b>	<b>65 393 s</b>	<b>69 733 ps</b>
IS	2 270 i	1 353	3 046	3 337	3 727	3 314	3 695	5 072	3 714	3 973	7 977 p
NO	6 663	7 462	7 543	7 573	7 566	7 939	8 276	8 663	9 069 r	9 651 r	10 220 r
JP	2 022 632	2 134 877	2 266 266	2 353 474	2 499 550	2 310 452	3 002 610	3 032 179	3 156 723	3 234 320	3 463 512
US	65 397	63 393	69 335	63 331	63 791	69 049	71 653	73 569	77 637	73 664	86 756

**Table 1B**

**Government budget appropriations or outlays on civil R&D**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>41 352 s</b>	<b>43 304 s</b>	<b>42 835 s</b>	<b>42 391 s</b>	<b>44 572 s</b>	<b>45 359 s</b>	<b>48 579 s</b>	<b>47 751 s</b>	<b>50 937 s</b>	<b>54 374 s</b>	<b>58 322 s</b>
EUR-12	34 126	36 355	36 052	35 910	37 099 s	37 929	38 799	39 909	41 453	44 633 s	46 800 s
CEC	1 646	1 762	2 047 b	2 028	2 293	2 591	2 664	2 562	2 441 p	.	.
B	304	303	332	1 014	1 069	1 136	1 214	1 239	1 377	1 419	1 494 pr
DK	6 217	6 233 b	6 716	6 273	7 120	7 539 p	8 030	8 512	8 993	8 810 p	.
D	13 404	14 307	14 673	14 461	14 712 b	14 323	14 477	14 614	14 953	14 936	15 764 pr
EL	99	101	124	143	227	259	290	299	346	413	391 p
E	1 434	1 376	1 306	1 700	1 900	1 953	1 964	2 095	2 472	2 923 p	.
F	9 076	8 376	9 032	9 130	9 233 b	9 208	9 394	9 733	9 960	10 879 r	11 178 p
IRL	113	126	139 r	130 r	163 r	190 r	195 r	209 r	249 r	319 r	373 p
I	5 125	5 793	5 034	4 349	5 159 p	5 536	5 947	5 974	6 003	7 593	8 101 p
NL	2 041	2 092	2 100	2 125	2 214	2 347	2 543	2 720	2 910	2 375 p	3 313
A	331	349	1 039	1 152	1 150	1 124	1 133	1 203 r	1 231 r	1 237	1 400 pr
P	222	310	333	334	359	430	470	534	633	706	763 p
FIN	283	327	333	333 b	311	320	1 166	1 233	1 253	1 274	1 329 p
S (1)	13 364 b	13 373 b	14 330	15 001	15 439 bs	15 439 e	.	14 235	14 074	14 633 p	16 341 p
UK	2 736	2 974	3 097	3 179	3 564	3 616	3 530	3 603	3 323	4 126	4 473 p
<b>EEA</b>	<b>42 193 s</b>	<b>44 208 s</b>	<b>43 731 s</b>	<b>43 739 s</b>	<b>45 478 bs</b>	<b>46 317 s</b>	<b>47 534 s</b>	<b>48 732 s</b>	<b>51 232 s</b>	<b>55 827 s</b>	<b>59 209 s</b>
IS	2 270 i	1 353	3 046	3 337	3 727	3 314	3 695	5 072	3 714	3 973	7 977 p
NO	6 257	7 043	7 129	7 149	7 125	7 432	7 320	8 135	8 574 r	9 166	9 599 r
JP	1 907 537	2 007 633	2 129 091	2 217 636	2 345 061	2 145 174	2 827 272	2 833 004	3 010 197	3 143 239	3 319 524
US	26 669	23 315	23 636	20 567	21 537	31 243	32 061	33 744	36 332	36 034	41 043

**Methodological notes**

i: Total includes data not broken down by NABS.

(1) Data are provided as provisional series by Sweden. No data are provided as final. As a result, after two years, provisional data are considered as final. See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 2**  
**Government R&D appropriations**

In millions EUR  
At current prices and current exchange rates

**Table 2A**

**Total Government budget appropriations or outlays on R&D**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>52 810</b>	<b>53 228</b>	<b>52 987</b>	<b>52 590</b>	<b>53 747 s</b>	<b>55 128 s</b>	<b>55 878 s</b>	<b>59 472</b>	<b>59 115</b>	<b>64 035 s</b>	<b>67 383 s</b>
EUR-12	42 233	43 372	43 266	42 924	43 946 s	44 720	44 266	45 171	46 200	50 343 s	53 107 s
CEC	1 646	1 762	2 047 b	2 028	2 293	2 591	2 664	2 562	2 441 p	.	.
B	367	332	390	1 033	1 113	1 172	1 215	1 237	1 332	1 423	1 433 pr
DK	791	764 b	757	336	376	1 029 p	1 073	1 141	1 216	1 139 p	.
D	14 360	15 395	16 206	16 072	16 336 b	16 360	15 940	15 909	16 322	16 253	16 973 pr
EL	152	142	160	173	259	293	324	312	366	420	392 p
E	2 313	2 321	2 052	1 993	2 169	2 273	2 449	2 935	3 323	4 137	.
F	13 366	13 197	13 432	13 592	13 262 b	13 239	12 456	12 623	12 392	13 342 r	14 561 p
IRL	116	130	137 r	129 r	162 r	133 r	208 r	209 r	249 r	319 r	373 p
I	7 023	7 564	5 245	5 320	5 133 p	5 644	6 244	6 114	6 079	7 657	8 441 p
NL	2 016	2 103	2 207	2 243	2 402	2 497	2 624	2 795	2 932	2 951	3 269
A	340	319	1 049	1 171	1 201	1 151	1 123	1 203 r	1 231 r	1 237	1 400 pr
P	251	363	355	345	372	446	431	533	644	713	773 p
FIN	951	360	732	352 b	939	933	1 197	1 242	1 275	1 291	1 360 p
S (1)	2 457 b	2 451 b	2 053	2 013	2 083 be	2 299 e	.	1 722	1 725	1 373 p	2 063 p
UK	7 125	6 333	6 906	6 702	6 726	7 077	3 511	3 437	3 374	10 631	11 019 P
<b>EEA</b>	<b>53 473</b>	<b>54 379</b>	<b>53 934</b>	<b>53 499</b>	<b>54 702 s</b>	<b>56 139 s</b>	<b>56 939 s</b>	<b>57 559</b>	<b>60 319</b>	<b>65 993 s</b>	<b>69 733 s</b>
IS	31 i	25	33	41	44	45	46	64	113	124	91 p
NO	332	323	303	304	312	369	1 032	1 023	1 090 r	1 190 r	1 261 r
JP	12 143	12 999	17 413	19 440	20 320	20 333	21 906	20 709	26 020	33 017	31 914 s
US	53 179	52 691	59 630	57 444	52 592	54 330	63 133	66 621	72 345 s	85 170 s	98 366 s

**Table 2B**

**Government budget appropriations or outlays on civil R&D**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>41 352</b>	<b>43 394</b>	<b>42 835</b>	<b>42 891</b>	<b>44 571 s</b>	<b>45 359 s</b>	<b>46 579 s</b>	<b>47 751</b>	<b>50 937</b>	<b>54 374 s</b>	<b>58 922 s</b>
EUR-12	34 306	36 669	36 637	36 326	37 641 s	38 572	38 726	39 636	41 469	44 633 s	46 300 s
CEC	1 646	1 762	2 047 b	2 028	2 293	2 591	2 664	2 562	2 441 p	.	.
B	355	330	333	1 031	1 103	1 166	1 203	1 231	1 377	1 419	1 494 pr
DK	736	760 b	753	332	372	1 029 p	1 073	1 135	1 210	1 132 p	.
D	12 733	13 361	14 326	14 696	15 336 b	15 132	14 414	14 516	14 953	14 936	15 764 pr
EL	150	140	157	175	256	299	320	303	362	413	391 p
E	1 922	1 979	1 792	1 730	1 942	2 026	1 969	2 065	2 472	2 923 p	.
F	3 537	3 502	3 991	3 993	3 236 b	3 302	3 319	3 672	3 930	10 379 r	11 178 p
IRL	116	130	137 r	129 r	162 r	133 r	208 r	209 r	249 r	319 r	373 p
I	6 472	7 030	5 347	4 903	4 690 p	5 471	5 969	5 951	6 003	7 593	8 101 p
NL	1 946	2 027	2 129	2 170	2 324	2 417	2 540	2 700	2 910	2 875 p	3 313
A	340	319	1 049	1 171	1 201	1 151	1 123	1 203 r	1 231 r	1 237	1 400 pr
P	249	365	354	340	367	441	475	531	633	706	763 p
FIN	937	347	766	334 b	949	933	1 179	1 225	1 253	1 274	1 329 p
S (1)	1 735 b	1 365 b	1 574	1 637	1 680 be	1 819 e	.	1 597	1 593	1 739 p	1 766 p
UK	3 974	4 031	3 971	4 097	4 300	4 443	5 172	5 334	5 311	6 769	7 174 p
<b>EEA</b>	<b>42 193</b>	<b>44 208</b>	<b>43 731</b>	<b>43 739</b>	<b>45 478 s</b>	<b>46 317 s</b>	<b>47 534 s</b>	<b>48 732</b>	<b>51 232</b>	<b>55 927 s</b>	<b>59 209 s</b>
IS	31 i	25	33	41	44	45	46	64	113	124	91 p
NO	730	376	353	354	360	313	375	367	1 032 r	1 130	1 133 pr
JP	11 457	12 225	16 359	13 279	19 064	19 156	20 625	19 725	24 313	31 649	30 543 s
US	21 441	21 313	24 454	25 697	24 149	24 610	28 271	30 101 s	32 407 s	33 357 s	44 433 s

**Methodological notes**

i: Total includes data not broken down by NABS.

(1) Data are provided as provisional series by Sweden. No data are provided as final. As a result, after two years, provisional data are considered as final. See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 3A**

**Total Government budget appropriations or outlays on R&D**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>55 448 s</b>	<b>55 172 s</b>	<b>53 435 s</b>	<b>51 783 s</b>	<b>52 020 s</b>	<b>51 237 s</b>	<b>50 001 s</b>	<b>51 514 s</b>	<b>52 319 s</b>	<b>58 103 s</b>	<b>58 294 s</b>
EUR-12	45 145 s	45 153 s	43 185 s	41 320 s	41 754 s	41 500	41 552	42 021	42 933	45 955 s	47 611 s
B	303	374	1 023	1 024	1 050	1 124	1 138	1 230	1 305	1 328	1 384 pr
DK	723	875 b	842	892	772	797 p	380	373	393	340 p	.
D	15 005	15 173	14 773	14 204	14 240 b	14 344	13 357	13 713	13 908	13 904	14 342 pr
EL	248 e	219 e	234 e	251 e	350	372	300	332	423	493	450 p
E	2 635	2 605	2 473	2 470	2 627	2 623	2 350	3 362	3 630	4 437 p	.
F	14 110	13 425	12 934	12 774	12 152 b	11 300	11 257	11 232	11 333	12 137 r	12 535 p
IRL (1)	144	158	165 r	150 r	130 r	200 r	207 r	200 r	233 r	293 r	330 p
I	7 448	7 377	6 345	6 333	6 422 p	6 145	6 530	6 230	6 113	7 544	8 102 p
NL	2 287	2 276	2 242	2 215	2 256	2 353	2 516	2 644	2 754	2 627 p	2 384
A	300	335	304	1 073	1 045	1 003	1 003	1 063 r	1 125 r	1 117	1 194 pr
P	453	553	555	538	558	648	631	745	350	323	350 p
FIN	307	340	381	350 b	358	358	1 070	1 096	1 121	1 090	1 125 p
S (2)	1 334 b	1 375 r	1 355	1 738	1 327 bs	1 301 e	.	1 377	1 353	1 394 p	1 653 p
UK	7 630	7 453	7 773	7 405	7 737	7 741	7 600	7 244	7 636	7 912	8 151 p
<b>EEA</b>	<b>50 190 s</b>	<b>50 374 s</b>	<b>54 248 s</b>	<b>52 579 s</b>	<b>52 333 s</b>	<b>52 737 s</b>	<b>50 307 s</b>	<b>52 374 s</b>	<b>53 703 s</b>	<b>59 929 s</b>	<b>59 034 s</b>
IS (1)	30 i	24	30	42	45	45	42	55	91	91	74 p
NO (1)	603	770	771	775	750	755	784	305	793 r	728 r	756 f
JP	10 315	11 323	11 954	12 423	13 220	14 337	15 254	16 121	17 028	18 074	.
US	65 777	67 557	67 515	64 555	63 714	62 735	63 351	64 770	67 405	66 775	72 070

**Table 3B**

**Government budget appropriations or outlays on civil R&D**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>43 837 s</b>	<b>44 295 s</b>	<b>43 108 s</b>	<b>42 187 s</b>	<b>43 021 s</b>	<b>43 127 s</b>	<b>41 340 s</b>	<b>43 640 s</b>	<b>44 935 s</b>	<b>47 914 s</b>	<b>48 449 s</b>
EUR-12	37 255 s	37 301 s	35 570 s	35 504 s	35 363 s	35 040	35 435	35 917	33 055	40 762 s	41 335 s
B	301	372	1 021	1 022	1 055	1 113	1 170	1 233	1 300	1 322	1 381 pr
DK	724	871 b	833	833	763	793 p	327	363	393	344 p	.
D	13 437	13 655	13 514	12 933	12 950 b	12 917	12 530	12 512	12 750	12 321	13 317 pr
EL	242 e	216 e	230 e	247 e	345	353	335	377	424	495	440 p
E	2 231	2 221	2 155	2 208	2 332	2 333	2 292	2 333	2 740	3 133 p	.
F	9 010	8 540	8 550	8 550	8 500 b	8 350	8 422	8 644	8 793	9 530 r	9 650 p
IRL (1)	144	158	165 r	150 r	130 e	200 r	207 r	200 r	233 r	293 r	330 p
I	6 357	7 414	6 281	5 770	5 345 p	5 257	6 251	6 113	6 041	7 435	7 775 p
NL	2 130	2 193	2 153	2 137	2 133	2 233	2 435	2 555	2 637	2 550 p	2 315
A	300	335	304	1 073	1 045	1 003	1 003	1 063 r	1 125 r	1 117	1 194 pr
P	450	554	554	523	540	633	672	735	345	312	347 p
FIN	795	327	343	332 b	333	343	1 054	1 031	1 105	1 035	1 103 p
S (2)	1 370 b	1 419 b	1 420	1 440	1 445 bs	1 425 e	.	1 275	1 253	1 295 p	1 411 p
UK	4 230	4 403	4 470	4 525	4 945	4 350	4 573	4 570	4 734	5 014	5 307 p
<b>EEA</b>	<b>44 317 s</b>	<b>45 153 s</b>	<b>43 374 s</b>	<b>42 940 s</b>	<b>43 773 s</b>	<b>43 333 s</b>	<b>42 704 s</b>	<b>44 458 s</b>	<b>45 779 s</b>	<b>48 935 s</b>	<b>50 233 s</b>
IS (1)	30 i	24	30	42	45	45	42	55	91	91	74 p
NO (1)	650	735	723	731	707	712	722	781	750 r	690	710 p
JP	10 204	10 554	11 230	11 638	12 403	14 103	15 022	15 354	16 235	17 325	.
US	25 924	28 013	27 665	23 927	23 255	23 301	23 575	24 700	.	.	.

**Methodological notes**

- i: Total includes data not broken down by NABS.
  - (1) Forecasted GDP deflator for 2001.
  - (2) Data are provided as provisional series by Sweden. No data are provided as final. As a result, after two years, provisional data are considered as final.
- See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

## Tables 4 and 5 Government R&D appropriations

**Table 4**

**Total GBAORD as a % of GDP**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>0.91 s</b>	<b>0.90 s</b>	<b>0.88 s</b>	<b>0.89 s</b>	<b>0.82 s</b>	<b>0.80 s</b>	<b>0.77 s</b>	<b>0.74</b>	<b>0.74</b>	<b>0.75 s</b>	<b>0.77 s</b>
EUR-12	0.91 f s	0.90 s	0.88 s	0.84 s	0.82 s	0.80	0.77	0.76	0.76	0.77 s	0.78 s
B	0.52	0.51	0.54	0.52	0.53	0.56	0.56	0.57	0.59	0.57	0.53 p
DK	0.73	0.67 b	0.64	0.66	0.71	0.71 p	0.72	0.74	0.75	0.68 p	.
D	1.00	0.99	0.97	0.91	0.90 b	0.90	0.86	0.83	0.83	0.80	0.82 pr
EL	0.21 e	0.18 e	0.20 e	0.21 e	0.20	0.30	0.30	0.29	0.31	0.34	0.30 p
E	0.52	0.50	0.48	0.47	0.49	0.47	0.49	0.56	0.59	0.60 p	.
F	1.36	1.27	1.24	1.19	1.12 b	1.08	1.00	0.97	0.95	0.98 r	0.99 p
IRL (1)	0.30	0.31	0.32 r	0.28 r	0.32 r	0.38 r	0.29 r	0.27 r	0.28 r	0.31 r	0.33 e
I	0.75	0.80	0.69	0.62	0.61 p	0.58	0.61	0.57	0.55	0.66	0.69 p
NL	0.82	0.81	0.79	0.76	0.76	0.77	0.79	0.79	0.80	0.74 p	0.79
A	0.61	0.63	0.66	0.70	0.67	0.63	0.62	0.64 r	0.65 r	0.68	0.65 pr
P	0.33	0.47	0.48	0.45	0.45	0.51	0.51	0.54	0.60	0.62	0.63 p
FIN	0.95	1.03	1.06	1.01 b	0.98	0.95	1.11	1.08	1.06	0.98	1.00 p
S (2)	1.23 r	1.24 b	1.25	1.16	1.14 be	1.11 e	.	0.81	0.78	0.75 p	0.83 p
UK	0.85	0.83	0.84	0.76	0.73	0.76	0.73	0.66	0.69	0.69	0.69 p
<b>EEA</b>	<b>0.91 s</b>	<b>0.90 s</b>	<b>0.88 s</b>	<b>0.89 s</b>	<b>0.82 s</b>	<b>0.80 s</b>	<b>0.77 s</b>	<b>0.74</b>	<b>0.74</b>	<b>0.75 s</b>	<b>0.79 s</b>
IS (1)	0.57 i	0.46	0.74	0.77	0.83	0.79	0.70	0.88	1.40	1.32 f	1.07 p
NO (1)	0.87	0.95	0.92	0.87	0.81	0.73	0.76	0.73	0.76 r	0.68 r	0.69 f
JP	0.43	0.44	0.47	0.48	0.50	0.56	0.53	0.59	0.62	0.64	.
US	1.10	1.08	1.05	0.97	0.93	0.88	0.86	0.84	0.84 s	0.80 s	0.85 s

**Table 5**

**Total GBAORD as a % of total government expenditure**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>1.59 s</b>	<b>1.55 s</b>	<b>1.53</b>	<b>1.54</b>	<b>1.62 s</b>	<b>1.62 s</b>
EUR-12	.	.	.	.	.	1.54	1.53	1.53	1.52	1.62 s	1.61 s
B	.	.	.	.	.	1.04	1.09	1.13	1.17	1.16	1.19 pr
DK	.	.	.	.	.	1.19	1.25	1.29	1.33	1.26 p	.
D	.	.	.	.	.	1.79	1.73	1.70	1.69	1.75	1.70 pr
EL	.	.	.	.	.	0.61	0.63	0.60	0.65	0.69	0.62 p
E	.	.	.	.	.	1.03	1.17	1.34	1.44	1.71 p	.
F	.	.	.	.	.	1.95	1.83	1.81	1.72	1.85 r	1.89 p
IRL	.	.	.	.	.	0.83 r	0.79 r	0.77 r	0.80 r	0.97 r	0.93 p
I	.	.	.	.	.	1.09	1.19	1.15	1.12	1.40	1.43 p
NL	.	.	.	.	.	1.55	1.64	1.63	1.70	1.62 p	1.69
A	.	.	.	.	.	1.11	1.15	1.18 r	1.20 r	1.13	1.26 pr
P	.	.	.	.	.	1.10	1.14	1.22	1.32	1.36	1.37 p
FIN	.	.	.	.	.	1.60	1.96	2.08	2.04	2.02	2.03 p
S (2)	.	.	.	.	.	1.66 e	.	1.29	1.22	1.26 p	1.49 p
UK	.	.	.	.	.	1.76	1.77	1.67	1.75	1.74	1.71 p
<b>EEA</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>
IS	.	.	.	.	.	.	.	.	.	.	.
NO	.	.	.	.	.	1.57	1.53	1.54	1.52 r	1.51 r	1.51 r
JP	.	.	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.	.	.

### Methodological notes

- i: Total includes data not broken down by NABS.  
 (1) Forecasted GDP for 2001.  
 (2) Data are provided as provisional series by Sweden. No data are provided as final.  
 As a result, after two years, provisional data are considered as final.  
 See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 6A** Government budget appropriations or outlays on R&D — 2000 (1)

		EU-15	EUR-12	CEC	B	DK	D	EL	E	F	IRL	I
1.	Exploration and exploitation of the earth	247 s	881 s	.	14	118	280	19	84	78 r	1 r	107
2.	Infrastructure and general planning of land-use	259 s	824 s	.	19	172	270	14	20	98 r	3 r	18
3.	Control and care of the environment	1 592 s	1 208 s	.	47	318	542	21	90	241 r	9 r	172
4.	Protection and improvement of human health	3 938 s	2 378 s	.	23	182	382	28	187	737 r	13 r	910
5.	Production, distribution and rational utilization of energy	2 977 s	1 828 s	.	39	187	388	9	131	888 r	-	303
6.	Agricultural production and technology	2 194 s	1 484 s	.	42	318	418	28	124	323 r	47 r	189
7.	Industrial production and technology	9 592 s	9 948 s	.	329	887	2 082	38	813	842 r	78 r	1 029
8.	Social structures and relationships	1 988 s	1 277 s	.	83	342	387	27	29	121 r	13 r	243
9.	Exploration and exploitation of space	3 483 s	3 317 s	.	178	238	788	2	181	1 437 r	-	987
10.	Research financed from general university funds (GUF)	29 238 s	17 328 s	.	279	3 428	8 288	181	833	3 098 r	83 r	3 888 e
11.	Non-oriented research	9 379 s	7 872 s	.	343	1 889	2 821	48	198	2 978 r	184 r	788
12.	Other civil research	311 s	588 s	.	82	-	17	3	32	289 r	-	-
13.	Defence	9 711 s	9 888 s	.	4	91	1 287	2	888	2 983 r	-	98
<b>Total appropriations</b>		<b>94 038 s</b>	<b>90 343 s</b>	<b>.</b>	<b>1 423</b>	<b>9 049</b>	<b>19 283</b>	<b>429</b>	<b>3 328</b>	<b>13 342 r</b>	<b>319 r</b>	<b>7 957</b>

**Table 6B** Government budget appropriations or outlays on R&D — 2001 provisional (2)

		EU-15	EUR-12	CEC	B	DK	D	EL	E	F	IRL	I
1.	Exploration and exploitation of the earth	294 s	778 s	.	12 r	114	288 r	12	80	112	11	158
2.	Infrastructure and general planning of land-use	1 023 s	787 s	.	11 r	183	282 r	18	27	93	18	28
3.	Control and care of the environment	1 371 s	1 528 s	.	39 r	248	532 r	17	112	421	8	192
4.	Protection and improvement of human health	4 288 s	2 882 s	.	28 r	178	881 r	28	282	843	19	998
5.	Production, distribution and rational utilization of energy	1 881 s	1 842 s	.	48 r	178	377 r	9	152	372	-	307
6.	Agricultural production and technology	2 132 s	1 588 s	.	38 r	1 181	482 r	23	178	388	38	152
7.	Industrial production and technology	9 994 s	8 288 s	.	329 r	888	2 082 r	34	882	918	98	1 248
8.	Social structures and relationships	2 319 s	1 828 s	.	78 r	388	787 r	24	24	118	19	388
9.	Exploration and exploitation of space	3 781 s	3 288 s	.	178 r	247	784 r	1	231	1 427	-	818
10.	Research financed from general university funds (GUF)	21 483 s	17 888 s	.	281 r	3 482	8 888 r	191	838	3 144	83	3 888
11.	Non-oriented research	9 879 s	7 888 s	.	349 r	1 888	2 741 r	41	207	2 887	184	738
12.	Other civil research	1 021 s	878 s	.	88 r	-	9 r	3	32	288	-	-
13.	Defence	10 481 s	8 287 s	.	3 r	98	1 214 r	2	1 284	3 389	-	348
<b>Total appropriations</b>		<b>97 333 s</b>	<b>93 197 s</b>	<b>.</b>	<b>1 483 r</b>	<b>3 381</b>	<b>19 973 r</b>	<b>382</b>	<b>4 137</b>	<b>14 581</b>	<b>378</b>	<b>8 441</b>

**Methodological notes**

- (1) Exceptions to the 2000 reference year — DK and E: 1999.
  - (2) Exceptions to the 2001 reference year — DK and E: 2000 provisional.
- See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 6**  
**Government R&D appropriations**  
**By social-economic objective**

In millions of national currencies  
 At current prices

**Table 6A**

**Government budget appropriations or outlays on R&D — 2000 (1)**

NL	A	P	FIN	S (2)	UK	EEA	IS	NO	JP	US		
24	29	12	20	297	39	274 s	-	213	229	.	Exploration and exploitation of the earth	1.
99	19	94	28	907	70	292 s	802	229	1 29 039	.	Infrastructure and general planning of land-use	2.
119	20	31	29	240	102	1 299 s	92	299	28 247	.	Control and care of the environment	3.
111	34	47	39	287	262	4 033 s	834	890	1 27 527	.	Protection and improvement of human health	4.
32	7	8	89	999	31	2 193 s	304	219	992 330	.	Production, distribution and rational utilization of energy	5.
29	37	90	70	291	287	2 244 s	2 527	287	1 12 794	.	Agricultural production and technology	6.
391	99	90	389	812	109	6 449 s	239	1 141	221 917	.	Industrial production and technology	7.
30	28	24	70	959	270	2 039 s	3 171	891	29 923	.	Social structures and relationships	8.
94	1	4	27	900	140	3 929 s	-	224	1 82 890	.	Exploration and exploitation of space	9.
1 388	342	299	348	7 724	1 270	21 299 s	-	3 311	1 184 037	.	Research financed from general university funds (GUF)	10.
329	172	99	199	-	799	9 991 s	1 400	294	499 890	.	Non-oriented research	11.
129	1	24	-	1 377	22	291 s	-	-	90 790	.	Other civil research	12.
72	-	3	17	1 117	2 284	9 771 s	-	494	1 28 891	.	Defence	13.
<b>2 932</b>	<b>1 297</b>	<b>713</b>	<b>1 291</b>	<b>13 191</b>	<b>6 919</b>	<b>69 393 s</b>	<b>3 973</b>	<b>9 991 r</b>	<b>3 294 329</b>	<b>79 994</b>	<b>Total appropriations</b>	

**Table 6B**

**Government budget appropriations or outlays on R&D — 2001 provisional**

NL	A	P	FIN	S	UK	EEA	IS	NO	JP	US		
30	31 r	14	17	284	101	281 s	-	217 r	.	.	Exploration and exploitation of the earth	1.
120	29 r	81	29	844	133	1 099 s	802	228 r	.	.	Infrastructure and general planning of land-use	2.
129	21 r	37	29	218	130	1 997 s	80	291 r	.	.	Control and care of the environment	3.
99	41 r	99	37	211	977	4 299 s	802	792 r	.	.	Protection and improvement of human health	4.
94	9 r	7	77	912	32	2 999 s	198	299 r	.	.	Production, distribution and rational utilization of energy	5.
100	38 r	104	79	292	299	2 294 s	1 799	992 r	.	.	Agricultural production and technology	6.
429	127 r	30	370	381	39	6 137 s	280	1 279 r	.	.	Industrial production and technology	7.
92	23 r	29	79	991	239	2 449 s	3 891	717 r	.	.	Social structures and relationships	8.
77	2 r	9	29	932	182	3 731 s	-	229 r	.	.	Exploration and exploitation of space	9.
1 429	380 r	277	399	8 099	1 272	21 371 s	-	3 799 r	.	.	Research financed from general university funds (GUF)	10.
334	193 r	99	199	-	944	9 911 s	1 297	941 r	.	.	Non-oriented research	11.
191	33 r	29	-	1 319	29	1 021 s	-	-	.	.	Other civil research	12.
89	-	10	21	1 129	2 297	19 932 s	-	499 r	.	.	Defence	13.
<b>3 144</b>	<b>1 499 r</b>	<b>773</b>	<b>1 391</b>	<b>13 314</b>	<b>6 979</b>	<b>69 123 s</b>	<b>7 977</b>	<b>19 997 r</b>	<b>:</b>	<b>:</b>	<b>Total appropriations</b>	

**Methodological notes**

- (1) Exceptions to the 2000 reference year — NL and S: 1999.
  - (2) Data are provided as provisional series by Sweden. No data are provided as final. As a result, after two years, provisional data are considered as final.
- See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.



**Table 7A** Government budget appropriations or outlays on R&D — 2000 (1)

		EU-15	EUR-12	CEC	B	DK	D	EL	E	F	IRL	I
1.	Exploration and exploitation of the earth	247 s	281 s	.	14	18	230	19	84	78 r	1 r	107
2.	Infrastructure and general planning of land-use	259 s	224 s	.	19	22	270	14	22	28 r	2 r	18
3.	Control and care of the environment	1 592 s	1 228 s	.	47	42	542	21	90	241 r	9 r	172
4.	Protection and improvement of human health	3 922 s	2 278 s	.	22	22	582	28	187	727 r	12 r	510
5.	Production, distribution and rational utilization of energy	2 077 s	1 228 s	.	29	29	338	9	121	288 r	-	202
6.	Agricultural production and technology	2 194 s	1 424 s	.	42	102	410	28	124	222 r	47 r	129
7.	Industrial production and technology	9 592 s	9 248 s	.	229	117	2 002	29	812	242 r	78 r	1 029
8.	Social structures and relationships	1 283 s	1 277 s	.	82	112	287	27	29	121 r	12 r	242
9.	Exploration and exploitation of space	3 422 s	2 217 s	.	170	22	782	2	181	1 427 r	-	527
10.	Research financed from general university funds (GUF)	29 228 s	17 228 s	.	279	481	8 228	181	222	2 228 r	82 r	2 828 e
11.	Non-oriented research	9 272 s	7 272 s	.	242	281	2 221	48	128	2 272 r	104 r	728
12.	Other civil research	211 s	222 s	.	82	-	17	2	22	222 r	-	-
13.	Defence	9 771 s	9 228 s	.	4	7	1 227	2	228	2 222 r	-	22
<b>Total appropriations</b>		<b>94 228 s</b>	<b>50 242 s</b>	<b>:</b>	<b>1 422</b>	<b>1 218</b>	<b>19 222</b>	<b>427</b>	<b>3 222</b>	<b>13 242 r</b>	<b>212 r</b>	<b>7 927</b>

**Table 7B** Government budget appropriations or outlays on R&D — 2001 provisional (2)

		EU-15	EUR-12	CEC	B	DK	D	EL	E	F	IRL	I
1.	Exploration and exploitation of the earth	294 s	772 s	.	12 r	19	222 r	12	22	112	11	129
2.	Infrastructure and general planning of land-use	1 022 s	787 s	.	11 r	22	222 r	10	27	22	10	22
3.	Control and care of the environment	1 271 s	1 228 s	.	29 r	22	222 r	17	112	421	8	122
4.	Protection and improvement of human health	4 222 s	2 222 s	.	28 r	24	221 r	22	222	242	19	222
5.	Production, distribution and rational utilization of energy	1 221 s	1 242 s	.	48 r	24	277 r	9	122	272	-	207
6.	Agricultural production and technology	2 122 s	1 222 s	.	28 r	142	422 r	22	178	222	22	122
7.	Industrial production and technology	8 224 s	8 222 s	.	229 r	78	2 222 r	24	222	218	22	1 242
8.	Social structures and relationships	2 219 s	1 228 s	.	72 r	122	787 r	24	24	112	19	222
9.	Exploration and exploitation of space	3 271 s	2 222 s	.	178 r	22	724 r	1	221	1 427	-	818
10.	Research financed from general university funds (GUF)	21 422 s	17 222 s	.	221 r	482	8 222 r	181	222	2 144	82	2 822
11.	Non-oriented research	9 272 s	7 222 s	.	242 r	212	2 741 r	41	207	2 227	104	722
12.	Other civil research	1 021 s	272 s	.	88 r	-	2 r	2	22	222	-	-
13.	Defence	19 421 s	8 227 s	.	2 r	7	1 214 r	2	1 224	2 222	-	242
<b>Total appropriations</b>		<b>97 222 s</b>	<b>52 197 s</b>	<b>:</b>	<b>1 422 r</b>	<b>1 122</b>	<b>19 272 r</b>	<b>222</b>	<b>4 127</b>	<b>14 221</b>	<b>272</b>	<b>2 441</b>

**Methodological notes**

- (1) Exceptions to the 2000 reference year — DK and E: 1999.
  - (2) Exceptions to the 2001 reference year — DK and E: 2000 provisional.
- See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 7**  
**Government R&D appropriations**  
**By social-economic objective**

In millions EU R  
 At current prices and current exchange rates

**Table 7A** **Government budget appropriations or outlays on R&D — 2000 (1)**

NL	A	P	FIN	S (2)	UK	EEA	IS	NO	JP	US		
24	29	12	20	24	140	274 s	-	27	200	.	Exploration and exploitation of the earth	1.
90	19	34	20	100	124	222 s	2	27	1 227	.	Infrastructure and general planning of land-use	2.
119	20	31	20	20	100	1 209 s	1	20	204	.	Control and care of the environment	3.
111	24	47	20	20	1 202	4 023 s	0	20	1 222	.	Protection and improvement of human health	4.
22	7	0	0	102	30	2 192 s	4	27	2 202	.	Production, distribution and rational utilization of energy	5.
20	27	20	70	20	407	2 244 s	25	100	1 144	.	Agricultural production and technology	6.
201	99	20	200	0	179	0 449 s	2	141	2 221	.	Industrial production and technology	7.
20	20	24	70	100	442	2 029 s	44	24	201	.	Social structures and relationships	8.
94	1	4	27	27	240	3 029 s	-	20	1 200	.	Exploration and exploitation of space	9.
1 200	242	220	240	277	2 024	21 292 s	-	470	11 702	.	Research financed from general university funds (GUF)	10.
220	172	20	120	-	1 200	2 291 s	19	100	4 021	.	Non-oriented research	11.
120	1	24	-	120	27	211 s	-	-	210	.	Other civil research	12.
72	-	2	17	127	2 012	2 771 s	-	0	1 202	.	Defence	13.
<b>2 222</b>	<b>1 227</b>	<b>713</b>	<b>1 221</b>	<b>1 720</b>	<b>10 221</b>	<b>20 222 s</b>	<b>124</b>	<b>1 120 r</b>	<b>22 217</b>	<b>22 179 s</b>	<b>Total appropriations</b>	

**Table 7B** **Government budget appropriations or outlays on R&D — 2001 provisional**

NL	A	P	FIN	S	UK	EEA	IS	NO	JP	US		
20	21 r	14	17	21	100	221 s	-	27 r	.	.	Exploration and exploitation of the earth	1.
120	22 r	0	20	70	212	1 022 s	7	20 r	.	.	Infrastructure and general planning of land-use	2.
120	21 r	27	20	20	200	1 207 s	1	20 r	.	.	Control and care of the environment	3.
20	41 r	20	27	20	1 200	4 299 s	2	20 r	.	.	Protection and improvement of human health	4.
24	9 r	7	77	100	22	2 022 s	2	20 r	.	.	Production, distribution and rational utilization of energy	5.
100	20 r	104	70	20	420	2 244 s	21	112 r	.	.	Agricultural production and technology	6.
420	127 r	20	270	102	0	0 727 s	2	171 r	.	.	Industrial production and technology	7.
22	22 r	20	70	100	222	2 449 s	25	20 r	.	.	Social structures and relationships	8.
77	2 r	5	20	0	200	3 721 s	-	20 r	.	.	Exploration and exploitation of space	9.
1 420	200 r	277	220	220	2 201	21 271 s	-	420 r	.	.	Research financed from general university funds (GUF)	10.
224	122 r	0	120	-	1 214	2 211 s	19	117 r	.	.	Non-oriented research	11.
120	22 r	20	-	212	40	1 021 s	-	-	.	.	Other civil research	12.
0	-	10	21	120	2 242	10 222 s	-	0 r	.	.	Defence	13.
<b>3 144</b>	<b>1 420 r</b>	<b>772</b>	<b>1 220</b>	<b>1 272</b>	<b>11 212</b>	<b>20 722 s</b>	<b>21</b>	<b>1 220 r</b>	<b>:</b>	<b>:</b>	<b>Total appropriations</b>	

**Methodological notes**

- (1) Exceptions to the 2000 reference year — NL and S: 1999.
  - (2) Data are provided as provisional series by Sweden. No data are provided as final. As a result, after two years, provisional data are considered as final.
- See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions of constant PPS  
At 1995 prices

**Table 8**  
**Government R&D appropriations**

**Table 8A**

**GBAORD by NABS socio-economic objective — EU-15**

	1996	1997	1998	1999	2000	2001
1. Exploration and exploitation of the earth	720 s	724 s	754 s	770 s	749 s	844 s
2. Infrastructure and general planning of land-use	740 s	692 s	812 s	881 s	750 s	878 s
3. Control and care of the environment	1 444 s	1 330 s	1 467 s	1 401 s	1 339 s	1 623 s
4. Protection and improvement of human health	3 041 s	3 048 s	2 983 s	3 218 s	3 301 s	3 509 s
5. Production, distribution and rational utilization of energy	1 630 s	1 687 s	1 822 s	1 823 s	1 864 s	1 750 s
6. Agricultural production and technology	1 368 s	1 913 s	1 870 s	1 800 s	1 860 s	1 860 s
7. Industrial production and technology	4 941 s	4 678 s	4 808 s	5 117 s	5 743 s	5 908 s
8. Social structures and relationships	1 348 s	1 172 s	1 367 s	1 503 s	1 681 s	1 985 s
9. Exploration and exploitation of space	3 372 s	3 250 s	3 107 s	3 126 s	3 281 s	3 257 s
10. Research financed from general university funds (GUF)	15 658 s	15 594 s	16 708 s	16 775 s	18 401 s	18 682 s
11. Non-oriented research	7 704 s	7 318 s	7 370 s	7 707 s	8 181 s	8 287 s
12. Other civil research	597 s	524 s	588 s	772 s	704 s	830 s
13. Defence	2 311 s	2 151 s	7 874 s	7 884 s	2 195 s	2 315 s
<b>Total appropriations</b>	<b>51 937 s</b>	<b>50 091 s</b>	<b>51 914 s</b>	<b>52 319 s</b>	<b>58 199 s</b>	<b>63 294 s</b>

**Table 8B**

**GBAORD by NABS socio-economic objective — Japan**

	1996	1997	1998	1999	2000	2001
1. Exploration and exploitation of the earth	202	215	217	252	304	.
2. Infrastructure and general planning of land-use	353	429	443	604	677	.
3. Control and care of the environment	38	91	93	121	144	.
4. Protection and improvement of human health	530	642	587	632	702	.
5. Production, distribution and rational utilization of energy	3 438	3 218	3 203	3 281	3 285	.
6. Agricultural production and technology	508	538	558	589	626	.
7. Industrial production and technology	506	1 040	1 108	1 108	1 221	.
8. Social structures and relationships	154	150	154	148	185	.
9. Exploration and exploitation of space	994	1 008	1 015	1 070	1 005	.
10. Research financed from general university funds (GUF)	5 344	5 988	6 084	6 238	6 406	.
11. Non-oriented research	1 444	1 723	1 929	2 189	2 530	.
12. Other civil research	.	.	.	2	279	.
13. Defence	321	932	787	790	749	.
<b>Total appropriations</b>	<b>14 937</b>	<b>15 954</b>	<b>16 121</b>	<b>17 029</b>	<b>18 074</b>	<b>.</b>

**Table 8C**

**GBAORD by NABS socio-economic objective — USA**

	1996	1997	1998	1999	2000	2001
1. Exploration and exploitation of the earth	740	728	863	.	.	.
2. Infrastructure and general planning of land-use	1 678	1 634	1 661	.	.	.
3. Control and care of the environment	433	508	503	.	.	.
4. Protection and improvement of human health	11 017	11 530	12 469	.	.	.
5. Production, distribution and rational utilization of energy	2 291	2 114	225	.	.	.
6. Agricultural production and technology	1 527	1 520	1 381	.	.	.
7. Industrial production and technology	303	366	360	.	.	.
8. Social structures and relationships	597	584	615	.	.	.
9. Exploration and exploitation of space	7 127	6 991	7 213	.	.	.
10. Research financed from general university funds (GUF)	.	.	.	.	.	.
11. Non-oriented research	2 538	2 624	3 289	.	.	.
12. Other civil research	.	.	.	.	.	.
13. Defence	34 345	35 238	36 081	.	.	.
<b>Total appropriations</b>	<b>61 736</b>	<b>63 341</b>	<b>64 770</b>	<b>67 405 b</b>	<b>68 715 b</b>	<b>.</b>

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 9**  
**Government R&D appropriations**

In millions of national currencies  
At current prices

**Table 9A** Government budget appropriations or outlays on R&D — On biotechnology

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CEC	87	87	93	112	104	163	162	136	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	124	.	.	.	.	70	.	.	.	.
D	174	254	344	424	442 b	450	446	430	493	502
EL	4	4	12	13	16	19	13	21	30	38 r
E	43	42	47	77	90	90	97	83	107	.
F	.	.	.	.	.	.	.	.	.	.
IRL	3	9	13	11	14	16	.	.	.	2
I	17	16	12	12	.	23	23	23	51	58
NL	.	.	.	.	.	.	.	.	.	.
A	.	.	.	.	.	.	.	.	.	.
P	.	.	.	.	.	.	.	.	.	.
FIN	.	.	.	.	.	.	.	.	.	.
S	.	.	.	.	.	.	.	.	.	.
UK	34	102	100	123	124	143	146	160	179	177

**Table 9B** Government budget appropriations or outlays on R&D — On information technology

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CEC	593	607	639	637	370	627	734	704	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	87	.	.	.	.	2	.	.	.	.
D	620	747	636	599	597 b	669	615	636	663	634
EL	7	7	5	10	20	25	32	38	42	62 r
E	43	50	47	44	47	57	34	50	60	.
F	.	.	.	.	.	.	.	.	.	.
IRL	13	9	16	15	26	19	.	.	.	5
I	58	57	75	14	.	10	12	16	3	145
NL	.	.	.	.	.	.	.	.	.	.
A	.	.	.	.	.	.	.	.	.	.
P	.	.	.	.	.	.	.	.	.	.
FIN	.	.	.	.	.	.	.	.	.	.
S	.	.	.	.	.	.	.	.	.	.
UK	78	39	90	104	39	125	143	100	101	114

**Table 9C** Government budget appropriations or outlays on R&D — On developing countries

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CEC	39	60 b	64	57	63	30	73	73	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	105	.	.	.	.	55	.	.	.	.
D	94	93	95	33	95 b	137	132	.	113	108
EL	.	.	.	.	.	.	.	.	.	.
E	2	9	5	3	4	2	2	3	5	.
F	.	.	.	.	.	.	.	.	.	.
IRL	.	.	.	.	.	.	.	.	.	.
I	0	0	.	.	.	6	0	0	1	1
NL	.	.	.	.	.	.	.	.	.	.
A	.	.	.	.	.	.	.	.	.	.
P	.	.	.	.	.	.	.	.	.	.
FIN	.	.	.	.	.	.	.	.	.	.
S	.	.	.	.	.	.	.	.	437	.
UK	52	37	116	11	113	106	112	104	233	.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions of national currencies  
At current prices

**Table 10**  
**R&D expenditure**  
**At the national level**

**Table 10A**

**R&D expenditure — All sectors**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>177 393 s</b>	<b>170 902 s</b>	<b>174 427 s</b>	<b>179 790 s</b>	<b>185 374 s</b>	<b>192 897 s</b>	<b>194 237 s</b>	<b>193 937 s</b>	<b>170 792 s</b>
EUR-12	92 863 s	94 512 s	98 808 s	102 078 s	104 062 s	108 874 s	108 525 s	122 277 s	128 136 s
B	3 155 e	3 308 e	3 463 er	3 736 e	4 056 er	4 277 er	4 613 er	.	.
DK	15 605	.	13 544	19 657 e	21 652	23 793 e	25 323 r	26 365 e	.
D	30 227	30 538	40 657	41 368 e	42 860	44 643 e	48 191 r	50 318 i	52 074 i
EL	295	.	389 e	.	492	.	760 e	.	.
E	3 360	3 294	3 550	3 558 e	4 030	4 715 e	4 995	5 719 er	6 278 i
F	26 433	26 764	27 302	27 335	27 756	28 319	29 529	30 153 e	.
IRL	607 e	607 e	707 e	766 e	862 er	972 i	1 076 e	.	.
I	9 008	8 987	9 228	9 393	10 730 rb	11 444 r	11 524 r	.	.
L	.	.	.	.	.	.	.	279 p	.
NL	5 235 b	5 698	6 013	6 405	6 806	6 853	7 563 r	.	.
A	2 303	2 539 e	2 620 e	2 655 e	3 035 e	3 400	3 600 e	3 687 e	3 922 e
P	.	.	460 r	.	577	.	315 r	.	.
FIN	1 308	2 008	2 172	2 504	2 905	3 355	3 379	4 423 r	4 960 f
S	45 221	.	59 357	.	67 026	71 353 e	75 314	.	.
UK	13 641	14 048	14 170	14 470	14 779	15 537	16 686	17 527 r	18 430 r
<b>EEA</b>	<b>179 143 s</b>	<b>172 437 s</b>	<b>174 429 s</b>	<b>179 949 s</b>	<b>183 292 s</b>	<b>195 041 s</b>	<b>199 371 s</b>	<b>197 191 s</b>	<b>174 182 s</b>
IS	5 497	6 047	6 953	7 317	9 650	11 773	14 522	.	.
NO	14 263	.	15 908	.	13 127	.	20 319	.	.
JP	13 700 139 i	13 595 080 i	14 408 238 i	14 155 058 b	14 794 030	15 160 203	15 032 860	15 304 423	.
US	168 137 i	169 623 i	174 075 i	197 738 i	212 950 i	227 329 i	244 700 i	265 322 pi	.

**Table 10B**

**R&D expenditure — Business enterprise sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>79 897 s</b>	<b>79 578 s</b>	<b>79 931 s</b>	<b>81 922 s</b>	<b>89 134 s</b>	<b>90 391 s</b>	<b>100 098 s</b>	<b>107 137 s</b>	<b>112 190 s</b>
EUR-12	57 197 s	58 213 s	60 911 s	63 054 s	64 807 s	67 732 s	74 234 s	73 958 s	83 458 s
B	2 280 e	2 353 e	2 471 e	2 674 e	2 905 e	3 055 er	3 307 e	3 605 f	.
DK	9 151	.	10 641	11 973 e	13 302	15 394	16 054 r	17 139 e	.
D	26 197	26 173	27 013	27 405 e	28 910	30 334 e	32 623 r	35 604 i	37 200 i
EL	79	.	115	107	128	.	217 r	.	.
E	1 600	1 541	1 712	1 853 e	1 971	2 457	2 597	3 069 er	3 407 i
F	16 339	16 557	16 649	17 131	17 357	17 632	18 655	19 308 e	.
IRL	344 e	424 e	505 e	541 e	612 e	693 i	734	.	.
I	4 331	4 755	4 927	5 292	5 377 r	5 533 r	5 634 r	5 928 ri	6 442 i
L	.	.	.	.	.	.	.	244 p	.
NL	2 609 b	2 917	3 137	3 342	3 714	3 721	4 263 r	.	.
A	1 237	.	.	.	.	2 161 r	.	.	.
P	.	.	96	.	130	.	135	.	.
FIN	1 043	1 250	1 373	1 657	1 917	2 253	2 644	3 136 r	3 618 f
S	33 457	.	44 029	.	50 151	54 351 e	58 953	.	.
UK	9 089	9 204	9 258	9 431	9 630	10 267	11 303	11 510 r	11 944 fr
<b>EEA</b>	<b>79 897 s</b>	<b>79 578 s</b>	<b>79 199 s</b>	<b>82 339 s</b>	<b>87 534 s</b>	<b>92 154 s</b>	<b>101 522 s</b>	<b>103 941 s</b>	<b>114 045 s</b>
IS	1 710	1 832	2 216	2 277	3 913	4 310	6 777	.	.
NO	7 632	.	9 021	.	10 352	.	11 359	.	.
JP	9 053 603 i	8 920 253 i	9 395 295 i	10 053 400 b	10 652 357	10 200 063	10 630 161	10 360 214	.
US	117 400 i	119 594 i	132 103 i	144 668 i	157 530 i	169 130 i	182 323 i	199 355 pi	.

**Methodological notes**

**Table 10A — i**

D, E and IRL: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

**Table 10B — i**

D, E, IRL and I: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 10**  
**R&D expenditure**  
**At the national level**

In millions of national currencies  
At current prices

**Table 10C**

**R&D expenditure — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>19 304 s</b>	<b>19 904 s</b>	<b>20 081 s</b>	<b>20 377 s</b>	<b>20 133 s</b>	<b>21 077 s</b>	<b>21 955 s</b>	<b>22 334 s</b>	<b>23 025 s</b>
EUR-12	18 247 s	18 247 s	18 925 s	17 130 s	18 504 s	17 273 s	17 808 s	17 995 s	18 458 s
B	117 e	118 e	120 er	123 er	134 er	147 e	153 er	.	.
DK	2 795	.	3 158	3 190 e	3 341	3 410 e	3 244 r	3 698	.
D	5 955	5 924	6 298	6 304	6 272	6 547 e	6 632 r	6 672 e	6 212 e
EL	94	.	99	.	115	.	168	.	.
E	870	882	881	708 e	702	767	843	905 r	971 i
F	5 504	5 522	5 731	5 642	5 131	5 279	5 367	5 357 e	.
IRL	52 e	52 e	60 e	64 e	66 e	70 e	64	62 e	.
I	1 945	1 909	1 949	1 978	2 094 r	2 316 r	2 213 r	2 408 ri	2 411 i
L	.	.	.	.	.	.	.	34 p	48 p
NL	957	1 068	1 087	1 138	1 232	1 233	1 250	.	.
A	205	.	.	.	.	219 r	.	.	.
P	.	.	124	.	140	.	222 r	.	.
FIN	320	320	375	395	395	422	470	497 r	515
S	2 002	.	2 231	.	2 372	2 459 e	2 548	.	.
UK	1 923	2 050	2 042	2 070	2 017	2 073	1 783	2 131 r	2 300 r
<b>EEA</b>	<b>19 694 s</b>	<b>19 353 s</b>	<b>20 423 s</b>	<b>20 795 s</b>	<b>20 547 s</b>	<b>21 432 s</b>	<b>21 933 s</b>	<b>22 344 s</b>	<b>23 543 s</b>
IS	2 247	2 472	2 608	2 991	2 875	4 391	4 336	.	.
NO	2 737	.	2 747	.	2 990	.	3 130	.	.
JP	1 278 640	1 226 427	1 300 132	1 323 536	1 308 978	1 402 914	1 481 731	1 513 632	.
US	18 953 i	18 789 i	17 365 i	17 041 i	17 337 i	17 319 i	18 291 i	19 244 pi	.

**Table 10D**

**R&D expenditure — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>23 353 s</b>	<b>24 851 s</b>	<b>25 417 s</b>	<b>26 399 s</b>	<b>26 955 s</b>	<b>28 777 s</b>	<b>31 955 s</b>	<b>33 333 s</b>	<b>34 443 s</b>
EUR-12	18 771 s	19 464 s	20 150 s	21 251 s	22 184 s	23 023 s	23 977 s	24 662 s	25 519 s
B	733 e	732 e	829 er	838 e	968 e	1 041 er	1 103 er	.	.
DK	3 637	.	4 547	4 253 e	4 308	4 773 e	5 133	5 736	.
D	7 075	7 429 b	7 373	7 654	7 677	7 767 e	7 937 r	8 034 e	8 068 e
EL	120	.	172 r	.	249	.	376	.	.
E	1 043	1 040	1 137	1 243	1 322	1 439	1 506	1 604 r	1 248 i
F	4 192	4 320	4 581	4 637	4 334	4 926	5 053	5 040 e	.
IRL	107 e	121 e	137 er	153 e	173 e	204 e	222 e	.	.
I	2 271	2 317	2 349	2 624	3 319 rb	3 595 r	3 623 r	.	.
L	.	.	.	.	.	.	.	1 p	0 p
NL	1 633	1 635	1 730	1 818	1 860	1 855	1 923 r	.	.
A	305	.	.	.	.	1 010	.	.	.
P	.	.	170	.	231 rb	.	314	.	.
FIN	367	379	425	452	579	653	765	739 r	829 f
S	10 481	.	13 004	.	14 452	14 473 e	16 226	.	.
UK	2 313	2 623	2 695	2 732	2 832	3 089	3 242	3 633 r	3 930 fr
<b>EEA</b>	<b>23 333 s</b>	<b>25 140 s</b>	<b>25 940 s</b>	<b>27 440 s</b>	<b>28 293 s</b>	<b>30 422 s</b>	<b>32 295 s</b>	<b>34 239 s</b>	<b>35 403 s</b>
IS	1 320	1 452	1 915	1 757	2 731	2 926	3 083 r	.	.
NO	3 304	.	4 139	.	4 345	.	5 219	.	.
JP	2 753 712 i	2 752 551 i	2 932 138 i	2 933 351 b	2 111 730	2 252 153	2 231 159	2 223 508	.
US	25 763 i	26 908 i	27 973 i	29 097 i	30 578 i	32 253 i	34 080 i	35 955 pi	.

**Methodological notes**

**Table 10C — i**

E and I: OECD-MSTI data;

US: Federal or central government only.

**Table 10D — i**

E: OECD-MSTI data;

JP: Overestimated or based on overestimated data;

US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions of EUR  
At current prices and current exchange rates

**Table 11**  
**R&D expenditure**  
**At the national level**

**Table 11A**

**R&D expenditure — All sectors**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>117 393 s</b>	<b>120 992 s</b>	<b>124 427 s</b>	<b>129 790 s</b>	<b>135 374 s</b>	<b>142 897 s</b>	<b>154 237 s</b>	<b>163 937 s</b>	<b>170 792 s</b>
EUR-12	92 863 s	94 512 s	98 808 s	102 078 s	104 062 s	108 874 s	118 525 s	122 277 s	128 136 s
B	3 145 e	3 363 e	3 629 er	3 836 er	4 037 er	4 247 er	4 612 er	.	.
DK	2 087	.	2 531	2 871 e	2 893	3 173 e	3 406 r	3 604 e	.
D	39 621	40 179	42 438	42 368 e	42 872	44 346 e	48 191 r	50 318 i	52 074 i
EL	374	.	437 e	.	542	.	795 e	.	.
E	3 733	3 449	3 624	3 938 e	4 051	4 693 e	4 995	5 719 er	6 278 i
F	26 137	26 671	27 447	28 121	27 538	28 140	29 529	30 153 e	.
IRL	49 e	60 e	63 e	79 e	90 e	97 i	1 076 e	.	.
I	9 568	9 080	8 336	9 773	10 828 rb	11 401 r	11 524 r	.	.
L	.	.	.	.	.	.	.	279 p	.
NL	5 364 b	5 735	6 313	6 595	6 734	6 319	7 563 r	.	.
A	2 328	2 631 e	2 797 e	2 925 e	3 071 e	3 377	3 600 e	3 687 e	3 922 e
P	.	.	470 r	.	532	.	315 r	.	.
FIN	1 606	1 929	2 263	2 554	2 937	3 384	3 379	4 423 r	4 960 f
S	5 087	.	6 381	.	7 743	8 003 e	8 608	.	.
UK	17 361	18 103	17 097	17 731	21 343	23 084	25 300	28 757 r	29 638 r
<b>EEA</b>	<b>119 143 s</b>	<b>122 437 s</b>	<b>124 429 s</b>	<b>131 949 s</b>	<b>133 292 s</b>	<b>145 041 s</b>	<b>159 371 s</b>	<b>167 191 s</b>	<b>174 182 s</b>
IS	69	73	82	96	120	143	133	.	.
NO	1 718	.	1 920	.	2 263	.	2 445	.	.
JP	106 385 i	112 066 i	117 129 i	122 570 b	127 925	138 804	123 912	153 252	.
US	141 378 i	142 602 i	140 729 i	155 769 i	137 730 i	202 775 i	229 597 i	287 268 i	.

**Table 11B**

**R&D expenditure — Business enterprise sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>79 497 s</b>	<b>79 578 s</b>	<b>79 931 s</b>	<b>81 922 s</b>	<b>84 134 s</b>	<b>90 391 s</b>	<b>100 098 s</b>	<b>107 137 s</b>	<b>112 190 s</b>
EUR-12	57 197 s	58 213 s	60 911 s	63 054 s	64 807 s	67 732 s	74 234 s	78 958 s	83 458 s
B	2 263 e	2 399 e	2 538 e	2 745 e	2 891 e	3 014 er	3 307 e	3 605 f	.
DK	1 205	.	1 452	1 627 e	1 777	2 063	2 159 r	2 299 e	.
D	26 460	26 599	28 198	28 070 e	28 734	30 130 e	32 623 r	35 604 i	37 200 i
EL	100	.	129	119	139	.	227 r	.	.
E	1 735	1 613	1 743	1 928 e	1 977	2 445	2 597	3 069 er	3 407 i
F	18 157	18 493	18 737	17 307	17 213	17 520	18 665	19 308 e	.
IRL	39 e	42 e	43 e	53 e	64 e	69 i	734	.	.
I	5 133	4 307	4 479	5 231	5 395 r	5 512 r	5 634 r	5 928 ri	6 442 i
L	.	.	.	.	.	.	.	244 p	.
NL	2 643 b	2 973	3 294	3 442	3 702	3 694	4 263 r	.	.
A	1 300	.	.	.	.	2 148 r	.	.	.
P	.	.	93	.	131	.	135	.	.
FIN	931	1 200	1 430	1 690	1 938	2 239	2 644	3 136 r	3 618 f
S	3 663	.	4 713	.	5 797	6 097 e	6 466	.	.
UK	11 627	11 362	11 163	11 539	13 932	15 159	17 159	18 335 r	19 208 fr
<b>EEA</b>	<b>79 497 s</b>	<b>79 578 s</b>	<b>79 931 s</b>	<b>82 339 s</b>	<b>87 534 s</b>	<b>92 154 s</b>	<b>101 622 s</b>	<b>108 941 s</b>	<b>114 045 s</b>
IS	22	23	26	27	49	54	33	.	.
NO	913	.	1 039	.	1 291	.	1 363	.	.
JP	69 564 i	74 020 i	76 332 i	72 343 b	77 756	73 763	37 623	109 176	.
US	100 258 i	100 540 i	100 995 i	113 934 i	133 913 i	150 907 i	171 539 i	216 335 pi	.

**Methodological notes**

**Table 11A — i**

D, E and IRL: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

**Table 11B — i**

D, E, IRL and I: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.



**Table 11**  
**R&D expenditure**  
**At the national level**

In millions of EUR  
At current prices and current exchange rates

**Table 11C**

**R&D expenditure — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>19 304 s</b>	<b>19 904 s</b>	<b>20 081 s</b>	<b>20 377 s</b>	<b>20 133 s</b>	<b>21 077 s</b>	<b>21 955 s</b>	<b>22 334 s</b>	<b>23 025 s</b>
EUR-12	18 247 s	18 247 s	18 925 s	17 130 s	18 504 s	17 273 s	17 808 s	17 995 s	18 458 s
B	117 e	112 e	125 er	128 er	138 er	146 e	153 er	.	.
DK	362	.	431	436 e	446	455 e	517 r	498	.
D	6 015	6 081	6 540	6 457	6 245	6 502 e	6 632 r	6 672 e	6 212 e
EL	120	.	111	.	127	.	173	.	.
E	742	714	675	730 e	704	764	843	905 r	971 i
F	5 682	5 602	5 761	5 700	5 130	5 245	5 367	5 357 e	.
IRL	51 e	52 e	52 e	64 e	60 e	70 e	64	62 e	.
I	2 045	1 920	1 772	1 954	2 101 r	2 307 r	2 213 r	2 408 ri	2 411 i
L	.	.	.	.	.	.	.	34 p	42 p
NL	969	1 072	1 142	1 222	1 228	1 274	1 250	.	.
A	207	.	.	.	.	212 r	.	.	.
P	.	.	127	.	141	.	222 r	.	.
FIN	327	365	390	402	399	420	470	497 r	515
S	219	.	239	.	274	277 e	289	.	.
UK	2 472	2 642	2 484	2 544	2 912	3 072	2 714	3 498 r	3 629 r
<b>EEA</b>	<b>19 694 s</b>	<b>19 353 s</b>	<b>20 423 s</b>	<b>20 795 s</b>	<b>20 547 s</b>	<b>21 432 s</b>	<b>21 933 s</b>	<b>22 344 s</b>	<b>23 543 s</b>
IS	22	30	31	35	36	55	57	.	.
NO	329	.	332	.	372	.	377	.	.
JP	9 225	10 109	11 301	9 621	9 535	9 532	12 214	15 218	.
US	14 477 i	14 007 i	13 278 i	13 421 i	15 332 i	15 204 i	17 725 i	21 425 pi	.

**Table 11D**

**R&D expenditure — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>23 353 s</b>	<b>24 457 s</b>	<b>25 417 s</b>	<b>26 399 s</b>	<b>26 955 s</b>	<b>28 777 s</b>	<b>31 955 s</b>	<b>33 333 s</b>	<b>34 443 s</b>
EUR-12	12 771 s	19 464 s	20 150 s	21 251 s	22 164 s	22 023 s	22 977 s	24 662 s	25 519 s
B	731 e	798 e	387 er	912 e	981 e	1 084 er	1 102 er	.	.
DK	472	.	620	572 e	642	626 e	690	770	.
D	7 148	7 560 b	7 702	7 220	7 642	7 715 e	7 937 r	2 024 e	2 068 e
EL	152	.	194 r	.	274	.	304	.	.
E	1 189	1 089	1 181	1 228	1 328	1 432	1 506	1 604 r	1 248 ei
F	4 145	4 315	4 525	4 726	4 725	4 955	5 052	5 040 e	.
IRL	105 e	120 e	132 e	152 e	122 e	204 e	222 e	.	.
I	2 322	2 342	2 125	2 594	3 331 br	3 522 r	3 622 r	.	.
L	.	.	.	.	.	.	.	1 p	0 p
NL	1 609	1 669	1 217	1 270	1 254	1 261	1 223 r	.	.
A	212	.	.	.	.	1 002	.	.	.
P	.	.	174	.	222 r	.	314	.	.
FIN	328	364	442	462	528	664	765	729 r	829 f
S	1 144	.	1 294	.	1 671	1 624 e	1 242	.	.
UK	2 985	3 221	3 252	3 421	4 177	4 493	5 073	5 981 r	6 220 fr
<b>EEA</b>	<b>23 233 s</b>	<b>25 140 s</b>	<b>25 940 s</b>	<b>27 490 s</b>	<b>28 293 s</b>	<b>30 422 s</b>	<b>32 295 s</b>	<b>34 239 s</b>	<b>35 403 s</b>
IS	17	17	22	21	34	27	39 r	.	.
NO	469	.	500	.	604	.	700	.	.
JP	21 197 i	22 622 i	24 242 i	15 127 b	15 405	15 222	18 201	22 252	.
US	22 006 i	22 621 i	21 328 i	22 918 i	26 922 i	22 759 i	31 952 i	32 929 pi	.

**Methodological notes**

**Table 11C — i**

E and I: OECD-MSTI data;

US: Federal or central government only.

See abbreviations and other methodological notes starting on page 172.

**Table 11D — i**

E: OECD-MSTI data;

JP: Overestimated or based on overestimated data;

US: Excludes most or all capital expenditure.

Sources: Eurostat, OECD.

In millions of constant PPS  
At 1995 prices

**Table 12**  
**R&D expenditure**  
**At the national level**

**Table 12A**

**R&D expenditure — All sectors**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>117 440 s</b>	<b>117 784 s</b>	<b>118 807 s</b>	<b>120 837 s</b>	<b>123 779 s</b>	<b>128 117 s</b>	<b>135 300 s</b>	<b>140 249 s</b>	<b>144 380 s</b>
EUR-12	91 579 s	90 865 s	91 792 s	93 702 s	96 340 s	99 873 s	106 190 s	109 453 s	112 518 s
B	3 249 e	3 334 e	3 454 e	3 677 er	3 940 er	4 089 er	4 362 er	.	.
DK	1 752	.	2 000	2 068 e	2 229	2 425 e	2 514 r	2 573 e	.
D	36 116	36 510	36 790	36 043 e	37 097	38 225 e	41 063 r	43 044 i	43 938 i
EL	543 s	.	592 e	.	658	.	931 e	.	.
E	4 516	4 275	4 390	4 602 e	4 715	5 375 e	5 536	6 129 er	6 471 i
F	25 219	25 066	25 149	25 274	24 833	25 150	26 084	26 437 e	.
IRL	593 e	705 e	796 e	842 e	912 e	959 i	1 080 e	.	.
I	11 201	10 627	10 453	10 647	11 340 br	11 711 r	11 597 r	.	.
L	.	.	.	.	.	.	.	231 p	.
NL	5 440 b	5 693	5 929	6 243	6 504	6 452	6 934 r	.	.
A	2 204	2 366 e	2 436 e	2 562 e	2 744 e	3 007	3 162 e	3 201 e	3 344 e
P	.	.	703 r	.	324	.	1 087 r	.	.
FIN	1 787	1 924	1 999	2 300	2 625	2 943	3 408	3 763 r	4 136 f
S	4 589	.	5 533	.	6 060	6 393 e	6 752	.	.
UK	19 541	19 999	19 687	19 443	19 310	19 777	20 609	21 302 r	21 387 r
<b>EEA</b>	<b>119 993 s</b>	<b>119 374 s</b>	<b>120 499 s</b>	<b>122 533 s</b>	<b>125 583 s</b>	<b>129 973 s</b>	<b>137 320 s</b>	<b>142 244 s</b>	<b>146 419 s</b>
IS	71	74	33	36	100	127	151	.	.
NO	1 457	.	1 579	.	1 620	.	1 773	.	.
JP	72 312 i	71 644 i	76 205 i	75 424 b	73 607	80 649	81 080	84 220	.
US	160 805 i	160 529 i	170 490 i	179 705 i	189 794 i	200 145 i	212 450 i	225 223 pi	.

**Table 12B**

**R&D expenditure — Business enterprise sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>79 233 s</b>	<b>79 342 s</b>	<b>79 935 s</b>	<b>75 402 s</b>	<b>77 302 s</b>	<b>80 310 s</b>	<b>87 949 s</b>	<b>90 399 s</b>	<b>94 130 s</b>
EUR-12	56 322 s	56 345 s	56 027 s	57 326 s	59 413 s	61 506 s	66 407 s	70 061 s	72 708 s
B	2 327 e	2 373 e	2 462 e	2 632 e	2 821 e	2 902 er	3 124 e	3 360 f	.
DK	1 021	.	1 147	1 260 e	1 370	1 569	1 594 r	1 641 e	.
D	24 119	23 507	23 779	23 331 e	23 023	23 970 e	23 649 r	30 453 i	31 424 i
EL	147 s	.	174	151	167	.	265 r	.	.
E	2 156	1 999	2 117	2 225 e	2 301	2 301	2 373	3 239 er	3 513 i
F	15 560	15 500	15 337	15 555	15 560	15 669	16 479	16 929 e	.
IRL	408 e	412 e	563 e	595 e	647 e	696 i	751	.	.
I	6 010	5 663	5 533	5 695	5 651 r	5 652 r	5 720 r	5 333 ri	6 133 i
L	.	.	.	.	.	.	.	202 p	.
NL	2 635 b	2 934	3 093	3 257	3 549	3 495	3 937 r	.	.
A	1 232	.	.	.	.	1 911 r	.	.	.
P	.	.	147	.	136	.	247	.	.
FIN	1 025	1 193	1 264	1 523	1 732	1 977	2 323	2 671 r	3 015 f
S	3 303	.	4 108	.	4 535	4 374 e	5 072	.	.
UK	13 087	13 105	12 347	12 675	12 647	13 024	13 977	13 939 r	14 171 fr
<b>EEA</b>	<b>74 940 s</b>	<b>74 193 s</b>	<b>74 357 s</b>	<b>74 354 s</b>	<b>73 993 s</b>	<b>81 332 s</b>	<b>83 114 s</b>	<b>92 014 s</b>	<b>95 329 s</b>
IS	22	23	27	27	44	47	71	.	.
NO	730	.	395	.	356	.	995	.	.
JP	47 755 i	47 321 i	49 695 i	53 633 b	56 632	57 420	57 335	59 763	.
US	113 420 i	113 179 i	122 354 i	131 442 i	140 400 i	148 949 i	153 723 i	169 651 pi	.

**Methodological notes**

**Table 12A — i**

D, E and IRL: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

**Table 12B — i**

D, E, IRL and I: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 12**  
**R&D expenditure**  
**At the national level**

In millions of constant PPS  
At 1995 prices

**Table 12C**

**R&D expenditure — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>19 430 s</b>	<b>19 255 s</b>	<b>19 345 s</b>	<b>19 197 s</b>	<b>18 547 s</b>	<b>19 154 s</b>	<b>19 133 s</b>	<b>19 433 s</b>	<b>19 494 s</b>
EUR-12	18 137 s	18 207 s	18 980 s	18 338 s	18 373 s	18 947 s	18 017 s	18 238 s	18 328 s
B	121 e	117 e	119 er	121 er	130 er	141 e	145 er	.	.
DK	312	.	340	337 e	344	343 e	332 r	354	.
D	5 423	5 330	5 518	5 493	5 429	5 605 e	5 661 r	5 713 e	5 760 e
EL	175 s	.	151	.	158	.	202	.	.
E	903	885	817	842 e	819	875	835	970 r	1 001 i
F	5 327	5 171	5 279	5 123	4 644	4 633	4 732	4 697 e	.
IRL	81 e	87 e	83 e	71 e	60 e	70 e	61	63 e	.
I	2 395	2 272	2 209	2 127	2 200 r	2 370 r	2 228 r	2 371 ri	2 314 i
L	.	.	.	.	.	.	.	29 p	38 p
NL	935	1 062	1 072	1 158	1 177	1 208	1 155	.	.
A	198	.	.	.	.	194 r	.	.	.
P	.	.	190	.	200	.	304 r	.	.
FIN	371	384	345	364	357	371	413	424 r	430
S	193	.	208	.	214	221 e	227	.	.
UK	2 732	2 919	2 834	2 732	2 636	2 633	2 211	2 590 r	2 729 r
<b>EEA</b>	<b>19 733 s</b>	<b>19 591 s</b>	<b>19 649 s</b>	<b>19 477 s</b>	<b>18 879 s</b>	<b>19 477 s</b>	<b>19 593 s</b>	<b>19 757 s</b>	<b>20 019 s</b>
IS	29	30	31	35	33	47	46	.	.
NO	230	.	273	.	278	.	274	.	.
JP	6 744	6 463	7 352	7 036	6 944	7 459	7 992	8 329	.
US	18 373 i	18 289 i	18 033 i	18 433 i	18 498 i	18 633 i	18 401 i	18 345 pi	.

**Table 12D**

**R&D expenditure — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>21 643 s</b>	<b>24 331 s</b>	<b>24 429 s</b>	<b>25 391 s</b>	<b>26 543 s</b>	<b>27 231 s</b>	<b>28 191 s</b>	<b>28 934 s</b>	<b>29 499 s</b>
EUR-12	18 379 s	19 087 s	19 133 s	19 900 s	20 968 s	21 533 s	22 128 s	22 517 s	22 331 s
B	755 e	739 e	825 er	874 e	933 e	995 er	1 042 er	.	.
DK	400	.	490	447 e	495	437 e	510	549	.
D	6 514	6 672 b	6 495	6 660	6 645	6 660 e	6 763 r	6 873 e	6 808 e
EL	223 s	.	262 r	.	331	.	461	.	.
E	1 412	1 360	1 406	1 434	1 543	1 640	1 663	1 815 r	1 904 i
F	3 992	4 066	4 201	4 256	4 333	4 423	4 477	4 419 e	.
IRL	128 e	140 e	154 e	160 e	130 e	203 e	219 e	.	.
I	2 797	2 757	2 662	2 324	3 433 rb	3 679 r	3 660 r	.	.
L	.	.	.	.	.	.	.	0 p	0 p
NL	1 634	1 644	1 706	1 770	1 777	1 752	1 831 r	.	.
A	771	.	.	.	.	893	.	.	.
P	.	.	280	.	330 r	.	419	.	.
FIN	369	363	391	417	523	577	672	672 r	691 f
S	1 081	.	1 213	.	1 307	1 293 e	1 445	.	.
UK	3 333	3 735	3 741	3 752	3 779	3 367	4 133	4 115 r	4 668 fr
<b>EEA</b>	<b>24 093 s</b>	<b>24 311 s</b>	<b>25 092 s</b>	<b>25 310 s</b>	<b>27 029 s</b>	<b>27 742 s</b>	<b>28 732 s</b>	<b>29 433 s</b>	<b>30 072 s</b>
IS	17	13	23	21	31	32	32 r	.	.
NO	393	.	411	.	443	.	509	.	.
JP	14 561 i	14 505 i	15 773 i	11 130 b	11 220	11 974	12 084	12 236	.
US	24 304 i	25 455 i	25 909 i	26 437 i	27 251 i	28 306 i	29 571 i	30 521 pi	.

**Methodological notes**

**Table 12C — i**

E and I: OECD-MSTI data;

US: Federal or central government only.

See abbreviations and other methodological notes starting on page 172.

**Table 12D — i**

E: OECD-MSTI data;

JP: Overestimated or based on overestimated data;

US: Excludes most or all capital expenditure.

Sources: Eurostat, OECD.

Table 13A

## R&amp;D expenditure — All sectors

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>112 301 s</b>	<b>119 003 s</b>	<b>113 307 s</b>	<b>124 534 s</b>	<b>131 143 s</b>	<b>137 333 s</b>	<b>143 321 s</b>	<b>153 471 s</b>	<b>165 373 s</b>
EUR-12	87 008 s	90 087 s	91 792 s	95 819 s	101 095 s	108 112 s	114 332 s	122 879 s	128 091 s
B	3 182 e	3 326 e	3 454 er	3 771 er	4 112 er	4 347 er	4 533 er	.	.
DK	1 666	.	2 000	2 177 e	2 333	2 614 e	2 320 r	3 011 e	.
D	33 313	34 745	35 790	36 730 e	39 316	40 349 e	45 241 r	43 493 i	50 192 i
EL	505	.	592 e	.	630	.	1 081 e	.	.
E	4 413	4 201	4 390	4 777 e	4 930	5 660 e	6 113	6 974 er	7 525 i
F	24 499	24 647	25 149	25 608	25 504	26 105	27 354	28 993 e	.
IRL	565 e	607 e	798 e	325 e	947 e	1 001 i	1 074 e	.	.
I	10 644	10 544	10 453	11 155	11 989 rb	12 336 r	13 173 r	.	.
L	.	.	.	.	.	.	.	265 p	.
NL	5 063 b	5 465	5 929	6 361	6 946	7 119	7 773 r	.	.
A	2 119	2 334 e	2 436 e	2 667 e	2 940 e	3 212	3 493 e	3 650 e	3 850 e
P	.	.	703 r	.	391	.	1 173 r	.	.
FIN	1 627	1 306	1 999	2 331	2 691	3 069	3 573	4 052 r	4 436 f
S	4 357	.	5 533	.	6 453	6 824 e	7 220	.	.
UK	19 693	20 231	19 687	20 722	21 405	22 520	23 519	25 362 r	26 471 fr
<b>EEA</b>	<b>114 375 s</b>	<b>117 533 s</b>	<b>120 499 s</b>	<b>129 355 s</b>	<b>133 119 s</b>	<b>139 351 s</b>	<b>149 102 s</b>	<b>161 245 s</b>	<b>169 523 s</b>
IS	62	67	33	33	113	133	164	.	.
NO	1 512	.	1 579	.	1 330	.	2 017	.	.
JP	69 353 i	70 647 i	76 223 i	73 770 b	83 952	87 533	86 149	90 976	.
US	153 937 i	153 344 i	170 490 i	182 233 i	193 207 i	212 642 i	224 590 i	246 207 pi	.

Table 13B

## R&amp;D expenditure — Business enterprise sector

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>79 335 s</b>	<b>72 199 s</b>	<b>73 935 s</b>	<b>77 709 s</b>	<b>81 482 s</b>	<b>89 339 s</b>	<b>95 991 s</b>	<b>101 717 s</b>	<b>103 033 s</b>
EUR-12	53 077 s	54 242 s	56 027 s	53 533 s	62 323 s	66 404 s	72 501 s	73 403 s	82 622 s
B	2 265 e	2 372 e	2 462 e	2 699 e	2 944 e	3 085 er	3 250 e	3 579 f	.
DK	955	.	1 147	1 328 e	1 467	1 691	1 733 r	1 921 e	.
D	22 531	23 001	23 779	24 359 e	26 520	27 753 e	31 585 r	34 314 i	35 355 i
EL	135	.	174	157	174	.	294 r	.	.
E	2 110	1 964	2 117	2 309 e	2 434	2 950	3 131	3 743 er	4 086 i
F	15 115	15 242	15 337	15 760	15 949	16 253	17 593	18 565 e	.
IRL	334 e	437 e	563 e	534 e	673 e	719 i	733	.	.
I	5 711	5 582	5 533	5 957	5 955 r	6 230 r	6 497 r	6 753 ri	7 291 i
L	.	.	.	.	.	.	.	232 p	.
NL	2 496 b	2 314	3 093	3 319	3 790	3 356	4 334 r	.	.
A	1 125	.	.	.	.	2 041 r	.	.	.
P	.	.	147	.	200	.	267	.	.
FIN	949	1 124	1 264	1 542	1 776	2 064	2 435	2 373 r	3 269 f
S	3 154	.	4 108	.	4 323	5 199 e	5 424	.	.
UK	13 139	13 257	12 347	13 506	14 020	14 331	15 951	16 655 r	17 156 fr
<b>EEA</b>	<b>71 214 s</b>	<b>73 016 s</b>	<b>74 357 s</b>	<b>73 712 s</b>	<b>83 555 s</b>	<b>83 031 s</b>	<b>99 397 s</b>	<b>104 193 s</b>	<b>103 523 s</b>
IS	19	21	27	27	45	49	77	.	.
NO	309	.	395	.	1 047	.	1 129	.	.
JP	45 301 i	45 693 i	49 710 i	55 973 b	60 433	62 321	60 212	64 553	.
US	108 779 i	111 639 i	122 354 i	133 327 i	146 632 i	153 250 i	167 793 i	185 456 pi	.

## Methodological notes

## Table 13A — i

D, E and IRL: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

## Table 13B — i

D, E, IRL and I: OECD-MSTI data;  
JP: Overestimated or based on overestimated data;  
US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 13**  
**R&D expenditure**  
**At the national level**

In millions of current PPS

**Table 13C**

**R&D expenditure — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>19 491 s</b>	<b>19 952 s</b>	<b>19 345 s</b>	<b>19 732 s</b>	<b>19 939 s</b>	<b>20 912 s</b>	<b>21 139 s</b>	<b>22 020 s</b>	<b>22 437 s</b>
EUR-12	15 412 s	15 485 s	15 980 s	16 195 s	16 117 s	16 927 s	17 541 s	18 237 s	18 698 s
B	113 e	117 e	119 er	124 er	136 e	150 e	150 er	.	.
DK	295	.	340	354 e	368	375 e	423 r	414	.
D	5 133	5 215	5 516	5 608	5 754	5 990 e	6 226 r	6 436 e	6 572 e
EL	162	.	151	.	159	.	224	.	.
E	884	869	817	874 e	867	921	1 083	1 104 r	1 164 i
F	5 175	5 085	5 279	5 190	4 760	4 366	5 064	5 151 e	.
IRL	57 e	67 e	63 e	60 e	72 e	72 e	64	67 e	.
I	2 275	2 241	2 209	2 229	2 323 r	2 608 r	2 529 r	2 744 ri	2 729 i
L	.	.	.	.	.	.	.	33 p	40 p
NL	915	1 019	1 072	1 178	1 257	1 330	1 286	.	.
A	133	.	.	.	.	207 r	.	.	.
P	.	.	190	.	216	.	329 r	.	.
FIN	344	342	345	367	366	335	433	456 r	466
S	139	.	208	.	228	236 e	243	.	.
UK	2 804	2 953	2 834	2 964	2 921	3 003	2 523	3 084 r	3 304 fr
<b>EEA</b>	<b>19 015 s</b>	<b>19 255 s</b>	<b>19 949 s</b>	<b>20 090 s</b>	<b>19 972 s</b>	<b>20 942 s</b>	<b>21 499 s</b>	<b>22 439 s</b>	<b>23 093 s</b>
IS	25	27	31	36	34	50	50	.	.
NO	290	.	273	.	302	.	311	.	.
JP	6 469	6 373	7 355	7 393	7 417	8 095	8 393	8 993	.
US	15 703 i	15 664 i	16 033 i	15 706 i	16 182 i	16 653 i	17 339 i	18 414 pi	.

**Table 13D**

**R&D expenditure — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>23 471 s</b>	<b>24 017 s</b>	<b>24 429 s</b>	<b>24 199 s</b>	<b>23 151 s</b>	<b>21 353 s</b>	<b>21 071 s</b>	<b>23 324 s</b>	<b>24 005 s</b>
EUR-12	17 946 s	18 704 s	19 133 s	20 391 s	22 040 s	23 066 s	24 268 s	25 330 s	26 092 s
B	735 e	737 e	825 er	897 e	979 e	1 068 er	1 084 er	.	.
DK	373	.	490	471 e	530	524 e	572	643	.
D	6 099	6 529 b	6 495	6 808	7 042	7 106 e	7 451 r	7 743 e	7 764 e
EL	205	.	262 r	.	344	.	510	.	.
E	1 332	1 327	1 406	1 541	1 633	1 727	1 843	2 066 r	2 214 i
F	3 373	3 923	4 201	4 312	4 441	4 597	4 731	4 346 e	.
IRL	119 e	139 e	154 e	166 e	196 e	210 e	223 e	.	.
I	2 653	2 721	2 662	2 959	3 632 rb	4 043 r	4 147 r	.	.
L	.	.	.	.	.	.	.	1 p	0 p
NL	1 519	1 577	1 706	1 804	1 833	1 933	2 089 r	.	.
A	741	.	.	.	.	954	.	.	.
P	.	.	260	.	357 r	.	454	.	.
FIN	333	341	391	421	537	600	704	723 r	750 f
S	933	.	1 213	.	1 391	1 335 e	1 545	.	.
UK	3 364	3 773	3 741	3 932	4 129	4 392	4 716	5 257 r	5 645 fr
<b>EEA</b>	<b>23 029 s</b>	<b>24 428 s</b>	<b>25 092 s</b>	<b>24 944 s</b>	<b>23 979 s</b>	<b>21 393 s</b>	<b>21 633 s</b>	<b>23 553 s</b>	<b>24 754 s</b>
IS	15	16	23	21	32	33	34 r	.	.
NO	413	.	411	.	490	.	573	.	.
JP	13 956 i	14 303 i	15 777 i	11 624 b	11 933	12 996	12 633	13 217	.
US	23 376 i	25 113 i	25 909 i	26 316 i	23 459 i	30 169 i	31 261 i	33 365 pi	.

**Methodological notes**

**Table 13C — i**

E and I: OECD-MSTI data;

US: Federal or central government only.

See abbreviations and other methodological notes starting on page 172.

**Table 13D — i**

E: OECD-MSTI data;

JP: Overestimated or based on overestimated data;

US: Excludes most or all capital expenditure.

Sources: Eurostat, OECD.

Table 14A

R&amp;D expenditure — All sectors

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>1.95 s</b>	<b>1.97 s</b>	<b>1.99 s</b>	<b>1.99 s</b>	<b>1.97 s</b>	<b>1.97 s</b>	<b>1.93 s</b>	<b>1.93 s</b>	<b>1.94 s</b>
EUR-12	1.89 s	1.84 s	1.83 s	1.82 s	1.81 s	1.82 s	1.87 s	1.87 s	1.89 s
B	1.70 e	1.69 e	1.71 er	1.80 er	1.87 er	1.89 er	1.98 er	.	.
DK	1.74	.	1.84	1.86 er	1.94	2.06 e	2.09 r	2.07 e	.
D	2.37	2.28	2.26	2.26 e	2.29	2.31 e	2.44 r	2.48 i	2.52 i
EL	0.47 s	.	0.49 e	.	0.51	.	0.67 e	.	.
E	0.88	0.87	0.87	0.88 e	0.82	0.89 e	0.88	0.94 er	0.97 i
F	2.40	2.34	2.31	2.30	2.22	2.17	2.18	2.13 e	.
IRL	1.17 e	1.31 e	1.34 e	1.32 e	1.29 e	1.26 i	1.21 e	.	.
I	1.13	1.06	1.00	1.01	1.05 rb	1.07 r	1.04 r	.	.
L	.	.	.	.	.	.	.	1.36 p	.
NL	1.93 b	1.97	1.99	2.08	2.04	1.94	2.02 r	.	.
A	1.47	1.54 e	1.56 e	1.60 e	1.60 e	1.79	1.83 e	1.80 e	1.86 e
P	.	.	0.57 r	.	0.62	.	0.76 r	.	.
FIN	2.18	2.29	2.29	2.54	2.72	2.89	3.22	3.37 r	3.67 f
S	3.09	.	3.46	.	3.68	3.75 e	3.78	.	.
UK	2.77	2.08	1.97	1.90	1.82	1.87	1.86	1.85 r	1.88 r
<b>EEA</b>	<b>1.94 s</b>	<b>1.91 s</b>	<b>1.91 s</b>	<b>1.93 s</b>	<b>1.91 s</b>	<b>1.87 s</b>	<b>1.92 s</b>	<b>1.92 s</b>	<b>1.94 s</b>
IS	1.33	1.38	1.54	1.57	1.84	2.04	2.32	.	.
NO	1.73	.	1.71	.	1.66	.	1.70	.	.
JP	2.82 i	2.76 i	2.89 i	2.77 b	2.88	2.94	2.94	2.98	.
US	2.52 i	2.43 i	2.57 i	2.56 i	2.58 i	2.67 i	2.66 i	2.70 pi	.

Table 14B

R&amp;D expenditure — Business enterprise sector

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>1.22 s</b>	<b>1.24 s</b>	<b>1.19 s</b>	<b>1.19 s</b>	<b>1.19 s</b>	<b>1.19 s</b>	<b>1.25 s</b>	<b>1.24 s</b>	<b>1.23 s</b>
EUR-12	1.16 s	1.13 s	1.13 s	1.12 s	1.13 s	1.13 s	1.19 s	1.21 s	1.23 s
B	1.22 e	1.21 e	1.22 e	1.29 e	1.34 e	1.34 er	1.40 e	1.45 f	.
DK	1.02	.	1.06	1.13 e	1.19	1.33	1.32 r	1.32 e	.
D	1.53	1.57	1.50	1.49 e	1.54	1.57 e	1.70 r	1.76 i	1.80 i
EL	0.13 s	.	0.14	0.12	0.13	.	0.19 r	.	.
E	0.42	0.38	0.39	0.40 e	0.40	0.47	0.46	0.50 er	0.52 i
F	1.43	1.45	1.41	1.41	1.39	1.35	1.38	1.36 e	.
IRL	0.80 e	0.91 e	0.96 e	0.93 e	0.91 e	0.97 i	0.88	.	.
I	0.60	0.66	0.63	0.64	0.62 r	0.62 r	0.67 r	0.67 ri	0.68 i
L	.	.	.	.	.	.	.	1.19 p	.
NL	0.95 b	1.01	1.04	1.06	1.11	1.06	1.14 r	.	.
A	0.82	.	.	.	.	1.14 r	.	.	.
P	.	.	0.12	.	0.14	.	0.17	.	.
FIN	1.27	1.42	1.45	1.68	1.79	1.94	2.19	2.39 r	2.68 f
S	2.23	.	2.57	.	2.75	2.85 e	2.84	.	.
UK	1.41	1.35	1.29	1.24	1.19	1.19	1.25	1.22 r	1.21 fr
<b>EEA</b>	<b>1.22 s</b>	<b>1.19 s</b>	<b>1.13 s</b>	<b>1.13 s</b>	<b>1.13 s</b>	<b>1.19 s</b>	<b>1.24 s</b>	<b>1.25 s</b>	<b>1.27 s</b>
IS	0.42	0.43	0.49	0.47	0.75	0.75	1.08	.	.
NO	0.93	.	0.97	.	0.94	.	0.95	.	.
JP	1.36 i	1.33 i	1.39 i	1.37 b	2.04	2.09	2.08	2.11	.
US	1.73 i	1.77 i	1.80 i	1.87 i	1.97 i	1.94 i	1.99 i	2.04 pi	.

## Methodological notes

## Table 14A — i

D, E and IRL: OECD-MSTI data;  
 JP: Overestimated or based on overestimated data;  
 US: Excludes most or all capital expenditure.

## Table 14B — i

D, E, IRL and I: OECD-MSTI data;  
 JP: Overestimated or based on overestimated data;  
 US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 14**  
**R&D expenditure**  
**At the national level**

As a % of GDP

**Table 14C** **R&D expenditure — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>0.32 s</b>	<b>0.31 s</b>	<b>0.31 s</b>	<b>0.30 s</b>	<b>0.29 s</b>	<b>0.28 s</b>	<b>0.27 s</b>	<b>0.28 s</b>	<b>0.28 s</b>
EUR-12	0.33 s	0.32 s	0.31 s	0.30 s	0.29 s	0.29 s	0.28 s	0.28 s	0.27 s
B	0.08 e	0.08 e	0.08 er	0.08 er	0.08 er	0.07 e	0.06 er	.	.
DK	0.31	.	0.31	0.30 e	0.30	0.30 e	0.32 r	0.29	.
D	0.36	0.34	0.36	0.34	0.34	0.34 e	0.34 r	0.33 e	0.38 e
EL	0.15 s	.	0.12	.	0.12	.	0.15	.	.
E	0.13	0.17	0.15	0.15 e	0.14	0.15	0.15	0.15 r	0.15 i
F	0.51	0.48	0.48	0.47	0.41	0.40	0.40	0.38 e	.
IRL	0.12 e	0.13 e	0.11 e	0.11 e	0.10 e	0.09 e	0.07	0.07 e	.
I	0.24	0.22	0.21	0.20	0.20 r	0.22 r	0.20 r	0.21 ri	0.20 i
L	.	.	.	.	.	.	.	0.17 p	0.19 p
NL	0.35	0.37	0.36	0.38	0.37	0.36	0.33	.	.
A	0.13	.	.	.	.	0.12 r	.	.	.
P	.	.	0.15	.	0.15	.	0.21 r	.	.
FIN	0.46	0.43	0.39	0.40	0.37	0.36	0.39	0.38 r	0.38
S	0.13	.	0.13	.	0.13	0.13 e	0.13	.	.
UK	0.30	0.30	0.28	0.27	0.25	0.24	0.20	0.23 r	0.23 r
<b>EEA</b>	<b>0.32 s</b>	<b>0.31 s</b>	<b>0.31 s</b>	<b>0.30 s</b>	<b>0.29 s</b>	<b>0.28 s</b>	<b>0.27 s</b>	<b>0.28 s</b>	<b>0.28 s</b>
IS	0.55	0.56	0.53	0.52	0.55	0.76	0.70	.	.
NO	0.33	.	0.30	.	0.27	.	0.26	.	.
JP	0.26	0.25	0.28	0.26	0.25	0.27	0.29	0.29	.
US	0.28 i	0.24 i	0.24 i	0.22 i	0.21 i	0.20 i	0.21 i	0.20 pi	.

**Table 14D** **R&D expenditure — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>
EUR-12	0.38 s	0.38 s	0.37 s	0.38 s	0.39 s	0.39 s	0.38 s	0.38 s	0.38 s
B	0.40 e	0.40 e	0.41 er	0.43 e	0.44 e	0.46 er	0.47 er	.	.
DK	0.40	.	0.45	0.40 e	0.43	0.41 e	0.42	0.44	.
D	0.43	0.43 b	0.41	0.42	0.41	0.40 e	0.40 r	0.40 e	0.39 e
EL	0.19 s	.	0.22 r	.	0.26	.	0.33	.	.
E	0.27	0.26	0.26	0.27	0.27	0.27	0.27	0.28 r	0.28 i
F	0.33	0.33	0.39	0.39	0.39	0.38	0.37	0.36 e	.
IRL	0.25 e	0.26 e	0.26 e	0.26 e	0.27 e	0.26 e	0.26 e	.	.
I	0.23	0.27	0.25	0.27	0.32 rb	0.34 r	0.33 r	.	.
L	.	.	.	.	.	.	.	0.00 p	0.00 p
NL	0.53	0.57	0.57	0.58	0.56	0.53	0.53 r	.	.
A	0.51	.	.	.	.	0.53	.	.	.
P	.	.	0.21	.	0.25 r	.	0.29	.	.
FIN	0.44	0.43	0.45	0.46	0.54	0.57	0.63	0.60 r	0.61 f
S	0.70	.	0.76	.	0.79	0.76 e	0.81	.	.
UK	0.36	0.33	0.37	0.37	0.36	0.35	0.37	0.38 r	0.40 fr
<b>EEA</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.39 s</b>	<b>0.40 s</b>	<b>0.39 s</b>	<b>0.40 s</b>	<b>0.39 s</b>	<b>0.39 s</b>
IS	0.32	0.33	0.42	0.36	0.52	0.51	0.49 r	.	.
NO	0.47	.	0.45	.	0.44	.	0.49	.	.
JP	0.57 i	0.56 i	0.60 i	0.41 b	0.40	0.44	0.44	0.43	.
US	0.39 i	0.33 i	0.33 i	0.33 i	0.37 i	0.37 i	0.37 i	0.37 pi	.

**Methodological notes**

**Table 14C — i**

E and I: OECD-MSTI data;

US: Federal or central government only.

**Table 14D — i**

E: OECD-MSTI data;

JP: Overestimated or based on overestimated data;

US: Excludes most or all capital expenditure.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.



In millions of national currencies  
At current prices

**Table 15**  
**R&D expenditure**  
**At the regional level**

**Table 15A-1**

**R&D expenditure at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>EU-15</b>	<b>120 799 s</b>	<b>135 374 s</b>	<b>142 997 s</b>	<b>154 237 s</b>	<b>163 937 s</b>	<b>31 822 s</b>	<b>34 734 s</b>	<b>30 381 s</b>	<b>100 098 s</b>	<b>107 137 s</b>
EUR-12	102 073 s	104 062 s	102 874 s	118 525 s	122 277 s	62 064 s	64 807 s	67 732 s	74 284 s	78 988 s
Belgique-Belgie	3 736 er	4 058 er	4 277 er	4 613 er	.	2 674 e	2 905 e	3 036 er	3 307 e	3 636 f
Région Bruxelles-capitale	.	.	.	.	.	417 e	424 e	423 er	442 e	481 f
Vlaams Gewest	.	.	.	.	.	1 604 er	1 793 er	1 941 e	2 133 er	2 357 f
Région Wallonne	.	.	.	.	.	653 er	682 e	668 er	727 er	787 f
Not registered by region	.	.	.	.	.	.	.	.	.	.
Danmark	10 667 e	21 662	23 793 e	25 323 r	26 266 e	11 073 e	13 302	15 394	16 064 r	17 130 e
Deutschland	41 363 e	42 350	44 648 e	43 191 r	50 318 i	21 405 e	23 910	30 334 e	32 623 r	35 604 i
Baden-Württemberg	.	10 027	.	10 977	.	.	7 734	.	8 683	.
Stuttgart	.	5 087	.	5 643	.	.	4 513	.	5 104	.
Karlsruhe	.	2 434	.	2 517	.	.	1 310	.	1 478	.
Freiburg	.	912	.	931	.	.	537	.	531	.
Tübingen	.	1 615	.	1 286	.	.	1 319	.	1 511	.
Bayern	.	35 15	.	36 14	.	.	65 17	.	7 588	.
Oberbayern	.	5 937	.	6 543	.	.	4 533	.	5 155	.
Niederbayern	.	33	.	117	.	.	30	.	33	.
Oberpfalz	.	263	.	458	.	.	170	.	360	.
Oberfranken	.	263	.	298	.	.	173	.	212	.
Mittelfranken	.	1 056	.	1 231	.	.	318	.	385	.
Unterfranken	.	475	.	527	.	.	303	.	355	.
Schwaben	.	419	.	441	.	.	378	.	403	.
Berlin	.	2 577	.	2 766	.	.	1 193	.	1 410	.
Brandenburg	.	533	.	670	.	.	235	.	235	.
Bremen	.	423	.	450	.	.	210	.	228	.
Hamburg	.	1 305	.	1 259	.	.	792	.	758	.
Hessen	.	3 743	.	4 475	.	.	2 972	.	3 700	.
Darmstadt	.	3 142	.	3 363	.	.	2 647	.	3 333	.
Gießen	.	408	.	397	.	.	139	.	177	.
Kassel	.	202	.	210	.	.	136	.	140	.
Mecklenburg-Vorpommern	.	267	.	290	.	.	40	.	33	.
Niedersachsen	.	2 350	.	3 353	.	.	1 741	.	2 793	.
Braunschweig	.	1 632	.	2 434	.	.	1 022	.	1 799	.
Hannover	.	329	.	1 043	.	.	521	.	723	.
Lüneburg	.	139	.	162	.	.	34	.	105	.
Weser-Ems	.	200	.	265	.	.	104	.	168	.
Nordrhein-Westfalen	.	7 035	.	7 774	.	.	4 476	.	5 003	.
Düsseldorf	.	2 017	.	2 099	.	.	1 553	.	1 607	.
Köln	.	3 207	.	3 699	.	.	1 809	.	2 207	.
Münster	.	487	.	445	.	.	257	.	221	.
Detmold	.	443	.	508	.	.	324	.	370	.
Arnsberg	.	946	.	1 023	.	.	532	.	593	.
Rheinland-Pfalz	.	1 762	.	1 944	.	.	1 336	.	1 547	.
Koblenz	.	153	.	256	.	.	134	.	232	.
Trier	.	78	.	31	.	.	30	.	32	.
Rheinhesen-Pfalz	.	1 534	.	1 608	.	.	1 222	.	1 283	.
Saarland	.	213	.	228	.	.	75	.	35	.
Sachsen	.	1 527	.	1 735	.	.	745	.	845	.
Chemnitz	.	1 527	.	338	.	.	745	.	224	.
Dresden	.	.	.	330	.	.	.	.	504	.
Leipzig	.	.	.	367	.	.	.	.	117	.
Sachsen-Anhalt	.	509	.	513	.	.	203	.	178	.
Dessau	.	58	.	53	.	.	52	.	48	.
Halle	.	232	.	242	.	.	31	.	71	.
Magdeburg	.	227	.	223	.	.	71	.	59	.
Schleswig-Holstein	.	645	.	671	.	.	282	.	273	.
Thüringen	.	627	.	627	.	.	329	.	308	.
Not registered by region	.	139	.	244	.	.	.	.	.	.
Ellada	.	492	.	760 e	.	.	107	126	.	217 r
Voreia Ellada	.	124	.	170 p	.	.	20	23	.	30
Anatoliki Makedonia, Thraki	.	13	.	38 p	.	.	2	3	.	5
Kentriki Makedonia	.	27	.	121 p	.	.	13	18	.	20
Dytiki Makedonia	.	11	.	2 p	.	.	1	2	.	0
Thessalia	.	9	.	21 p	.	.	3	3	.	4
Kentriki Ellada	.	69	.	122 p	.	.	17	13	.	48
Ipeiros	.	15	.	25 p	.	.	2	1	.	1
Ionia Nisia	.	3	.	2 p	.	.	0	0	.	0
Dytiki Ellada	.	32	.	55 p	.	.	4	4	.	8
Sterea Ellada	.	9	.	14 p	.	.	3	3	.	14
Peloponnisos	.	9	.	28 p	.	.	3	4	.	25
Attiki	.	243	.	400 p	.	.	63	32	.	137
Nisia Aigaiou, Kriti	.	58	.	63 p	.	.	2	3	.	4
Voreio Aigaio	.	8	.	4 p	.	.	0	0	.	0
Notio Aigaio	.	2	.	2 p	.	.	0	0	.	1
Kriti	.	49	.	62 p	.	.	1	3	.	3
Not registered by region	.	.	.	.	.	.	.	.	.	.

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 15**  
**R&D expenditure**  
**At the regional level**

In millions of national currencies  
At current prices

**Table 15B-1**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
20 377 s	20 133 s	21 077 s	21 656 s	22 334 s	24 369 s	23 456 s	23 777 s	21 555 s	23 333 s	EU-15
17 130 s	16 604 s	17 273 s	17 603 s	17 905 s	21 251 s	22 184 s	23 023 s	23 077 s	24 668 s	EUR-12
123 er	134 er	147 e	153 er	.	333 e	368 e	1 041 er	1 103 er	.	Belgique-Belgie
41 e	44 e	43 e	47 e	.	.	.	.	.	.	Région Bruxelles-capitale
63 e	71 er	31 er	26 er	.	.	.	.	.	.	Vlaams Gewest
19 er	19 er	12 e	20 er	.	.	.	.	.	.	Région Wallonne
.	.	.	.	.	.	.	.	.	.	Not registered by region
3 190 e	3 347	3 410 e	3 344 r	3 606	4 253 e	4 308	4 773 e	5 133	5 738	Danmark
6 304	6 272	6 547 e	6 632 r	6 673 e	7 664	7 677	7 787 e	7 937 r	8 034 e	Deutschland
1 066	1 032	1 097 e	1 032	.	1 113	1 112	1 123 e	1 133	.	Baden-Württemberg
271	282	296 e	272	.	275	267	271 e	267	.	Stuttgart
736	727	713 e	724	.	334	307	331 e	373	.	Karlsruhe
106	112	125 e	127	.	205	214	214 e	223	.	Freiburg
54	62	59 e	59	.	249	234	262 e	265	.	Tübingen
775	780	817 e	803	.	1 200	1 217	1 233 e	1 241	.	Bayern
673	676	714 e	705	.	670	672	671 e	633	.	Oberbayern
.	0	.	0	.	18	17	13 e	19	.	Niederbayern
6	10	9 e	5	.	33	33	37 e	32	.	Oberpfalz
11	13	15 e	10	.	63	71	75 e	74	.	Oberfranken
43	43	49 e	56	.	139	131	132 e	130	.	Mittelfranken
29	23	23 e	23	.	139	139	145 e	144	.	Unterfranken
9	4	3 e	3	.	32	33	41 e	35	.	Schwaben
300	297	243 e	252	.	533	507	531 e	533	.	Berlin
246	236	263 e	323	.	102	113	115 e	112	.	Brandenburg
108	112	125 e	120	.	37	108	100 e	103	.	Bremen
245	241	235 e	233	.	269	272	277 e	270	.	Hamburg
257	253	254 e	247	.	531	517	503 e	534	.	Hessen
234	239	235 e	220	.	270	258	250 e	265	.	Darmstadt
13	10	9 e	11	.	204	204	203 e	209	.	Gießen
10	9	10 e	10	.	57	57	55 e	59	.	Kassel
33	33	121 e	119	.	134	139	132 e	133	.	Mecklenburg-Vorpommern
539	511	527 e	532	.	615	533	613 e	629	.	Niedersachsen
397	365	373 e	379	.	293	298	293 e	306	.	Braunschweig
108	97	96 e	93	.	221	201	216 e	222	.	Hannover
41	33	41 e	43	.	17	17	12 e	14	.	Lüneburg
27	11	11 e	12	.	34	34	37 e	37	.	Weser-Ems
1 007	1 030	1 174 e	1 177	.	1 492	1 530	1 543 e	1 544	.	Nordrhein-Westfalen
141	131	153 e	161	.	316	333	334 e	330	.	Düsseldorf
316	290	240 e	245	.	537	609	609 e	647	.	Köln
37	46	51 e	49	.	171	163	167 e	175	.	Münster
10	10	10 e	12	.	113	114	113 e	121	.	Detmold
33	104	116 e	110	.	300	311	314 e	320	.	Arnsberg
106	116	122 e	120	.	243	261	279 e	276	.	Rheinland-Pfalz
5	5	5 e	6	.	12	14	16 e	17	.	Koblenz
11	10	12 e	12	.	33	36	34 e	36	.	Trier
33	101	104 e	102	.	193	211	229 e	223	.	Rheinhesen-Pfalz
42	47	43 e	43	.	93	95	93 e	93	.	Saarland
350	364	393 e	443	.	426	423	432 e	442	.	Sachsen
350	364	37 e	65	.	426	423	104 e	93	.	Chemnitz
.	.	240 e	271	.	.	.	139 e	206	.	Dresden
.	.	96 e	113	.	.	.	133 e	139	.	Leipzig
133	133	147 e	141	.	133	173	191 e	201	.	Sachsen-Anhalt
.	0	2 e	2	.	4	4	4 e	4	.	Dessau
66	55	63 e	56	.	107	96	111 e	115	.	Halle
69	77	77 e	32	.	73	73	78 e	31	.	Magdeburg
134	177	132 e	193	.	214	207	179 e	135	.	Schleswig-Holstein
120	127	149 e	136	.	137	171	171 e	133	.	Thüringen
36	45	44 e	.	.	184	144	177 e	.	.	Not registered by region
.	115	.	165	.	.	249	.	376	.	Ellada
.	20	.	23	.	.	77 r	.	119	.	Voreia Ellada
.	4	.	5	.	.	10 r	.	17	.	Anatoliki Makedonia, Thraki
.	11	.	15	.	.	62 r	.	36	.	Kentriki Makedonia
.	3	.	1	.	.	1 r	.	1	.	Dytiki Makedonia
.	2	.	2	.	.	5 r	.	15	.	Thessalia
.	5	.	3	.	.	42 r	.	69	.	Kentriki Ellada
.	1	.	1	.	.	12 r	.	23	.	Ipeiros
.	0	.	0	.	.	2 r	.	2	.	Ionia Nisia
.	1	.	4	.	.	23 r	.	44	.	Dytiki Ellada
.	3	.	1	.	.	0 r	.	0	.	Stereia Ellada
.	63	.	104	.	.	108 r	.	156	.	Peloponnisos
.	26	.	31	.	.	23 r	.	33	.	Attiki
.	0	.	1	.	.	4 r	.	4	.	Nisia Aigaiou, Kriti
.	1	.	1	.	.	0 r	.	1	.	Voreio Aigaiou
.	25	.	30	.	.	19 r	.	23	.	Notio Aigaiou
.	.	.	.	.	.	.	.	.	.	Kriti
.	.	.	.	.	.	.	.	.	.	Not registered by region

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 15A-2**

**R&D expenditure at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>España</b>	3 253 e	4 030	4 715 e	4 925	5 719 er	1 263 e	1 917	2 457	2 507	3 060 er
Noroeste	217 e	232	278 e	232	380 e	48 e	65	108	97	132 e
Galicia	123 e	142	159 e	166	200 e	23 e	37	43	50	67 e
Principado de Asturias	64 e	61	62 e	74	115 e	14 e	20	29	31	56 e
Cantabria	30 e	35	56 e	42	38 e	5 e	9	30	18	9 e
Noreste	514 e	519	630	660	718 e	349 e	367	457	471	514 e
Pais Vasco	354 e	357	414 e	414	480 e	287 e	279	332	325	350 e
Comunidad Foral de Navarra	60 e	62	78 e	91	95 e	34 e	34	47	52	62 e
La Rioja	13 e	14	20 e	20	27 e	7 e	6	12	11	17 e
Aragón	27 e	26	120 e	134	134 e	41 e	41	68	77	78 e
Comunidad de Madrid	1 223 e	1 301	1 456 e	1 530	1 752 e	679 e	630	778	851	954 e
Centro (E)	229 e	274	227 e	308	300 e	97 e	110	108	112	122 e
Castilla y León	144 e	150	150 e	200	222 e	48 e	47	42	77	92 e
Castilla-la Mancha	67 e	90	90 e	65	119 e	47 e	62	54	34	78 e
Extremadura	23 e	32	30 e	30	57 e	3 e	2	6	7	15 e
Este	1 021 e	1 162	1 424 e	1 425	1 722 e	568 e	627	319	272	1 036 e
Cataluña	215 e	272	1 075 e	1 120	1 262 e	492 e	554	622	758	850 e
Comunidad Valenciana	244 e	264	314 e	322	431 e	67 e	72	124	111	122 e
Baleares	21 e	26	26 e	22	26 e	1 e	1	2	5	4 e
Sur	422 e	458	526 e	550	648 e	118 e	117	177	172	222 e
Andalucía	379 e	398	466 e	475	542 e	100 e	94	151	127	177 e
Murcia	53 e	61	70 e	26	104 e	18 e	22	26	36	45 e
Ceuta y Melilla	-	-	-	-	-	-	-	-	-	-
Canarias	26 e	22	108 e	106	119 e	10 e	11	12	15	26 e
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>France</b>	27 225	27 758	23 219	29 529	30 152 e	17 131	17 327	17 632	12 655	19 302 e
Île de France	11 275	12 327	12 498	13 428	-	3 309	3 509	3 426	9 321	-
Bassin Parisien	1 222	2 122	2 258	2 442	-	1 617	1 726	1 222	1 980	-
Champagne-Ardenne	101	148	147	142	-	25	105	108	100	-
Picardie	208	324	271	272	-	292	277	321	220	-
Haute-Normandie	414	498	542	504	-	392	430	420	528	-
Centre	559	700	722	777	-	457	542	566	609	-
Basse-Normandie	150	194	220	244	-	127	120	152	162	-
Bourgogne	222	320	321	219	-	242	252	290	227	-
Nord - Pas-de-Calais	315	422	427	421	-	248	245	254	255	-
Est	1 027	1 259	1 401	1 422	-	246	272	304	224	-
Lorraine	315	422	422	422	-	217	225	229	227	-
Alsace	404	518	529	510	-	289	278	222	271	-
Franche-Comté	262	407	422	422	-	269	267	227	422	-
Ouest	1 299	1 704	1 629	1 727	-	1 000	1 126	1 042	1 122	-
Pays de la Loire	455	608	591	654	-	267	427	400	454	-
Bretagne	697	291	229	249	-	527	602	527	549	-
Poitou-Charentes	154	208	212	222	-	112	112	121	120	-
Sud-Ouest	2 125	2 456	2 700	2 202	-	1 291	1 267	1 422	1 520	-
Aquitaine	627	756	722	242	-	524	525	566	607	-
Midi-Pyrénées	1 422	1 600	1 214	1 268	-	792	722	217	254	-
Limousin	66	92	92	20	-	62	65	66	59	-
Centre-Est	2 225	2 220	2 271	2 422	-	2 108	2 220	2 215	2 420	-
Rhône-Alpes	2 442	2 220	2 262	2 262	-	1 722	1 260	1 220	2 014	-
Auvergne	222	472	502	519	-	222	260	222	402	-
Méditerranée	2 447	2 512	2 617	2 429	-	1 525	1 220	1 202	1 062	-
Languedoc-Roussillon	545	701	722	222	-	167	122	212	211	-
Provence-Alpes-Côte d'Azur	1 202	1 201	1 202	1 202	-	1 202	1 022	1 022	222	-
Corse	6	12	11	19	-	-	1	1	7	-
Départements d'Outre-Mer	127	177	202	204	-	-	2	-	-	-
Not registered by region	4 224	1 220	1 029	1 022	-	-	-	-	-	-
<b>Ireland</b>	755 e	262 e	972 i	1 078 e	-	541 e	612 e	622 i	724	-

**Table 15**  
**R&D expenditure**  
**At the regional level**

In millions of national currencies  
At current prices

**Table 15B-2**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
706 e	702	767	843	906 r	1 243	1 322	1 439	1 505	1 604 r	España
43 e	49	47	53	59	120	122	113	129	161	Noroeste
30 e	30	29	31	36	66	75	75	84	106	Galicia
11 e	11	11	13	15	39	30	28	30	40	Principado de Asturias
7 e	7	7	10	8	16	16	15	15	16	Cantabria
32 e	29	36	38	38	120	129	136	148	162	Noreste
11 e	10	9	10	13	62	68	72	78	86	Pais Vasco
3 e	2	2	2	2	24	27	27	31	31	Comunidad Foral de Navarra
2 e	2	2	2	2	4	6	6	8	9	La Rioja
16 e	15	23	24	21	29	29	31	33	37	Aragón
363 e	367	406	443	473	230	252	259	273	301	Comunidad de Madrid
27 e	32	31	33	43	114	130	145	150	170	Centro (E)
13 e	15	16	19	19	33	36	32	32	31	Castilla y León
3 e	9	8	7	11	12	19	28	24	31	Castilla-la Mancha
6 e	7	7	7	13	19	25	25	24	28	Extremadura
122 e	130	119	133	139	331	336	457	467	532	Este
28 e	30	34	33	34	225	213	280	265	304	Cataluña
36 e	33	28	33	37	140	156	153	133	206	Comunidad Valenciana
4 e	7	7	8	8	16	13	20	20	23	Baleares
92 e	86	102	115	120	223	252	255	270	300	Sur
79 e	72	86	95	103	199	228	227	240	260	Andalucía
13 e	13	16	20	17	24	24	28	29	42	Murcia
-	-	-	-	-	-	-	-	-	-	Ceuta y Melilla
21 e	20	26	26	23	56	51	63	63	66	Canarias
-	-	-	-	-	-	-	-	-	-	Not registered by region
5 642	5 131	5 279	5 357	5 357 e	4 637	4 334	4 236	5 063	5 040 e	France
1 771	1 321	1 395	1 904	.	334	1 374	1 334	2 008	.	Île de France
131	129	139	149	.	74	332	335	339	.	Bassin Parisien
4	5	3	3	.	2	36	39	38	.	Champagne-Ardenne
11	10	10	11	.	2	37	40	42	.	Picardie
7	7	9	8	.	3	59	59	60	.	Haute-Normandie
76	74	76	79	.	26	33	36	39	.	Centre
7	8	13	21	.	26	66	59	55	.	Basse-Normandie
25	27	28	28	.	10	51	52	54	.	Bourgogne
36	32	36	34	.	34	130	177	132	.	Nord - Pas-de-Calais
64	62	65	63	.	177	425	432	431	.	Est
36	35	37	33	.	61	166	172	171	.	Lorraine
24	24	25	26	.	111	215	215	213	.	Alsace
4	3	3	3	.	6	43	44	47	.	Franche-Comté
221	223	242	240	.	73	341	349	354	.	Ouest
72	73	74	76	.	22	112	117	124	.	Pays de la Loire
126	133	143	144	.	33	156	154	155	.	Bretagne
24	22	19	20	.	17	74	77	75	.	Poitou-Charentes
533	633	793	805	.	150	456	464	477	.	Sud-Ouest
45	50	57	56	.	57	130	131	135	.	Aquitaine
537	533	740	743	.	91	243	257	264	.	Midi-Pyrénées
1	1	1	1	.	2	26	26	29	.	Limousin
422	423	411	412	.	297	647	645	653	.	Centre-Est
375	373	360	351	.	235	537	536	591	.	Rhône-Alpes
47	53	51	51	.	12	59	59	61	.	Auvergne
669	674	737	733	.	253	563	576	594	.	Méditerranée
271	283	346	330	.	113	225	240	243	.	Languedoc-Roussillon
303	333	336	393	.	139	327	330	343	.	Provence-Alpes-Côte d'Azur
5	5	5	4	.	0	6	6	8	.	Corse
156	153	130	132	.	1	22	25	22	.	Départements d'Outre-Mer
1 590	1 013	773	730	.	2 640	-	-	-	.	Not registered by region
64 e	65 e	70 e	64	63 e	153 e	178 e	204 e	223 e	.	Ireland

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 15A-3**

**R&D expenditure at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Italia</b>	9 203	10 720 rb	11 444 r	11 524 r	.	5 202	5 377 r	5 533 r	5 624 r	5 926 ri
Nord Ovest	1 318	1 920 rb	1 954	1 984	.	1 360	1 423 r	1 448 r	1 462	.
Piemonte	1 435	1 508 rb	1 556	1 564	.	1 215	1 243 r	1 232 r	1 274	.
Valle d'Aosta	5	2 rb	4	11	.	4	1 r	4 r	10	.
Liguria	377	4 15 rb	394	380	.	131	135	160 r	178	.
Lombardia	2 400	2 500 rb	2 522	2 652	.	1 303	1 313	1 320 r	1 350	.
Nord Est	779	858 rb	921	914	.	403	335	420 r	407	.
Trentino-Alto Adige	25	93 rb	104	114	.	30	41 r	41	51	.
Veneto	446	426 rb	507	514	.	215	199	218	212	.
Friuli-Venezia Giulia	243	279 rb	311	287	.	149	148 r	153 r	132	.
Emilia-Romagna	721	842 rb	908	890	.	374	409 r	440 r	462	.
Centro (I)	318	392 rb	445	491	.	251	237 r	215 r	269	.
Toscana	617	623 rb	693	717	.	207	186 r	160 r	219	.
Umbria	93	119 rb	122	143	.	15	18	18 r	19	.
Marche	105	150 rb	124	131	.	29	55 r	20	31	.
Lazio	1 300	2 052 rb	2 224	2 222	.	655	674 r	631 r	621	.
Abruzzo-Molise	245	120 rb	174	174	.	157	97 r	71 r	63	.
Abruzzo	222	178 rb	157	160	.	151	97 r	66 r	63	.
Molise	14	13 rb	17	14	.	6	.	5 rr	.	.
Campania	511	662 rb	704	702	.	178	204 r	193 r	218	.
Sud	292	337 rb	375	379	.	78	79 r	65 r	74	.
Puglia	206	248 rb	272	262	.	70	74 r	58 r	60	.
Basilicata	32	28 rb	32	46	.	8	4 r	7 r	12	.
Calabria	54	68 rb	70	65	.	1	1 r	2	2	.
Sicilia	222	377 rb	504	447	.	17	31 r	102 r	24	.
Sardegna	140	152 rb	152	162	.	20	19 r	13 r	15	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Luxembourg</b>	.	.	.	.	279 p	.	.	.	.	244 p
<b>Nederland</b>	6 405	6 208	6 262	7 562 r	.	3 342	3 714	3 721	4 263 r	.
Noord-Nederland	.	324	326	420	.	157	192	132	200	.
Groningen	.	324	326	304	.	74	192	132	.	.
Friesland	.	.	.	71	.	42	.	.	64	.
Drenthe	.	.	.	54	.	42	.	.	.	.
Oost-Nederland	.	1 229	1 252	1 317	.	532	525	502	671	.
Overijssel	.	281	260	298	.	170	133	162	191	.
Gelderland	.	330	374	419	.	349	333	412	455	.
Flevoland	.	112	117	102	.	14	19	17	15	.
West-Nederland	.	3 484	3 520	3 797	.	1 277	1 450	1 456	1 623	.
Utrecht	.	724	641	707	.	281	321	229	277	.
Noord-Holland	.	1 072	1 119	1 301	.	453	502	523	622	.
Zuid-Holland	.	1 632	1 710	1 732	.	560	611	652	624	.
Zeeland	.	24	51	57	.	13	17	45	50	.
Zuid-Nederland	.	1 729	1 711	2 020	.	1 375	1 426	1 426	1 751	.
Noord-Brabant	.	1 244	1 231	1 466	.	1 046	1 022	1 097	1 307	.
Limburg (NL)	.	428	420	552	.	329	404	322	444	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Österreich</b>	2 255 e	3 028 e	3 400	3 600 e	3 627 e	.	.	2 161 r	.	.
Ostösterreich	.	.	1 256	.	.	.	.	1 127	.	.
Burgenland	.	.	2	.	.	.	.	8	.	.
Niederösterreich	.	.	197	.	.	.	.	122	.	.
Wien	.	.	1 650	.	.	.	.	940	.	.
Südösterreich	.	.	722	.	.	.	.	461	.	.
Kärnten	.	.	122	.	.	.	.	93	.	.
Steiermark	.	.	600	.	.	.	.	363	.	.
Westösterreich	.	.	223	.	.	.	.	573	.	.
Oberösterreich	.	.	305	.	.	.	.	324	.	.
Salzburg	.	.	93	.	.	.	.	42	.	.
Tirol	.	.	259	.	.	.	.	124	.	.
Vorarlberg	.	.	78	.	.	.	.	73	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Portugal</b>	.	577	.	215 r	.	.	130	.	125	.
Continente	.	559 r	.	757 r	.	.	120	.	123	.
Norte	.	115	.	160	.	.	22	.	50	.
Centro (P)	.	20	.	112	.	.	19	.	27	.
Lisboa e Vale do Tejo	.	330	.	427 r	.	.	21	.	102	.
Alentejo	.	17	.	24	.	.	2	.	2	.
Algarve	.	9 r	.	18 r	.	.	1	.	2	.
Açores	.	9 r	.	42	.	.	0	.	0	.
Madeira	.	9 r	.	10 r	.	.	.	.	1 r	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

**Table 15**  
**R&D expenditure**  
**At the regional level**

In millions of national currencies  
At current prices

**Table 15B-3**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
1 976	2 004 r	2 376 r	2 273 r	2 406 r	2 624	3 219 rb	3 505 r	3 623 r	.	Italia
229	194 r	177 r	165	.	237	298 rb	322	337	.	Nord Ovest
22	23 r	70 r	74	.	137	177 rb	204	217	.	Piemonte
0	r	0 r	0	.	.	.	.	.	.	Valle d'Aosta
145	111 r	107 r	92	.	100	119 rb	123	120	.	Liguria
224	277 r	266 r	249	.	313	419 rb	447	459	.	Lombardia
127	133 r	151 r	142	.	249	333 rb	360	364	.	Nord Est
23	24 r	32 r	29	.	23	23 rb	31	34	.	Trentino-Alto Adige
75	73 r	71 r	71	.	156	213 rb	219	225	.	Veneto
30	36 r	43 r	43	.	70	97 rb	100	106	.	Friuli-Venezia Giulia
96	106 r	109 r	98	.	251	323 rb	345	339	.	Emilia-Romagna
160	161 r	134 r	167	.	407	494 rb	547	555	.	Centro (I)
137	137 r	153 r	137	.	274	327 rb	366	361	.	Toscana
11	13	14 r	13	.	63	91 rb	99	106	.	Umbria
10	13 r	13 r	12	.	66	77 rb	82	83	.	Marche
242	259 r	1 113 r	1 087	.	333	421 rb	430	460	.	Lazio
23	21 r	19 r	25	.	66	71 rb	85	86	.	Abruzzo-Molise
22	13 r	13 r	24	.	59	61 rb	74	73	.	Abruzzo
1	3 r	1 r	1	.	7	10 rb	11	13	.	Molise
96	116 r	136 r	114	.	232	342 rb	376	373	.	Campania
42	46 r	75 r	73	.	174	212 rb	236	231	.	Sud
24	34 r	55 r	50	.	112	139 rb	161	157	.	Puglia
10	3 r	6 r	10	.	17	19 rb	21	24	.	Basilicata
3	10 r	14 r	13	.	45	56 rb	54	50	.	Calabria
47	53 r	66 r	61	.	217	294 rb	326	302	.	Sicilia
31	29 r	32	31	.	39	106 rb	113	116	.	Sardegna
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	.	.	34 p	.	.	.	.	f p	Luxembourg
1 126	1 232	1 223	1 250	.	1 316	1 260	1 266	1 233 r	.	Nederland
30	11	13	.	.	.	131	110	204	.	Noord-Nederland
26	11	13	.	.	.	131	110	204	.	Groningen
3	.	.	.	.	.	.	.	.	.	Friesland
0	.	.	.	.	.	.	.	.	.	Drenthe
307	226	295	.	.	.	359	360	373	.	Oost-Nederland
16	7	6	.	.	.	91	92	93	.	Overijssel
194	179	133	.	.	.	263	263	230	.	Gelderland
97	93	100	.	.	.	.	.	.	.	Flevoland
333	323	367	.	.	.	1 036	1 003	1 141	.	West-Nederland
177	151	153	.	.	.	253	254	262	.	Utrecht
280	234	245	.	.	.	343	361	363	.	Noord-Holland
333	537	563	.	.	.	490	414	511	.	Zuid-Holland
7	7	6	.	.	.	.	.	.	.	Zeeland
17	3	9	.	.	.	236	216	253	.	Zuid-Nederland
11	3	3	.	.	.	159	131	157	.	Noord-Brabant
6	5	6	.	.	.	76	36	101	.	Limburg (NL)
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	219 r	.	.	.	.	1 010	.	.	Österreich
.	.	153	.	.	.	.	667	.	.	Ostösterreich
.	.	2	.	.	.	.	.	.	.	Burgenland
.	.	14	.	.	.	.	1	.	.	Niederösterreich
.	.	137	.	.	.	.	666	.	.	Wien
.	.	29	.	.	.	.	232	.	.	Südösterreich
.	.	3	.	.	.	.	17	.	.	Kärnten
.	.	22	.	.	.	.	215	.	.	Steiermark
.	.	37	.	.	.	.	211	.	.	Westösterreich
.	.	14	.	.	.	.	46	.	.	Oberösterreich
.	.	7	.	.	.	.	44	.	.	Salzburg
.	.	14	.	.	.	.	121	.	.	Tirol
.	.	3	.	.	.	.	.	.	.	Vorarlberg
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	140	.	223 r	.	.	291 r	.	314	.	Portugal
.	130	.	133 r	.	.	225 r	.	306 r	.	Continente
.	9	.	12 r	.	.	59	.	31	.	Norte
.	3	.	7 r	.	.	53	.	62	.	Centro (P)
.	113	.	153 r	.	.	93 r	.	133	.	Lisboa e Vale do Tejo
.	3	.	4	.	.	9	.	13	.	Alentejo
.	1	.	2 r	.	.	7	.	11	.	Algarve
.	3	.	39	.	.	4	.	7	.	Açores
.	6	.	6	.	.	2 r	.	2	.	Madeira
.	.	.	.	.	.	.	.	.	.	Not registered by region

For meaning of flag 'r', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions of national currencies  
At current prices

**Table 15**  
**R&D expenditure**  
**At the regional level**

**Table 15A-4**

**R&D expenditure at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Suomi-Finland</b>	2 504	2 908	3 356	3 279	4 423 r	1 667	1 917	2 258	2 644	3 136 r
Manner-Suomi	.	2 904	3 356	3 278	4 421	.	1 917	2 258	2 643	3 136
Itä-Suomi	.	138	140	174	171	.	56	62	72	70
Väli-Suomi	.	204	228	278	312	.	151	166	198	225
Pohjois-Suomi	.	314	413	474	552	.	215	301	347	421
Uusimaa (Suuralue)	.	1 404	1 580	1 804	2 045	.	847	1 012	1 175	1 394
Etelä-Suomi	.	348	488	1 152	1 341	.	543	713	863	1 025
Åland	.	0	0	1	2	.	0	0	1	1
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Sverige</b>		87 028	77 358 e	75 314	.		50 151	54 361 e	55 953	.
Stockholm	.	.	.	.	.	.	12 333	.	21 268	.
Östra Mellansverige	.	.	.	.	.	.	6551	.	7 417	.
Sydsverige	.	.	.	.	.	.	6370	.	7 783	.
Norra Mellansverige	.	.	.	.	.	.	1 574	.	1 448	.
Mellersta Norrland	.	.	.	.	.	.	573	.	508	.
Övre Norrland	.	.	.	.	.	.	931	.	1 001	.
Småland med Öarna	.	.	.	.	.	.	1 107	.	1 078	.
Västsvrige	.	.	.	.	.	.	13 709	.	14 242	.
Not registered by region	.	.	.	.	.	.	918	.	1 013	.
<b>United Kingdom</b>	14 470	14 779	15 521	16 688	17 527 r	9 431	9 630	10 261	11 303	11 570 r
North East	.	268	238	279	.	129	162	178	164	164
Tees Valley & Durham	.	.	.	.	.	.	.	.	.	.
Northumberland and Tyne & Wear	.	.	.	.	.	.	.	.	.	.
North West (inc. Merseyside)	.	1 454	1 519	1 784	.	1 174	1 164	1 224	1 478	1 451
Cumbria	.	.	.	.	.	.	.	.	.	.
Cheshire	.	.	.	.	.	.	.	.	.	.
Greater Manchester	.	.	.	.	.	.	.	.	.	.
Lancashire	.	.	.	.	.	.	.	.	.	.
Merseyside	.	.	.	.	.	.	.	.	.	.
Yorkshire & The Humber	.	529	568	619	.	278	256	287	309	304
East Riding & North Lincolnshire	.	.	.	.	.	.	.	.	.	.
North Yorkshire	.	.	.	.	.	.	.	.	.	.
South Yorkshire	.	.	.	.	.	.	.	.	.	.
West Yorkshire	.	.	.	.	.	.	.	.	.	.
East Midlands	.	924	992	1 063	.	710	703	775	833	933
Derbyshire & Nottinghamshire	.	.	.	.	.	.	.	.	.	.
Leicesters., Rutland & Northants	.	.	.	.	.	.	.	.	.	.
Lincolnshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	953	1 042	1 063	.	623	647	708	724	576
Herefords., Worcesters. & Warks	.	.	.	.	.	.	.	.	.	.
Shropshire & Staffordshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	.	.	.	.	.
Eastern	.	2 399	2 354	3 027	.	2 123	2 331	2 367	2 569	2 753
East Anglia	.	.	.	.	.	.	.	.	.	.
Bedfordshire, Hertfordshire	.	.	.	.	.	.	.	.	.	.
Essex	.	.	.	.	.	.	.	.	.	.
London	.	1 593	1 630	1 770	.	730	667	643	735	810
Inner London	.	.	.	.	.	.	.	.	.	.
Outer London	.	.	.	.	.	.	.	.	.	.
South East	.	3 466	3 652	3 988	.	2 321	2 379	2 542	2 918	2 984
Berkshire, Bucks & Oxfordshire	.	.	.	.	.	.	.	.	.	.
Surrey, East & West Sussex	.	.	.	.	.	.	.	.	.	.
Hampshire & Isle of Wight	.	.	.	.	.	.	.	.	.	.
Kent	.	.	.	.	.	.	.	.	.	.
South West	.	1 133	1 354	1 294	.	724	767	907	837	887
Gloucesters., Wilts., N. Somerset	.	.	.	.	.	.	.	.	.	.
Dorset & Somerset	.	.	.	.	.	.	.	.	.	.
Cornwall & Isles of Scilly	.	.	.	.	.	.	.	.	.	.
Devon	.	.	.	.	.	.	.	.	.	.
Wales	.	249	234	379	.	103	113	125	203	144
West Wales & The Valleys	.	.	.	.	.	.	.	.	.	.
East Wales	.	.	.	.	.	.	.	.	.	.
Scotland	.	970	1 045	1 004	.	369	356	424	393	400
North Eastern Scotland	.	.	.	.	.	.	.	.	.	.
Eastern Scotland	.	.	.	.	.	.	.	.	.	.
South Western Scotland	.	.	.	.	.	.	.	.	.	.
Highlands & Islands	.	.	.	.	.	.	.	.	.	.
Northern Ireland	.	149	152	175	.	32	31	31	99	139
Not registered by region	.	190 s	208 s	233 s	.	.	.	.	.	.
<b>EEA</b>	131 949 s	133 282 s	145 041 s	159 371 s	197 191 s	82 339 s	87 524 s	92 154 s	101 522 s	103 941 s
Iceland	7 317	9 650	11 173	14 522	.	2 277	3 913	4 310	6 777	.
<b>Norge</b>		12 127	.	20 319	.		10 352	.	11 369	.
Oslo og Akershus	.	3 615	.	9 563	.	.	4 271	.	5 332	.
Hedmark og Oppland	.	1 730	.	1 308	.	.	1 451	.	1 494	.
Sør-Østlandet	.	434	.	347	.	.	334	.	225	.
Agder og Rogaland	.	1 468	.	1 662	.	.	1 301	.	1 453	.
Vestlandet	.	2 273	.	2 433	.	.	769	.	762	.
Trøndelag	.	2 778	.	3 432	.	.	1 495	.	1 970	.
Nord-Norge	.	339	.	954	.	.	31	.	129	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Japan</b>	11 855 050 b	11 734 000	12 169 000	12 022 000	12 304 400	10 050 400 b	10 050 257	10 000 000	10 000 000	10 000 000
<b>United States of America</b>	877 700 l	882 500 l	827 300 l	844 700 l	865 300 pl	44 600 l	47 500 l	46 000 l	46 000 l	46 000 pl

For meaning of flag 'l', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.



**Table 15**  
**R&D expenditure**  
**At the regional level**

In millions of national currencies  
At current prices

**Table 15B-4**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
395	395	422	470	497 r	452	579	663	765	729 r	Suomi-Finland
.	395	422	470	497	.	579	663	765	729	Manner-Suomi
.	19	22	25	25	.	60	64	77	78	Itä-Suomi
.	12	15	26	23	.	41	45	50	60	Väli-Suomi
.	30	33	37	39	.	69	73	91	91	Pohjois-Suomi
.	288	237	305	327	.	237	272	324	330	Uusimaa (Suuralue)
.	67	77	73	34	.	173	193	222	232	Etelä-Suomi
.	0	.	.	7	.	.	.	.	.	Åland
.	2 372	2 459 e	2 543	.	.	14 452	14 473 e	16 226	.	Not registered by region
.	.	.	1 520	.	.	.	.	.	.	Sverige
.	.	.	877	.	.	.	.	.	.	Stockholm
.	.	.	17	.	.	.	.	.	.	Östra Mellansverige
.	.	.	137	.	.	.	.	.	.	Sydsverige
.	.	.	33	.	.	.	.	.	.	Norra Mellansverige
.	.	.	125	.	.	.	.	.	.	Mellersta Norrland
.	.	.	2	.	.	.	.	.	.	Övre Norrland
.	.	.	43	.	.	.	.	.	.	Småland med Öarna
.	.	.	.	.	.	.	.	.	.	Västssverige
.	.	.	.	.	.	.	.	.	.	Not registered by region
2 070	2 077	2 073	1 733	2 137 r	2 792	2 302	3 089	3 342	3 633 r	United Kingdom
4	3	3	2	2	.	101	105	113	122	North East
.	.	.	.	.	.	.	.	.	33	Tees Valley & Durham
.	.	.	.	.	.	.	.	.	34	Northumberland and Tyne & Wear
56	62	57	43	57	.	223	233	260	237	North West (inc. Merseyside)
.	.	.	.	.	.	.	.	.	.	Cumbria
.	.	.	.	.	.	.	.	.	177	Cheshire
.	.	.	.	.	.	.	.	.	37	Greater Manchester
.	.	.	.	.	.	.	.	.	79	Lancashire
.	.	.	.	.	.	.	.	.	.	Merseyside
34	45	40	40	43	.	229	247	270	234	Yorkshire & The Humber
.	.	.	.	.	.	.	.	.	12	East Riding & North Lincolnshire
.	.	.	.	.	.	.	.	.	42	North Yorkshire
.	.	.	.	.	.	.	.	.	104	South Yorkshire
.	.	.	.	.	.	.	.	.	120	West Yorkshire
53	65	53	43	55	.	157	159	132	204	East Midlands
.	.	.	.	.	.	.	.	.	99	Derbyshire & Nottinghamshire
.	.	.	.	.	.	.	.	.	105	Leicesters., Rutland & Northants
.	.	.	.	.	.	.	.	.	.	Lincolnshire
193	155	157	154	195	.	158	157	130	192	West Midlands
.	.	.	.	.	.	.	.	.	7	Herefords., Worcesters. & Warks
.	.	.	.	.	.	.	.	.	20	Shropshire & Staffordshire
.	.	.	.	.	.	.	.	.	171	West Midlands
298	304	278	273	259	.	274	277	255	324	Eastern
.	.	.	.	.	.	.	.	.	247	East Anglia
.	.	.	.	.	.	.	.	.	54	Bedfordshire, Hertfordshire
.	.	.	.	.	.	.	.	.	23	Essex
270	198	272	193	253	.	730	775	837	895	London
.	.	.	.	.	.	.	.	.	37	Inner London
.	.	.	.	.	.	.	.	.	37	Outer London
750	662	660	557	636	.	434	460	493	578	South East
.	.	.	.	.	.	.	.	.	308	Berkshire, Bucks & Oxfordshire
.	.	.	.	.	.	.	.	.	90	Surrey, East & West Sussex
.	.	.	.	.	.	.	.	.	108	Hampshire & Isle of Wight
.	.	.	.	.	.	.	.	.	17	Kent
263	237	309	259	306	.	129	133	143	160	South West
.	.	.	.	.	.	.	.	.	125	Gloucesters., Wilts., N. Somerset
.	.	.	.	.	.	.	.	.	2	Dorset & Somerset
.	.	.	.	.	.	.	.	.	.	Cornwall & Isles of Scilly
.	.	.	.	.	.	.	.	.	33	Devon
20	25	46	47	65	.	111	113	129	139	Wales
.	.	.	.	.	.	.	.	.	57	West Wales & The Valleys
.	.	.	.	.	.	.	.	.	31	East Wales
175	257	246	200	239	.	357	375	477	440	Scotland
.	.	.	.	.	.	.	.	.	47	North Eastern Scotland
.	.	.	.	.	.	.	.	.	250	Eastern Scotland
.	.	.	.	.	.	.	.	.	143	South Western Scotland
.	.	.	.	.	.	.	.	.	.	Highlands & Islands
12	16	14	12	15	.	52	57	64	70	Northern Ireland
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	.	.	.	.	.	.	.	.	EEA
2 997	2 375	4 397	4 336	.	1 757	2 737	2 936	3 033 r	.	Iceland
.	2 390	.	3 130	.	.	4 346	.	5 379	.	Norge
.	1 708	.	1 739	.	.	2 033	.	2 447	.	Oslo og Akershus
.	208	.	277	.	.	74	.	95	.	Hedmark og Oppland
.	54	.	58	.	.	46	.	65	.	Sør-Østlandet
.	55	.	77	.	.	109	.	134	.	Agder og Rogaland
.	543	.	553	.	.	987	.	1 163	.	Vestlandet
.	193	.	204	.	.	1 033	.	1 373	.	Trøndelag
.	223	.	235	.	.	535	.	590	.	Nord-Norge
.	.	.	.	.	.	.	.	.	.	Not registered by region
1 339 325	1 336 376	1 402 319	1 491 731	1 519 632	2 000 061 e	2 111 730	2 322 159	2 321 129	2 321 506	Japan
17 641 l	17 367 l	17 616 l	18 669 l	19 644 pl	23 067 l	26 576 l	32 253 l	34 066 l	35 322 pl	United States of America

PART 3 — R&D EXPENDITURE DATA

For meaning of flag 'l', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions EUR

At current prices and current exchange rates

**Table 16**  
**R&D expenditure**  
**At the regional level**

**Table 16A-1**

**R&D expenditure at NUTS level 0, 1 and 2**

	All sectors					Business enterprise sector				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>EU-15</b>	<b>120 799 s</b>	<b>135 374 s</b>	<b>142 817 s</b>	<b>154 237 s</b>	<b>163 937 s</b>	<b>37 422 s</b>	<b>39 134 s</b>	<b>40 341 s</b>	<b>40 044 s</b>	<b>40 737 s</b>
EUR-12	102 073 s	104 062 s	108 874 s	118 525 s	122 277 s	63 064 s	64 207 s	67 732 s	74 224 s	72 258 s
Belgique-Belgie	3 225 er	4 037 er	4 247 er	4 673 er	.	2 745 e	2 207 e	3 074 er	3 307 e	3 606 f
Région Bruxelles-capitale	.	.	.	.	.	422 e	422 e	425 er	442 e	487 f
Vlaams Gewest	.	.	.	.	.	1 647 er	1 790 er	1 327 e	2 138 er	2 367 f
Région Wallonne	.	.	.	.	.	670 er	679 e	662 er	727 er	787 f
Not registered by region	.	.	.	.	.	.	.	.	.	.
Danmark	2 871 er	2 203	3 173 e	3 406 r	3 604 e	1 627 e	1 777	2 053	2 150 r	2 294 e
Deutschland	42 356 e	42 672	44 346 e	48 191 r	50 316 i	22 070 e	22 724	30 130 e	33 623 r	36 604 i
Baden-Württemberg	.	9 324	.	10 377	.	.	7 700	.	8 668	.
Stuttgart	.	5 046	.	5 643	.	.	4 499	.	5 104	.
Karlsruhe	.	2 423	.	2 517	.	.	1 304	.	1 476	.
Freiburg	.	908	.	937	.	.	624	.	637	.
Tübingen	.	1 608	.	1 326	.	.	1 313	.	1 571	.
Bayern	.	8 477	.	9 674	.	.	6 489	.	7 566	.
Oberbayern	.	5 911	.	6 543	.	.	4 563	.	5 156	.
Niederbayern	.	97	.	117	.	.	20	.	93	.
Oberpfalz	.	267	.	456	.	.	169	.	350	.
Oberfranken	.	262	.	296	.	.	172	.	212	.
Mittelfranken	.	1 057	.	1 237	.	.	313	.	326	.
Unterfranken	.	473	.	527	.	.	307	.	366	.
Schwaben	.	417	.	447	.	.	375	.	408	.
Berlin	.	2 566	.	2 765	.	.	1 132	.	1 470	.
Brandenburg	.	521	.	670	.	.	234	.	236	.
Bremen	.	423	.	450	.	.	209	.	228	.
Hamburg	.	1 300	.	1 259	.	.	732	.	756	.
Hessen	.	3 737	.	4 475	.	.	2 960	.	3 700	.
Darmstadt	.	3 128	.	3 362	.	.	2 688	.	3 328	.
Gießen	.	401	.	397	.	.	122	.	177	.
Kassel	.	202	.	270	.	.	135	.	140	.
Mecklenburg-Vorpommern	.	266	.	290	.	.	40	.	32	.
Niedersachsen	.	2 232	.	3 253	.	.	1 733	.	2 722	.
Braunschweig	.	1 675	.	2 424	.	.	1 017	.	1 720	.
Hannover	.	326	.	1 043	.	.	529	.	723	.
Lüneburg	.	132	.	162	.	.	24	.	106	.
Weser-Ems	.	199	.	265	.	.	104	.	166	.
Nordrhein-Westfalen	.	7 054	.	7 774	.	.	4 458	.	5 008	.
Düsseldorf	.	2 008	.	2 099	.	.	1 547	.	1 607	.
Köln	.	3 122	.	3 699	.	.	1 207	.	2 207	.
Münster	.	466	.	445	.	.	258	.	221	.
Detmold	.	446	.	503	.	.	323	.	370	.
Arnsberg	.	942	.	1 022	.	.	520	.	522	.
Rheinland-Pfalz	.	1 756	.	1 944	.	.	1 320	.	1 547	.
Koblenz	.	152	.	256	.	.	132	.	222	.
Trier	.	75	.	27	.	.	30	.	32	.
Rheinhesen-Pfalz	.	1 527	.	1 608	.	.	1 217	.	1 282	.
Saarland	.	277	.	226	.	.	75	.	26	.
Sachsen	.	1 520	.	1 736	.	.	747	.	845	.
Chemnitz	.	1 520	.	326	.	.	747	.	224	.
Dresden	.	.	.	320	.	.	.	.	504	.
Leipzig	.	.	.	369	.	.	.	.	117	.
Sachsen-Anhalt	.	507	.	573	.	.	202	.	176	.
Dessau	.	58	.	53	.	.	52	.	46	.
Halle	.	237	.	242	.	.	27	.	71	.
Magdeburg	.	220	.	223	.	.	70	.	59	.
Schleswig-Holstein	.	642	.	677	.	.	267	.	272	.
Thüringen	.	624	.	627	.	.	327	.	308	.
Not registered by region	.	129	.	244	.	.	.	.	.	.
Ellada	.	542	.	795 er	.	.	119	.	139	.
Voreia Ellada	.	137	.	172 p	.	.	22	.	28	.
Anatoliki Makedonia, Thraki	.	20	.	22 p	.	.	2	.	6	.
Kentriki Makedonia	.	96	.	126 p	.	.	15	.	12	.
Dytiki Makedonia	.	12	.	3 p	.	.	2	.	0	.
Thessalia	.	9	.	22 p	.	.	4	.	3	.
Kentriki Ellada	.	76	.	122 p	.	.	19	.	12	.
Ipeiros	.	17	.	26 p	.	.	2	.	2	.
Ionia Nisia	.	4	.	3 p	.	.	0	.	0	.
Dytiki Ellada	.	38	.	57 p	.	.	4	.	4	.
Sterea Ellada	.	10	.	14 p	.	.	9	.	2	.
Peloponnisos	.	10	.	22 p	.	.	3	.	5	.
Attiki	.	267	.	419 p	.	.	76	.	90	.
Nisia Aigaiou, Kriti	.	62	.	77 p	.	.	2	.	4	.
Voreio Aigaio	.	7	.	5 p	.	.	0	.	0	.
Notio Aigaio	.	2	.	2 p	.	.	0	.	0	.
Kriti	.	53	.	66 p	.	.	2	.	3	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 16**  
**R&D expenditure**  
**At the regional level**

In millions EUR  
At current prices and current exchange rates

**Table 16B-1**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
20 377 s	20 133 s	21 077 s	21 656 s	22 334 s	24 249 s	23 456 s	23 777 s	21 555 s	23 333 s	EU-15
17 130 s	16 604 s	17 273 s	17 603 s	17 925 s	21 257 s	22 184 s	23 023 s	23 277 s	24 668 s	EUR-12
126 er	133 er	146 e	153 er	.	912 e	961 e	1 084 er	1 103 er	.	Belgique-Belgie
42 e	44 e	43 e	47 e	.	.	.	.	.	.	Région Bruxelles-capitale
64 e	71 er	80 er	86 er	.	.	.	.	.	.	Vlaams Gewest
19 er	19 er	13 e	20 er	.	.	.	.	.	.	Région Wallonne
.	.	.	.	.	.	.	.	.	.	Not registered by region
436 e	448	455 e	517 r	406	573 e	642	638 e	630	770	Danmark
6 457	6 245	6 502 e	6 632 r	6 673 e	7 239	7 643	7 715 e	7 937 2	8 034 e	Deutschland
1 193	1 177	1 139 e	1 132	.	1 140	1 107	1 120 e	1 133	.	Baden-Württemberg
273	280	294 e	272	.	232	266	269 e	267	.	Stuttgart
758	724	714 e	724	.	303	306	373 e	373	.	Karlsruhe
107	111	124 e	127	.	209	213	213 e	223	.	Freiburg
56	62	58 e	59	.	255	233	260 e	265	.	Tübingen
793	777	812 e	803	.	1 229	1 212	1 230 e	1 241	.	Bayern
639	673	709 e	705	.	637	669	667 e	633	.	Oberbayern
.	0	.	0	.	19	17	13 e	19	.	Niederbayern
6	10	9 e	5	.	91	33	96 e	92	.	Oberpfalz
12	13	15 e	10	.	65	71	74 e	74	.	Oberfranken
49	43	49 e	56	.	193	190	190 e	190	.	Mittelfranken
30	27	27 e	23	.	142	133	144 e	144	.	Unterfranken
9	4	3 e	3	.	33	33	41 e	35	.	Schwaben
3 19	733	743 e	762	.	583	594	577 e	593	.	Berlin
252	235	267 e	323	.	105	112	114 e	112	.	Brandenburg
111	111	124 e	120	.	100	108	99 e	103	.	Bremen
251	240	234 e	233	.	275	271	275 e	270	.	Hamburg
268	257	252 e	247	.	544	515	505 e	534	.	Hessen
239	233	233 e	220	.	277	256	243 e	265	.	Darmstadt
14	10	9 e	11	.	209	208	202 e	209	.	Gießen
10	9	10 e	10	.	59	57	55 e	59	.	Kassel
35	37	120 e	119	.	137	133	131 e	133	.	Mecklenburg-Vorpommern
573	509	523 e	532	.	630	585	609 e	629	.	Niedersachsen
400	363	376 e	379	.	301	294	298 e	306	.	Braunschweig
109	96	95 e	93	.	226	201	214 e	222	.	Hannover
42	33	41 e	43	.	17	17	12 e	14	.	Lüneburg
21	11	11 e	12	.	36	34	37 e	37	.	Weser-Ems
1 123	1 075	1 167 e	1 177	.	1 529	1 523	1 533 e	1 544	.	Nordrhein-Westfalen
144	130	157 e	161	.	324	332	332 e	330	.	Düsseldorf
336	736	334 e	345	.	601	608	605 e	647	.	Köln
33	46	50 e	49	.	175	168	168 e	175	.	Münster
10	10	10 e	12	.	121	113	117 e	121	.	Detmold
95	103	115 e	110	.	307	310	312 e	320	.	Arnsberg
108	115	121 e	120	.	249	260	277 e	276	.	Rheinland-Pfalz
5	5	5 e	6	.	12	14	16 e	17	.	Koblenz
12	10	12 e	12	.	34	36	34 e	36	.	Trier
91	100	104 e	102	.	203	210	223 e	223	.	Rheinhesen-Pfalz
43	47	43 e	43	.	95	95	95 e	93	.	Saarland
353	352	391 e	443	.	437	427	429 e	442	.	Sachsen
353	352	57 e	65	.	437	427	104 e	93	.	Chemnitz
.	.	233 e	271	.	.	.	133 e	206	.	Dresden
.	.	95 e	113	.	.	.	137 e	139	.	Leipzig
137	133	146 e	141	.	192	172	190 e	201	.	Sachsen-Anhalt
.	0	2 e	2	.	4	4	4 e	4	.	Dessau
67	55	62 e	56	.	109	96	111 e	115	.	Halle
70	77	77 e	32	.	30	72	78 e	31	.	Magdeburg
133	176	130 e	133	.	219	206	173 e	135	.	Schleswig-Holstein
123	126	143 e	136	.	192	171	176 e	133	.	Thüringen
37	45	44 e	.	.	163	144	178 e	.	.	Not registered by region
.	127	.	173	.	.	274	.	394	.	Ellada
.	22	.	24	.	.	36 r	.	124	.	Voreia Ellada
.	5	.	5	.	.	11 r	.	13	.	Anatoliki Makedonia, Thraki
.	12	.	15	.	.	63 r	.	39	.	Kentriki Makedonia
.	3	.	1	.	.	1 r	.	1	.	Dytiki Makedonia
.	2	.	2	.	.	5 r	.	15	.	Thessalia
.	6	.	3	.	.	46 r	.	72	.	Kentriki Ellada
.	1	.	1	.	.	13 r	.	24	.	Ipeiros
.	0	.	0	.	.	3 r	.	2	.	Ionia Nisia
.	1	.	4	.	.	30 r	.	46	.	Dytiki Ellada
.	1	.	1	.	.	0 r	.	0	.	Stereia Ellada
.	3	.	2	.	.	.	.	0	.	Peloponnisos
.	70	.	109	.	.	117 r	.	164	.	Attiki
.	29	.	32	.	.	36 r	.	34	.	Nisia Aigaiou, Kriti
.	0	.	1	.	.	5 r	.	4	.	Voreio Aigaiou
.	1	.	1	.	.	1 r	.	1	.	Notio Aigaiou
.	23	.	31	.	.	21 r	.	29	.	Kriti
.	.	.	.	.	.	.	.	.	.	Not registered by region

For meaning of flag '!', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions EUR

All current prices and current exchange rates

**Table 16**  
**R&D expenditure**  
**At the regional level**

**Table 16A-2**

**R&D expenditure at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>España</b>	3 923 e	4 067	4 603 e	4 995	5 719 er	1 922 e	1 977	2 445	2 597	3 069 er
Noroeste	225 e	230	275 e	282	360 e	42 e	65	107	97	132 e
Galicia	123 e	143	152 e	166	209 e	20 e	37	43	50	67 e
Principado de Asturias	66 e	61	63 e	74	115 e	14 e	20	29	31	56 e
Cantabria	32 e	35	55 e	42	36 e	5 e	9	30	16	9 e
Noreste	532 e	521	627 e	660	716 e	361 e	362	455	471	514 e
Pais Vasco	356 e	353	412 e	414	460 e	276 e	280	337	325	364 e
Comunidad Foral de Navarra	62 e	68	76 e	97	95 e	36 e	34	47	53	62 e
La Rioja	14 e	14	20 e	20	27 e	7 e	6	12	11	17 e
Aragón	90 e	88	119 e	134	134 e	43 e	41	65	77	78 e
Comunidad de Madrid	1 323 e	1 306	1 449 e	1 539	1 752 e	708 e	682	773	867	954 e
Centro (E)	247 e	274	236 e	306	309 e	100 e	110	107	113	133 e
Castilla y León	149 e	157	153 e	202	223 e	43 e	47	43	77	92 e
Castilla-la Mancha	69 e	91	39 e	65	119 e	40 e	62	54	34	76 e
Extremadura	29 e	33	32 e	39	57 e	3 e	2	6	7	15 e
Este	1 113 e	1 171	1 417 e	1 495	1 723 e	536 e	629	3 15	372	1 086 e
Cataluña	843 e	830	1 070 e	1 130	1 262 e	515 e	565	634	756	860 e
Comunidad Valenciana	253 e	266	312 e	332	437 e	60 e	73	123	111	132 e
Baleares	22 e	26	34 e	33	35 e	1 e	1	3	5	4 e
Sur	447 e	453	533 e	559	646 e	120 e	113	176	173	222 e
Andalucía	392 e	397	463 e	475	542 e	108 e	94	150	137	177 e
Murcia	55 e	61	69 e	35	104 e	17 e	23	26	36	45 e
Ceuta y Melilla	-	-	-	-	-	-	-	-	-	-
Canarias	39 e	32	106 e	106	119 e	10 e	11	12	15	26 e
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>France</b>	28 127	27 538	28 140	29 529	30 153 e	17 307	17 213	17 520	13 656	19 308 e
Île de France	11 390	12 223	12 416	13 426	.	3 486	3 440	3 432	9 337	.
Bassin Parisien	1 347	2 170	2 347	2 443	.	1 624	1 713	1 870	1 960	.
Champagne-Ardenne	102	145	147	142	.	96	104	106	100	.
Picardie	309	321	369	373	.	298	274	319	320	.
Haute-Normandie	413	492	545	594	.	402	427	477	526	.
Centre	565	694	723	777	.	462	533	562	609	.
Basse-Normandie	162	192	223	244	.	123	119	157	163	.
Bourgogne	235	327	329	319	.	250	250	249	237	.
Nord - Pas-de-Calais	313	454	464	437	.	240	243	252	256	.
Est	1 093	1 348	1 392	1 432	.	354	365	399	934	.
Lorraine	313	432	435	436	.	220	233	227	227	.
Alsace	403	511	525	510	.	272	274	237	271	.
Franche-Comté	372	404	432	436	.	363	363	335	436	.
Ouest	1 312	1 697	1 623	1 727	.	1 011	1 126	1 042	1 133	.
Pays de la Loire	459	607	537	654	.	364	417	397	454	.
Bretagne	693	334	324	349	.	533	593	524	549	.
Poitou-Charentes	155	207	217	225	.	114	111	121	130	.
Sud-Ouest	2 147	2 436	2 633	2 303	.	1 406	1 366	1 429	1 520	.
Aquitaine	643	749	737	343	.	540	520	552	607	.
Midi-Pyrénées	1 437	1 598	1 393	1 366	.	308	772	311	354	.
Limousin	67	91	93	39	.	63	64	66	59	.
Centre-Est	2 354	3 263	3 349	3 435	.	2 123	2 202	2 307	2 420	.
Rhône-Alpes	2 453	2 797	2 343	2 966	.	1 302	1 345	1 903	2 014	.
Auvergne	336	469	507	519	.	326	367	343	406	.
Méditerranée	2 472	2 497	2 607	2 429	.	1 547	1 270	1 297	1 063	.
Languedoc-Roussillon	557	695	793	335	.	163	192	217	211	.
Provence-Alpes-Côte d'Azur	1 915	1 736	1 797	1 575	.	1 373	1 077	1 035	335	.
Corse	6	12	11	19	.	-	1	1	7	.
Départements d'Outre-Mer	159	175	203	204	.	-	2	-	-	.
Not registered by region	4 530	1 270	1 062	1 093	.	-	-	-	-	.
<b>Ireland</b>	759 e	909 e	973 i	1 076 e	.	537 e	645 e	699 i	734	.

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 16**  
**R&D expenditure**  
**At the regional level**

In millions EUR  
At current prices and current exchange rates

**Table 16B-2**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
730 e	704	764	843	905 r	1 236	1 328	1 432	1 505	1 624 r	España
50 e	49	47	53	59	124	122	117	129	161	Noroeste
31 e	30	29	31	36	63	75	75	84	106	Galicia
11 e	11	11	13	15	40	30	28	30	40	Principado de Asturias
7 e	7	7	10	8	17	16	15	15	16	Cantabria
33 e	29	36	33	33	124	130	136	143	162	Noreste
11 e	10	9	10	13	64	63	72	78	86	Pais Vasco
3 e	2	2	2	2	25	27	27	31	31	Comunidad Foral de Navarra
2 e	2	2	2	2	5	6	6	8	9	La Rioja
17 e	15	23	24	21	30	29	31	33	37	Aragón
376 e	363	404	443	473	233	253	253	273	301	Comunidad de Madrid
23 e	32	31	33	43	113	130	145	150	170	Centro (E)
14 e	15	16	19	19	36	36	42	40	41	Castilla y León
3 e	9	8	7	11	12	19	23	24	31	Castilla-la Mancha
6 e	7	7	7	13	20	25	25	24	23	Extremadura
126 e	131	112	133	139	304	337	455	467	532	Este
36 e	30	34	33	34	233	214	273	265	304	Cataluña
36 e	33	23	33	37	145	156	157	133	205	Comunidad Valenciana
4 e	7	7	8	8	16	13	20	20	23	Baleares
35 e	36	102	115	120	231	253	254	270	300	Sur
31 e	73	36	35	103	206	229	226	240	260	Andalucía
14 e	13	16	20	17	25	24	23	29	42	Murcia
-	-	-	-	-	-	-	-	-	-	Ceuta y Melilla
22 e	20	26	26	23	53	51	67	63	66	Canarias
-	-	-	-	-	-	-	-	-	-	Not registered by region
5 700	5 139	5 245	5 357	5 357 e	4 735	4 725	4 255	5 063	5 040 e	France
1 730	1 207	1 233	1 204	.	204	1 350	1 371	2 006	.	Île de France
132	123	133	149	.	75	330	333	339	.	Bassin Parisien
4	5	3	3	.	2	36	33	33	.	Champagne-Ardenne
11	10	10	11	.	2	36	40	42	.	Picardie
3	6	9	3	.	3	59	59	60	.	Haute-Normandie
77	73	76	79	.	26	33	33	39	.	Centre
7	3	13	21	.	26	66	59	55	.	Basse-Normandie
25	26	23	23	.	10	51	52	54	.	Bourgogne
36	32	35	34	.	34	179	176	132	.	Nord - Pas-de-Calais
64	61	65	63	.	179	422	429	431	.	Est
36	35	37	33	.	62	166	171	171	.	Lorraine
24	24	25	26	.	112	214	214	213	.	Alsace
4	3	3	3	.	6	43	44	47	.	Franche-Comté
223	226	240	240	.	73	333	347	354	.	Ouest
73	72	74	76	.	22	111	117	124	.	Pays de la Loire
127	132	147	144	.	33	153	153	155	.	Bretagne
24	22	19	20	.	13	74	77	75	.	Poitou-Charentes
530	623	793	805	.	151	451	461	477	.	Sud-Ouest
46	50	56	56	.	53	179	179	136	.	Aquitaine
542	573	736	743	.	92	246	256	264	.	Midi-Pyrénées
1	1	1	1	.	2	26	26	29	.	Limousin
426	419	403	412	.	300	641	641	653	.	Centre-Est
379	370	363	351	.	237	533	532	591	.	Rhône-Alpes
43	53	50	51	.	12	59	59	61	.	Auvergne
676	663	732	733	.	255	563	572	594	.	Méditerranée
274	281	344	330	.	114	223	233	243	.	Languedoc-Roussillon
397	335	333	393	.	141	324	323	343	.	Provence-Alpes-Côte d'Azur
5	5	5	4	.	0	6	6	3	.	Corse
153	152	173	132	.	1	22	25	22	.	Départements d'Outre-Mer
1 606	1 010	773	730	.	2 667	0	0	-	-	Not registered by region
64 e	69 e	70 e	64	63 e	152 e	133 e	204 e	223 e	.	Ireland

**Table 16A-3**

**R&D expenditure at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Italia</b>	9 772	10 322 rb	11 401 r	11 524 r	.	5 231	5 306 r	5 512 r	5 624 r	5 926 ri
Nord Ovest	1 795	1 928 rb	1 947	1 984	.	1 338	1 424 r	1 440 r	1 482	.
Piemonte	1 413	1 508 rb	1 549	1 584	.	1 201	1 247 r	1 277 r	1 274	.
Valle d'Aosta	5	2 rb	4	11	.	4	1 r	4 r	10	.
Liguria	372	418 rb	393	389	.	130	136	150 r	173	.
Lombardia	2 372	2 513 rb	2 573	2 662	.	1 722	1 819	1 873 r	1 950	.
Nord Est	770	859 rb	918	914	.	393	336	413 r	407	.
Trentino-Alto Adige	34	33 rb	103	114	.	30	41 r	41	51	.
Veneto	441	488 rb	505	514	.	212	200	215	213	.
Friuli-Venezia Giulia	245	230 rb	310	287	.	147	148 r	162 r	133	.
Emilia-Romagna	713	845 rb	899	899	.	370	410 r	447 r	482	.
Centro (I)	308	395 rb	442	491	.	248	233 r	214 r	260	.
Toscana	610	626 rb	691	717	.	204	196 r	169 r	219	.
Umbria	92	119 rb	123	143	.	14	16	16 r	19	.
Marche	104	150 rb	123	131	.	20	56 r	20	31	.
Lazio	1 369	2 061 rb	2 215	2 223	.	653	676 r	673 r	631	.
Abruzzo-Molise	243	190 rb	173	174	.	158	93 r	71 r	63	.
Abruzzo	229	177 rb	157	160	.	140	93 r	66 r	63	.
Molise	14	13 rb	17	14	.	8	.	5 r	.	.
Campania	505	664 rb	701	703	.	174	205 r	192 r	218	.
Sud	233	339 rb	373	379	.	75	79 r	64 r	74	.
Puglia	203	247 rb	271	263	.	60	74 r	56 r	60	.
Basilicata	32	26 rb	33	46	.	5	4 r	6 r	12	.
Calabria	53	66 rb	69	65	.	1	1 r	2	2	.
Sicilia	279	373 rb	502	447	.	17	31 r	102 r	34	.
Sardegna	133	154 rb	157	163	.	19	19 r	13 r	15	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Luxembourg</b>	.	.	.	.	279 p	.	.	.	.	244 p
<b>Nederland</b>	6 596	6 724	6 319	7 593 r	.	3 442	3 702	3 694	4 268 r	.
Noord-Nederland	.	333	332	429	.	162	192	131	200	.
Groningen	.	333	332	304	.	78	192	131	.	.
Friesland	.	.	.	71	.	43	.	.	64	.
Drenthe	.	.	.	54	.	43	.	.	.	.
Oost-Nederland	.	1 225	1 243	1 317	.	548	624	593	671	.
Overijssel	.	280	269	296	.	175	133	161	191	.
Gelderland	.	327	363	419	.	350	332	415	466	.
Flevoland	.	117	116	102	.	14	19	17	15	.
West-Nederland	.	3 453	3 495	3 797	.	1 308	1 446	1 445	1 623	.
Utrecht	.	722	636	707	.	269	320	223	277	.
Noord-Holland	.	1 075	1 111	1 301	.	468	500	519	632	.
Zuid-Holland	.	1 632	1 693	1 732	.	567	609	654	624	.
Zeeland	.	24	51	57	.	14	17	45	50	.
Zuid-Nederland	.	1 724	1 693	2 020	.	1 408	1 431	1 475	1 751	.
Noord-Brabant	.	1 240	1 222	1 466	.	1 073	1 079	1 039	1 307	.
Limburg (NL)	.	434	477	553	.	333	403	335	444	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Österreich</b>	2 325 e	3 071 e	3 377	3 600 e	3 637	.	.	2 146 r	.	.
Ostösterreich	.	.	1 242	.	.	.	.	1 119	.	.
Burgenland	.	.	2	.	.	.	.	6	.	.
Niederösterreich	.	.	196	.	.	.	.	131	.	.
Wien	.	.	1 629	.	.	.	.	934	.	.
Südösterreich	.	.	717	.	.	.	.	453	.	.
Kärnten	.	.	121	.	.	.	.	97	.	.
Steiermark	.	.	596	.	.	.	.	361	.	.
Westösterreich	.	.	317	.	.	.	.	560	.	.
Oberösterreich	.	.	302	.	.	.	.	332	.	.
Salzburg	.	.	92	.	.	.	.	42	.	.
Tirol	.	.	257	.	.	.	.	123	.	.
Vorarlberg	.	.	75	.	.	.	.	73	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Portugal</b>	.	532	.	315 r	.	.	191	.	136	.
Continente	.	532 r	.	315 r	.	.	191	.	133	.
Norte	.	116	.	169	.	.	23	.	50	.
Centro (P)	.	39	.	112	.	.	19	.	27	.
Lisboa e Vale do Tejo	.	333	.	437 r	.	.	32	.	102	.
Alentejo	.	17	.	24	.	.	2	.	2	.
Algarve	.	9 r	.	16 r	.	.	1	.	2	.
Açores	.	9 r	.	43	.	.	0	.	0	.
Madeira	.	9 r	.	10 r	.	.	.	.	1 r	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

**Table 16**  
**R&D expenditure**  
**At the regional level**

In millions EUR  
At current prices and current exchange rates

**Table 16B-3**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
1 954	2 101 r	2 307 r	2 213 r	2 406 r	2 504	3 331 rb	3 532 r	3 623 r	.	Italia
228	195 r	178 r	165	.	234	207 rb	330	337	.	Nord Ovest
32	33 r	60 r	74	.	135	173 rb	203	217	.	Piemonte
0	r	0 r	0	.	.	.	.	.	.	Valle d'Aosta
144	111 r	108 r	92	.	90	119 rb	127	120	.	Liguria
230	273 r	255 r	249	.	310	421 rb	445	459	.	Lombardia
128	133 r	150 r	142	.	248	330 rb	349	364	.	Nord Est
22	24 r	31 r	29	.	23	23 rb	31	34	.	Trentino-Alto Adige
74	73 r	71 r	71	.	154	214 rb	213	225	.	Veneto
29	36 r	43 r	43	.	69	93 rb	100	108	.	Friuli-Venezia Giulia
95	106 r	108 r	93	.	243	329 rb	344	339	.	Emilia-Romagna
167	161 r	134 r	167	.	402	498 rb	545	555	.	Centro (I)
135	137 r	157 r	137	.	271	323 rb	365	361	.	Toscana
11	13	14 r	13	.	67	91 rb	93	106	.	Umbria
10	13 r	13 r	12	.	65	77 rb	81	83	.	Marche
333	362 r	1 109 r	1 087	.	373	422 rb	429	460	.	Lazio
23	21 r	19 r	25	.	65	71 rb	84	86	.	Abruzzo-Molise
22	13 r	13 r	24	.	53	61 rb	73	73	.	Abruzzo
1	3 r	1 r	1	.	7	10 rb	11	13	.	Molise
95	116 r	135 r	114	.	238	343 rb	374	373	.	Campania
41	46 r	74 r	73	.	172	213 rb	235	231	.	Sud
24	34 r	55 r	50	.	111	139 rb	160	157	.	Puglia
10	3 r	5 r	10	.	16	19 rb	21	24	.	Basilicata
3	10 r	14 r	13	.	45	55 rb	54	50	.	Calabria
47	53 r	66 r	61	.	215	235 rb	335	302	.	Sicilia
31	29 r	32	31	.	33	105 rb	112	116	.	Sardegna
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	.	.	34 p	.	.	.	.	f p	Luxembourg
1 222	1 223	1 214	1 250	.	1 370	1 354	1 351	1 333 r	.	Nederland
30	11	13	.	.	.	130	139	204	.	Noord-Nederland
27	11	13	.	.	.	130	139	204	.	Groningen
3	.	.	.	.	.	.	.	.	.	Friesland
0	.	.	.	.	.	.	.	.	.	Drenthe
316	234	292	.	.	.	353	367	373	.	Oost-Nederland
17	7	6	.	.	.	91	91	93	.	Overijssel
200	179	137	.	.	.	267	268	230	.	Gelderland
100	93	100	.	.	.	.	.	.	.	Flevoland
353	325	350	.	.	.	1 032	1 090	1 141	.	West-Nederland
133	150	157	.	.	.	252	252	262	.	Utrecht
268	233	243	.	.	.	342	343	363	.	Noord-Holland
400	535	554	.	.	.	430	410	511	.	Zuid-Holland
7	7	6	.	.	.	.	.	.	.	Zeeland
17	3	3	.	.	.	234	215	253	.	Zuid-Nederland
11	3	3	.	.	.	153	130	157	.	Noord-Brabant
6	5	6	.	.	.	78	35	101	.	Limburg (NL)
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	213 r	.	.	.	.	1 003	.	.	Österreich
.	.	152	.	.	.	.	563	.	.	Ostösterreich
.	.	2	.	.	.	.	.	.	.	Burgenland
.	.	14	.	.	.	.	.	.	.	Niederösterreich
.	.	136	.	.	.	.	562	.	.	Wien
.	.	29	.	.	.	.	230	.	.	Südösterreich
.	.	3	.	.	.	.	17	.	.	Kärnten
.	.	22	.	.	.	.	214	.	.	Steiermark
.	.	37	.	.	.	.	210	.	.	Westösterreich
.	.	14	.	.	.	.	48	.	.	Oberösterreich
.	.	7	.	.	.	.	44	.	.	Salzburg
.	.	14	.	.	.	.	120	.	.	Tirol
.	.	3	.	.	.	.	.	.	.	Vorarlberg
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	141	.	223 r	.	.	233 r	.	314	.	Portugal
.	132	.	133 r	.	.	227 r	.	306 r	.	Continente
.	10	.	12 r	.	.	59	.	31	.	Norte
.	3	.	7 r	.	.	53	.	62	.	Centro (P)
.	114	.	153 r	.	.	99 r	.	133	.	Lisboa e Vale do Tejo
.	4	.	4	.	.	9	.	13	.	Alentejo
.	1	.	2 r	.	.	7	.	11	.	Algarve
.	3	.	39	.	.	4	.	7	.	Açores
.	6	.	6	.	.	2 r	.	2	.	Madeira
.	.	.	.	.	.	.	.	.	.	Not registered by region

For meaning of flag 'r', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

In millions EUR

At current prices and current exchange rates

Table 16

R&D expenditure  
At the regional level

Table 16A-4

R&D expenditure at NUTS level 0, 1 and 2

All sectors

Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Suomi-Finland</b>	2 564	2 937	3 334	3 379	4 423 r	1 690	1 923	2 239	2 644	3 138 r
Manner-Suomi	.	2 938	3 334	3 373	4 421	.	1 923	2 239	2 643	3 138
Itä-Suomi	.	138	142	174	171	.	58	62	72	70
Väli-Suomi	.	208	225	273	312	.	152	164	198	225
Pohjois-Suomi	.	312	410	474	562	.	217	299	347	421
Uusimaa (Suuralue)	.	1 419	1 571	1 804	2 045	.	907	1 006	1 175	1 304
Etelä-Suomi	.	358	380	452	541	.	604	709	853	1 025
Åland	.	0	0	1	2	.	0	0	1	1
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Sverige</b>		7 742	8 003 e	8 608	.		5 797	6 097 e	6 468	.
Stockholm	.	.	.	.	.	.	2 179	.	2 438	.
Östra Mellansverige	.	.	.	.	.	.	757	.	842	.
Sydsverige	.	.	.	.	.	.	738	.	834	.
Norra Mellansverige	.	.	.	.	.	.	122	.	164	.
Mellersta Norrland	.	.	.	.	.	.	87	.	93	.
Övre Norrland	.	.	.	.	.	.	108	.	114	.
Småland med Öarna	.	.	.	.	.	.	123	.	122	.
Västssverige	.	.	.	.	.	.	1 525	.	1 626	.
Not registered by region	.	.	.	.	.	.	115	.	115	.
<b>United Kingdom</b>	17 721	21 342	23 024	25 300	28 757 r	11 539	13 082	15 169	17 159	19 335 r
North East	.	324	423	424	.	232	234	263	249	269
Tees Valley & Durham	.	.	.	.	.	.	.	.	.	.
Northumberland and Tyne & Wear	.	.	.	.	.	.	.	.	.	.
North West (inc. Merseyside)	.	2 100	2 246	2 703	.	1 443	1 621	1 809	2 241	2 331
Cumbria	.	.	.	.	.	.	.	.	.	.
Cheshire	.	.	.	.	.	.	.	.	.	.
Greater Manchester	.	.	.	.	.	.	.	.	.	.
Lancashire	.	.	.	.	.	.	.	.	.	.
Merseyside	.	.	.	.	.	.	.	.	.	.
Yorkshire & The Humber	.	784	840	940	.	342	363	424	469	499
East Riding & North Lincolnshire	.	.	.	.	.	.	.	.	.	.
North Yorkshire	.	.	.	.	.	.	.	.	.	.
South Yorkshire	.	.	.	.	.	.	.	.	.	.
West Yorkshire	.	.	.	.	.	.	.	.	.	.
East Midlands	.	1 338	1 487	1 621	.	872	1 023	1 146	1 272	1 531
Derbyshire & Nottinghamshire	.	.	.	.	.	.	.	.	.	.
Leicesters., Rutland & Northants	.	.	.	.	.	.	.	.	.	.
Lincolnshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	1 324	1 540	1 621	.	772	885	1 047	1 099	945
Herefords., Worcesters. & Warks	.	.	.	.	.	.	.	.	.	.
Shropshire & Staffordshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	.	.	.	.	.
Eastern	.	4 127	4 219	4 595	.	2 615	3 459	3 499	3 326	4 525
East Anglia	.	.	.	.	.	.	.	.	.	.
Bedfordshire, Hertfordshire	.	.	.	.	.	.	.	.	.	.
Essex	.	.	.	.	.	.	.	.	.	.
London	.	2 301	2 410	2 637	.	307	363	351	4 118	4 329
Inner London	.	.	.	.	.	.	.	.	.	.
Outer London	.	.	.	.	.	.	.	.	.	.
South East	.	5 008	5 399	6 021	.	2 352	3 438	3 753	4 427	4 263
Berkshire, Bucks & Oxfordshire	.	.	.	.	.	.	.	.	.	.
Surrey, East & West Sussex	.	.	.	.	.	.	.	.	.	.
Hampshire & Isle of Wight	.	.	.	.	.	.	.	.	.	.
Kent	.	.	.	.	.	.	.	.	.	.
South West	.	1 637	2 002	1 984	.	390	1 102	1 341	1 347	1 423
Gloucesters., Wilts., N. Somerset	.	.	.	.	.	.	.	.	.	.
Dorset & Somerset	.	.	.	.	.	.	.	.	.	.
Cornwall & Isles of Scilly	.	.	.	.	.	.	.	.	.	.
Devon	.	.	.	.	.	.	.	.	.	.
Wales	.	380	420	575	.	132	163	125	308	238
West Wales & The Valleys	.	.	.	.	.	.	.	.	.	.
East Wales	.	.	.	.	.	.	.	.	.	.
Scotland	.	1 401	1 545	1 524	.	441	514	627	597	668
North Eastern Scotland	.	.	.	.	.	.	.	.	.	.
Eastern Scotland	.	.	.	.	.	.	.	.	.	.
South Western Scotland	.	.	.	.	.	.	.	.	.	.
Highlands & Islands	.	.	.	.	.	.	.	.	.	.
Northern Ireland	.	215	225	268	.	101	117	120	150	223
Not registered by region	.	274 s	300 s	364 s	.	.	.	.	.	.
<b>EEA</b>	131 949 s	133 282 s	146 941 s	159 371 s	197 191 s	32 339 s	37 524 s	32 154 s	40 522 s	43 941 s
Iceland	26	20	142	123	.	27	49	54	23	.
<b>Norge</b>		2 262	.	2 445	.		1 291	.	1 362	.
Oslo og Akershus	.	1 074	.	1 151	.	.	608	.	642	.
Hedmark og Oppland	.	218	.	217	.	.	121	.	120	.
Sør-Østlandet	.	60	.	42	.	.	43	.	27	.
Agder og Rogaland	.	122	.	200	.	.	162	.	175	.
Vestlandet	.	284	.	299	.	.	98	.	92	.
Trøndelag	.	348	.	420	.	.	126	.	237	.
Nord-Norge	.	108	.	115	.	.	10	.	18	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Japan</b>	102 570 b	107 925	108 604	123 912	152 262	72 242 b	77 756	73 763	87 623	109 176
<b>United States of America</b>	158 759 i	127 720 i	202 775 i	.	.	113 924 i	122 912 i	150 907 i	171 539 i	216 385 i

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.



**Table 16**  
**R&D expenditure**  
**At the regional level**

In millions EUR  
At current prices and current exchange rates

**Table 16B-4**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
408	399	420	470	497 r	462	538	664	765	789 r	Suomi-Finland
.	399	420	470	497	.	538	664	765	789	Manner-Suomi
.	19	22	25	25	.	61	64	77	78	Itä-Suomi
.	13	15	26	23	.	41	45	50	60	Väli-Suomi
.	30	33	37	39	.	70	73	91	91	Pohjois-Suomi
.	289	279	305	327	.	234	270	324	330	Uusimaa (Suuralue)
.	63	70	73	34	.	180	197	222	232	Etelä-Suomi
.	0	.	.	r	.	.	.	.	.	Åland
.	274	277 e	239	.	.	1 877	1 624 r	1 842	.	Not registered by region
.	.	.	173	.	.	.	.	.	.	Sverige
.	.	.	69	.	.	.	.	.	.	Stockholm
.	.	.	2	.	.	.	.	.	.	Östra Mellansverige
.	.	.	16	.	.	.	.	.	.	Sydsverige
.	.	.	4	.	.	.	.	.	.	Norra Mellansverige
.	.	.	27	.	.	.	.	.	.	Mellersta Norrland
.	.	.	0	.	.	.	.	.	.	Övre Norrland
.	.	.	5	.	.	.	.	.	.	Småland med Öarna
.	.	.	.	.	.	.	.	.	.	Västssverige
.	.	.	.	.	.	.	.	.	.	Not registered by region
2 544	2 973	3 072	2 774	3 498 r	3 437	4 177	4 493	5 073	5 987 r	United Kingdom
5	4	4	3	3	.	148	155	172	200	North East
.	.	.	.	.	.	.	.	.	62	Tees Valley & Durham
.	.	.	.	.	.	.	.	.	133	Northumberland and Tyne & Wear
63	90	34	73	94	.	329	352	395	477	North West (inc. Merseyside)
.	.	.	.	.	.	.	.	.	.	Cumbria
.	.	.	.	.	.	.	.	.	.	Cheshire
.	.	.	.	.	.	.	.	.	290	Greater Manchester
.	.	.	.	.	.	.	.	.	57	Lancashire
.	.	.	.	.	.	.	.	.	130	Merseyside
42	65	59	67	79	.	337	368	470	488	Yorkshire & The Humber
.	.	.	.	.	.	.	.	.	30	East Riding & North Lincolnshire
.	.	.	.	.	.	.	.	.	69	North Yorkshire
.	.	.	.	.	.	.	.	.	177	South Yorkshire
.	.	.	.	.	.	.	.	.	107	West Yorkshire
65	94	36	73	90	.	273	235	276	336	East Midlands
.	.	.	.	.	.	.	.	.	162	Derbyshire & Nottinghamshire
.	.	.	.	.	.	.	.	.	172	Leicesters., Rutland & Northants
.	.	.	.	.	.	.	.	.	.	Lincolnshire
243	224	247	249	320	.	225	247	273	315	West Midlands
.	.	.	.	.	.	.	.	.	2	Herefords., Worcesters. & Warks
.	.	.	.	.	.	.	.	.	33	Shropshire & Staffordshire
.	.	.	.	.	.	.	.	.	231	West Midlands
364	439	403	323	425	.	309	372	337	532	Eastern
.	.	.	.	.	.	.	.	.	405	East Anglia
.	.	.	.	.	.	.	.	.	39	Bedfordshire, Hertfordshire
.	.	.	.	.	.	.	.	.	33	Essex
253	233	373	307	415	.	1 064	1 148	1 277	1 483	London
.	.	.	.	.	.	.	.	.	1 408	Inner London
.	.	.	.	.	.	.	.	.	67	Outer London
922	942	937	846	1 044	.	627	630	743	347	South East
.	.	.	.	.	.	.	.	.	500	Berkshire, Bucks & Oxfordshire
.	.	.	.	.	.	.	.	.	142	Surrey, East & West Sussex
.	.	.	.	.	.	.	.	.	189	Hampshire & Isle of Wight
.	.	.	.	.	.	.	.	.	23	Kent
323	342	457	393	502	.	136	204	225	263	South West
.	.	.	.	.	.	.	.	.	206	Gloucesters., Wilts., N. Somerset
.	.	.	.	.	.	.	.	.	3	Dorset & Somerset
.	.	.	.	.	.	.	.	.	.	Cornwall & Isles of Scilly
.	.	.	.	.	.	.	.	.	54	Devon
25	36	63	77	107	.	180	187	198	223	Wales
.	.	.	.	.	.	.	.	.	94	West Wales & The Valleys
.	.	.	.	.	.	.	.	.	133	East Wales
215	377	364	304	392	.	518	564	624	722	Scotland
.	.	.	.	.	.	.	.	.	77	North Eastern Scotland
.	.	.	.	.	.	.	.	.	470	Eastern Scotland
.	.	.	.	.	.	.	.	.	236	South Western Scotland
.	.	.	.	.	.	.	.	.	.	Highlands & Islands
15	23	27	13	25	.	75	34	97	115	Northern Ireland
.	.	.	.	.	.	.	.	.	.	Not registered by region
20 795 s	20 547 s	21 432 s	21 933 s	22 344 s	27 440 s	29 293 s	30 422 s	32 295 s	34 239 s	EEA
35	36	55	57	.	27	34	37	39 r	.	Iceland
.	373	.	377	.	.	604	.	700	.	Norge
.	273	.	215	.	.	254	.	294	.	Oslo og Akershus
.	26	.	26	.	.	9	.	12	.	Hedmark og Oppland
.	7	.	7	.	.	6	.	3	.	Sør-Østlandet
.	7	.	9	.	.	14	.	18	.	Agder og Rogaland
.	63	.	67	.	.	120	.	147	.	Vestlandet
.	25	.	25	.	.	136	.	159	.	Trøndelag
.	23	.	23	.	.	87	.	77	.	Nord-Norge
.	.	.	.	.	.	.	.	.	.	Not registered by region
9 627	9 535	9 532	12 274	15 276	15 127 b	15 406	15 332	13 397	22 352	Japan
13 427 i	15 332 i	15 304 i	17 725 i	21 435 i	22 978 i	26 962 i	28 789 i	37 953 i	33 929 i	United States of America

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

Table 17A-1

R&amp;D expenditure at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>EU-15</b>	<b>1.33 s</b>	<b>1.37 s</b>	<b>1.37 s</b>	<b>1.33 s</b>	<b>1.33 s</b>	<b>1.13 s</b>	<b>1.19 s</b>	<b>1.19 s</b>	<b>1.25 s</b>	<b>1.24 s</b>
EUR-12	1.32 s	1.37 s	1.32 s	1.37 s	1.37 s	1.12 s	1.13 s	1.13 s	1.19 s	1.21 s
Belgique-Belgie	1.30 er	1.37 er	1.30 er	1.36 er	.	1.20 e	1.34 e	1.34 e	1.40 e	1.45
Région Bruxelles-capitale	.	.	.	.	.	1.08 e	1.03 e	0.99 er	0.90 e	.
Vlaams Gewest	.	.	.	.	.	1.38 er	1.45 er	1.51 e	1.50 er	.
Région Wallonne	.	.	.	.	.	1.30 er	1.31 er	1.23 er	1.30 er	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
Danmark	1.35 e	1.34	2.06 e	2.09 r	2.07	1.13 e	1.19	1.33	1.32 r	1.32
Deutschland	2.26 e	2.29	2.31 e	2.44 r	2.43 i	1.40 e	1.54	1.57 e	1.70 r	1.78
Baden-Württemberg	.	3.77	.	3.37	.	.	2.91	.	3.06	.
Stuttgart	.	4.68	.	4.24	.	.	4.13	.	4.38	.
Karlsruhe	.	3.48	.	3.40	.	.	1.88	.	1.91	.
Freiburg	.	1.94	.	1.96	.	.	1.26	.	1.28	.
Tübingen	.	3.98	.	4.23	.	.	3.24	.	3.42	.
Bayern	.	2.72	.	2.86	.	.	2.08	.	2.24	.
Oberbayern	.	4.70	.	4.78	.	.	3.63	.	3.75	.
Niederbayern	.	0.40	.	0.44	.	.	0.33	.	0.37	.
Oberpfalz	.	1.14	.	1.73	.	.	0.72	.	1.40	.
Oberfranken	.	1.08	.	1.12	.	.	0.72	.	0.80	.
Mittelfranken	.	2.41	.	2.61	.	.	1.38	.	2.00	.
Unterfranken	.	1.62	.	1.63	.	.	1.05	.	1.13	.
Schwaben	.	1.04	.	1.02	.	.	0.93	.	0.93	.
Berlin	.	3.43	.	3.62	.	.	1.54	.	1.36	.
Brandenburg	.	1.40	.	1.63	.	.	0.80	.	0.67	.
Bremen	.	2.08	.	2.10	.	.	1.03	.	1.08	.
Hamburg	.	1.98	.	1.79	.	.	1.19	.	1.07	.
Hessen	.	2.23	.	2.54	.	.	1.77	.	2.10	.
Darmstadt	.	2.67	.	3.13	.	.	2.26	.	2.74	.
Gießen	.	1.36	.	1.73	.	.	0.87	.	0.77	.
Kassel	.	0.72	.	0.70	.	.	0.43	.	0.47	.
Mecklenburg-Vorpommern	.	0.97	.	1.03	.	.	0.15	.	0.12	.
Niedersachsen	.	1.75	.	2.29	.	.	1.07	.	1.62	.
Braunschweig	.	4.63	.	6.34	.	.	2.31	.	4.60	.
Hannover	.	1.66	.	1.97	.	.	1.06	.	1.37	.
Lüneburg	.	0.43	.	0.54	.	.	0.29	.	0.36	.
Weser-Ems	.	0.42	.	0.53	.	.	0.22	.	0.33	.
Nordrhein-Westfalen	.	1.63	.	1.78	.	.	1.06	.	1.13	.
Düsseldorf	.	1.47	.	1.48	.	.	1.13	.	1.12	.
Köln	.	2.90	.	3.23	.	.	1.69	.	1.98	.
Münster	.	0.35	.	0.37	.	.	0.52	.	0.43	.
Detmold	.	0.97	.	1.04	.	.	0.70	.	0.78	.
Arnsberg	.	1.17	.	1.21	.	.	0.66	.	0.70	.
Rheinland-Pfalz	.	2.11	.	2.24	.	.	1.88	.	1.73	.
Koblenz	.	0.52	.	0.33	.	.	0.45	.	0.78	.
Trier	.	0.79	.	0.32	.	.	0.31	.	0.32	.
Rheinhesen-Pfalz	.	3.45	.	3.46	.	.	2.75	.	2.78	.
Saarland	.	0.98	.	0.94	.	.	0.33	.	0.36	.
Sachsen	.	2.19	.	2.41	.	.	1.07	.	1.13	.
Chemnitz	.	6.34	.	1.54	.	.	3.09	.	0.30	.
Dresden	.	.	.	3.51	.	.	.	.	1.31	.
Leipzig	.	.	.	1.96	.	.	.	.	0.62	.
Sachsen-Anhalt	.	1.23	.	1.26	.	.	0.51	.	0.43	.
Dessau	.	0.72	.	0.67	.	.	0.67	.	0.63	.
Halle	.	1.60	.	1.72	.	.	0.59	.	0.51	.
Magdeburg	.	1.21	.	1.17	.	.	0.39	.	0.31	.
Schleswig-Holstein	.	1.08	.	1.03	.	.	0.44	.	0.45	.
Thüringen	.	1.71	.	1.63	.	.	0.90	.	0.30	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
Ellada	.	0.51	.	0.67 e	.	0.12	0.13	.	0.19 r	.
Voreia Ellada	.	0.41	.	0.49 p	.	0.07	0.08	.	0.09	.
Anatoliki Makedonia, Thraki	.	0.42	.	0.53 p	.	0.06	0.06	.	0.11	.
Kentriki Makedonia	.	0.51	.	0.62 p	.	0.09	0.09	.	0.10	.
Dytiki Makedonia	.	0.30	.	0.08 p	.	0.06	0.06	.	0.01	.
Thessalia	.	0.14	.	0.30 p	.	0.06	0.06	.	0.06	.
Kentriki Ellada	.	0.31	.	0.43 p	.	0.08	0.08	.	0.13	.
Ipeiros	.	0.64	.	0.33 p	.	0.09	0.06	.	0.02	.
Ionia Nisia	.	0.19	.	0.13 p	.	0.02	0.02	.	0.00	.
Dytiki Ellada	.	0.62	.	0.39 p	.	0.07	0.07	.	0.10	.
Sterea Ellada	.	0.12	.	0.16 p	.	0.12	0.10	.	0.16	.
Peloponnisos	.	0.13	.	0.46 p	.	0.06	0.09	.	0.43	.
Attiki	.	0.60	.	0.47 p	.	0.21	0.23	.	0.33	.
Nisia Aigaiou, Kriti	.	0.57	.	0.60 p	.	0.08	0.03	.	0.08	.
Voreio Aigaio	.	0.38	.	0.24 p	.	0.08	0.02	.	0.01	.
Notio Aigaio	.	0.08	.	0.06 p	.	0.01	0.01	.	0.02	.
Kriti	.	0.33	.	1.03 p	.	0.08	0.06	.	0.04	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 17**  
**R&D expenditure**  
**At the regional level**

As a % of GDP

**Table 17B-1**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
0.30 s	0.23 s	0.23 s	0.27 s	0.24 s	0.33 s	0.30 s	0.33 s	0.33 s	0.29 s	EU-15
0.30 s	0.29 s	0.29 s	0.28 s	0.28 s	0.32 s	0.30 s	0.30 s	0.32 s	0.28 s	EUR-12
0.06 er	0.06 er	0.07 e	0.06 er	.	0.43 e	0.44 e	0.46 er	0.47 er	.	Belgique-Belgie
0.10 e	0.11 e	0.11 e	0.10 e	.	.	.	.	.	.	Région Bruxelles-capitale
0.06 e	0.06 er	0.06 er	0.06 er	.	.	.	.	.	.	Vlaams Gewest
0.04 er	0.04 er	0.03 e	0.04 er	.	.	.	.	.	.	Région Wallonne
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.30 e	0.30	0.30 e	0.32 r	0.29	0.40 e	0.43	0.41 e	0.42	0.44	Danmark
0.34	0.34	0.34 e	0.34 r	0.33	0.42	0.41	0.40 e	0.40 r	0.40	Deutschland
0.45	0.44	0.43 e	0.42	.	0.43	0.42	0.41 e	0.40	.	Baden-Württemberg
0.28	0.26	0.26 e	0.23	.	0.26	0.25	0.24 e	0.23	.	Stuttgart
1.06	1.03	1.00 e	0.93	.	0.55	0.57	0.53 e	0.51	.	Karlsruhe
0.23	0.24	0.26 e	0.25	.	0.44	0.46	0.44 e	0.45	.	Freiburg
0.14	0.15	0.14 e	0.14	.	0.62	0.57	0.62 e	0.61	.	Tübingen
0.25	0.25	0.25 e	0.24	.	0.30	0.30	0.33 e	0.37	.	Bayern
0.55	0.54	0.54 e	0.51	.	0.55	0.53	0.50 e	0.50	.	Oberbayern
.	0.00	.	0.00	.	0.02	0.07	0.07 e	0.07	.	Niederbayern
0.02	0.04	0.04 e	0.02	.	0.30	0.33	0.30 e	0.36	.	Oberpfalz
0.05	0.05	0.05 e	0.04	.	0.26	0.29	0.29 e	0.23	.	Oberfranken
0.11	0.11	0.11 e	0.12	.	0.44	0.44	0.42 e	0.40	.	Mittelfranken
0.10	0.09	0.09 e	0.09	.	0.43	0.43	0.43 e	0.46	.	Unterfranken
0.02	0.01	0.01 e	0.01	.	0.02	0.03	0.10 e	0.02	.	Schwaben
1.05	1.05	0.99 e	1.00	.	0.77	0.79	0.77 e	0.73	.	Berlin
0.64	0.60	0.67 e	0.73	.	0.27	0.29	0.29 e	0.27	.	Brandenburg
0.55	0.55	0.59 e	0.56	.	0.49	0.50	0.47 e	0.43	.	Bremen
0.33	0.36	0.34 e	0.33	.	0.42	0.41	0.40 e	0.33	.	Hamburg
0.18	0.15	0.15 e	0.14	.	0.32	0.31	0.30 e	0.30	.	Hessen
0.20	0.20	0.19 e	0.13	.	0.23	0.22	0.21 e	0.22	.	Darmstadt
0.05	0.04	0.04 e	0.05	.	0.05	0.04	0.01 e	0.01	.	Gießen
0.04	0.03	0.03 e	0.03	.	0.21	0.20	0.19 e	0.20	.	Kassel
0.31	0.32	0.43 e	0.42	.	0.49	0.50	0.43 e	0.49	.	Mecklenburg-Vorpommern
0.35	0.31	0.31 e	0.31	.	0.39	0.37	0.38 e	0.36	.	Niedersachsen
1.12	1.00	0.99 e	0.97	.	0.34	0.31	0.73 e	0.73	.	Braunschweig
0.21	0.19	0.13 e	0.13	.	0.45	0.40	0.42 e	0.42	.	Hannover
0.15	0.13	0.14 e	0.14	.	0.06	0.06	0.04 e	0.05	.	Lüneburg
0.05	0.02	0.02 e	0.02	.	0.13	0.13	0.13 e	0.17	.	Weser-Ems
0.27	0.26	0.27 e	0.27	.	0.36	0.36	0.36 e	0.36	.	Nordrhein-Westfalen
0.10	0.10	0.11 e	0.11	.	0.24	0.24	0.24 e	0.23	.	Düsseldorf
0.73	0.74	0.76 e	0.75	.	0.56	0.57	0.55 e	0.57	.	Köln
0.08	0.09	0.10 e	0.10	.	0.35	0.33	0.33 e	0.34	.	Münster
0.02	0.02	0.02 e	0.02	.	0.26	0.24	0.25 e	0.25	.	Detmold
0.12	0.13	0.14 e	0.13	.	0.33	0.33	0.33 e	0.33	.	Arnsberg
0.13	0.14	0.14 e	0.14	.	0.30	0.31	0.33 e	0.32	.	Rheinland-Pfalz
0.02	0.02	0.02 e	0.02	.	0.04	0.05	0.05 e	0.05	.	Koblenz
0.12	0.11	0.13 e	0.13	.	0.34	0.37	0.35 e	0.37	.	Trier
0.20	0.23	0.23 e	0.22	.	0.46	0.47	0.50 e	0.43	.	Rheinhesen-Pfalz
0.19	0.21	0.19 e	0.20	.	0.42	0.42	0.41 e	0.39	.	Saarland
0.50	0.51	0.56 e	0.62	.	0.61	0.61	0.61 e	0.61	.	Sachsen
1.43	1.47	0.23 e	0.26	.	1.30	1.73	0.42 e	0.39	.	Chemnitz
.	.	0.33 e	0.37	.	.	.	0.69 e	0.73	.	Dresden
.	.	0.52 e	0.60	.	.	.	0.75 e	0.74	.	Leipzig
0.34	0.34	0.36 e	0.34	.	0.43	0.43	0.47 e	0.49	.	Sachsen-Anhalt
.	0.00	0.03 e	0.03	.	0.05	0.05	0.05 e	0.05	.	Dessau
0.43	0.40	0.49 e	0.40	.	0.79	0.70	0.80 e	0.82	.	Halle
0.30	0.42	0.41 e	0.43	.	0.44	0.40	0.41 e	0.43	.	Magdeburg
0.31	0.30	0.30 e	0.32	.	0.37	0.36	0.30 e	0.31	.	Schleswig-Holstein
0.34	0.35	0.40 e	0.35	.	0.53	0.47	0.47 e	0.43	.	Thüringen
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	0.12	.	0.15	.	.	0.26	.	0.33	.	Ellada
.	0.07	.	0.07	.	.	0.28 r	.	0.34	.	Voreia Ellada
.	0.10	.	0.10	.	.	0.24 r	.	0.35	.	Anatoliki Makedonia, Thraki
.	0.06	.	0.03	.	.	0.36 r	.	0.44	.	Kentriki Makedonia
.	0.11	.	0.03	.	.	0.02 r	.	0.04	.	Dytiki Makedonia
.	0.03	.	0.03	.	.	0.08 r	.	0.21	.	Thessalia
.	0.02	.	0.03	.	.	0.19 r	.	0.27	.	Kentriki Ellada
.	0.03	.	0.04	.	.	0.51 r	.	0.76	.	Ipeiros
.	0.01	.	0.01	.	.	0.14 r	.	0.11	.	Ionia Nisia
.	0.02	.	0.07	.	.	0.53 r	.	0.71	.	Dytiki Ellada
.	0.01	.	0.01	.	.	0.00 r	.	0.00	.	Stereia Ellada
.	0.05	.	0.03	.	.	.	.	0.00	.	Peloponnisos
.	0.13	.	0.25	.	.	0.30 r	.	0.33	.	Attiki
.	0.27	.	0.27	.	.	0.24 r	.	0.29	.	Nisia Aigaiou, Kriti
.	0.03	.	0.03	.	.	0.28 r	.	0.20	.	Voreio Aigaiou
.	0.02	.	0.02	.	.	0.02 r	.	0.03	.	Notio Aigaiou
.	0.49	.	0.49	.	.	0.38 r	.	0.47	.	Kriti
.	.	.	.	.	.	.	.	.	.	Not registered by region

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 17A-2

R&amp;D expenditure at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
España	0.23 e	0.22	0.20 e	0.22	0.24	0.40 e	0.40	0.47	0.46	0.50
Noroeste	0.57 e	0.52	0.57 e	0.56	.	0.77 e	0.74	0.72	0.70	.
Galicia	0.42 e	0.52	0.52 e	0.52	.	0.77 e	0.72	0.77	0.76	.
Principado de Asturias	0.57 e	0.52	0.55 e	0.57	.	0.72 e	0.77	0.74	0.74	.
Cantabria	0.52 e	0.57	0.52 e	0.50	.	0.08 e	0.14	0.45	0.22	.
Noreste	0.22 e	0.22	0.20 e	0.22	.	0.62 e	0.67	0.72	0.70	.
Pais Vasco	1.22 e	1.18	1.24 e	1.15	.	0.22 e	0.20	0.20	0.20	.
Comunidad Foral de Navarra	0.76 e	0.72	0.74 e	0.74	.	0.42 e	0.40	0.52	0.60	.
La Rioja	0.22 e	0.22	0.20 e	0.22	.	0.20 e	0.17	0.20	0.22	.
Aragón	0.57 e	0.52	0.77 e	0.76	.	0.27 e	0.25	0.20	0.22	.
Comunidad de Madrid	1.65 e	1.56	1.60 e	1.62	.	0.27 e	0.27	0.26	0.27	.
Centro (E)	0.45 e	0.50	0.49 e	0.49	.	0.72 e	0.70	0.72	0.70	.
Castilla y León	0.57 e	0.57	0.52 e	0.52	.	0.72 e	0.72	0.72	0.72	.
Castilla-la Mancha	0.40 e	0.52	0.42 e	0.34	.	0.20 e	0.22	0.20	0.17	.
Extremadura	0.25 e	0.20	0.42 e	0.40	.	0.04 e	0.02	0.07	0.02	.
Este	0.75 e	0.72	0.22 e	0.22	.	0.40 e	0.47	0.50	0.50	.
Cataluña	0.22 e	0.24	1.02 e	1.02	.	0.52 e	0.50	0.50	0.77	.
Comunidad Valenciana	0.52 e	0.52	0.52 e	0.57	.	0.72 e	0.72	0.74	0.70	.
Baleares	0.20 e	0.22	0.22 e	0.22	.	0.07 e	0.07	0.06	0.04	.
Sur	0.52 e	0.52	0.54 e	0.52	.	0.72 e	0.72	0.77	0.70	.
Andalucía	0.67 e	0.60	0.67 e	0.62	.	0.72 e	0.74	0.72	0.72	.
Murcia	0.50 e	0.52	0.57 e	0.64	.	0.72 e	0.70	0.77	0.77	.
Ceuta y Melilla	-	-	-	-	.	-	-	-	-	.
Canarias	0.49 e	0.42	0.57 e	0.46	.	0.02 e	0.02	0.02	0.07	.
Not registered by region	-	-	-	-	.	-	-	-	-	.
France	2.20	2.22	2.17	2.12	2.12	1.47	1.29	1.25	1.22	1.22
Île de France	2.27	2.42	2.40	2.22	.	2.44	2.29	2.27	2.42	.
Bassin Parisien	0.22	1.12	1.12	1.17	.	0.22	0.20	0.22	0.22	.
Champagne-Ardenne	0.40	0.52	0.52	0.49	.	0.22	0.47	0.22	0.22	.
Picardie	0.22	1.00	1.10	1.02	.	0.22	0.22	0.22	0.22	.
Haute-Normandie	1.24	1.42	1.54	1.50	.	1.10	1.27	1.25	1.47	.
Centre	1.24	1.52	1.57	1.52	.	1.07	1.17	1.17	1.22	.
Basse-Normandie	0.65	0.72	0.20	0.20	.	0.52	0.47	0.57	0.62	.
Bourgogne	0.22	1.07	1.02	0.27	.	0.22	0.22	0.72	0.72	.
Nord - Pas-de-Calais	0.49	0.70	0.57	0.57	.	0.22	0.27	0.27	0.22	.
Est	1.12	1.20	1.27	1.22	.	0.22	0.20	0.20	0.20	.
Lorraine	0.79	1.02	1.04	1.00	.	0.52	0.52	0.54	0.52	.
Alsace	1.17	1.20	1.22	1.27	.	0.74	0.74	0.74	0.67	.
Franche-Comté	1.22	2.02	2.02	2.22	.	1.22	1.79	1.22	2.00	.
Ouest	0.22	1.22	1.12	1.17	.	0.72	0.22	0.74	0.77	.
Pays de la Loire	0.27	1.02	0.27	1.02	.	0.64	0.72	0.62	0.72	.
Bretagne	1.42	1.74	1.52	1.52	.	1.02	1.12	0.22	1.00	.
Poitou-Charentes	0.57	0.72	0.72	0.72	.	0.42	0.40	0.42	0.44	.
Sud-Ouest	1.22	2.17	2.22	2.22	.	1.22	1.27	1.27	1.24	.
Aquitaine	1.22	1.20	1.22	1.42	.	1.02	0.22	0.22	1.02	.
Midi-Pyrénées	2.19	2.42	2.72	2.72	.	1.72	1.57	1.59	1.77	.
Limousin	0.52	0.72	0.74	0.62	.	0.52	0.52	0.52	0.42	.
Centre-Est	2.02	2.20	2.22	2.22	.	1.54	1.52	1.54	1.52	.
Rhône-Alpes	2.12	2.24	2.22	2.22	.	1.52	1.52	1.52	1.52	.
Auvergne	1.74	2.07	2.02	2.02	.	1.47	1.52	1.52	1.52	.
Méditerranée	2.07	2.00	1.22	1.72	.	1.22	1.02	0.22	0.77	.
Languedoc-Roussillon	1.52	1.27	2.02	2.02	.	0.42	0.52	0.52	0.52	.
Provence-Alpes-Côte d'Azur	2.29	2.12	2.04	1.72	.	1.52	1.22	1.22	0.27	.
Corse	0.14	0.22	0.22	0.40	.	-	0.02	0.02	0.14	.
Départements d'Outre-Mer	0.22	0.22	1.02	1.00	.	-	0.07	-	-	.
Not registered by region	-	-	-	-	.	-	-	-	-	.
Ireland	1.22 e	1.22 e	1.22 i	1.27 e	.	0.22 e	0.27 e	0.27 i	0.22	.

**Table 17**  
**R&D expenditure**  
**At the regional level**

As a % of GDP

**Table 17B-2**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1995	1997	1998	1999	2000	1995	1997	1998	1999	2000	
0.15 e	0.14	0.15	0.15	0.15	0.27	0.27	0.27	0.27	0.28	España
0.11 e	0.11	0.10	0.10	.	0.28	0.27	0.28	0.28	.	Noroeste
0.12 e	0.11	0.10	0.10	.	0.26	0.27	0.28	0.27	.	Galicia
0.10 e	0.10	0.09	0.10	.	0.35	0.28	0.23	0.23	.	Principado de Asturias
0.12 e	0.12	0.11	0.13	.	0.28	0.27	0.22	0.21	.	Cantabria
0.08 e	0.08	0.08	0.08	.	0.21	0.22	0.21	0.22	.	Noreste
0.04 e	0.03	0.03	0.03	.	0.21	0.22	0.21	0.21	.	Pais Vasco
0.08 e	0.02	0.02	0.02	.	0.30	0.31	0.30	0.32	.	Comunidad Foral de Navarra
0.06 e	0.05	0.04	0.04	.	0.13	0.18	0.18	0.18	.	La Rioja
0.11 e	0.09	0.14	0.14	.	0.19	0.18	0.18	0.18	.	Aragón
0.47 e	0.43	0.45	0.45	.	0.29	0.30	0.29	0.28	.	Comunidad de Madrid
0.06 e	0.06	0.06	0.06	.	0.22	0.24	0.25	0.24	.	Centro (E)
0.06 e	0.05	0.05	0.06	.	0.30	0.29	0.30	0.31	.	Castilla y León
0.06 e	0.05	0.04	0.04	.	0.07	0.11	0.15	0.12	.	Castilla-la Mancha
0.07 e	0.08	0.08	0.07	.	0.23	0.20	0.23	0.24	.	Extremadura
0.09 e	0.09	0.07	0.08	.	0.27	0.25	0.28	0.27	.	Este
0.09 e	0.10	0.08	0.09	.	0.25	0.23	0.28	0.25	.	Cataluña
0.08 e	0.07	0.06	0.06	.	0.32	0.33	0.31	0.33	.	Comunidad Valenciana
0.04 e	0.06	0.06	0.06	.	0.15	0.15	0.18	0.15	.	Balears
0.12 e	0.11	0.12	0.13	.	0.30	0.32	0.30	0.30	.	Sur
0.13 e	0.11	0.12	0.13	.	0.32	0.36	0.32	0.32	.	Andalucía
0.12 e	0.12	0.13	0.15	.	0.22	0.21	0.22	0.22	.	Murcia
.	.	.	.	.	.	.	.	.	.	Ceuta y Melilla
0.12 e	0.10	0.13	0.12	.	0.31	0.27	0.33	0.28	.	Canarias
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.47	0.41	0.40	0.40	0.38	0.39	0.39	0.38	0.37	0.36	France
0.51	0.51	0.51	0.50	.	0.29	0.53	0.54	0.53	.	Île de France
0.07	0.07	0.07	0.07	.	0.04	0.17	0.18	0.18	.	Bassin Parisien
0.01	0.02	0.01	0.01	.	0.01	0.14	0.14	0.13	.	Champagne-Ardenne
0.08	0.03	0.03	0.03	.	0.01	0.11	0.12	0.12	.	Picardie
0.02	0.02	0.02	0.02	.	0.02	0.17	0.17	0.18	.	Haute-Normandie
0.17	0.18	0.18	0.18	.	0.08	0.18	0.18	0.18	.	Centre
0.08	0.03	0.05	0.03	.	0.11	0.28	0.23	0.20	.	Basse-Normandie
0.08	0.09	0.09	0.08	.	0.03	0.17	0.18	0.18	.	Bourgogne
0.06	0.05	0.05	0.05	.	0.06	0.27	0.28	0.27	.	Nord - Pas-de-Calais
0.07	0.06	0.06	0.06	.	0.13	0.44	0.42	0.41	.	Est
0.09	0.09	0.09	0.09	.	0.15	0.41	0.41	0.39	.	Lorraine
0.07	0.06	0.06	0.07	.	0.30	0.53	0.55	0.53	.	Alsace
0.02	0.02	0.01	0.01	.	0.03	0.22	0.21	0.21	.	Franche-Comté
0.17	0.17	0.17	0.18	.	0.08	0.25	0.24	0.24	.	Ouest
0.13	0.13	0.12	0.12	.	0.04	0.19	0.19	0.20	.	Pays de la Loire
0.28	0.28	0.28	0.28	.	0.08	0.30	0.29	0.28	.	Bretagne
0.09	0.08	0.07	0.07	.	0.07	0.27	0.27	0.26	.	Poitou-Charentes
0.54	0.56	0.67	0.66	.	0.14	0.40	0.39	0.39	.	Sud-Ouest
0.09	0.09	0.10	0.09	.	0.11	0.33	0.31	0.31	.	Aquitaine
1.20	1.25	1.54	1.50	.	0.20	0.53	0.53	0.53	.	Midi-Pyrénées
0.01	0.01	0.01	0.01	.	0.02	0.22	0.21	0.22	.	Limousin
0.31	0.30	0.27	0.27	.	0.22	0.45	0.43	0.42	.	Centre-Est
0.38	0.31	0.29	0.28	.	0.25	0.49	0.47	0.45	.	Rhône-Alpes
0.21	0.23	0.21	0.21	.	0.08	0.28	0.24	0.25	.	Auvergne
0.55	0.54	0.56	0.57	.	0.21	0.44	0.44	0.44	.	Méditerranée
0.77	0.77	0.90	0.95	.	0.32	0.61	0.62	0.60	.	Languedoc-Roussillon
0.43	0.46	0.43	0.44	.	0.17	0.39	0.37	0.38	.	Provence-Alpes-Côte d'Azur
0.13	0.11	0.10	0.09	.	0.01	0.15	0.13	0.16	.	Corse
0.35	0.30	0.30	0.29	.	0.01	0.12	0.13	0.11	.	Départements d'Outre-Mer
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.11 e	0.10 e	0.09 e	0.07	0.07	0.28 e	0.27 e	0.28 e	0.28 e	.	Ireland

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 17A-3

R&amp;D expenditure at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Italia	1.07	1.06 rb	1.07 r	1.04 r	.	0.64	0.62 r	0.62 r	0.61 r	0.61 ri
Nord Ovest	1.54	1.58 rb	1.53	1.49	.	1.14	1.18 r	1.13 r	1.11	.
Piemonte	1.67	1.68 rb	1.63	1.63	.	1.42	1.39 r	1.39 r	1.32	.
Valle d'Aosta	0.77	0.08 rb	0.15	0.37	.	0.15	0.06 r	0.14 r	0.36	.
Liguria	1.23	1.36 rb	1.22	1.13	.	0.44	0.60	0.49 r	0.64	.
Lombardia	1.13	1.12 rb	1.16	1.16	.	0.33	0.35	0.34 r	0.36	.
Nord Est	0.63	0.61 rb	0.63	0.61	.	0.30	0.28	0.29 r	0.27	.
Trentino-Alto Adige	0.40	0.48 rb	0.45	0.43	.	0.13	0.19 r	0.13	0.22	.
Veneto	0.60	0.51 rb	0.52	0.51	.	0.24	0.21	0.22	0.21	.
Friuli-Venezia Giulia	1.07	1.18 rb	1.26	1.12	.	0.64	0.61 r	0.66 r	0.64	.
Emilia-Romagna	0.33	0.34 rb	0.36	0.33	.	0.43	0.46 r	0.43 r	0.43	.
Centro (I)	0.73	0.82 rb	0.83	0.84	.	0.24	0.22 r	0.19 r	0.23	.
Toscana	0.44	0.31 rb	0.37	0.36	.	0.31	0.24 r	0.24 r	0.20	.
Umbria	0.63	0.32 rb	0.36	0.31	.	0.11	0.11	0.11 r	0.12	.
Marche	0.42	0.57 rb	0.46	0.46	.	0.12	0.21 r	0.11	0.11	.
Lazio	1.33	1.37 rb	2.02	1.96	.	0.66	0.65 r	0.62 r	0.60	.
Abruzzo-Molise	1.03	0.30 rb	0.72	0.60	.	0.60	0.41 r	0.29 r	0.26	.
Abruzzo	1.26	0.33 rb	0.30	0.79	.	0.32	0.51 r	0.34 r	0.31	.
Molise	0.32	0.28 rb	0.35	0.29	.	0.13	-	0.11 r	-	.
Campania	0.33	1.00 rb	1.02	1.00	.	0.20	0.31 r	0.23 r	0.30	.
Sud	0.40	0.44 rb	0.47	0.45	.	0.10	0.10 r	0.03 r	0.00	.
Puglia	0.45	0.53 rb	0.56	0.52	.	0.16	0.16 r	0.12 r	0.12	.
Basilicata	0.44	0.34 rb	0.41	0.54	.	0.06	0.06 r	0.03 r	0.15	.
Calabria	0.26	0.30 rb	0.30	0.27	.	0.00	0.00 r	0.01	0.01	.
Sicilia	0.51	0.64 rb	0.32	0.71	.	0.08	0.06 r	0.17 r	0.13	.
Sardegna	0.67	0.60 rb	0.63	0.67	.	0.00	0.00 r	0.06 r	0.06	.
Not registered by region	-	-	-	-	.	-	-	-	-	.
Luxembourg	.	.	.	.	.	.	.	.	.	.
Nederland	2.03	2.04	1.94	2.02 r	.	1.06	1.11	1.06	1.14 r	.
Noord-Nederland	.	1.14	1.12	1.22	.	0.43	0.57	0.53	0.60	.
Groningen	.	2.61	2.64	2.00	.	0.51	1.31	1.25	.	.
Friesland	.	.	.	0.60	.	0.40	.	.	0.53	.
Drenthe	.	.	.	0.62	.	0.54	.	.	.	.
Oost-Nederland	.	2.07	1.99	1.93	.	0.36	0.39	0.35	1.01	.
Overijssel	.	1.44	1.26	1.36	.	0.32	0.34	0.29	0.33	.
Gelderland	.	2.36	2.34	2.33	.	1.06	1.03	1.12	1.13	.
Flevoland	.	2.63	2.43	1.97	.	0.33	0.43	0.35	0.20	.
West-Nederland	.	2.02	1.92	1.96	.	0.70	0.66	0.30	0.34	.
Utrecht	.	2.53	2.06	2.12	.	0.30	1.12	0.74	0.33	.
Noord-Holland	.	1.75	1.71	1.33	.	0.70	0.32	0.30	0.30	.
Zuid-Holland	.	2.21	2.16	2.07	.	0.70	0.32	0.33	0.75	.
Zeeland	.	0.33	0.60	0.74	.	0.10	0.24	0.61	0.66	.
Zuid-Nederland	.	2.40	2.31	2.50	.	2.08	2.14	2.01	2.24	.
Noord-Brabant	.	2.57	2.37	2.67	.	2.27	2.23	2.11	2.33	.
Limburg (NL)	.	2.32	2.13	2.33	.	1.66	1.33	1.76	1.91	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
Österreich	1.60 e	1.60 e	1.79	1.33 e	1.30	.	.	1.14 r	.	.
Ostösterreich	.	.	2.16	.	.	.	.	1.31	.	.
Burgenland	.	.	0.19	.	.	.	.	0.14	.	.
Niederösterreich	.	.	0.64	.	.	.	.	0.50	.	.
Wien	.	.	3.24	.	.	.	.	1.24	.	.
Südösterreich	.	.	2.06	.	.	.	.	1.32	.	.
Kärnten	.	.	1.03	.	.	.	.	0.37	.	.
Steiermark	.	.	2.53	.	.	.	.	1.53	.	.
Westösterreich	.	.	1.19	.	.	.	.	0.33	.	.
Oberösterreich	.	.	1.27	.	.	.	.	1.03	.	.
Salzburg	.	.	0.66	.	.	.	.	0.30	.	.
Tirol	.	.	1.64	.	.	.	.	0.73	.	.
Vorarlberg	.	.	0.92	.	.	.	.	0.33	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
Portugal	.	0.62	.	0.76 r	.	.	0.14	.	0.17	.
Continente	.	0.62 r	.	0.73 r	.	.	0.14	.	0.13	.
Norte	.	0.41	.	0.53	.	.	0.10	.	0.16	.
Centro (P)	.	0.70	.	0.77	.	.	0.15	.	0.13	.
Lisboa e Vale do Tejo	.	0.79	.	0.33 r	.	.	0.19	.	0.21	.
Alentejo	.	0.41	.	0.53	.	.	0.06	.	0.04	.
Algarve	.	0.30 r	.	0.44 r	.	.	0.02	.	0.07	.
Açores	.	0.56 r	.	2.61	.	.	0.00	.	0.00	.
Madeira	.	0.43 r	.	0.33 r	.	.	.	.	0.06 r	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 17**  
**R&D expenditure**  
**At the regional level**

As a % of GDP

**Table 17B-3**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
0.20	0.20 r	0.22 r	0.20 r	0.21 r	0.27	0.32 rb	0.34 r	0.33 r	.	Italia
0.19	0.18 r	0.14 r	0.13	.	0.20	0.24 rb	0.28	0.28	.	Nord Ovest
0.10	0.09 r	0.08 r	0.08	.	0.18	0.20 rb	0.22	0.23	.	Piemonte
0.02	0.03 r	0.01 r	0.01	.	-	-	-	-	.	Valle d'Aosta
0.40	0.38 r	0.33 r	0.28	.	0.34	0.39 rb	0.39	0.38	.	Liguria
0.14	0.13 r	0.11 r	0.11	.	0.16	0.20 rb	0.20	0.20	.	Lombardia
0.09	0.09 r	0.10 r	0.09	.	0.19	0.24 rb	0.24	0.24	.	Nord Est
0.11	0.11 r	0.14 r	0.12	.	0.11	0.13 rb	0.13	0.14	.	Trentino-Alto Adige
0.08	0.08 r	0.07 r	0.07	.	0.17	0.23 rb	0.22	0.22	.	Veneto
0.13	0.13 r	0.13 r	0.17	.	0.30	0.41 rb	0.41	0.41	.	Friuli-Venezia Giulia
0.11	0.12 r	0.12 r	0.10	.	0.29	0.38 rb	0.37	0.36	.	Emilia-Romagna
0.15	0.15 r	0.18 r	0.14	.	0.39	0.48 rb	0.48	0.47	.	Centro (I)
0.21	0.19 r	0.22 r	0.18	.	0.42	0.48 rb	0.51	0.48	.	Toscana
0.08	0.09 r	0.09 r	0.11	.	0.49	0.63 rb	0.66	0.67	.	Umbria
0.04	0.07 r	0.05 r	0.04	.	0.28	0.29 rb	0.30	0.31	.	Marche
0.34	0.32 r	0.01 r	0.06	.	0.33	0.40 rb	0.39	0.40	.	Lazio
0.10	0.09 r	0.08 r	0.10	.	0.29	0.30 rb	0.35	0.34	.	Abruzzo-Molise
0.12	0.10 r	0.09 r	0.12	.	0.32	0.32 rb	0.33	0.36	.	Abruzzo
0.08	0.07 r	0.01 r	0.02	.	0.18	0.21 rb	0.23	0.27	.	Molise
0.18	0.13 r	0.20 r	0.18	.	0.39	0.52 rb	0.55	0.53	.	Campania
0.08	0.06 r	0.09 r	0.09	.	0.24	0.28 rb	0.29	0.23	.	Sud
0.06	0.07 r	0.11 r	0.10	.	0.25	0.30 rb	0.33	0.31	.	Puglia
0.14	0.04 r	0.07 r	0.11	.	0.23	0.24 rb	0.28	0.23	.	Basilicata
0.04	0.04 r	0.06 r	0.06	.	0.22	0.25 rb	0.23	0.21	.	Calabria
0.09	0.09 r	0.11 r	0.10	.	0.39	0.50 rb	0.55	0.43	.	Sicilia
0.15	0.13 r	0.14 r	0.13	.	0.43	0.47 rb	0.43	0.43	.	Sardegna
-	-	-	-	.	-	-	-	-	.	Not registered by region
0.33	0.37	0.36	0.33	.	0.53	0.58	0.53	0.53 r	.	Luxembourg
0.09	0.03	0.04	.	.	.	0.54	0.55	0.53	.	Nederland
0.13	0.08	0.09	.	.	.	1.23	1.30	1.40	.	Noord-Nederland
0.08	.	.	.	.	.	.	.	.	.	Groningen
0.01	.	.	.	.	.	.	.	.	.	Friesland
0.56	0.43	0.47	.	.	.	0.61	0.57	0.57	.	Drenthe
0.09	0.03	0.03	.	.	.	0.47	0.44	0.45	.	Oost-Nederland
0.59	0.51	0.50	.	.	.	0.78	0.72	0.71	.	Overijssel
2.38	2.21	2.08	.	.	.	-	-	-	.	Gelderland
0.52	0.54	0.53	.	.	.	-	-	-	.	Flevoland
0.67	0.53	0.51	.	.	.	0.63	0.60	0.59	.	West-Nederland
0.45	0.33	0.37	.	.	.	0.33	0.32	0.39	.	Utrecht
0.56	0.72	0.71	.	.	.	0.68	0.64	0.53	.	Noord-Holland
0.10	0.10	0.09	.	.	.	-	-	-	.	Zuid-Holland
0.08	0.01	0.01	.	.	.	0.34	0.29	0.33	.	Zeeland
0.02	0.01	0.01	.	.	.	0.33	0.25	0.29	.	Zuid-Nederland
0.08	0.03	0.03	.	.	.	0.38	0.39	0.43	.	Noord-Brabant
-	-	-	.	.	.	-	-	-	.	Limburg (NL)
-	-	-	.	.	.	-	-	-	.	Not registered by region
.	.	0.12 r	.	.	.	.	0.53	.	.	Österreich
.	.	0.13	.	.	.	.	0.68	.	.	Ostösterreich
.	.	0.05	.	.	.	.	-	.	.	Burgenland
.	.	0.05	.	.	.	.	0.00	.	.	Niederösterreich
.	.	0.27	.	.	.	.	1.11	.	.	Wien
.	.	0.03	.	.	.	.	0.68	.	.	Südösterreich
.	.	0.07	.	.	.	.	0.15	.	.	Kärnten
.	.	0.09	.	.	.	.	0.91	.	.	Steiermark
.	.	0.05	.	.	.	.	0.31	.	.	Westösterreich
.	.	0.05	.	.	.	.	0.15	.	.	Oberösterreich
.	.	0.05	.	.	.	.	0.31	.	.	Salzburg
.	.	0.09	.	.	.	.	0.78	.	.	Tirol
.	.	0.04	.	.	.	.	-	.	.	Vorarlberg
.	.	-	.	.	.	.	-	.	.	Not registered by region
.	0.15	.	0.21 r	.	.	0.25 r	.	0.29	.	Portugal
.	0.15	.	0.13 r	.	.	0.25 r	.	0.29 r	.	Continente
.	0.03	.	0.04 r	.	.	0.21	.	0.25	.	Norte
.	0.02	.	0.05 r	.	.	0.42	.	0.42	.	Centro (P)
.	0.27	.	0.32 r	.	.	0.23 r	.	0.28	.	Lisboa e Vale do Tejo
.	0.09	.	0.09	.	.	0.22	.	0.30	.	Alentejo
.	0.05	.	0.05 r	.	.	0.23	.	0.31	.	Algarve
.	0.21	.	2.12	.	.	0.27	.	0.40	.	Açores
.	0.29	.	0.23	.	.	0.08 r	.	0.08	.	Madeira
-	-	-	-	.	.	-	-	-	.	Not registered by region

For meaning of flag 'r', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

Table 17A-4

R&amp;D expenditure at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Suomi-Finland</b>	<b>2.54</b>	<b>2.72</b>	<b>2.80</b>	<b>2.22</b>	<b>2.37</b>	<b>1.62</b>	<b>1.74</b>	<b>1.94</b>	<b>2.19</b>	<b>2.30</b>
Manner-Suomi	.	2.73	2.91	2.24	.	.	1.80	1.96	2.21	.
Itä-Suomi	.	1.23	1.29	1.47	.	.	0.51	0.54	0.61	.
Väli-Suomi	.	1.67	1.74	2.03	.	.	1.23	1.27	1.46	.
Pohjois-Suomi	.	3.06	3.35	4.23	.	.	2.10	2.31	3.14	.
Uusimaa (Suuralue)	.	3.79	3.76	4.00	.	.	2.42	2.41	2.66	.
Etelä-Suomi	.	2.37	2.60	2.94	.	.	1.63	1.83	2.13	.
Åland	.	0.06	0.02	0.06	.	.	0.03	0.02	0.06	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Sverige</b>	.	<b>3.63</b>	<b>3.75 e</b>	<b>3.78</b>	.	.	<b>2.75</b>	<b>2.85 e</b>	<b>2.84</b>	.
Stockholm	.	.	.	.	.	.	3.33	.	4.10	.
Östra Mellansverige	.	.	.	.	.	.	2.23	.	2.42	.
Sydsverige	.	.	.	.	.	.	2.80	.	3.00	.
Norra Mellansverige	.	.	.	.	.	.	0.95	.	0.81	.
Mellersta Norrland	.	.	.	.	.	.	0.76	.	0.60	.
Övre Norrland	.	.	.	.	.	.	0.34	.	0.30	.
Småland med Öarna	.	.	.	.	.	.	0.65	.	0.60	.
Västsverige	.	.	.	.	.	.	4.27	.	4.22	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>United Kingdom</b>	<b>1.90</b>	<b>1.82</b>	<b>1.81</b>	<b>1.85</b>	<b>1.85</b>	<b>1.24</b>	<b>1.19</b>	<b>1.19</b>	<b>1.25</b>	<b>1.22</b>
North East	.	0.95	0.93	0.92	.	0.60	0.53	0.61	0.54	.
Tees Valley & Durham	.	.	.	.	.	.	.	.	.	.
Northumberland and Tyne & Wear	.	.	.	.	.	.	.	.	.	.
North West (inc. Merseyside)	.	1.73	1.74	1.97	.	1.47	1.39	1.41	1.63	.
Cumbria	.	.	.	.	.	.	.	.	.	.
Cheshire	.	.	.	.	.	.	.	.	.	.
Greater Manchester	.	.	.	.	.	.	.	.	.	.
Lancashire	.	.	.	.	.	.	.	.	.	.
Merseyside	.	.	.	.	.	.	.	.	.	.
Yorkshire & The Humber	.	0.88	0.89	0.92	.	0.48	0.41	0.45	0.46	.
East Riding & North Lincolnshire	.	.	.	.	.	.	.	.	.	.
North Yorkshire	.	.	.	.	.	.	.	.	.	.
South Yorkshire	.	.	.	.	.	.	.	.	.	.
West Yorkshire	.	.	.	.	.	.	.	.	.	.
East Midlands	.	1.60	1.74	1.80	.	1.30	1.29	1.36	1.41	.
Derbyshire & Nottinghamshire	.	.	.	.	.	.	.	.	.	.
Leicesters., Rutland & Northants	.	.	.	.	.	.	.	.	.	.
Lincolnshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	1.43	1.47	1.44	.	0.90	0.97	1.00	0.93	.
Herefords., Worcesters. & Warks	.	.	.	.	.	.	.	.	.	.
Shropshire & Staffordshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	.	.	.	.	.
Eastern	.	3.35	3.54	3.56	.	3.06	3.16	2.94	3.01	.
East Anglia	.	.	.	.	.	.	.	.	.	.
Bedfordshire, Hertfordshire	.	.	.	.	.	.	.	.	.	.
Essex	.	.	.	.	.	.	.	.	.	.
London	.	1.13	1.06	1.10	.	0.66	0.47	0.42	0.46	.
Inner London	.	.	.	.	.	.	.	.	.	.
Outer London	.	.	.	.	.	.	.	.	.	.
South East	.	2.92	2.83	2.94	.	2.12	2.00	2.00	2.16	.
Berkshire, Bucks & Oxfordshire	.	.	.	.	.	.	.	.	.	.
Surrey, East & West Sussex	.	.	.	.	.	.	.	.	.	.
Hampshire & Isle of Wight	.	.	.	.	.	.	.	.	.	.
Kent	.	.	.	.	.	.	.	.	.	.
South West	.	1.33	2.00	1.91	.	1.25	1.24	1.40	1.31	.
Gloucesters., Wilts., N. Somerset	.	.	.	.	.	.	.	.	.	.
Dorset & Somerset	.	.	.	.	.	.	.	.	.	.
Cornwall & Isles of Scilly	.	.	.	.	.	.	.	.	.	.
Devon	.	.	.	.	.	.	.	.	.	.
Wales	.	0.77	0.83	1.06	.	0.34	0.35	0.37	0.57	.
West Wales & The Valleys	.	.	.	.	.	.	.	.	.	.
East Wales	.	.	.	.	.	.	.	.	.	.
Scotland	.	1.43	1.45	1.34	.	0.64	0.52	0.59	0.63	.
North Eastern Scotland	.	.	.	.	.	.	.	.	.	.
Eastern Scotland	.	.	.	.	.	.	.	.	.	.
South Western Scotland	.	.	.	.	.	.	.	.	.	.
Highlands & Islands	.	.	.	.	.	.	.	.	.	.
Northern Ireland	.	0.31	0.30	0.33	.	0.47	0.44	0.42	0.50	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>EEA</b>	<b>1.33 s</b>	<b>1.39 s</b>	<b>1.37 s</b>	<b>1.42 s</b>	<b>1.42 s</b>	<b>1.13 s</b>	<b>1.13 s</b>	<b>1.19 s</b>	<b>1.24 s</b>	<b>1.25 s</b>
Iceland	1.51	1.34	2.04	2.32	.	0.47	0.75	0.75	1.08	.
<b>Norge</b>	.	<b>1.68</b>	.	<b>1.70</b>	.	.	<b>0.94</b>	.	<b>0.95</b>	.
Oslo og Akershus	.	3.06	.	.	.	.	1.73	.	.	.
Hedmark og Oppland	.	3.16	.	.	.	.	2.65	.	.	.
Sør-Østlandet	.	0.33	.	.	.	.	0.28	.	.	.
Agder og Rogaland	.	1.19	.	.	.	.	1.06	.	.	.
Vestlandet	.	1.40	.	.	.	.	0.50	.	.	.
Trøndelag	.	4.13	.	.	.	.	2.26	.	.	.
Nord-Norge	.	1.08	.	.	.	.	0.10	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Japan</b>	<b>2.77 b</b>	<b>2.33</b>	<b>2.94</b>	<b>2.94</b>	<b>2.93</b>	<b>1.97 b</b>	<b>2.04</b>	<b>2.09</b>	<b>2.08</b>	<b>2.11</b>
<b>United States of America</b>	<b>2.55 i</b>	<b>2.53 i</b>	<b>2.61 i</b>	<b>2.68 i</b>	<b>2.70 pi</b>	<b>1.37 i</b>	<b>1.91 i</b>	<b>1.94 i</b>	<b>1.99 i</b>	<b>2.04 pi</b>

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.



**Table 17**  
**R&D expenditure**  
**At the regional level**

As a % of GDP

**Table 17B-4**

**R&D expenditure at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
0.40	0.37	0.36	0.39	0.33	0.46	0.54	0.57	0.63	0.60	Suomi-Finland
.	0.37	0.37	0.39	.	.	0.56	0.57	0.64	.	Manner-Suomi
.	0.17	0.19	0.21	.	.	0.56	0.58	0.65	.	Itä-Suomi
.	0.10	0.12	0.19	.	.	0.38	0.35	0.33	.	Väli-Suomi
.	0.29	0.31	0.33	.	.	0.67	0.73	0.62	.	Pohjois-Suomi
.	0.12	0.67	0.69	.	.	0.62	0.65	0.73	.	Uusimaa (Suuralue)
.	0.19	0.19	0.20	.	.	0.50	0.52	0.57	.	Etelä-Suomi
.	0.03	.	.	.	.	.	.	.	.	Åland
.	0.13	0.13 e	0.13	.	.	0.79	0.78 e	0.87	.	Not registered by region
.	.	.	0.23	.	.	.	.	.	.	Sverige
.	.	.	0.20	.	.	.	.	.	.	Stockholm
.	.	.	0.07	.	.	.	.	.	.	Östra Mellansverige
.	.	.	0.02	.	.	.	.	.	.	Sydsverige
.	.	.	0.04	.	.	.	.	.	.	Norra Mellansverige
.	.	.	0.16	.	.	.	.	.	.	Mellersta Norrland
.	.	.	0.00	.	.	.	.	.	.	Övre Norrland
.	.	.	0.01	.	.	.	.	.	.	Småland med Öarna
.	.	.	.	.	.	.	.	.	.	Västssverige
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.27	0.25	0.24	0.20	0.23	0.37	0.38	0.35	0.37	0.33	United Kingdom
0.01	0.01	0.01	0.01	.	.	0.36	0.36	0.37	0.30	North East
.	.	.	.	.	.	.	.	.	0.27	Tees Valley & Durham
.	.	.	.	.	.	.	.	.	0.43	Northumberland and Tyne & Wear
0.07	0.07	0.07	0.05	.	0.27	0.27	0.29	0.29	0.30	North West (inc. Merseyside)
.	.	.	.	.	.	.	.	.	0.49	Cumbria
.	.	.	.	.	.	.	.	.	.	Cheshire
.	.	.	.	.	.	.	.	.	.	Greater Manchester
.	.	.	.	.	.	.	.	.	0.17	Lancashire
.	.	.	.	.	.	.	.	.	0.51	Merseyside
0.08	0.07	0.06	0.06	.	0.37	0.33	0.40	0.40	0.40	Yorkshire & The Humber
.	.	.	.	.	.	.	.	.	0.14	East Riding & North Lincolnshire
.	.	.	.	.	.	.	.	.	0.33	North Yorkshire
.	.	.	.	.	.	.	.	.	0.67	South Yorkshire
0.10	0.12	0.10	0.08	.	0.23	0.23	0.37	0.37	0.30	West Yorkshire
.	.	.	.	.	.	.	.	.	35.00	East Midlands
.	.	.	.	.	.	.	.	.	36.00	Derbyshire & Nottinghamshire
.	.	.	.	.	.	.	.	.	0.42	Leicesters., Rutland & Northants
0.31	0.23	0.24	0.22	.	0.23	0.24	0.24	0.24	0.25	Lincolnshire
.	.	.	.	.	.	.	.	.	0.01	West Midlands
.	.	.	.	.	.	.	.	.	0.10	Herefords., Worcesters. & Warks
.	.	.	.	.	.	.	.	.	0.44	Shropshire & Staffordshire
0.43	0.40	0.34	0.25	.	0.23	0.23	0.30	0.30	0.30	West Midlands
.	.	.	.	.	.	.	.	.	0.66	Eastern
.	.	.	.	.	.	.	.	.	0.20	East Anglia
0.16	0.14	0.14	0.12	.	0.52	0.50	0.52	0.53	0.53	Bedfordshire, Hertfordshire
.	.	.	.	.	.	.	.	.	0.10	Essex
0.60	0.55	0.57	0.47	.	0.37	0.36	0.37	0.36	0.36	London
.	.	.	.	.	.	.	.	.	0.30	Inner London
.	.	.	.	.	.	.	.	.	0.08	Outer London
0.45	0.33	0.42	0.33	.	0.21	0.21	0.22	0.22	0.22	South East
.	.	.	.	.	.	.	.	.	0.70	Berkshire, Bucks & Oxfordshire
.	.	.	.	.	.	.	.	.	0.21	Surrey, East & West Sussex
.	.	.	.	.	.	.	.	.	0.33	Hampshire & Isle of Wight
.	.	.	.	.	.	.	.	.	0.07	Kent
0.08	0.08	0.13	0.13	.	0.34	0.33	0.36	0.36	0.36	South West
.	.	.	.	.	.	.	.	.	0.34	Gloucesters., Wilts., N. Somerset
.	.	.	.	.	.	.	.	.	0.01	Dorset & Somerset
.	.	.	.	.	.	.	.	.	.	Cornwall & Isles of Scilly
.	.	.	.	.	.	.	.	.	0.24	Devon
0.06	0.06	0.13	0.13	.	0.34	0.33	0.36	0.36	0.37	Wales
.	.	.	.	.	.	.	.	.	0.27	West Wales & The Valleys
.	.	.	.	.	.	.	.	.	0.49	East Wales
0.26	0.33	0.34	0.27	.	0.53	0.52	0.55	0.55	0.55	Scotland
.	.	.	.	.	.	.	.	.	0.43	North Eastern Scotland
.	.	.	.	.	.	.	.	.	0.33	Eastern Scotland
.	.	.	.	.	.	.	.	.	0.42	South Western Scotland
.	.	.	.	.	.	.	.	.	.	Highlands & Islands
0.07	0.09	0.07	0.06	.	0.23	0.30	0.32	0.34	0.34	Northern Ireland
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.30 s	0.23 s	0.23 s	0.27 s	0.29 s	0.39 s	0.40 s	0.39 s	0.40 s	0.30 s	EEA
0.62	0.55	0.76	0.70	.	0.36	0.52	0.57	0.49 r	.	Iceland
.	0.27	.	0.26	.	.	0.44	.	0.49	.	Norge
.	0.60	.	.	.	.	0.72	.	.	.	Oslo og Akershus
.	0.33	.	.	.	.	0.13	.	.	.	Hedmark og Oppland
.	0.04	.	.	.	.	0.08	.	.	.	Sør-Østlandet
.	0.04	.	.	.	.	0.09	.	.	.	Agder og Rogaland
.	0.36	.	.	.	.	0.63	.	.	.	Vestlandet
.	0.30	.	.	.	.	1.63	.	.	.	Trøndelag
.	0.29	.	.	.	.	0.69	.	.	.	Nord-Norge
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.26	0.25	0.27	0.29	0.29	0.41 b	0.40	0.44	0.44	0.43	Japan
0.22 i	0.21 i	0.20 i	0.21 i	0.20 pi	0.33 i	0.37 i	0.37 i	0.37 i	0.37 pi	United States of America

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

Table 18A

## R&amp;D personnel — All sectors

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	1 572 455 s	1 520 372 s	1 577 343 s	1 537 934 s	1 533 540 s	1 448 173 s	1 422 702 s	1 730 380 s	1 757 420 s
EUR-12	1 210 807 s	1 222 427 s	1 219 877 s	1 234 358 s	1 237 227 s	1 274 512 s	1 316 301 s	1 360 228 s	1 380 500 s
B	36 799 e	33 778 e	39 345 e	42 547 e	44 220 e	46 428 e	40 477 e	.	.
DK	27 303	.	30 216	32 143 e	34 173	36 194	36 662 r	.	.
D	475 012 e	.	459 134	453 620 e	460 408	461 542 e	420 415 r	423 097 e	.
EL	14 549	.	17 572	.	20 157 r	.	26 382	.	.
E	78 687	80 407	79 990	87 281	87 150	97 099	102 237	120 612 e	134 144 i
F	312 817	313 372	315 528	316 804	308 417	307 370	.	.	.
IRL	7 837 e	8 664 e	9 662 e	9 990 e	10 826 e	11 613 e	12 289 e	.	.
I	142 170	143 323	141 739	142 238	141 737 e	145 958 e	142 506	.	.
L	.	.	.	.	.	.	.	3 150 p	2 412 p
NL	74 420 b	72 980	79 258	80 820	83 987	86 435	87 002	.	.
A	24 453	.	.	.	.	31 308	.	.	.
P	.	.	15 466	.	13 036	.	20 206 r	.	.
FIN	30 627	32 337	33 636	.	41 257	46 527	50 606	52 604	.
S	56 255	.	62 637	.	65 436	68 406	66 674	.	.
UK	277 500	.	.	.	.	.	.	.	.
<b>EEA</b>	1 599 199 s	1 613 707 s	1 603 473 s	1 613 598 s	1 615 593 s	1 673 991 s	1 720 495 s	1 753 774 s	1 739 855 s
IS	1 363	1 412	1 694	1 516	2 151	2 273	2 300 r	.	.
NO	22 097	.	23 936	.	2 4377	.	25 402	.	.
JP	947 455 i	945 323 i	943 033 i	891 728 b	894 008	925 559	919 132	898 247	.
US	.	.	.	.	.	.	.	.	.

Table 18B

## R&amp;D personnel — Business enterprise sector

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	355 219 s	359 194 s	349 429 s	357 445 s	370 752 s	302 354 s	334 330 s	354 435 s	370 393 s
EUR-12	640 330 s	643 663 s	641 225 s	646 641 s	663 474 s	624 722 s	716 923 s	743 334 s	760 366 s
B	21 932 e	23 402 e	24 346 e	27 211 e	28 161 e	29 264 e	30 268 e	33 148 f	.
DK	15 972	.	17 195	18 615 e	20 037	21 193	21 023 r	.	.
D	233 774	.	233 314	276 794 e	236 271	238 090 e	306 693 r	312 490 e	.
EL	2 330	.	3 093	2 892	3 290	.	4 577	.	.
E	27 737	27 320	27 558	29 430	30 023	34 667	38 323	47 055 e	54 221 i
F	164 333	161 954	162 042	162 520	166 262	162 113	171 564 i	.	.
IRL	4 499 e	5 325 e	6 151 e	6 325 e	6 970 e	7 645 e	8 327	.	.
I	61 993	62 106	60 323	60 915	61 474	61 117	59 646	.	.
L	.	.	.	.	.	.	.	2 795 p	2 029 p
NL	30 900 b	36 040	37 456	39 492	42 408	43 277	45 137 r	.	.
A	15 114	.	.	.	.	20 335	.	.	.
P	.	.	19 177	.	19 317	.	3 280	.	.
FIN	15 130	16 900	17 793	20 756	22 304	25 017	27 313	29 334	.
S	36 330	.	41 637	.	43 337	46 747	44 170	.	.
UK	163 597	157 336	146 369	143 430	133 420	140 695	152 365	145 493	146 000 f
<b>EEA</b>	399 318 s	397 913 s	359 087 s	364 423 s	334 528 s	316 397 s	340 251 s	369 273 s	385 917 s
IS	303	413	557	467	332	915	967 r	.	.
NO	10 629	.	12 090	.	12 942	.	13 370	.	.
JP	533 435 i	577 725 i	573 714 i	539 497 b	536 156	613 160	604 544	531 727	.
US	.	.	.	.	.	.	.	.	.

## Methodological notes

## Table 18A — i

E: OECD-MSTI data;

JP: Overestimated or based on overestimated data.

## Table 18B — i

E and F: OECD-MSTI data;

JP: Overestimated or based on overestimated data.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 18**  
**R&D personnel**  
**At the national level**

In full-time equivalent (FTE)

**Table 18C**

**R&D personnel — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>261 373 s</b>	<b>264 738 s</b>	<b>263 203 s</b>	<b>262 520 s</b>	<b>246 268 s</b>	<b>261 813 s</b>	<b>263 325 s</b>	<b>253 369 s</b>	<b>252 367 s</b>
EUR-12	219 474 s	224 040 s	226 288 s	226 100 s	210 378 s	213 120 s	214 222 s	214 792 s	215 711 s
B	2 019 e	2 028 e	2 019 e	2 071 e	2 144 e	2 071 e	2 229 e	.	.
DK	4 880	.	5 439	5 508 e	5 662	5 863	6 237	5 716	.
D	71 224	74 177	75 148	74 723	73 492	73 370	72 261 r	72 000 ei	.
EL	4 823	.	4 908	.	4 431	.	4 431	.	.
E	17 287	17 549	17 156	17 366	19 120	20 170	22 283	22 400 r	23 608 i
F	61 886	62 322	62 526	62 315	47 531	47 564	.	.	.
IRL	927 e	942 e	959 e	945	938 e	941	824	879 p	.
I	33 163	32 763	33 039	32 225	31 292	31 999 e	30 836	.	.
L	.	.	.	.	.	.	.	321 p	354 p
NL	15 190	15 970	16 020	16 924	17 147	17 449	16 566	.	.
A	2 107	.	.	.	.	2 104	.	.	.
P	.	.	4 716	.	5 230	.	5 902 r	.	.
FIN	6 666	6 349	6 691	.	6 327	7 500	7 946	7 761 i	.
S	3 289	.	3 513	.	3 334	3 334	3 195	.	.
UK	34 280	32 153	28 960	27 438	25 396	29 196	29 872	29 553	27 881 f
<b>EEA</b>	<b>287 156 s</b>	<b>279 103 s</b>	<b>283 953 s</b>	<b>287 990 s</b>	<b>259 770 s</b>	<b>257 038 s</b>	<b>263 749 s</b>	<b>253 345 s</b>	<b>253 333 s</b>
IS	533	564	563	533	629	647	645 r	.	.
NO	4 744	.	4 392	.	4 373	.	4 779	.	.
JP	58 015	56 623	55 990	56 178	56 554	58 762	59 025	59 254	.
US	.	.	.	.	.	.	.	.	.

**Table 18D**

**R&D personnel — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>433 459 s</b>	<b>441 917 s</b>	<b>449 613 s</b>	<b>459 521 s</b>	<b>454 231 s</b>	<b>473 014 s</b>	<b>435 398 s</b>	<b>501 491 s</b>	<b>512 735 s</b>
EUR-12	333 261 s	343 191 s	341 306 s	350 247 s	346 252 s	364 071 s	373 764 s	389 272 s	399 958 s
B	12 438 e	12 939 e	13 045 e	12 732 e	13 428 e	14 600 e	15 271 e	.	.
DK	6 218	.	7 213	7 678 e	8 120	7 693	8 017	7 957	.
D	110 020 e	.	100 872	102 163	100 645	100 082	101 471 r	103 171 ei	.
EL	6 787	.	9 417	.	12 294 r	.	17 294	.	.
E	30 626	34 642	34 330	33 956	36 243	41 042	40 626	49 470 r	54 323 i
F	31 414	28 615	25 332	25 369	33 110	34 954	.	.	.
IRL	2 150 e	2 127 e	2 292 e	2 469	2 653 e	2 347	3 085 p	.	.
I	47 014	47 950	43 427	49 143	49 031 e	52 352	52 025	.	.
L	.	.	.	.	.	.	.	35 p	36 p
NL	26 530	26 060	24 360	24 393	24 412	24 165	24 301	.	.
A	7 136	.	.	.	.	8 870	.	.	.
P	.	.	6 434	.	3 442	.	9 137	.	.
FIN	3 422	3 532	9 146	.	11 354	13 663	14 241	15 459	.
S	17 768	.	17 302	.	13 193	13 197	19 176	.	.
UK	66 527	.	.	.	.	.	.	.	.
<b>EEA</b>	<b>435 491 s</b>	<b>449 793 s</b>	<b>454 102 s</b>	<b>463 937 s</b>	<b>461 939 s</b>	<b>480 377 s</b>	<b>433 391 s</b>	<b>509 724 s</b>	<b>521 201 s</b>
IS	374	325	530	403	656	876	712 r	.	.
NO	6 663	.	6 954	.	7 062	.	7 313	.	.
JP	279 048 i	284 243 i	290 549 i	217 563 b	222 235	225 179	227 562	227 832	.
US	.	.	.	.	.	.	.	.	.

**Methodological notes**

**Table 18C — i**

D, E and FIN: OECD-MSTI data;  
D: Includes other classes;  
FIN: PNP included in the GOV.

**Table 18D — i**

D and E: OECD-MSTI data;  
JP: Overestimated or based on overestimated data.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

Table 19A

## R&amp;D researchers — All sectors

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>735 493 s</b>	<b>812 332 s</b>	<b>829 019 s</b>	<b>843 294 s</b>	<b>850 290 s</b>	<b>884 700 s</b>	<b>920 354 s</b>	<b>942 301 s</b>	<b>959 940 s</b>
EUR-12	602 179 s	620 177 s	627 063 s	645 402 s	649 237 s	660 753 s	701 735 s	723 221 s	740 330 s
B	20 389 e	22 773 e	23 491 e	24 477 e	25 570 e	28 149 e	30 219 e	.	.
DK	13 611	.	15 956	16 690 bi	17 577 i	.	18 439	.	.
D	229 339	.	231 123 e	.	235 791	237 712	256 261 e	269 214 ei	.
EL	3 015	.	3 708	.	10 984 r	.	14 323 i	.	.
E	43 363	47 363	47 344	51 632	53 333	60 269	61 563	76 670 e	.
F	145 324	142 633	149 324	152 533	152 740	156 006	.	.	.
IRL	6 425 s	.	.	.	.	.	3 217 e	.	.
I	74 434	75 722	75 536	76 441	.	64 230	64 336	.	.
L	.	.	.	.	.	.	.	1 477 p	1 133 p
NL	32 200 b	34 200	34 033	34 012	33 055 i	30 081 i	40 640	.	.
A	12 321	.	.	.	.	12 715	.	.	.
P	.	.	11 536	.	13 530	.	15 752	.	.
FIN	13 539	.	20 357	.	26 412	30 431	32 677	.	.
S	30 495	.	33 665	.	36 373	.	39 921 i	.	.
UK	139 133	145 792	152 331 s	145 363	146 541 s	153 536 s	.	.	.
<b>EEA</b>	<b>301 049 s</b>	<b>329 024 s</b>	<b>349 023 s</b>	<b>360 379 s</b>	<b>369 299 s</b>	<b>394 125 s</b>	<b>440 229 s</b>	<b>462 511 s</b>	<b>480 570 s</b>
IS	315 s	346 s	1 076 s	300 s	1 456	1 533	1 577	.	.
NO	14 763	.	15 923	.	17 490	.	18 295	.	.
JP	641 033 i	653 366 i	673 421 i	677 366 b	625 442	662 345	663 910	647 572	.
US	964 300	.	937 700	.	1 114 100	.	.	.	.

Table 19B

## R&amp;D researchers — Business enterprise sector

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>333 799 s</b>	<b>339 373 s</b>	<b>364 393 s</b>	<b>404 409 s</b>	<b>429 193 s</b>	<b>433 614 s</b>	<b>464 359 s</b>	<b>472 982 s</b>	<b>433 954 s</b>
EUR-12	276 334 s	282 662 s	284 539 s	294 292 s	303 110 s	316 536 s	341 326 s	364 336 s	361 799 s
B	10 206 e	11 603 e	12 174 e	13 340 e	13 340 e	15 573 e	16 476 e	13 031 ef	.
DK	5 334	.	6 675	.	.	3 009	3 575	.	.
D	123 958 s	.	129 370 s	.	132 636 s	133 529 s	150 149	153 210 ei	.
EL	1 337	.	1 554	1 533	1 315	.	2 235	.	.
E	11 256	11 070	10 304	11 100	12 009	13 902	15 173	20 369 e	.
F	66 455	66 714	66 613	63 436	72 023	72 347	75 310 i	.	.
IRL	2 578 s	2 932 s	3 333 s	4 241 s	5 033 s	.	5 291	.	.
I	27 432	23 223	27 104	27 736	27 612 i	26 209	26 192	.	.
L	.	.	.	.	.	.	.	1 217 p	909 p
NL	11 370 b	13 140	13 245	13 797	17 302 i	13 164 i	19 360	.	.
A	6 995	.	.	.	.	11 716	.	.	.
P	.	.	1 076	.	1 133	.	1 394	.	.
FIN	3 431	.	10 373	.	13 752	15 733	17 309	.	.
S	15 500	.	19 054	.	20 924	.	22 322 i	.	.
UK	36 081	33 160	34 435	33 006	33 505	32 196	32 133	35 675	33 000 f
<b>EEA</b>	<b>391 213 s</b>	<b>397 198 s</b>	<b>413 933 s</b>	<b>413 357 s</b>	<b>439 022 s</b>	<b>443 839 s</b>	<b>475 219 s</b>	<b>433 562 s</b>	<b>404 793 s</b>
IS	273	237	359	316	431	529	626	.	.
NO	7 141	.	7 921	.	9 343	.	9 737	.	.
JP	367 273 i	376 639 i	334 100 i	400 361 b	404 232	429 195	433 753	421 363	.
US	766 600	757 300	739 400	359 300	913 600	974 600 p	1 015 700 p	.	.

## Methodological notes

## Table 19A — i

DK, D, EL, NL and S: OECD-MSTI data;  
JP: Overestimated or based on overestimated data.

## Table 19B — i

D, F, I, NL and S: OECD-MSTI data;  
JP: Overestimated or based on overestimated data.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 19**  
**R&D researchers — RSE**  
**At the national level**

In full-time equivalent (FTE)

**Table 19C**

**R&D researchers — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>112 933 s</b>	<b>118 373 s</b>	<b>124 724 s</b>	<b>121 341 s</b>	<b>119 431 s</b>	<b>124 241 s</b>	<b>127 435 s</b>	<b>127 402 s</b>	<b>127 973 s</b>
EUR-12	93 307 s	97 062 s	100 733 s	102 141 s	100 336 s	108 623 s	108 135 s	108 629 s	107 562 s
B	1 002 e	1 007 e	1 013 e	1 045 e	1 113 e	1 120 e	1 210 e	.	.
DK	2 943	.	3 575	3 500	3 710	.	3 919	3 623	.
D	33 743 s	36 333	37 324 s	37 637 s	37 402 s	33 210 s	33 415	33 500	.
EL	1 905	.	2 012	.	1 936	.	2 000	.	.
E	7 733	7 320	8 331	9 125	10 490	11 021	11 335	12 703	.
F	20 332	21 303	22 234	22 637	20 208	20 532	.	.	.
IRL	569 s	.	.	.	.	.	300	304 pi	.
I	13 233	13 537	13 916	13 637	.	13 615 e	13 607	.	.
L	.	.	.	.	.	.	.	230 p	240 p
NL	7 260	7 660	7 330	7 340	7 317 i	7 226 i	8 043	.	.
A	904	.	.	.	.	954	.	.	.
P	.	.	2 739	.	2 903	.	3 445	.	.
FIN	3 335	.	3 913	.	3 931	4 370	4 313	4 160 i	.
S	2 307	.	2 733	.	2 439	.	2 423 i	.	.
UK	14 037	14 032	13 673	13 021	12 493	14 337	14 353	14 327 r	14 394 e
<b>EEA</b>	<b>115 304 s</b>	<b>120 153 s</b>	<b>124 033 s</b>	<b>124 734 s</b>	<b>122 944 s</b>	<b>127 709 s</b>	<b>130 243 s</b>	<b>131 059 s</b>	<b>131 434 s</b>
IS	320	330 i	324	330	412	424	421	.	.
NO	2 335	.	3 015	.	3 051	.	3 037	.	.
JP	29 907	30 263	30 348	30 241	30 212	30 910	30 337	31 223	.
US	60 000	.	53 900	52 100	49 300	.	.	.	.

**Table 19D**

**R&D researchers — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>179 749 s</b>	<b>194 172 s</b>	<b>301 357 s</b>	<b>309 412 s</b>	<b>309 902 s</b>	<b>311 329 s</b>	<b>317 333 s</b>	<b>339 533 s</b>	<b>339 517 s</b>
EUR-12	227 241 s	234 942 s	235 934 s	243 652 s	233 233 s	242 305 s	247 313 s	259 275 s	264 033 s
B	9 417 e	9 900 e	10 027 e	9 739 e	10 305 e	11 143 e	12 209 e	.	.
DK	4 627	.	5 520	5 332 i	6 143	.	5 722	5 113	.
D	67 140 s	.	64 434 s	66 110 s	65 704 s	66 373 s	66 635	67 504	.
EL	4 773	.	6 069	.	7 119 r	.	10 471	.	.
E	24 006	23 592	27 666	30 353	30 649	34 524	33 340	42 064	.
F	55 154	57 432	53 542	59 034	57 344	53 421	.	.	.
IRL	3 290 s	3 363 s	4 524 s	.	.	.	2 627 p	.	.
I	33 204	33 907	34 516	35 059	24 337 br	24 403	24 337	.	.
L	.	.	.	.	.	.	.	30 p	30 p
NL	12 710 i	12 920 i	12 433 i	12 375 i	12 427 i	12 407 i	12 740	.	.
A	4 367	.	.	.	.	5 255	.	.	.
P	.	.	5 241	.	7 436	.	3 242	.	.
FIN	6 173	.	6 568	.	3 501	9 710	10 555	10 405 i	.
S	12 633	.	11 373	.	13 515	.	14 623	.	.
UK	32 190	41 378 b	47 000 i	47 235	47 651 i	49 023 i	.	.	.
<b>EEA</b>	<b>231 633 s</b>	<b>239 343 s</b>	<b>305 729 s</b>	<b>314 973 s</b>	<b>308 240 s</b>	<b>317 199 s</b>	<b>323 339 s</b>	<b>339 461 s</b>	<b>342 307 s</b>
IS	205	211	330	224	547	554	479	.	.
NO	4 737	.	4 992	.	5 031	.	5 521	.	.
JP	229 164 i	235 702 i	242 362 i	170 017 b	174 033	176 627	173 413	179 116	.
US	123 000	.	134 300	.	135 300	.	.	.	.

**Methodological notes**

**Table 19C — i**

IRL, NL, FIN, S and IS: OECD-MSTI data.

**Table 19D — i**

DK, NL, FIN and UK: OECD-MSTI data;  
 JP: Overestimated or based on overestimated data.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

Table 20A

## R&amp;D personnel — All sectors

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>2 047 435 s</b>	<b>2 117 934 s</b>	<b>2 129 477 s</b>	<b>2 143 490 s</b>	<b>2 132 298 s</b>	<b>2 230 033 s</b>	<b>2 333 910 s</b>	<b>2 333 049 s</b>	<b>2 431 915 s</b>
EUR-12	1 637 080 s	1 612 221 s	1 629 435 s	1 655 131 s	1 633 732 s	1 766 027 s	1 815 411 s	1 867 445 s	1 917 708 s
B	40 750 s	52 304 s	53 611 s	56 672 s	58 967 s	62 130 s	66 365 s	.	.
DK	43 261	.	50 726	.	52 370	.	53 220	.	.
D	623 331 s	.	604 931 s	599 407 s	606 143 s	607 110 s	629 706 s	639 606 s	.
EL	30 545	.	36 335	.	32 693 r	.	57 103	.	.
E	122 275	.	147 048	.	155 117	.	173 139	.	.
F	356 534	361 605	365 424	370 033	373 673	331 033	.	.	.
IRL	10 469 s	11 406 s	12 677 s	13 173 s	14 246 s	15 267 s	16 179 s	.	.
I	179 567	133 330	133 312	135 641	.	222 321	215 155	.	.
L	.	.	.	.	.	.	.	.	.
NL	101 114 bs	105 171 s	105 398 s	107 435 s	111 167 s	112 330 s	121 533 s	.	.
A	43 130 s	.	.	.	.	52 956	.	.	.
P	.	.	25 024	.	29 413	.	36 372 r	.	.
FIN	42 503	.	47 366	.	55 439	60 339	66 955	63 313	.
S	79 603	.	97 955	.	102 216	.	107 520	.	.
UK	.	.	.	.	.	.	.	.	.
<b>EEA</b>	<b>2 104 277 s</b>	<b>2 157 813 s</b>	<b>2 173 191 s</b>	<b>2 193 512 s</b>	<b>2 229 390 s</b>	<b>2 327 753 s</b>	<b>2 339 914 s</b>	<b>2 432 597 s</b>	<b>2 432 541 s</b>
IS	2 702	.	2 339	.	3 639	3 321	4 153 r	.	.
NO	33 376	.	40 321	.	43 394	.	43 323	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

Table 20B

## R&amp;D personnel — Business enterprise sector

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>934 531 s</b>	<b>991 737 s</b>	<b>933 795 s</b>	<b>935 733 s</b>	<b>1 003 295 s</b>	<b>1 040 034 s</b>	<b>1 033 353 s</b>	<b>1 111 437 s</b>	<b>1 131 501 s</b>
EUR-12	734 303 s	742 643 s	742 393 s	746 653 s	773 934 s	796 499 s	834 779 s	866 054 s	887 331 s
B	25 302 s	27 532 s	23 642 s	32 013 s	33 131 s	34 423 s	36 315 s	33 993 s	.
DK	21 910	.	25 739	.	26 424	23 572	23 639 r	.	.
D	341 503 s	.	329 435 s	321 353 s	332 373 s	334 333 s	356 620 s	363 367 s	.
EL	4 452	.	5 235	5 112	5 739	.	3 611	.	.
E	34 473	.	33 063	.	36 061	.	46 429	.	.
F	173 434	177 941	179 244	173 733	134 167	134 279	.	.	.
IRL	5 231 s	6 192 s	7 152 s	7 355 s	8 105 s	8 390 s	9 376 s	.	.
I	63 147	70 402	67 335	63 321	63 453	72 135	63 640	.	.
L	.	.	.	.	.	.	.	.	.
NL	.	.	.	.	.	.	61 376	.	.
A	17 524 s	.	.	.	.	24 940	.	.	.
P	.	.	3 333	.	3 275	.	5 653	.	.
FIN	19 673	.	24 244	26 467	29 133	32 429	36 406	33 169	.
S	40 371	.	47 962	.	49 324	.	49 323	.	.
UK	139 943 s	132 732 s	139 940 s	136 523 s	130 711 s	173 302 s	177 433 s	163 929 s	.
<b>EEA</b>	<b>933 559 s</b>	<b>1 009 094 s</b>	<b>1 009 805 s</b>	<b>1 003 133 s</b>	<b>1 027 032 s</b>	<b>1 047 359 s</b>	<b>1 107 033 s</b>	<b>1 131 032 s</b>	<b>1 151 903 s</b>
IS	779	.	911	.	1 256	1 319	1 364 r	.	.
NO	13 202	.	15 937	.	17 549	.	17 375	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 20**  
**R&D personnel**  
**At the national level**

In head count (HC)

**Table 20C**

**R&D personnel — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>323 230 s</b>	<b>320 934 s</b>	<b>330 413 s</b>	<b>332 442 s</b>	<b>319 404 s</b>	<b>321 443 s</b>	<b>321 979 s</b>	<b>322 335 s</b>	<b>322 247 s</b>
EUR-12	272 214 s	279 782 s	282 140 s	286 124 s	272 580 s	274 737 s	275 277 s	276 407 s	277 428 s
B	2 602 s	2 701 s	2 602 s	2 761 s	2 850 s	2 761 s	2 972 s	.	.
DK	9 912	.	11 500	.	10 691	.	10 310	9 741	.
D	93 718 s	97 601 s	93 379 s	93 320 s	96 700 s	96 539 s	95 067 s	94 737 s	.
EL	7 146	.	10 250	.	9 773	.	7 911	.	.
E	24 423	.	22 562	.	25 620	.	28 361	29 583	.
F	64 173	64 353	64 574	65 633	61 594	60 364	.	.	.
IRL	1 144 s	1 163 s	1 124 s	1 167 s	1 153 s	1 162 s	1 091 s	1 085 s	.
I	30 560	40 713	40 935	41 373	41 435	42 123 r	41 107	.	.
L	.	.	.	.	.	.	.	347 p	382 p
NL	.	.	.	.	.	.	12 360	.	.
A	5 320 s	.	.	.	.	5 734	.	.	.
P	.	.	6 210	.	6 331	.	9 220 r	.	.
FIN	9 077	.	8 902	.	9 224	9 754	10 523	10 046 i	.
S	3 723	.	5 360	.	5 132	.	5 084	.	.
UK	.	.	.	.	.	30 311	31 514	31 337	31 443
<b>EEA</b>	<b>330 493 s</b>	<b>337 435 s</b>	<b>333 110 s</b>	<b>340 057 s</b>	<b>327 134 s</b>	<b>329 074 s</b>	<b>329 904 s</b>	<b>330 043 s</b>	<b>330 025 s</b>
IS	730	.	300	.	1 036	1 033	1 245 r	.	.
NO	6 611	.	6 692	.	6 697	.	6 324	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

**Table 20D — R&D personnel**

**Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>739 451 s</b>	<b>744 994 s</b>	<b>737 443 s</b>	<b>717 134 s</b>	<b>729 334 s</b>	<b>733 204 s</b>	<b>702 201 s</b>	<b>710 494 s</b>	<b>743 931 s</b>
EUR-12	566 267 s	533 089 s	590 463 s	606 577 s	624 936 s	676 165 s	633 737 s	706 703 s	734 160 s
B	20 310 s	21 565 s	21 742 s	21 303 s	22 377 s	24 333 s	26 452 s	.	.
DK	11 661	.	12 943	.	14 720	.	14 006	14 244	.
D	193 013 s	.	176 613 s	179 233 s	176 570 s	175 532 s	173 019 s	131 002 s	.
EL	12 311	.	20 653	.	17 013 r	.	40 414	.	.
E	62 191	.	39 947	.	9 721	.	101 231	114 434	.
F	107 561	112 353	114 469	117 353	134 295	137 336	.	.	.
IRL	3 772 s	3 732 s	4 021 s	4 332 s	4 663 s	4 995 s	5 412 s	.	.
I	71 360	72 735	74 942	75 442	.	107 003	106 403	.	.
L	.	.	.	.	.	.	.	26 p	44 p
NL	44 217 s	43 417 s	41 433 s	40 663 s	40 637 s	40 275 s	40 502 s	.	.
A	20 089 s	.	.	.	.	21 933	.	.	.
P	.	.	12 093	.	14 733	.	17 766	.	.
FIN	13 344	.	14 721	.	16 636	12 165	20 086	20 543	.
S	34 369	.	44 132	.	47 537	.	52 421	.	.
UK	114 950 s	.	.	.	.	.	.	.	.
<b>EEA</b>	<b>741 532 s</b>	<b>737 793 s</b>	<b>709 793 s</b>	<b>726 330 s</b>	<b>750 330 s</b>	<b>704 495 s</b>	<b>723 499 s</b>	<b>742 451 s</b>	<b>771 572 s</b>
IS	1 055	.	1 111	.	1 235	1 349	1 405 r	.	.
NO	14 063	.	13 192	.	19 643	.	20 069	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

**Methodological notes**

Table 20C — i  
FIN: PNP included in the GOV.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

As a % of the labour force  
In head count (HC)

**Table 21**  
**R&D personnel**  
**At the national level**

**Table 21A**

**R&D personnel — All sectors**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	1.25 s	1.23 s	1.23 s	1.23 s	1.30 s	1.34 s	1.38 s	1.33 s	1.41 s
EUR-12	1.23 s	1.24 s	1.25 s	1.26 s	1.28 s	1.32 s	1.34 s	1.37 s	1.41 s
B	1.22 s	1.26 s	1.28 s	1.36 s	1.40 s	1.46 s	1.52 s	.	.
DK	1.53	.	1.81	.	1.26	.	1.30 r	.	.
D	1.61 s	.	1.66 s	1.68 s	1.66 s	1.64 s	1.60 s	1.62 s	.
EL	0.75	.	0.87	.	0.77 r	.	1.23	.	.
E	0.80	.	0.94	.	0.97	.	1.00	.	.
F	1.44	1.45	1.46	1.46	1.40	1.40	.	.	.
IRL	0.77 s	0.81 s	0.83 s	0.80 s	0.83 s	0.84 s	0.86 s	.	.
I	0.79	0.81	0.81	0.81	.	0.86	0.92	.	.
L	.	.	.	.	.	.	.	.	.
NL	1.43 bs	1.47 s	1.45 s	1.45 s	1.46 s	1.46 s	1.54 s	.	.
A	1.17 s	.	.	.	.	1.33	.	.	.
P	.	.	0.53	.	0.61	.	0.73 r	.	.
FIN	1.75 s	.	1.97	.	2.23	2.42	2.53	2.53	.
S	1.77 s	.	2.13	.	2.34	.	2.45	.	.
UK	.	.	.	.	.	.	.	.	.
<b>EEA</b>	1.29 s	1.23 s	1.29 s	1.29 s	1.31 s	1.35 s	1.37 s	1.39 s	1.41 s
IS	1.39 s	.	1.97 s	.	2.51	2.56	2.70 r	.	.
NO	1.59 s	.	1.87	.	1.93	.	1.33	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

**PART 3 — R&D PERSONNEL DATA**

**Table 21B**

**R&D personnel — Business enterprise sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	0.90 s	0.90 s	0.90 s	0.90 s	0.90 s	0.92 s	0.93 s	0.94 s	0.95 s
EUR-12	0.87 s	0.87 s	0.87 s	0.87 s	0.90 s	0.90 s	0.92 s	0.94 s	0.95 s
B	0.63 s	0.66 s	0.68 s	0.76 s	0.79 s	0.81 s	0.83 s	0.83 s	.
DK	0.78	.	0.92	.	0.94	1.01	1.00 r	.	.
D	0.87 s	.	0.85 s	0.82 s	0.86 s	0.85 s	0.90 s	0.92 s	.
EL	0.11	.	0.13	0.12	0.13	.	0.19	.	.
E	0.23	.	0.21	.	0.22	.	0.23	.	.
F	0.72	0.72	0.72	0.71	0.73	0.72	.	.	.
IRL	0.33 s	0.44 s	0.50 s	0.50 s	0.53 s	0.55 s	0.57 s	.	.
I	0.30	0.31	0.30	0.30	0.30	0.31	0.29	.	.
L	.	.	.	.	.	.	.	.	.
NL	.	.	.	.	.	.	0.73	.	.
A	0.43 s	.	.	.	.	0.65	.	.	.
P	.	.	0.07	.	0.08	.	0.11	.	.
FIN	0.81 s	.	1.00	1.08	1.17	1.29	1.33	1.43	.
S	0.90 s	.	1.07	.	1.13	.	1.14	.	.
UK	0.67 s	0.64 s	0.60 s	0.58 s	0.56 s	0.61 s	0.61 s	0.53 s	.
<b>EEA</b>	0.90 s	0.90 s	0.90 s	0.90 s	0.90 s	0.92 s	0.94 s	0.95 s	0.95 s
IS	0.54 s	.	0.62	.	0.87	0.89	0.88 r	.	.
NO	0.62 s	.	0.73	.	0.77	.	0.75	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.



**Table 21**  
**R&D personnel**  
**At the national level**

As a % of the labour force  
in head count (HC)

**Table 21C**

**R&D personnel — Government sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>0.20 s</b>	<b>0.20 s</b>	<b>0.20 s</b>	<b>0.20 s</b>	<b>0.19 s</b>	<b>0.19 s</b>	<b>0.19 s</b>	<b>0.19 s</b>	<b>0.19 s</b>
EUR-12	0.21 s	0.21 s	0.22 s	0.22 s	0.21 s	0.21 s	0.20 s	0.20 s	0.20 s
B	0.07 s	0.07 s	0.06 s	0.07 s	0.07 s	0.06 s	0.07 s	.	.
DK	0.34	.	0.41	.	0.38	.	0.38	0.34	.
D	0.24 s	0.25 s	0.25 s	0.25 s	0.25 s	0.25 s	0.24 s	0.24 s	.
EL	0.13	.	0.24	.	0.23	.	0.13	.	.
E	0.18	.	0.14	.	0.18	.	0.13	0.13	.
F	0.28	0.28	0.28	0.28	0.20	0.20	.	.	.
IRL	0.08 s	0.08 s	0.08 s	0.08 s	0.08 s	0.07 s	0.06 s	0.06 s	.
I	0.17	0.13	0.13	0.13	0.13	0.19 r	0.13	.	.
L	.	.	.	.	.	.	.	0.19 p	0.20 p
NL	.	.	.	.	.	.	0.23	.	.
A	0.14 s	.	.	.	.	0.15	.	.	.
P	.	.	0.13	.	0.14	.	0.13 r	.	.
FIN	0.37 s	.	0.37	.	0.37	0.39	0.40	0.38 i	.
S	0.08 s	.	0.12	.	0.12	.	0.12	.	.
UK	.	.	.	.	0.00	0.11	0.11	0.11	.
<b>EEA</b>	<b>0.20 s</b>	<b>0.20 s</b>	<b>0.20 s</b>	<b>0.20 s</b>	<b>0.19 s</b>	<b>0.19 s</b>	<b>0.19 s</b>	<b>0.19 s</b>	<b>0.19 s</b>
IS	0.55 s	.	0.54 s	.	0.71	0.73	0.31 r	.	.
NO	0.31 s	.	0.31	.	0.29	.	0.27	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

**Table 21D**

**R&D personnel — Higher education sector**

	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>0.44 s</b>	<b>0.44 s</b>	<b>0.47 s</b>	<b>0.43 s</b>	<b>0.40 s</b>	<b>0.52 s</b>	<b>0.53 s</b>	<b>0.53 s</b>	<b>0.55 s</b>
EUR-12	0.44 s	0.45 s	0.45 s	0.45 s	0.47 s	0.51 s	0.51 s	0.52 s	0.54 s
B	0.51 s	0.52 s	0.52 s	0.51 s	0.52 s	0.57 s	0.61 s	.	.
DK	0.41	.	0.48	.	0.52	.	0.49	0.50	.
D	0.49 s	.	0.45 s	0.45 s	0.45 s	0.45 s	0.45 s	0.48 s	.
EL	0.48	.	0.49	.	0.40 r	.	0.91	.	.
E	0.41	.	0.53	.	0.57	.	0.62	0.63	.
F	0.44	0.45	0.46	0.47	0.52	0.54	.	.	.
IRL	0.23 s	0.28 s	0.23 s	0.29 s	0.30 s	0.31 s	0.32 s	.	.
I	0.32	0.32	0.33	0.33	.	0.48	0.45	.	.
L	.	.	.	.	.	.	.	0.01 p	0.02 p
NL	0.62 s	0.60 s	0.57 s	0.56 s	0.54 s	0.52 s	0.51 s	.	.
A	0.55 s	.	.	.	.	0.57	.	.	.
P	.	.	0.25	.	0.31	.	0.35	.	.
FIN	0.55 s	.	0.61	.	0.67	0.72	0.76	0.77	.
S	0.77 s	.	0.93	.	1.00	.	1.19	.	.
UK	0.40 s	.	.	.	.	.	.	.	.
<b>EEA</b>	<b>0.44 s</b>	<b>0.47 s</b>	<b>0.43 s</b>	<b>0.40 s</b>	<b>0.50 s</b>	<b>0.53 s</b>	<b>0.53 s</b>	<b>0.54 s</b>	<b>0.55 s</b>
IS	0.74 s	.	0.75 s	.	0.80	0.91	0.91 r	.	.
NO	0.68 s	.	0.83	.	0.85	.	0.85	.	.
JP	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.

**Methodological notes**

**Table 21C — i**

FIN: PNP included in the GOV.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

As a % of total researchers  
In full-time equivalent (FTE) and in head count (HC)

**Table 22**  
**R&D personnel**  
**At the national level**

**Table 22A**

**Female researchers — All sectors**

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
	In full-time equivalent — FTE					In head count — HC				
<b>EU-15</b>	:	:	:	:	:	:	:	:	:	:
EUR-12	.	.	.	.	.	.	.	.	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	.	.	28.34	.	.	.	.	28.14	.	.
D	12.14	.	14.34	.	.	.	.	.	.	.
EL	.	.	.	.	.	.	.	.	.	.
E	32.52	.	32.47	.	.	3278	.	32.68	.	.
F	.	.	.	.	.	.	.	.	.	.
IRL	.	.	.	.	.	.	.	.	.	.
I	.	.	.	.	.	.	.	.	.	.
L	.	.	.	.	.	.	.	.	.	.
NL	.	.	.	.	.	.	.	.	.	.
A	.	14.08	.	.	.	.	12.79	.	.	.
P	.	.	.	.	.	.	.	.	.	.
FIN	.	.	.	.	.	.	.	23.62	.	.
S	.	.	.	.	.	.	.	.	.	.
UK	.	.	.	.	.	.	.	.	.	.
<b>EEA</b>	:	:	:	:	:	:	:	:	:	:
IS	.	.	31.77	.	.	.	.	32.24	.	.
NO	.	.	.	.	.	28.13	.	27.33	.	.
JP	.	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.	.

**PART 3 — R&D PERSONNEL DATA**

**Table 22B**

**Female researchers — Business enterprise sector**

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
	In full-time equivalent — FTE					In head count — HC				
<b>EU-15</b>	:	:	:	:	:	:	:	:	:	:
EUR-12	.	.	.	.	.	.	.	.	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	.	32.91	20.77	.	.	.	14.36	19.64	.	.
D	18.89	.	9.80	.	.	.	.	.	.	.
EL	.	.	23.53	.	.	.	.	23.91	.	.
E	17.80	.	19.77	.	.	17.02	.	19.27	.	.
F	.	.	.	.	.	.	.	.	.	.
IRL	.	.	20.51	.	.	.	.	.	.	.
I	.	.	.	.	.	.	.	.	.	.
L	.	.	.	.	.	.	.	.	.	.
NL	.	.	.	.	.	.	.	.	.	.
A	.	8.21	.	.	.	.	9.01	.	.	.
P	.	.	.	.	.	.	.	.	.	.
FIN	.	.	.	.	.	.	.	17.78	.	.
S	.	.	.	.	.	.	.	.	.	.
UK	.	.	.	.	.	.	.	.	.	.
<b>EEA</b>	:	:	:	:	:	:	:	:	:	:
IS	.	.	25.72	.	.	.	.	23.40	.	.
NO	.	.	.	.	.	12.14	.	19.81	.	.
JP	.	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 22**  
**R&D personnel**  
**At the national level**

← As a % of total researchers  
 in full-time equivalent (FTE) and in head count (HC)

**Table 22C**

**Female researchers — Government sector**

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
	In full-time equivalent — FTE					In head count — HC				
<b>EU-15</b>	:	:	:	:	:	:	:	:	:	:
EUR-12	.	.	.	.	.	.	.	.	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	.	.	34.36	35.44	.	.	.	32.03	34.31	.
D	21.18	.	22.10	.	.	.	.	37.47	.	.
EL	.	.	32.78	.	.	.	.	37.49	38.28	.
E	36.13	.	38.20	38.08	.	34.00	.	37.49	38.28	.
F	.	.	.	.	.	.	.	.	.	.
IRL	.	.	.	.	.	.	.	.	.	.
I	.	36.46	.	.	.	.	37.72	.	.	.
L	.	.	.	.	.	.	.	.	28.97 p	30.29 p
NL	.	.	.	.	.	.	.	.	.	.
A	.	30.29	.	.	.	.	31.22	.	.	.
P	54.12	.	53.90	.	.	52.87	.	55.37	.	.
FIN	.	.	.	.	.	.	.	37.54	.	.
S	.	.	.	.	.	.	.	.	.	.
UK	.	.	.	22.31	21.58 f	.	21.40	.	22.69	.
<b>EEA</b>	:	:	:	:	:	:	:	:	:	:
IS	.	.	31.99	.	.	.	.	31.27	.	.
NO	.	.	.	.	.	31.22	.	32.74	.	.
JP	.	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.	.

**Table 22D**

**Female researchers — Higher education sector**

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
	In full-time equivalent — FTE					In head count — HC				
<b>EU-15</b>	:	:	:	:	:	:	:	:	:	:
EUR-12	.	.	.	.	.	.	.	.	.	.
B	.	.	.	.	.	.	.	.	.	.
DK	.	.	28.58	28.81	.	.	.	27.31	28.08	.
D	19.35	.	20.58	.	.	.	.	.	.	.
EL	.	.	44.77	.	.	.	.	44.29	.	.
E	37.00	.	36.72	34.93	.	35.42	.	34.48	36.45	.
F	.	.	.	.	.	.	.	.	.	.
IRL	.	.	.	.	.	.	.	.	.	.
I	.	.	.	.	.	.	.	.	.	.
L	.	.	.	.	.	.	.	.	36.00 p	36.90 p
NL	.	.	.	.	.	.	.	.	.	.
A	.	22.57	.	.	.	.	25.82	.	.	.
P	45.22	.	46.21	.	.	43.55	.	44.73	.	.
FIN	.	.	.	.	.	.	.	36.84	.	.
S	.	.	30.28	.	.	.	.	33.15	.	.
UK	.	.	.	.	.	.	.	.	.	.
<b>EEA</b>	:	:	:	:	:	:	:	:	:	:
IS	.	.	36.58	.	.	.	.	34.70	.	.
NO	.	.	.	.	.	31.84	.	33.89	.	.
JP	.	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 23A-1

R&amp;D personnel at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>EU-15</b>	1 537 434 s	1 533 540 s	1 644 173 s	1 632 702 s	1 730 360 s	351 445 s	370 752 s	402 359 s	434 030 s	454 435 s
EUR-12	1 224 353 s	1 237 227 s	1 274 512 s	1 316 301 s	1 380 228 s	646 611 s	663 414 s	684 722 s	716 023 s	743 334 s
Belgique-Belgie	42 547 e	44 220 e	46 423 e	49 477 e	.	27 211 e	28 181 e	29 264 e	30 363 e	33 143 f
Région Bruxelles-capitale	.	.	.	.	.	4 446	4 463	4 334	4 360	4 602
Vlaams Gewest	.	.	.	.	.	16 660	17 443	18 600	19 701	21 336
Région Wallonne	.	.	.	.	.	6 216	6 244	6 320	6 307	7 210
Not registered by region	.	.	.	.	.	.	.	.	.	.
Danmark	32 143 e	34 173	35 194	35 662 r	.	13 616 e	20 037	21 193	21 063 r	.
Deutschland	453 630 e	460 408	461 542 e	460 415 r	463 007 e	276 794 e	286 271	283 000 e	306 603 r	312 490 e
Baden-Württemberg	.	93 345	.	.	.	.	63 271	.	.	.
Stuttgart	.	43 360	.	.	.	.	37 456	.	.	.
Karlsruhe	.	24 940	.	.	.	.	12 857	.	.	.
Freiburg	.	9 510	.	.	.	.	5 950	.	.	.
Tübingen	.	15 526	.	.	.	.	12 003	.	.	.
Bayern	.	36 308	.	.	.	.	64 233	.	.	.
Oberbayern	.	56 642	.	.	.	.	41 661	.	.	.
Niederbayern	.	1 250	.	.	.	.	1 034	.	.	.
Oberpfalz	.	3 004	.	.	.	.	1 935	.	.	.
Oberfranken	.	2 936	.	.	.	.	2 006	.	.	.
Mittelfranken	.	12 606	.	.	.	.	9 743	.	.	.
Unterfranken	.	5 630	.	.	.	.	3 560	.	.	.
Schwaben	.	4 630	.	.	.	.	4 295	.	.	.
Berlin	.	29 266	.	.	.	.	12 703	.	.	.
Brandenburg	.	6 725	.	.	.	.	2 860	.	.	.
Bremen	.	4 570	.	.	.	.	2 490	.	.	.
Hamburg	.	13 037	.	.	.	.	7 353	.	.	.
Hessen	.	33 333	.	.	.	.	23 637	.	.	.
Darmstadt	.	30 660	.	.	.	.	24 769	.	.	.
Gießen	.	5 406	.	.	.	.	2 343	.	.	.
Kassel	.	2 323	.	.	.	.	1 520	.	.	.
Mecklenburg-Vorpommern	.	3 691	.	.	.	.	724	.	.	.
Niedersachsen	.	32 334	.	.	.	.	13 764	.	.	.
Braunschweig	.	19 073	.	.	.	.	10 631	.	.	.
Hannover	.	9 577	.	.	.	.	5 635	.	.	.
Lüneburg	.	1 577	.	.	.	.	1 003	.	.	.
Weser-Ems	.	2 652	.	.	.	.	1 490	.	.	.
Nordrhein-Westfalen	.	75 293	.	.	.	.	43 569	.	.	.
Düsseldorf	.	20 433	.	.	.	.	14 333	.	.	.
Köln	.	30 917	.	.	.	.	14 136	.	.	.
Münster	.	5 902	.	.	.	.	3 279	.	.	.
Detmold	.	6 126	.	.	.	.	4 473	.	.	.
Arnsberg	.	11 360	.	.	.	.	6 793	.	.	.
Rheinland-Pfalz	.	17 590	.	.	.	.	13 032	.	.	.
Koblenz	.	17 48	.	.	.	.	1 556	.	.	.
Trier	.	329	.	.	.	.	337	.	.	.
Rheinhausen-Pfalz	.	14 032	.	.	.	.	11 139	.	.	.
Saarland	.	2 560	.	.	.	.	743	.	.	.
Sachsen	.	21 532	.	.	.	.	11 433	.	.	.
Chemnitz	.	21 532	.	.	.	.	11 433	.	.	.
Dresden	.	.	.	.	.	.	.	.	.	.
Leipzig	.	.	.	.	.	.	.	.	.	.
Sachsen-Anhalt	.	7 133	.	.	.	.	3 072	.	.	.
Dessau	.	378	.	.	.	.	317	.	.	.
Halle	.	3 241	.	.	.	.	1 099	.	.	.
Magdeburg	.	3 016	.	.	.	.	1 156	.	.	.
Schleswig-Holstein	.	7 934	.	.	.	.	3 340	.	.	.
Thüringen	.	3 392	.	.	.	.	4 922	.	.	.
Not registered by region	.	10 723	.	.	.	.	.	.	.	.
Ellada	.	20 157 r	.	26 332	.	2 303	3 290	.	4 577	.
Voreia Ellada	.	5 736	.	.	.	463	531	.	.	.
Anatoliki Makedonia, Thraki	.	773	.	.	.	34	42	.	.	.
Kentriki Makedonia	.	4 100	.	.	.	326	369	.	.	.
Dytiki Makedonia	.	522	.	.	.	32	34	.	.	.
Thessalia	.	336	.	.	.	76	36	.	.	.
Kentriki Ellada	.	3 036	.	.	.	361	356	.	.	.
Ipeiros	.	312	.	.	.	40	31	.	.	.
Ionia Nisia	.	204	.	.	.	11	12	.	.	.
Dytiki Ellada	.	1 472	.	.	.	33	32	.	.	.
Sterea Ellada	.	240	.	.	.	162	153	.	.	.
Peloponnisos	.	307	.	.	.	66	73	.	.	.
Attiki	.	9 157	.	.	.	2 017	2 334	.	.	.
Nisia Aigaioi, Kriti	.	2 135	.	.	.	52	69	.	.	.
Voreio Aigaio	.	434	.	.	.	15	9	.	.	.
Notio Aigaio	.	99	.	.	.	3	3	.	.	.
Kriti	.	1 662	.	.	.	29	52	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 23**  
**R&D personnel**  
**At the regional level**

In full-time equivalent (FTE)

**Table 23B-1**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
242 620 s	246 283 s	267 673 s	263 326 s	263 399 s	499 627 s	464 227 s	473 074 s	435 344 s	507 497 s	EU-15
226 100 s	210 376 s	213 130 s	214 222 s	214 792 s	380 247 s	346 262 s	364 071 s	373 764 s	389 272 s	EUR-12
2 071 e	2 144 e	2 071 e	2 229 e	.	12 732 e	13 428 e	14 600 e	15 371 e	.	Belgique-Belgie
764	793	875	737	.	.	.	.	.	.	Région Bruxelles-capitale
368	309	347	327	.	.	.	.	.	.	Vlaams Gewest
430	433	455	467	.	.	.	.	.	.	Région Wallonne
.	.	.	.	.	.	.	.	.	.	Not registered by region
5 508 e	5 662	5 363	6 237	5 716	7 876 e	8 130	7 693	8 077	7 957	Danmark
74 723	73 492	73 370	72 257 r	72 000	100 163	100 646	100 082	101 477 r	103 171 ei	Deutschland
12 234	12 235	12 213	12 170	.	13 463	12 730	12 923	.	.	Baden-Württemberg
3 015	2 993	2 877	2 943	.	3 236	2 915	3 302	.	.	Stuttgart
7 136	7 035	7 084	7 049	.	5 084	4 933	4 709	.	.	Karlsruhe
1 237	1 337	1 473	1 333	.	2 209	2 223	2 063	.	.	Freiburg
347	365	329	730	.	2 919	2 663	2 349	.	.	Tübingen
9 344	9 773	9 334	9 373	.	12 300	12 740	12 645	.	.	Bayern
3 750	3 692	3 719	3 254	.	6 365	6 239	6 245	.	.	Oberbayern
.	4	3	.	.	130	171	164	.	.	Niederbayern
130	134	33	70	.	957	936	970	.	.	Oberpfalz
229	199	192	140	.	735	732	780	.	.	Oberfranken
370	306	467	493	.	2 446	2 461	2 427	.	.	Mittelfranken
319	304	330	367	.	1 262	1 316	1 370	.	.	Unterfranken
37	49	47	.	.	287	336	329	.	.	Schwaben
9 579	9 096	8 462	9 063	.	7 630	7 472	7 002	.	.	Berlin
2 762	2 727	2 324	2 302	.	1 267	1 214	1 253	.	.	Brandenburg
344	300	1 040	1 073	.	1 042	1 130	1 405	.	.	Bremen
2 309	2 793	2 676	2 533	.	3 099	2 337	2 623	.	.	Hamburg
3 274	2 337	3 069	2 944	.	6 622	6 764	6 770	.	.	Hessen
2 913	2 707	2 377	2 642	.	3 175	3 134	3 272	.	.	Darmstadt
121	119	104	150	.	2 337	2 333	2 377	.	.	Gießen
175	167	143	152	.	620	642	627	.	.	Kassel
1 130	1 177	1 270	1 309	.	1 749	1 790	1 772	.	.	Mecklenburg-Vorpommern
7 130	6 724	6 330	6 209	.	7 773	7 396	7 690	.	.	Niedersachsen
5 208	4 770	4 733	4 447	.	3 756	3 737	3 736	.	.	Braunschweig
1 319	1 367	1 193	1 179	.	2 940	2 536	2 742	.	.	Hannover
440	446	400	373	.	117	123	155	.	.	Lüneburg
194	217	194	205	.	967	957	1 007	.	.	Weser-Ems
13 669	13 142	13 174	12 660	.	13 135	13 532	13 693	.	.	Nordrhein-Westfalen
1 367	1 739	1 665	1 470	.	3 665	3 366	3 757	.	.	Düsseldorf
9 716	9 339	9 500	9 156	.	7 060	7 392	7 547	.	.	Köln
533	546	464	554	.	2 247	2 077	2 247	.	.	Münster
212	202	193	136	.	1 469	1 457	1 446	.	.	Detmold
1 347	1 266	1 367	1 274	.	3 360	3 796	3 707	.	.	Arnsberg
1 263	1 347	1 645	1 363	.	3 193	3 136	3 206	.	.	Rheinland-Pfalz
33	32	37	32	.	117	170	175	.	.	Koblenz
137	134	174	105	.	345	363	366	.	.	Trier
1 033	1 125	1 390	1 177	.	2 737	2 663	2 724	.	.	Rheinhesen-Pfalz
503	577	537	574	.	1 259	1 247	1 235	.	.	Saarland
3 952	4 083	4 250	4 427	.	6 237	6 077	5 939	.	.	Sachsen
3 952	4 083	539	593	.	6 237	6 077	1 437	.	.	Chemnitz
.	.	2 433	2 676	.	.	.	2 772	.	.	Dresden
.	.	1 223	1 273	.	.	.	1 730	.	.	Leipzig
1 577	1 539	1 707	1 667	.	2 502	2 472	2 498	.	.	Sachsen-Anhalt
.	12	33	77	.	69	47	33	.	.	Dessau
590	590	647	567	.	1 623	1 562	1 566	.	.	Halle
937	937	1 032	1 023	.	305	373	347	.	.	Magdeburg
2 233	2 474	2 367	2 367	.	2 374	2 130	2 297	.	.	Schleswig-Holstein
1 493	1 524	1 644	1 569	.	2 305	2 446	2 374	.	.	Thüringen
353	372	220	355	.	10 584	10 357	9 376	.	.	Not registered by region
.	4 437	.	4 437	.	.	12 294 r	.	17 294	.	Ellada
.	374	.	707	.	.	4 347	.	7 647	.	Voreia Ellada
.	139	.	194	.	.	546	.	694	.	Anatoliki Makedonia, Thraki
.	450	.	470	.	.	3 246	.	6346	.	Kentriki Makedonia
.	136	.	25	.	.	352	.	95	.	Dytiki Makedonia
.	93	.	73	.	.	207	.	506	.	Thessalia
.	249	.	232	.	.	2 475	.	3 123	.	Kentriki Ellada
.	39	.	35	.	.	742	.	902	.	Ipeiros
.	6	.	7	.	.	136	.	123	.	Ionia Nisia
.	44	.	130	.	.	1 346	.	2098	.	Dytiki Ellada
.	47	.	32	.	.	42	.	2	.	Stereia Ellada
.	120	.	23	.	.	100	.	.	.	Peloponnisos
.	2 443	.	2 692	.	.	4 337	.	5 357	.	Attiki
.	970	.	300	.	.	1 276	.	679	.	Nisia Aigaiou, Kriti
.	17	.	15	.	.	408	.	123	.	Voreio Aigaiou
.	23	.	13	.	.	63	.	33	.	Notio Aigaiou
.	377	.	767	.	.	739	.	523	.	Kriti
.	.	.	.	.	.	.	.	.	.	Not registered by region

For meaning of flag 'Y', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

Table 23A-2

R&amp;D personnel at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>España</b>	27 267	27 160	27 000	102 237	120 612 e	20 480	20 023	24 667	22 323	47 066 e
Noroeste	5 253 s	6 574	7 261	6 311	.	201 s	1 007	1 521	1 475	.
Galicia	3 196 s	4 500	4 464	4 536	.	527 s	667	634	220	.
Principado de Asturias	1 128 s	1 443	1 517	1 566	.	229 s	239	416	365	.
Cantabria	229 s	631	1 220	720	.	35 s	101	421	240	.
Noreste	10 615 s	10 658	12 136	12 134	.	5 602 s	5 751	6 450	6 026	.
Pais Vasco	6 103 s	6 132	7 232	6 936	.	4 249 s	4 222	4 633	5 010	.
Comunidad Foral de Navarra	2 127 s	1 636	1 370	2 136	.	623 s	665	663	231	.
La Rioja	329 s	311	366	450	.	90 s	95	167	153	.
Aragón	2 056 s	2 370	2 500	2 562	.	730 s	769	927	836	.
Comunidad de Madrid	26 549 s	25 933	23 236	20 032	.	9 403 s	9 335	10 952	11 505	.
Centro (E)	6 620 s	6 536	7 146	7 548	.	1 008 s	1 141	1 524	1 634	.
Castilla y León	4 550 s	4 337	4 423	4 962	.	733 s	704	673	1 146	.
Castilla-la Mancha	1 290 s	1 208	1 608	1 506	.	223 s	339	761	333	.
Extremadura	320 s	925	1 115	1 080	.	35 s	43	36	106	.
Este	24 333 s	24 223	27 073	29 496	.	10 139 s	10 752	11 559	13 949	.
Cataluña	13 206 s	17 773	20 023	21 307	.	3 620 s	3 179	3 101	11 533	.
Comunidad Valenciana	5 713 s	5 992	6 367	7 050	.	1 430 s	1 547	1 743	2 313	.
Baleares	729 s	463	633	540	.	39 s	26	110	43	.
Sur	11 026 s	11 417	12 562	13 731	.	2 055 s	1 335	2 491	2 307	.
Andalucía	9 661 s	9 763	10 944	12 001	.	1 763 s	1 507	2 129	1 303	.
Murcia	1 335 s	1 640	1 613	1 730	.	322 s	373	362	499	.
Ceuta y Melilla	.	.	.	.	.	.	.	.	.	.
Canarias	2 290 s	1 906	2 636	2 426	.	114 s	152	170	233	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>France</b>	3 16 204	303 411	307 310	.	.	162 539	166 262	163 113	171 564	.
Île de France	110 442	127 732	126 696	.	.	76 612	75 763	75 600	.	.
Bassin Parisien	21 532	27 224	23 304	.	.	12 119	13 373	20 030	.	.
Champagne-Ardenne	1 413	2 154	2 425	.	.	1 305	1 413	1 661	.	.
Picardie	3 673	4 119	4 454	.	.	3 425	3 132	3 494	.	.
Haute-Normandie	4 027	5 325	5 660	.	.	3 733	4 193	4 408	.	.
Centre	6 373	3 644	3 333	.	.	5 252	5 960	6 060	.	.
Basse-Normandie	2 216	2 378	3 136	.	.	1 631	1 473	1 722	.	.
Bourgogne	3 330	4 108	4 237	.	.	2 673	2 652	2 719	.	.
Nord - Pas-de-Calais	4 011	6 333	6 367	.	.	2 953	3 033	2 994	.	.
Est	13 521	13 405	13 922	.	.	9 633	10 002	10 320	.	.
Lorraine	4 425	6 675	6 476	.	.	2 600	3 007	2 772	.	.
Alsace	5 041	6 308	7 220	.	.	3 073	2 973	3 304	.	.
Franche-Comté	4 055	4 925	5 226	.	.	3 365	4 017	4 253	.	.
Ouest	15 159	21 557	22 163	.	.	10 664	11 970	12 095	.	.
Pays de la Loire	5 441	7 759	7 962	.	.	3 912	4 423	4 434	.	.
Bretagne	7 662	10 744	10 921	.	.	5 327	6 173	6 125	.	.
Poitou-Charentes	2 056	3 054	3 236	.	.	1 335	1 364	1 536	.	.
Sud-Ouest	12 312	25 208	25 340	.	.	12 445	12 375	13 174	.	.
Aquitaine	6 353	3 913	3 930	.	.	4 626	4 360	4 764	.	.
Midi-Pyrénées	11 510	14 315	15 393	.	.	6 955	7 061	7 436	.	.
Limousin	944	1 470	1 517	.	.	364	354	374	.	.
Centre-Est	20 620	37 443	37 901	.	.	21 606	23 017	23 325	.	.
Rhône-Alpes	24 743	31 434	31 975	.	.	17 317	19 063	19 039	.	.
Auvergne	4 372	6 014	5 926	.	.	3 739	3 949	3 736	.	.
Méditerranée	21 990	27 769	23 324	.	.	10 567	10 642	10 963	.	.
Languedoc-Roussillon	6 279	3 733	3 446	.	.	1 792	2 093	2 352	.	.
Provence-Alpes-Côte d'Azur	15 609	13 734	19 178	.	.	3 775	3 535	3 595	.	.
Corse	102	192	202	.	.	.	14	16	.	.
Départements d'Outre-Mer	1 426	1 693	1 770	.	.	.	27	.	.	.
Not registered by region	20 231	9 491	9 513	.	.	.	.	.	.	.
<b>Ireland</b>	9 999 e	10 328 e	11 613 e	12 239 e	.	6 325 e	6 970 e	7 645 e	8 321	.

For meaning of flag 'e', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 23**  
**R&D personnel**  
**At the regional level**

In full-time equivalent (FTE)

**Table 23B-2**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
17 266	19 129	20 170	22 223	22 400	33 956	36 242	41 042	40 626	42 470	España
1 230	1 332	1 242	1 376	.	2 923	4 156	4 465	3 950	.	Noroeste
336	324	762	206	.	1 604	2 946	3 002	2 750	.	Galicia
323	326	222	366	.	573	2 19	3 19	236	.	Principado de Asturias
31	113	192	116	.	726	301	622	356	.	Cantabria
208	1 082	942	1 069	.	3 957	3 700	4 722	4 061	.	Noreste
127	269	240	224	.	1 604	1 604	2 345	1 713	.	Pais Vasco
62	56	51	44	.	1 441	964	1 164	1 161	.	Comunidad Foral de Navarra
74	73	43	70	.	166	148	156	222	.	La Rioja
479	701	602	711	.	247	202	1 062	956	.	Aragón
9 441	9 624	10 669	11 201	.	7 322	6 626	6 344	6 757	.	Comunidad de Madrid
264	272	202	227	.	4 622	4 472	4 772	4 241	.	Centro (E)
320	472	412	545	.	3 266	3 126	3 206	3 204	.	Castilla y León
300	192	204	222	.	753	622	622	290	.	Castilla-la Mancha
166	202	191	224	.	529	720	229	747	.	Extremadura
2 566	3 044	3 129	3 729	.	11 724	9 740	11 614	11 299	.	Este
1 720	2 007	2 207	2 660	.	7 722	6 046	7 512	7 247	.	Cataluña
722	222	742	220	.	3 426	3 410	3 714	3 505	.	Comunidad Valenciana
114	149	120	129	.	667	224	222	257	.	Baleares
2 202	2 602	2 601	3 121	.	6 522	6 206	7 242	2 119	.	Sur
2 022	2 224	2 262	2 752	.	6 222	6 001	6 522	7 211	.	Andalucía
366	374	422	422	.	706	206	226	202	.	Murcia
.	.	.	.	.	.	.	.	.	.	Ceuta y Melilla
519	506	629	620	.	1 667	1 242	1 777	1 609	.	Canarias
.	.	.	.	.	.	.	.	.	.	Not registered by region
62 215	47 521	47 564	.	.	26 269	22 110	24 264	.	.	France
12 541	12 216	12 154	.	.	12 541	20 227	21 016	.	.	Île de France
2 072	2 049	2 122	.	.	1 241	6 207	6 642	.	.	Bassin Parisien
70	46	47	.	.	22	626	727	.	.	Champagne-Ardenne
201	164	147	.	.	47	772	212	.	.	Picardie
125	96	104	.	.	119	1 021	1 062	.	.	Haute-Normandie
1 100	1 064	1 104	.	.	512	1 620	1 729	.	.	Centre
116	196	222	.	.	419	1 207	1 226	.	.	Basse-Normandie
451	422	422	.	.	206	971	1 076	.	.	Bourgogne
422	469	422	.	.	569	3 276	3 200	.	.	Nord - Pas-de-Calais
1 121	1 126	1 145	.	.	2 707	7 272	7 442	.	.	Est
766	722	729	.	.	969	2 222	2 275	.	.	Lorraine
366	240	260	.	.	1 602	3 422	3 666	.	.	Alsace
60	51	66	.	.	120	267	217	.	.	Franche-Comté
3 206	3 262	3 466	.	.	1 299	6 219	6 602	.	.	Ouest
1 000	1 175	1 262	.	.	269	2 156	2 266	.	.	Pays de la Loire
1 606	1 716	1 202	.	.	629	2 260	2 222	.	.	Bretagne
420	277	202	.	.	211	1 212	1 264	.	.	Poitou-Charentes
3 226	3 229	3 260	.	.	2 421	2 202	2 706	.	.	Sud-Ouest
724	776	201	.	.	242	3 222	3 266	.	.	Aquitaine
3 066	3 126	3 140	.	.	1 429	4 612	4 217	.	.	Midi-Pyrénées
26	11	19	.	.	44	422	524	.	.	Limousin
4 466	4 210	4 567	.	.	3 542	10 221	10 602	.	.	Centre-Est
3 660	3 409	3 722	.	.	3 271	2 257	2 192	.	.	Rhône-Alpes
206	201	229	.	.	277	1 264	1 211	.	.	Auvergne
7 471	7 217	7 762	.	.	3 252	2 900	10 001	.	.	Méditerranée
3 002	3 166	3 442	.	.	1 222	3 526	3 661	.	.	Languedoc-Roussillon
4 275	3 264	4 241	.	.	2 569	6 224	6 222	.	.	Provence-Alpes-Côte d'Azur
27	22	24	.	.	5	90	102	.	.	Corse
1 460	1 275	1 260	.	.	15	220	412	.	.	Départements d'Outre-Mer
20 044	4 672	4 529	.	.	66 426	144	141	.	.	Not registered by region
946	222	241	224	279	2 429	2 662	2 247	3 022	.	Ireland

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 23A-3

R&amp;D personnel at NUTS level 0, 1 and 2

## All sectors

## Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Italia</b>	142 223	141 737 e	145 962 e	142 508	.	60 975	61 414	61 177	60 648	.
Nord Ovest	23 124	.	.	.	.	16 522	16 625	16 254	.	.
Piemonte	12 420	.	.	.	.	14 204	14 435	14 094	.	.
Valle d'Aosta	61	.	.	.	.	49	23	50	.	.
Liguria	4 623	.	.	.	.	1 664	2 167	2 170	.	.
Lombardia	29 215	.	.	.	.	19 923	19 604	19 177	.	.
Nord Est	11 276	.	.	.	.	5 083	4 953	5 460	.	.
Trentino-Alto Adige	1 312	.	.	.	.	506	537	508	.	.
Veneto	6 733	.	.	.	.	3 079	2 874	2 987	.	.
Friuli-Venezia Giulia	3 237	.	.	.	.	1 504	1 542	1 330	.	.
Emilia-Romagna	11 113	.	.	.	.	4 775	5 125	5 797	.	.
Centro (I)	12 666	.	.	.	.	2 999	3 103	2 666	.	.
Toscana	9 020	.	.	.	.	2 372	2 227	1 930	.	.
Umbria	1 207	.	.	.	.	223	233	259	.	.
Marche	1 245	.	.	.	.	404	633	466	.	.
Lazio	28 196	.	.	.	.	6 343	6 209	6 523	.	.
Abruzzo-Molise	3 364	.	.	.	.	1 548	1 143	1 107	.	.
Abruzzo	3 070	.	.	.	.	1 432	1 143	1 075	.	.
Molise	294	.	.	.	.	114	.	32	.	.
Campania	3 375	.	.	.	.	2 162	2 453	2 073	.	.
Sud	5 425	.	.	.	.	387	1 074	977	.	.
Puglia	3 370	.	.	.	.	786	936	304	.	.
Basilicata	666	.	.	.	.	62	67	97	.	.
Calabria	259	.	.	.	.	20	17	16	.	.
Sicilia	5 979	.	.	.	.	449	336	1 042	.	.
Sardegna	2 515	.	.	.	.	237	239	244	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Luxembourg</b>	.	.	.	.	3 150 p	.	.	.	.	2 795 p
<b>Nederland</b>	30 220	23 967	25 426	27 022	.	20 493	42 402	43 277	45 127 r	.
Noord-Nederland	.	5 342	4 733	.	.	2 148	2 756	2 224	.	.
Groningen	.	3 608	4 733	.	.	335	1 107	2 224	.	.
Friesland	.	1 075	.	.	.	797	947	.	.	.
Drenthe	.	779	.	.	.	578	707	.	.	.
Oost-Nederland	.	16 152	16 024	.	.	6 572	7 235	7 266	.	.
Overijssel	.	3 973	3 774	.	.	2 327	2 657	2 474	.	.
Gelderland	.	10 600	10 791	.	.	3 943	4 245	4 520	.	.
Flevoland	.	1 579	1 579	.	.	237	333	263	.	.
West-Nederland	.	43 123	45 078	.	.	16 044	16 436	16 136	.	.
Utrecht	.	9 275	9 169	.	.	3 375	3 576	3 325	.	.
Noord-Holland	.	13 652	14 508	.	.	5 936	6 333	6 166	.	.
Zuid-Holland	.	20 000	20 373	.	.	6 545	6 444	7 377	.	.
Zeeland	.	372	527	.	.	123	193	308	.	.
Zuid-Nederland	.	19 236	19 597	.	.	14 734	15 932	16 245	.	.
Noord-Brabant	.	13 342	13 729	.	.	10 615	11 403	11 908	.	.
Limburg (NL)	.	5 943	5 308	.	.	4 119	4 529	4 337	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Österreich</b>	.	.	3 138	.	.	.	.	20 386	.	.
Ostösterreich	.	.	1 6507	.	.	.	.	10 230	.	.
Burgenland	.	.	92	.	.	.	.	77	.	.
Niederösterreich	.	.	2 179	.	.	.	.	1 304	.	.
Wien	.	.	14 337	.	.	.	.	3 240	.	.
Südösterreich	.	.	6 207	.	.	.	.	4 423	.	.
Kärnten	.	.	958	.	.	.	.	750	.	.
Steiermark	.	.	5 252	.	.	.	.	3 733	.	.
Westösterreich	.	.	7 904	.	.	.	.	5 672	.	.
Oberösterreich	.	.	3 223	.	.	.	.	3 727	.	.
Salzburg	.	.	942	.	.	.	.	470	.	.
Tirol	.	.	2 340	.	.	.	.	1 240	.	.
Vorarlberg	.	.	794	.	.	.	.	775	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Portugal</b>	.	12 036	.	20 208 r	.	.	1 927	.	3 260	.
Continente	.	17 322	.	20 154	.	.	1 927	.	3 235	.
Norte	.	3 227	.	4 333	.	.	550	.	1 137	.
Centro (P)	.	2 758	.	3 072	.	.	346	.	427	.
Lisboa e Vale do Tejo	.	9 775	.	11 253	.	.	1 045	.	1 562	.
Alentejo	.	608	.	600	.	.	30	.	29	.
Algarve	.	369	.	398	.	.	10	.	30	.
Açores	.	374	.	354	.	.	0	.	7	.
Madeira	.	329	.	322	.	.	.	.	12	.
Not registered by region	.	.	.	.	.	.	.	.	.	.



**Table 23**  
**R&D personnel**  
**At the regional level**

In full-time equivalent (FTE)

**Table 23B-3**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
32 225	37 292	37 009 e	30 225	.	40 742	49 087 e	52 262	52 025	.	Italia
2 556	2 224	2 137	.	.	4 047	.	.	.	.	Nord Ovest
1 166	825	792	.	.	2 456	.	.	.	.	Piemonte
12	22	9	.	.	.	.	.	.	.	Valle d'Aosta
1 378	1 377	1 330	.	.	1 591	.	.	.	.	Liguria
4 324	4 196	4 373	.	.	5 503	.	.	.	.	Lombardia
1 873	1 874	1 262	.	.	4 370	.	.	.	.	Nord Est
302	403	435	.	.	415	.	.	.	.	Trentino-Alto Adige
1 036	1 016	907	.	.	2 672	.	.	.	.	Veneto
445	455	570	.	.	1 277	.	.	.	.	Friuli-Venezia Giulia
1 206	1 469	1 612	.	.	4 533	.	.	.	.	Emilia-Romagna
2 137	2 086	2 224	.	.	7 630	.	.	.	.	Centro (I)
1 720	1 713	1 962	.	.	4 262	.	.	.	.	Toscana
147	134	172	.	.	1 487	.	.	.	.	Umbria
270	229	194	.	.	1 237	.	.	.	.	Marche
14 712	14 726	14 769	.	.	7 135	.	.	.	.	Lazio
522	426	299	.	.	1 256	.	.	.	.	Abruzzo-Molise
522	444	222	.	.	1 116	.	.	.	.	Abruzzo
40	42	11	.	.	140	.	.	.	.	Molise
1 552	1 476	1 574	.	.	5 155	.	.	.	.	Campania
1 244	1 207	1 062	.	.	3 274	.	.	.	.	Sud
764	972	240	.	.	2 287	.	.	.	.	Puglia
329	123	66	.	.	265	.	.	.	.	Basilicata
157	160	156	.	.	722	.	.	.	.	Calabria
267	277	224	.	.	4 602	.	.	.	.	Sicilia
522	562	574	.	.	1 702	.	.	.	.	Sardegna
.	.	715	.	.	.	.	.	.	.	Not registered by region
.	.	.	.	327 p	.	.	.	.	26 p	Luxembourg
16 924	17 147	17 449	16 566	.	24 202	24 412	24 165	24 207	.	Nederland
426	199	202	.	.	.	2 222	2 266	.	.	Noord-Nederland
412	179	202	.	.	.	2 222	2 266	.	.	Groningen
67	62	.	.	.	.	.	.	.	.	Friesland
12	12	.	.	.	.	.	.	.	.	Drenthe
4 526	4 124	4 160	.	.	4 722	4 662	.	.	.	Oost-Nederland
227	125	109	.	.	1 197	1 197	.	.	.	Overijssel
3 067	2 272	2 792	.	.	3 525	3 467	.	.	.	Gelderland
1 227	1 246	1 256	.	.	.	.	.	.	.	Flevoland
11 622	12 609	12 977	.	.	14 022	12 969	.	.	.	West-Nederland
2 764	2 424	2 547	.	.	3 275	3 222	.	.	.	Utrecht
3 672	3 104	3 274	.	.	4 275	4 222	.	.	.	Noord-Holland
5 066	6 002	7 022	.	.	6 662	6 402	.	.	.	Zuid-Holland
179	179	122	.	.	.	.	.	.	.	Zeeland
222	156	170	.	.	3 122	3 122	.	.	.	Zuid-Nederland
179	42	42	.	.	1 227	1 222	.	.	.	Noord-Brabant
102	112	127	.	.	1 207	1 244	.	.	.	Limburg (NL)
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	2 104	.	.	.	.	2 670	.	.	Österreich
.	.	1 555	.	.	.	.	4 622	.	.	Ostösterreich
.	.	15	.	.	.	.	.	.	.	Burgenland
.	.	194	.	.	.	.	7	.	.	Niederösterreich
.	.	1 247	.	.	.	.	4 607	.	.	Wien
.	.	227	.	.	.	.	2 020	.	.	Südösterreich
.	.	56	.	.	.	.	144	.	.	Kärnten
.	.	170	.	.	.	.	1 246	.	.	Steiermark
.	.	222	.	.	.	.	1 222	.	.	Westösterreich
.	.	177	.	.	.	.	422	.	.	Oberösterreich
.	.	55	.	.	.	.	476	.	.	Salzburg
.	.	72	.	.	.	.	1 072	.	.	Tirol
.	.	.	.	.	.	.	.	.	.	Vorarlberg
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	5 220	.	5 002 r	.	.	2 442	.	9 727	.	Portugal
.	4 222	.	5 602	.	.	2 272	.	2 974	.	Continente
.	202	.	547	.	.	2 157	.	2 274	.	Norte
.	129	.	247	.	.	1 202	.	1 222	.	Centro (P)
.	4 045	.	4 579	.	.	2 622	.	4 747	.	Lisboa e Vale do Tejo
.	166	.	272	.	.	267	.	222	.	Alentejo
.	22	.	29	.	.	270	.	227	.	Algarve
.	126	.	107	.	.	157	.	122	.	Açores
.	277	.	279	.	.	20	.	74	.	Madeira
.	.	.	.	.	.	.	.	.	.	Not registered by region

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 23A-4

R&D personnel at NUTS level 0, 1 and 2

All sectors

Business enterprise sector

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Suomi-Finland</b>	.	41 257	46 527	50 606	52 604	20 758	22 304	25 077	27 373	29 334
Manner-Suomi	.	41 257	46 517	50 598	.	.	22 302	25 000	27 373	.
Itä-Suomi	.	2 457	2 738	3 077	.	.	775	848	804	.
Väli-Suomi	.	2 304	3 047	3 440	.	.	1 707	1 777	2 055	.
Pohjois-Suomi	.	4 539	5 670	6 002	.	.	2 439	3 256	3 553	.
Uusimaa (Suuralue)	.	19 388	21 544	23 748	.	.	10 177	11 088	11 988	.
Etelä-Suomi	.	12 052	13 528	14 990	.	.	7 180	8 066	9 335	.
Åland	.	5	4	7	.	.	2	2	5	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Sverige</b>	.	65 498	63 406	68 874	.	.	43 837	48 747	44 170	.
Stockholm	.	22 052	.	22 052	.	.	15 284	.	14 728	.
Östra Mellansverige	.	11 937	.	11 974	.	.	6 369	.	6 239	.
Sydsverige	.	7 347	.	8 427	.	.	4 379	.	5 197	.
Norra Mellansverige	.	2 237	.	2 028	.	.	1 633	.	1 499	.
Mellersta Norrland	.	3 73	.	732	.	.	659	.	508	.
Övre Norrland	.	2 908	.	3 242	.	.	949	.	1 043	.
Småland med Öarna	.	1 036	.	1 133	.	.	332	.	393	.
Västsverige	.	15 187	.	15 323	.	.	11 930	.	12 632	.
Not registered by region	.	1 400	.	1 302	.	.	1 326	.	1 253	.
<b>United Kingdom</b>	.	.	.	.	.	143 430	133 420	149 635	152 385	145 492
North East	.	.	.	.	.	3 623	3 767	3 293	2 908	.
Tees Valley & Durham	.	.	.	.	.	.	.	.	.	.
Northumberland and Tyne & Wear	.	.	.	.	.	.	.	.	.	.
North West (inc. Merseyside)	.	.	.	.	.	16 777	16 622	17 933	13 430	.
Cumbria	.	.	.	.	.	.	.	.	.	.
Cheshire	.	.	.	.	.	.	.	.	.	.
Greater Manchester	.	.	.	.	.	.	.	.	.	.
Lancashire	.	.	.	.	.	.	.	.	.	.
Merseyside	.	.	.	.	.	.	.	.	.	.
Yorkshire & The Humber	.	.	.	.	.	5 949	5 467	6 475	6 450	.
East Riding & North Lincolnshire	.	.	.	.	.	.	.	.	.	.
North Yorkshire	.	.	.	.	.	.	.	.	.	.
South Yorkshire	.	.	.	.	.	.	.	.	.	.
West Yorkshire	.	.	.	.	.	.	.	.	.	.
East Midlands	.	.	.	.	.	11 947	11 655	11 964	12 077	.
Derbyshire & Nottinghamshire	.	.	.	.	.	.	.	.	.	.
Leicesters., Rutland & Northants	.	.	.	.	.	.	.	.	.	.
Lincolnshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	12 332	11 379	12 966	12 123	.
Herefords., Worcesters. & Warks	.	.	.	.	.	.	.	.	.	.
Shropshire & Staffordshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	.	.	.	.	.
Eastern	.	.	.	.	.	27 125	27 697	27 779	30 348	.
East Anglia	.	.	.	.	.	.	.	.	.	.
Bedfordshire, Hertfordshire	.	.	.	.	.	.	.	.	.	.
Essex	.	.	.	.	.	.	.	.	.	.
London	.	.	.	.	.	10 782	3 474	9 232	10 093	.
Inner London	.	.	.	.	.	.	.	.	.	.
Outer London	.	.	.	.	.	.	.	.	.	.
South East	.	.	.	.	.	32 288	30 963	34 907	35 227	.
Berkshire, Bucks & Oxfordshire	.	.	.	.	.	.	.	.	.	.
Surrey, East & West Sussex	.	.	.	.	.	.	.	.	.	.
Hampshire & Isle of Wight	.	.	.	.	.	.	.	.	.	.
Kent	.	.	.	.	.	.	.	.	.	.
South West	.	.	.	.	.	11 733	11 726	13 137	13 073	.
Gloucesters., Wilts., N. Somerset	.	.	.	.	.	.	.	.	.	.
Dorset & Somerset	.	.	.	.	.	.	.	.	.	.
Cornwall & Isles of Scilly	.	.	.	.	.	.	.	.	.	.
Devon	.	.	.	.	.	.	.	.	.	.
Wales	.	.	.	.	.	2 787	2 372	2 798	3 747	.
West Wales & The Valleys	.	.	.	.	.	.	.	.	.	.
East Wales	.	.	.	.	.	.	.	.	.	.
Scotland	.	.	.	.	.	7 008	6 507	7 209	6 703	.
North Eastern Scotland	.	.	.	.	.	.	.	.	.	.
Eastern Scotland	.	.	.	.	.	.	.	.	.	.
South Western Scotland	.	.	.	.	.	.	.	.	.	.
Highlands & Islands	.	.	.	.	.	.	.	.	.	.
Northern Ireland	.	.	.	.	.	1 377	1 984	2 077	2 207	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>EEA</b>	1 873 558 s	1 875 533 s	1 873 537 s	1 720 495 s	1 753 774 s	394 422 s	334 529 s	418 397 s	440 257 s	399 273 s
Iceland	1 578	2 157	2 273	2 300	r	467	332	975	957	r
<b>Norge</b>	.	24 377	.	25 402	.	.	12 942	.	13 310	.
Oslo og Akershus	.	11 334	.	11 603	.	.	5 937	.	5 733	.
Hedmark og Oppland	.	2 439	.	2 357	.	.	2 070	.	1 927	.
Sør-Østlandet	.	538	.	506	.	.	477	.	379	.
Agder og Rogaland	.	1 373	.	2 775	.	.	1 578	.	1 368	.
Vestlandet	.	3 402	.	3 435	.	.	1 097	.	1 002	.
Trøndelag	.	3 659	.	4 067	.	.	1 309	.	2 272	.
Nord-Norge	.	1 144	.	1 242	.	.	174	.	177	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Japan</b>	397 733 b	394 008	325 559	319 132	308 247	539 497 b	538 756	613 760	604 544	537 727
<b>United States of America</b>	.	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 23**  
**R&D personnel**  
**At the regional level**

In full-time equivalent (FTE)

**Table 23B-4**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
.	6 227	7 500	7 946	7 767	.	11 264	13 663	14 247	15 450	Suomi-Finland
.	6 224	7 403	7 944	.	.	11 264	13 663	14 247	.	Manner-Suomi
.	413	537	573	.	.	1 247	1 384	1 544	.	Itä-Suomi
.	215	227	225	.	.	274	262	1 060	.	Väli-Suomi
.	576	664	706	.	.	1 523	1 752	1 733	.	Pohjois-Suomi
.	4 326	4 667	4 902	.	.	4 676	5 500	6 278	.	Uusimaa (Suuralue)
.	1 220	1 360	1 423	.	.	3 540	4 000	4 277	.	Etelä-Suomi
.	3	2	2	.	.	.	.	.	.	Åland
.	3 334	3 334	3 195	.	.	13 132	13 197	13 176	.	Not registered by region
.	1 220	.	1 743	.	.	4 963	.	5 500	.	Sverige
.	277	.	247	.	.	4 736	.	4 544	.	Stockholm
.	16	.	24	.	.	3 072	.	3 206	.	Östra Mellansverige
.	306	.	297	.	.	242	.	303	.	Sydsverige
.	16	.	37	.	.	143	.	155	.	Norra Mellansverige
.	225	.	196	.	.	1 732	.	1 928	.	Mellersta Norrland
.	4	.	3	.	.	190	.	244	.	Övre Norrland
.	70	.	60	.	.	3 167	.	3 127	.	Småland med Öarna
.	.	.	6	.	.	.	.	.	.	Västssverige
.	.	.	6	.	.	.	.	.	.	Not registered by region
27 433	26 206	29 196	29 672	29 553	.	.	.	.	.	United Kingdom
50	47	45	25	.	.	.	.	.	.	North East
.	.	.	.	.	.	.	.	.	.	Tees Valley & Durham
.	.	.	.	.	.	.	.	.	.	Northumberland and Tyne & Wear
345	794	795	300	.	.	.	.	.	.	North West (inc. Merseyside)
.	.	.	.	.	.	.	.	.	.	Cumbria
.	.	.	.	.	.	.	.	.	.	Cheshire
.	.	.	.	.	.	.	.	.	.	Greater Manchester
.	.	.	.	.	.	.	.	.	.	Lancashire
.	.	.	.	.	.	.	.	.	.	Merseyside
673	537	563	652	.	.	.	.	.	.	Yorkshire & The Humber
.	.	.	.	.	.	.	.	.	.	East Riding & North Lincolnshire
.	.	.	.	.	.	.	.	.	.	North Yorkshire
.	.	.	.	.	.	.	.	.	.	South Yorkshire
.	.	.	.	.	.	.	.	.	.	West Yorkshire
360	247	272	793	.	.	.	.	.	.	East Midlands
.	.	.	.	.	.	.	.	.	.	Derbyshire & Nottinghamshire
.	.	.	.	.	.	.	.	.	.	Leicesters., Rutland & Northants
.	.	.	.	.	.	.	.	.	.	Lincolnshire
2 007	1 937	2 345	2 720	.	.	.	.	.	.	West Midlands
.	.	.	.	.	.	.	.	.	.	Herefords., Worcesters. & Warks
.	.	.	.	.	.	.	.	.	.	Shropshire & Staffordshire
.	.	.	.	.	.	.	.	.	.	West Midlands
4 530	3 207	3 237	3 532	.	.	.	.	.	.	Eastern
.	.	.	.	.	.	.	.	.	.	East Anglia
.	.	.	.	.	.	.	.	.	.	Bedfordshire, Hertfordshire
.	.	.	.	.	.	.	.	.	.	Essex
2 323	2 577	2 977	3 235	.	.	.	.	.	.	London
.	.	.	.	.	.	.	.	.	.	Inner London
.	.	.	.	.	.	.	.	.	.	Outer London
3 543	3 370	3 124	3 247	.	.	.	.	.	.	South East
.	.	.	.	.	.	.	.	.	.	Berkshire, Bucks & Oxfordshire
.	.	.	.	.	.	.	.	.	.	Surrey, East & West Sussex
.	.	.	.	.	.	.	.	.	.	Hampshire & Isle of Wight
.	.	.	.	.	.	.	.	.	.	Kent
3 175	3 046	4 333	4 204	.	.	.	.	.	.	South West
.	.	.	.	.	.	.	.	.	.	Gloucesters., Wilts., N. Somerset
.	.	.	.	.	.	.	.	.	.	Dorset & Somerset
.	.	.	.	.	.	.	.	.	.	Cornwall & Isles of Scilly
.	.	.	.	.	.	.	.	.	.	Devon
362	327	660	727	.	.	.	.	.	.	Wales
.	.	.	.	.	.	.	.	.	.	West Wales & The Valleys
.	.	.	.	.	.	.	.	.	.	East Wales
3 374	3 300	3 462	3 323	.	.	.	.	.	.	Scotland
.	.	.	.	.	.	.	.	.	.	North Eastern Scotland
.	.	.	.	.	.	.	.	.	.	Eastern Scotland
.	.	.	.	.	.	.	.	.	.	South Western Scotland
.	.	.	.	.	.	.	.	.	.	Highlands & Islands
204	207	199	196	.	.	.	.	.	.	Northern Ireland
.	.	.	.	.	.	.	.	.	.	Not registered by region
247 900 s	250 770 s	257 030 s	253 740 s	253 345 s	483 937 s	497 930 s	490 377 s	493 330 s	509 734 s	EEA
532	629	647	645 r	.	403	668	676	772 r	.	Iceland
.	4 273	.	4 779	.	.	7 062	.	7 373	.	Norge
.	2 265	.	2 790	.	.	3 048	.	3 170	.	Oslo og Akershus
.	333	.	309	.	.	96	.	175	.	Hedmark og Oppland
.	108	.	102	.	.	67	.	34	.	Sør-Østlandet
.	96	.	102	.	.	141	.	157	.	Agder og Rogaland
.	226	.	223	.	.	1 436	.	1 575	.	Vestlandet
.	327	.	307	.	.	1 520	.	1 542	.	Trøndelag
.	334	.	325	.	.	606	.	736	.	Nord-Norge
.	.	.	.	.	.	.	.	.	.	Not registered by region
56 176	56 664	52 762	50 025	50 254	2 17 663 b	222 226	225 179	227 562	227 222	Japan
.	.	.	.	.	.	.	.	.	.	United States of America

For meaning of flag 'r', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

As a % of the labour force  
In head count (HC)

**Table 24**  
**R&D personnel**  
**At the regional level**

**Table 24A-1**

**R&D personnel at NUTS level 0, 1 and 2**

**All sectors**

**Business enterprise sector**

	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>EU-15</b>	1.23 s	1.30 s	1.34 s	1.34 s	1.33 s	0.59 s	0.60 s	0.62 s	0.63 s	0.64 s
EUR-12	1.28 s	1.33 s	1.32 s	1.34 s	1.37 s	0.57 s	0.59 s	0.60 s	0.62 s	0.64 s
Belgique-Belgie	1.35 s	1.40 s	1.48 s	1.52 s	.	0.78 s	0.79 s	0.81 s	0.83 s	0.85 s
Région Bruxelles-capitale	.	.	.	.	.	1.38 s	1.35 s	1.28 s	1.27 s	1.38 s
Vlaams Gewest	.	.	.	.	.	0.78 s	0.82 s	0.87 s	0.89 s	0.95 s
Région Wallonne	.	.	.	.	.	0.58 s	0.55 s	0.56 s	0.58 s	0.62 s
Not registered by region	.	.	.	.	.	.	.	.	.	.
Danmark	.	1.36	.	1.30 r	.	.	0.94	1.01	1.00 r	.
Deutschland	1.53 s	1.55 s	1.54 s	1.50 s	1.62 s	0.82 s	0.85 s	0.86 s	0.90 s	0.92 s
Baden-Württemberg	.	2.40 s	.	.	.	.	1.57 s	.	.	.
Stuttgart	.	3.04 s	.	.	.	.	2.26 s	.	.	.
Karlsruhe	.	2.68 s	.	.	.	.	1.17 s	.	.	.
Freiburg	.	1.25 s	.	.	.	.	0.67 s	.	.	.
Tübingen	.	2.50 s	.	.	.	.	1.66 s	.	.	.
Bayern	.	1.95 s	.	.	.	.	1.24 s	.	.	.
Oberbayern	.	3.72 s	.	.	.	.	2.35 s	.	.	.
Niederbayern	.	0.29 s	.	.	.	.	0.22 s	.	.	.
Oberpfalz	.	0.73 s	.	.	.	.	0.43 s	.	.	.
Oberfranken	.	0.73 s	.	.	.	.	0.43 s	.	.	.
Mittelfranken	.	2.04 s	.	.	.	.	1.36 s	.	.	.
Unterfranken	.	1.21 s	.	.	.	.	0.65 s	.	.	.
Schwaben	.	0.75 s	.	.	.	.	0.59 s	.	.	.
Berlin	.	2.23 s	.	.	.	.	0.83 s	.	.	.
Brandenburg	.	0.60 s	.	.	.	.	0.25 s	.	.	.
Bremen	.	2.00 s	.	.	.	.	0.94 s	.	.	.
Hamburg	.	2.08 s	.	.	.	.	1.01 s	.	.	.
Hessen	.	1.81 s	.	.	.	.	1.16 s	.	.	.
Darmstadt	.	2.30 s	.	.	.	.	1.60 s	.	.	.
Gießen	.	1.52 s	.	.	.	.	0.57 s	.	.	.
Kassel	.	0.54 s	.	.	.	.	0.30 s	.	.	.
Mecklenburg-Vorpommern	.	0.58 s	.	.	.	.	0.09 s	.	.	.
Niedersachsen	.	1.28 s	.	.	.	.	0.62 s	.	.	.
Braunschweig	.	3.41 s	.	.	.	.	1.64 s	.	.	.
Hannover	.	1.29 s	.	.	.	.	0.65 s	.	.	.
Lüneburg	.	0.30 s	.	.	.	.	0.16 s	.	.	.
Weser-Ems	.	0.34 s	.	.	.	.	0.17 s	.	.	.
Nordrhein-Westfalen	.	1.23 s	.	.	.	.	0.64 s	.	.	.
Düsseldorf	.	1.17 s	.	.	.	.	0.73 s	.	.	.
Köln	.	2.20 s	.	.	.	.	0.87 s	.	.	.
Münster	.	0.71 s	.	.	.	.	0.34 s	.	.	.
Detmold	.	0.92 s	.	.	.	.	0.53 s	.	.	.
Arnsberg	.	0.95 s	.	.	.	.	0.47 s	.	.	.
Rheinland-Pfalz	.	1.30 s	.	.	.	.	0.83 s	.	.	.
Koblenz	.	0.36 s	.	.	.	.	0.27 s	.	.	.
Trier	.	0.49 s	.	.	.	.	0.17 s	.	.	.
Rheinhessen-Pfalz	.	2.13 s	.	.	.	.	1.40 s	.	.	.
Saarland	.	0.78 s	.	.	.	.	0.19 s	.	.	.
Sachsen	.	1.27 s	.	.	.	.	0.58 s	.	.	.
Chemnitz	.	.	.	.	.	.	.	.	.	.
Dresden	.	.	.	.	.	.	.	.	.	.
Leipzig	.	.	.	.	.	.	.	.	.	.
Sachsen-Anhalt	.	0.70 s	.	.	.	.	0.26 s	.	.	.
Dessau	.	0.40 s	.	.	.	.	0.32 s	.	.	.
Halle	.	0.95 s	.	.	.	.	0.28 s	.	.	.
Magdeburg	.	0.68 s	.	.	.	.	0.21 s	.	.	.
Schleswig-Holstein	.	0.30 s	.	.	.	.	0.29 s	.	.	.
Thüringen	.	0.93 s	.	.	.	.	0.44 s	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
Ellada	.	0.77 r	.	1.28	.	0.12	0.13	.	0.19	.
Voreia Ellada	.	0.93	.	.	.	0.07	0.08	.	.	.
Anatoliki Makedonia, Thraki	.	0.77	.	.	.	0.06	0.04	.	.	.
Kentriki Makedonia	.	1.13	.	.	.	0.10	0.10	.	.	.
Dytiki Makedonia	.	0.98	.	.	.	0.07	0.08	.	.	.
Thessalia	.	0.38	.	.	.	0.05	0.06	.	.	.
Kentriki Ellada	.	0.39	.	.	.	0.10	0.10	.	.	.
Ipeiros	.	1.93	.	.	.	0.09	0.08	.	.	.
Ionia Nisia	.	0.40	.	.	.	0.03	0.04	.	.	.
Dytiki Ellada	.	1.23	.	.	.	0.05	0.04	.	.	.
Sterea Ellada	.	0.46	.	.	.	0.27	0.25	.	.	.
Peloponnisos	.	0.49	.	.	.	0.05	0.06	.	.	.
Attiki	.	1.11	.	.	.	0.19	0.23	.	.	.
Nisia Aigaiou, Kriti	.	1.24	.	.	.	0.03	0.03	.	.	.
Voreio Aigaio	.	2.17	.	.	.	0.05	0.04	.	.	.
Notio Aigaio	.	0.48	.	.	.	0.02	0.02	.	.	.
Kriti	.	1.33	.	.	.	0.03	0.04	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 24**  
**R&D personnel**  
**At the regional level**

As a % of the labour force  
in head count (HC)

**Table 24B-1**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1995	1997	1998	1999	2000	1995	1997	1998	1999	2000	
0.20 s	0.19 s	0.19 s	0.19 s	0.19 s	0.43 s	0.40 s	0.52 s	0.53 s	0.53 s	EU-15
0.22 s	0.21 s	0.21 s	0.20 s	0.20 s	0.46 s	0.47 s	0.51 s	0.51 s	0.52 s	EUR-12
0.07 s	0.07 s	0.06 s	0.07 s	.	0.51 s	0.52 s	0.57 s	0.61 s	.	Belgique-Belgie
0.26 s	0.27 s	0.22 s	0.26 s	.	.	.	.	.	.	Région Bruxelles-capitale
0.06 s	0.06 s	0.06 s	0.06 s	.	.	.	.	.	.	Vlaams Gewest
0.04 s	0.04 s	0.05 s	0.04 s	.	.	.	.	.	.	Région Wallonne
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	0.33	.	0.33	0.34	.	0.52	.	0.49	0.50	Danmark
0.26 s	0.25 s	0.25 s	0.24 s	0.24 s	0.46 s	0.45 s	0.45 s	0.45 s	0.46 s	Deutschland
0.32 s	0.32 s	0.32 s	.	.	0.47 s	0.44 s	.	0.44 s	.	Baden-Württemberg
0.21 s	0.21 s	0.20 s	.	.	0.30 s	0.28 s	0.30 s	.	.	Stuttgart
0.74 s	0.74 s	0.73 s	.	.	0.69 s	0.68 s	0.64 s	.	.	Karlsruhe
0.17 s	0.17 s	0.19 s	.	.	0.33 s	0.33 s	0.36 s	.	.	Freiburg
0.13 s	0.13 s	0.13 s	.	.	0.61 s	0.56 s	0.59 s	.	.	Tübingen
0.22 s	0.22 s	0.22 s	.	.	0.37 s	0.37 s	0.36 s	.	.	Bayern
0.56 s	0.56 s	0.56 s	.	.	0.54 s	0.53 s	0.53 s	.	.	Oberbayern
.	0.00 s	0.00 s	.	.	0.05 s	0.06 s	0.05 s	.	.	Niederbayern
0.09 s	0.09 s	0.02 s	.	.	0.32 s	0.31 s	0.30 s	.	.	Oberpfalz
0.08 s	0.06 s	0.06 s	.	.	0.24 s	0.23 s	0.24 s	.	.	Oberfranken
0.08 s	0.08 s	0.07 s	.	.	0.51 s	0.51 s	0.51 s	.	.	Mittelfranken
0.07 s	0.06 s	0.07 s	.	.	0.51 s	0.50 s	0.49 s	.	.	Unterfranken
0.01 s	0.01 s	0.01 s	.	.	0.05 s	0.07 s	0.07 s	.	.	Schwaben
0.70 s	0.68 s	0.64 s	.	.	0.74 s	0.73 s	0.70 s	.	.	Berlin
0.28 s	0.27 s	0.28 s	.	.	0.17 s	0.16 s	0.16 s	.	.	Brandenburg
0.36 s	0.39 s	0.45 s	.	.	0.53 s	0.67 s	0.79 s	.	.	Bremen
0.44 s	0.44 s	0.40 s	.	.	0.64 s	0.59 s	0.53 s	.	.	Hamburg
0.15 s	0.14 s	0.14 s	.	.	0.40 s	0.41 s	0.41 s	.	.	Hessen
0.21 s	0.20 s	0.21 s	.	.	0.30 s	0.31 s	0.31 s	.	.	Darmstadt
0.08 s	0.08 s	0.08 s	.	.	1.03 s	1.07 s	1.04 s	.	.	Gießen
0.04 s	0.04 s	0.03 s	.	.	0.19 s	0.19 s	0.19 s	.	.	Kassel
0.17 s	0.17 s	0.18 s	.	.	0.33 s	0.33 s	0.32 s	.	.	Mecklenburg-Vorpommern
0.26 s	0.25 s	0.24 s	.	.	0.33 s	0.37 s	0.37 s	.	.	Niedersachsen
0.30 s	0.33 s	0.31 s	.	.	0.36 s	0.36 s	0.35 s	.	.	Braunschweig
0.17 s	0.18 s	0.16 s	.	.	0.51 s	0.45 s	0.42 s	.	.	Hannover
0.08 s	0.08 s	0.07 s	.	.	0.03 s	0.03 s	0.03 s	.	.	Lüneburg
0.02 s	0.03 s	0.02 s	.	.	0.16 s	0.16 s	0.16 s	.	.	Weser-Ems
0.23 s	0.22 s	0.22 s	.	.	0.40 s	0.41 s	0.41 s	.	.	Nordrhein-Westfalen
0.11 s	0.10 s	0.09 s	.	.	0.27 s	0.29 s	0.28 s	.	.	Düsseldorf
0.60 s	0.66 s	0.66 s	.	.	0.66 s	0.62 s	0.69 s	.	.	Köln
0.08 s	0.08 s	0.05 s	.	.	0.35 s	0.32 s	0.34 s	.	.	Münster
0.08 s	0.08 s	0.08 s	.	.	0.23 s	0.23 s	0.27 s	.	.	Detmold
0.11 s	0.10 s	0.11 s	.	.	0.41 s	0.39 s	0.39 s	.	.	Arnsberg
0.09 s	0.10 s	0.12 s	.	.	0.30 s	0.30 s	0.30 s	.	.	Rheinland-Pfalz
0.02 s	0.02 s	0.02 s	.	.	0.03 s	0.03 s	0.03 s	.	.	Koblenz
0.08 s	0.08 s	0.10 s	.	.	0.26 s	0.27 s	0.27 s	.	.	Trier
0.15 s	0.16 s	0.20 s	.	.	0.51 s	0.50 s	0.50 s	.	.	Rheinhausen-Pfalz
0.15 s	0.17 s	0.15 s	.	.	0.50 s	0.48 s	0.47 s	.	.	Saarland
0.23 s	0.24 s	0.25 s	.	.	0.42 s	0.46 s	0.45 s	.	.	Sachsen
.	.	.	.	.	.	.	.	.	.	Chemnitz
.	.	.	.	.	.	.	.	.	.	Dresden
.	.	.	.	.	.	.	.	.	.	Leipzig
0.15 s	0.15 s	0.16 s	.	.	0.32 s	0.31 s	0.31 s	.	.	Sachsen-Anhalt
.	0.01 s	0.02 s	.	.	0.04 s	0.03 s	0.03 s	.	.	Dessau
0.17 s	0.17 s	0.19 s	.	.	0.61 s	0.59 s	0.60 s	.	.	Halle
0.21 s	0.21 s	0.21 s	.	.	0.22 s	0.24 s	0.23 s	.	.	Magdeburg
0.22 s	0.24 s	0.23 s	.	.	0.31 s	0.29 s	0.30 s	.	.	Schleswig-Holstein
0.16 s	0.16 s	0.17 s	.	.	0.31 s	0.33 s	0.32 s	.	.	Thüringen
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	0.23	.	0.12	.	.	0.40 r	.	0.91	.	Ellada
.	0.16	.	0.11	.	.	0.63	.	1.27	.	Voreia Ellada
.	0.20	.	0.19	.	.	0.53	.	0.66	.	Anatoliki Makedonia, Thraki
.	0.15	.	0.10	.	.	0.92	.	1.96	.	Kentriki Makedonia
.	0.21	.	0.07	.	.	0.63	.	0.21	.	Dytiki Makedonia
.	0.14	.	0.09	.	.	0.13	.	0.36	.	Thessalia
.	0.16	.	0.12	.	.	0.63	.	0.69	.	Kentriki Ellada
.	0.15	.	0.11	.	.	1.69	.	1.36	.	Ipeiros
.	0.07	.	0.10	.	.	0.29	.	0.22	.	Ionía Nisia
.	0.04	.	0.15	.	.	1.20	.	1.42	.	Dytiki Ellada
.	0.17	.	0.09	.	.	0.04	.	0.00	.	Sτέρα Ellada
.	0.33	.	0.12	.	.	0.09	.	.	.	Peloponnisos
.	0.26	.	0.23	.	.	0.61	.	0.34	.	Attiki
.	0.43	.	0.22	.	.	0.73	.	0.41	.	Nisia Aigaiou, Kriti
.	0.41	.	0.25	.	.	1.73	.	0.50	.	Voreio Aigaiou
.	0.23	.	0.14	.	.	0.13	.	0.03	.	Notio Aigaiou
.	0.53	.	0.40	.	.	0.71	.	0.54	.	Kriti
.	.	.	.	.	.	.	.	.	.	Not registered by region

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

As a % of the labour force  
In head count (HC)

**Table 24**  
**R&D personnel**  
**At the regional level**

**Table 24A-2**

**R&D personnel at NUTS level 0, 1 and 2**

	All sectors					Business enterprise sector				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>España</b>	.	0.97	.	1.00	.	.	0.22	.	0.28	.
Noroeste	.	0.72	.	0.82	.	.	0.08	.	0.12	.
Galicia	.	0.73	.	0.86	.	.	0.08	.	0.10	.
Principado de Asturias	.	0.70	.	0.75	.	.	0.00	.	0.12	.
Cantabria	.	0.74	.	0.82	.	.	0.07	.	0.17	.
Noreste	.	1.08	.	1.17	.	.	0.48	.	0.62	.
Pais Vasco	.	1.18	.	1.28	.	.	0.80	.	0.80	.
Comunidad Foral de Navarra	.	1.18	.	1.50	.	.	0.40	.	0.50	.
La Rioja	.	0.68	.	0.64	.	.	0.18	.	0.22	.
Aragón	.	0.93	.	0.90	.	.	0.10	.	0.22	.
Comunidad de Madrid	.	2.06	.	2.37	.	.	0.60	.	0.58	.
Centro (E)	.	0.72	.	0.80	.	.	0.07	.	0.00	.
Castilla y León	.	0.98	.	1.11	.	.	0.00	.	0.13	.
Castilla-la Mancha	.	0.48	.	0.58	.	.	0.00	.	0.07	.
Extremadura	.	0.48	.	0.48	.	.	0.02	.	0.08	.
Este	.	0.84	.	0.90	.	.	0.27	.	0.37	.
Cataluña	.	1.00	.	1.20	.	.	0.40	.	0.53	.
Comunidad Valenciana	.	0.70	.	0.80	.	.	0.13	.	0.19	.
Baleares	.	0.28	.	0.28	.	.	0.02	.	0.02	.
Sur	.	0.71	.	0.78	.	.	0.07	.	0.00	.
Andalucía	.	0.70	.	0.74	.	.	0.07	.	0.00	.
Murcia	.	0.88	.	0.88	.	.	0.10	.	0.13	.
Ceuta y Melilla	.	.	.	.	.	.	.	.	.	.
Canarias	.	0.70	.	0.60	.	.	0.08	.	0.06	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>France</b>	1.48	1.40	1.40	.	.	0.71	0.73	0.72	.	.
Île de France	.	.	.	.	.	.	.	.	.	.
Bassin Parisien	.	.	.	.	.	.	.	.	.	.
Champagne-Ardenne	.	.	.	.	.	.	.	.	.	.
Picardie	.	.	.	.	.	.	.	.	.	.
Haute-Normandie	.	.	.	.	.	.	.	.	.	.
Centre	.	.	.	.	.	.	.	.	.	.
Basse-Normandie	.	.	.	.	.	.	.	.	.	.
Bourgogne	.	.	.	.	.	.	.	.	.	.
Nord - Pas-de-Calais	.	.	.	.	.	.	.	.	.	.
Est	.	.	.	.	.	.	.	.	.	.
Lorraine	.	.	.	.	.	.	.	.	.	.
Alsace	.	.	.	.	.	.	.	.	.	.
Franche-Comté	.	.	.	.	.	.	.	.	.	.
Ouest	.	.	.	.	.	.	.	.	.	.
Pays de la Loire	.	.	.	.	.	.	.	.	.	.
Bretagne	.	.	.	.	.	.	.	.	.	.
Poitou-Charentes	.	.	.	.	.	.	.	.	.	.
Sud-Ouest	.	.	.	.	.	.	.	.	.	.
Aquitaine	.	.	.	.	.	.	.	.	.	.
Midi-Pyrénées	.	.	.	.	.	.	.	.	.	.
Limousin	.	.	.	.	.	.	.	.	.	.
Centre-Est	.	.	.	.	.	.	.	.	.	.
Rhône-Alpes	.	.	.	.	.	.	.	.	.	.
Auvergne	.	.	.	.	.	.	.	.	.	.
Méditerranée	.	.	.	.	.	.	.	.	.	.
Languedoc-Roussillon	.	.	.	.	.	.	.	.	.	.
Provence-Alpes-Côte d'Azur	.	.	.	.	.	.	.	.	.	.
Corse	.	.	.	.	.	.	.	.	.	.
Départements d'Outre-Mer	.	.	.	.	.	.	.	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Ireland</b>	0.84 s	0.82 s	0.84 s	0.98 s	.	0.60 s	0.53 s	0.66 s	0.57 s	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 24**  
**R&D personnel**  
**At the regional level**

As a % of the labour force  
in head count (HC)

**Table 24B-2**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
.	0.16	.	0.13	0.13	.	0.57	.	0.62	0.63	España
.	0.17	.	0.13	.	0.44	0.46	.	0.52	.	Noroeste
.	0.22	.	0.23	.	0.30	0.43	.	0.52	.	Galicia
.	0.10	.	0.10	.	0.37	0.51	.	0.53	.	Principado de Asturias
.	0.03	.	0.03	.	0.43	0.52	.	0.56	.	Cantabria
.	0.10	.	0.10	.	0.61	0.58	.	0.56	.	Noreste
.	0.07	.	0.06	.	0.45	0.43	.	0.50	.	Pais Vasco
.	0.03	.	0.06	.	1.74	0.63	.	0.36	.	Comunidad Foral de Navarra
.	0.15	.	0.15	.	0.41	0.33	.	0.27	.	La Rioja
.	0.16	.	0.13	.	0.45	0.53	.	0.50	.	Aragón
.	0.50	.	0.50	.	0.37	1.02	.	1.17	.	Comunidad de Madrid
.	0.07	.	0.03	.	0.61	0.57	.	0.62	.	Centro (E)
.	0.10	.	0.10	.	0.33	0.70	.	0.37	.	Castilla y León
.	0.05	.	0.07	.	0.31	0.34	.	0.40	.	Castilla-la Mancha
.	0.06	.	0.06	.	0.33	0.30	.	0.30	.	Extremadura
.	0.09	.	0.11	.	0.66	0.46	.	0.50	.	Este
.	0.11	.	0.13	.	0.75	0.46	.	0.51	.	Cataluña
.	0.07	.	0.07	.	0.53	0.50	.	0.53	.	Comunidad Valenciana
.	0.07	.	0.07	.	0.46	0.14	.	0.19	.	Baleares
.	0.11	.	0.11	.	0.53	0.53	.	0.56	.	Sur
.	0.12	.	0.11	.	0.55	0.51	.	0.54	.	Andalucía
.	0.10	.	0.10	.	0.43	0.66	.	0.66	.	Murcia
.	.	.	.	.	.	.	.	.	.	Ceuta y Melilla
.	0.11	.	0.12	.	0.63	0.56	.	0.42	.	Canarias
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.08	0.20	0.20	.	.	0.47	0.53	0.54	.	.	France
.	.	.	.	.	.	.	.	.	.	Île de France
.	.	.	.	.	.	.	.	.	.	Bassin Parisien
.	.	.	.	.	.	.	.	.	.	Champagne-Ardenne
.	.	.	.	.	.	.	.	.	.	Picardie
.	.	.	.	.	.	.	.	.	.	Haute-Normandie
.	.	.	.	.	.	.	.	.	.	Centre
.	.	.	.	.	.	.	.	.	.	Basse-Normandie
.	.	.	.	.	.	.	.	.	.	Bourgogne
.	.	.	.	.	.	.	.	.	.	Nord - Pas-de-Calais
.	.	.	.	.	.	.	.	.	.	Est
.	.	.	.	.	.	.	.	.	.	Lorraine
.	.	.	.	.	.	.	.	.	.	Alsace
.	.	.	.	.	.	.	.	.	.	Franche-Comté
.	.	.	.	.	.	.	.	.	.	Ouest
.	.	.	.	.	.	.	.	.	.	Pays de la Loire
.	.	.	.	.	.	.	.	.	.	Bretagne
.	.	.	.	.	.	.	.	.	.	Poitou-Charentes
.	.	.	.	.	.	.	.	.	.	Sud-Ouest
.	.	.	.	.	.	.	.	.	.	Aquitaine
.	.	.	.	.	.	.	.	.	.	Midi-Pyrénées
.	.	.	.	.	.	.	.	.	.	Limousin
.	.	.	.	.	.	.	.	.	.	Centre-Est
.	.	.	.	.	.	.	.	.	.	Rhône-Alpes
.	.	.	.	.	.	.	.	.	.	Auvergne
.	.	.	.	.	.	.	.	.	.	Méditerranée
.	.	.	.	.	.	.	.	.	.	Languedoc-Roussillon
.	.	.	.	.	.	.	.	.	.	Provence-Alpes-Côte d'Azur
.	.	.	.	.	.	.	.	.	.	Corse
.	.	.	.	.	.	.	.	.	.	Départements d'Outre-Mer
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.08 s	0.03 s	0.07 s	0.06 s	0.06 s	0.29 s	0.30 s	0.31 s	0.32 s	.	Ireland

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

As a % of the labour force  
In head count (HC)

**Table 24**  
**R&D personnel**  
**At the regional level**

**Table 24A-3**

**R&D personnel at NUTS level 0, 1 and 2**

	All sectors					Business enterprise sector				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Italia</b>	0.27	.	0.28	0.32	.	0.30	0.30	0.31	0.29	.
Nord Ovest	0.07	.	.	.	.	0.09	0.17	0.20	.	.
Piemonte	0.12	.	.	.	.	0.24	0.24	0.22	.	.
Vale d'Aosta	0.15	.	.	.	.	0.10	0.06	0.19	.	.
Liguria	0.29	.	.	.	.	0.32	0.39	0.33	.	.
Lombardia	0.07	.	.	.	.	0.52	0.56	0.56	.	.
Nord Est	0.53	.	.	.	.	0.27	0.27	0.28	.	.
Trentino-Alto Adige	0.40	.	.	.	.	0.15	0.15	0.16	.	.
Veneto	0.47	.	.	.	.	0.12	0.19	0.20	.	.
Friuli-Venezia Giulia	0.29	.	.	.	.	0.32	0.37	0.32	.	.
Emilia-Romagna	0.27	.	.	.	.	0.37	0.32	0.37	.	.
Centro (I)	0.75	.	.	.	.	0.14	0.14	0.13	.	.
Toscana	0.25	.	.	.	.	0.12	0.17	0.15	.	.
Umbria	0.23	.	.	.	.	0.02	0.02	0.09	.	.
Marche	0.44	.	.	.	.	0.09	0.12	0.09	.	.
Lazio	0.64	.	.	.	.	0.25	0.25	0.44	.	.
Abruzzo-Molise	0.69	.	.	.	.	0.28	0.20	0.20	.	.
Abruzzo	0.79	.	.	.	.	0.20	0.25	0.24	.	.
Molise	0.27	.	.	.	.	0.09	.	0.08	.	.
Campania	0.60	.	.	.	.	0.17	0.12	0.17	.	.
Sud	0.33	.	.	.	.	0.04	0.05	0.04	.	.
Puglia	0.29	.	.	.	.	0.08	0.07	0.08	.	.
Basilicata	0.27	.	.	.	.	0.02	0.02	0.04	.	.
Calabria	0.27	.	.	.	.	0.00	0.00	0.00	.	.
Sicilia	0.50	.	.	.	.	0.02	0.05	0.08	.	.
Sardegna	0.52	.	.	.	.	0.04	0.04	0.04	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Luxembourg</b>	.	.	.	.	.	.	.	.	.	.
<b>Nederland</b>	1.45 s	1.48 s	1.48 s	1.54 s	.	.	.	.	0.72	.
Noord-Nederland	.	0.22 s	0.28 s	.	.	.	.	.	.	.
Groningen	.	1.04 s	2.50 s	.	.	.	.	.	.	.
Friesland	.	0.50 s	.	.	.	.	.	.	.	.
Drenthe	.	0.48 s	.	.	.	.	.	.	.	.
Oost-Nederland	.	1.42 s	.	.	.	.	.	.	.	.
Overijssel	.	1.00 s	1.04 s	.	.	.	.	.	.	.
Gelderland	.	1.67 s	1.57 s	.	.	.	.	.	.	.
Flevoland	.	1.52 s	.	.	.	.	.	.	.	.
West-Nederland	.	1.68 s	.	.	.	.	.	.	.	.
Utrecht	.	2.20 s	.	.	.	.	.	.	.	.
Noord-Holland	.	1.50 s	1.52 s	.	.	.	.	.	.	.
Zuid-Holland	.	1.71 s	1.74 s	.	.	.	.	.	.	.
Zeeland	.	0.22 s	0.42 s	.	.	.	.	.	.	.
Zuid-Nederland	.	1.52 s	1.52 s	.	.	.	.	.	.	.
Noord-Brabant	.	1.67 s	1.62 s	.	.	.	.	.	.	.
Limburg (NL)	.	1.57 s	1.47 s	.	.	.	.	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Österreich</b>	.	.	1.22	.	.	.	.	0.65	.	.
Ostösterreich	.	.	1.72	.	.	.	.	0.74	.	.
Burgenland	.	.	0.12	.	.	.	.	0.02	.	.
Niederösterreich	.	.	0.44	.	.	.	.	0.28	.	.
Wien	.	.	2.74	.	.	.	.	1.12	.	.
Südösterreich	.	.	1.42	.	.	.	.	0.77	.	.
Kärnten	.	.	0.67	.	.	.	.	0.40	.	.
Steiermark	.	.	1.20	.	.	.	.	0.24	.	.
Westösterreich	.	.	0.22	.	.	.	.	0.57	.	.
Oberösterreich	.	.	0.24	.	.	.	.	0.60	.	.
Salzburg	.	.	0.77	.	.	.	.	0.25	.	.
Tirol	.	.	1.47	.	.	.	.	0.49	.	.
Vorarlberg	.	.	0.60	.	.	.	.	0.57	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Portugal</b>	.	0.67	.	0.72 r	.	.	0.02	.	0.77	.
Continente	.	0.67	.	0.72	.	.	0.02	.	0.72	.
Norte	.	0.22	.	0.42	.	.	0.07	.	0.77	.
Centro (P)	.	0.52	.	0.64	.	.	0.07	.	0.70	.
Lisboa e Vale do Tejo	.	0.22	.	1.12	.	.	0.12	.	0.15	.
Alentejo	.	0.54	.	0.56	.	.	0.02	.	0.02	.
Algarve	.	0.27	.	0.42	.	.	0.07	.	0.02	.
Açores	.	0.54	.	0.77	.	.	0.00	.	0.07	.
Madeira	.	0.66	.	0.54	.	.	.	.	0.02	.
Not registered by region	.	.	.	.	.	.	.	.	.	.



**Table 24**  
**R&D personnel**  
**At the regional level**

As a % of the labour force  
in head count (HC)

**Table 24B-3**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1995	1997	1998	1999	2000	1995	1997	1998	1999	2000	
0.12	0.12	0.19 r	0.12	.	0.22	.	0.48	0.45	.	Italia
0.12	0.12	0.17	.	.	0.24	.	.	.	.	Nord Ovest
0.08	0.08	0.05	.	.	0.20	.	.	.	.	Piemonte
0.05	0.07	0.04	.	.	.	.	.	.	.	Valle d'Aosta
0.20	0.23	0.22	.	.	0.27	.	.	.	.	Liguria
0.21	0.21	0.26	.	.	0.22	.	.	.	.	Lombardia
0.02	0.02	0.02	.	.	0.22	.	.	.	.	Nord Est
0.10	0.11	0.11	.	.	0.15	.	.	.	.	Trentino-Alto Adige
0.08	0.07	0.05	.	.	0.21	.	.	.	.	Veneto
0.12	0.12	0.25	.	.	0.22	.	.	.	.	Friuli-Venezia Giulia
0.17	0.14	0.14	.	.	0.40	.	.	.	.	Emilia-Romagna
0.12	0.10	0.11	.	.	0.42	.	.	.	.	Centro (I)
0.16	0.14	0.15	.	.	0.52	.	.	.	.	Toscana
0.08	0.07	0.07	.	.	0.62	.	.	.	.	Umbria
0.04	0.04	0.04	.	.	0.27	.	.	.	.	Marche
0.17	0.17	0.12	.	.	0.52	.	.	.	.	Lazio
0.12	0.14	0.07	.	.	0.20	.	.	.	.	Abruzzo-Molise
0.15	0.17	0.09	.	.	0.24	.	.	.	.	Abruzzo
0.08	0.08	0.07	.	.	0.15	.	.	.	.	Molise
0.02	0.02	0.02	.	.	0.40	.	.	.	.	Campania
0.07	0.08	0.07	.	.	0.22	.	.	.	.	Sud
0.08	0.10	0.09	.	.	0.25	.	.	.	.	Puglia
0.16	0.08	0.04	.	.	0.12	.	.	.	.	Basilicata
0.08	0.08	0.02	.	.	0.12	.	.	.	.	Calabria
0.08	0.07	0.05	.	.	0.47	.	.	.	.	Sicilia
0.11	0.11	0.09	.	.	0.42	.	.	.	.	Sardegna
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	.	0.19 p	.	.	.	.	.	0.07 p	Luxembourg
.	.	.	0.22	.	0.55 s	0.54 s	0.52 s	0.51 s	.	Nederland
.	.	.	.	.	.	0.52 s	0.51 s	.	.	Noord-Nederland
.	.	.	.	.	.	1.58 s	1.42 s	.	.	Groningen
.	.	.	.	.	.	.	.	.	.	Friesland
.	.	.	.	.	.	.	.	.	.	Drenthe
.	.	.	.	.	.	0.51 s	.	.	.	Oost-Nederland
.	.	.	.	.	.	0.20 s	0.40 s	.	.	Overijssel
.	.	.	.	.	.	0.65 s	0.61 s	.	.	Gelderland
.	.	.	.	.	.	.	.	.	.	Flevoland
.	.	.	.	.	.	0.68 s	.	.	.	West-Nederland
.	.	.	.	.	.	0.27 s	.	.	.	Utrecht
.	.	.	.	.	.	0.58 s	0.57 s	.	.	Noord-Holland
.	.	.	.	.	.	0.60 s	0.65 s	.	.	Zuid-Holland
.	.	.	.	.	.	.	.	.	.	Zeeland
.	.	.	.	.	.	0.22 s	0.21 s	.	.	Zuid-Nederland
.	.	.	.	.	.	0.28 s	0.26 s	.	.	Noord-Brabant
.	.	.	.	.	.	0.40 s	0.41 s	.	.	Limburg (NL)
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	0.15	.	.	.	.	0.57	.	.	Österreich
.	.	0.28	.	.	.	.	0.71	.	.	Ostösterreich
.	.	0.05	.	.	.	.	.	.	.	Burgenland
.	.	0.02	.	.	.	.	0.00	.	.	Niederösterreich
.	.	0.47	.	.	.	.	1.48	.	.	Wien
.	.	0.06	.	.	.	.	0.68	.	.	Südösterreich
.	.	0.04	.	.	.	.	0.18	.	.	Kärnten
.	.	0.07	.	.	.	.	0.22	.	.	Steiermark
.	.	0.06	.	.	.	.	0.25	.	.	Westösterreich
.	.	0.07	.	.	.	.	0.18	.	.	Oberösterreich
.	.	0.06	.	.	.	.	0.40	.	.	Salzburg
.	.	0.07	.	.	.	.	0.21	.	.	Tirol
.	.	0.02	.	.	.	.	.	.	.	Vorarlberg
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	0.14	.	0.12 r	.	.	0.21	.	0.25	.	Portugal
.	0.12	.	0.12	.	.	0.21	.	0.25	.	Continente
.	0.02	.	0.02	.	.	0.22	.	0.24	.	Norte
.	0.02	.	0.07	.	.	0.26	.	0.22	.	Centro (P)
.	0.21	.	0.22	.	.	0.22	.	0.48	.	Lisboa e Vale do Tejo
.	0.11	.	0.12	.	.	0.24	.	0.22	.	Alentejo
.	0.07	.	0.02	.	.	0.22	.	0.22	.	Algarve
.	0.21	.	0.12	.	.	0.22	.	0.42	.	Açores
.	0.22	.	0.22	.	.	0.20	.	0.20	.	Madeira
.	.	.	.	.	.	.	.	.	.	Not registered by region

As a % of the labour force  
In head count (HC)

**Table 24**  
**R&D personnel**  
**At the regional level**

**Table 24A-4**

**R&D personnel at NUTS level 0, 1 and 2**

	All sectors					Business enterprise sector				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
<b>Suomi-Finland</b>	.	2.23	2.42	2.58	2.58	1.08	1.17	1.20	1.33	1.43
Manner-Suomi	.	2.24	.	2.58	.	.	1.17	.	1.33	.
Itä-Suomi	.	1.14	1.17	1.38	.	.	0.40	0.42	0.48	.
Väli-Suomi	.	1.23	1.27	1.38	.	.	0.74	0.74	0.82	.
Pohjois-Suomi	.	2.28	2.70	2.88	.	.	1.14	1.52	1.58	.
Uusimaa (Suuralue)	.	.	.	3.00	.	.	.	.	2.00	.
Etelä-Suomi	.	.	.	2.10	.	.	.	.	1.38	.
Åland	.	0.12	0.07	0.11	.	.	0.05	0.05	0.04	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Sverige</b>	.	2.34	.	2.45	.	.	1.13	.	1.14	.
Stockholm	.	3.66	.	3.72	.	.	1.92	.	1.91	.
Östra Mellansverige	.	2.70	.	2.73	.	.	0.98	.	0.93	.
Sydsverige	.	1.84	.	2.38	.	.	0.97	.	0.95	.
Norra Mellansverige	.	0.93	.	0.97	.	.	0.45	.	0.50	.
Mellersta Norrland	.	0.33	.	0.30	.	.	0.33	.	0.38	.
Övre Norrland	.	2.52	.	2.87	.	.	0.47	.	0.40	.
Småland med Öarna	.	0.84	.	0.88	.	.	0.25	.	0.28	.
Västsverige	.	2.57	.	2.68	.	.	1.55	.	1.64	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>United Kingdom</b>	.	.	.	.	.	0.53 s	0.56 s	0.61 s	0.67 s	0.53 s
North East	.	.	.	.	.	0.35 s	0.37 s	0.38 s	0.30 s	.
Tees Valley & Durham	.	.	.	.	.	.	.	.	.	.
Northumberland and Tyne & Wear	.	.	.	.	.	.	.	.	.	.
North West (inc. Merseyside)	.	.	.	.	.	0.60 s	0.50 s	0.65 s	0.68 s	.
Cumbria	.	.	.	.	.	.	.	.	.	.
Cheshire	.	.	.	.	.	.	.	.	.	.
Greater Manchester	.	.	.	.	.	.	.	.	.	.
Lancashire	.	.	.	.	.	.	.	.	.	.
Merseyside	.	.	.	.	.	.	.	.	.	.
Yorkshire & The Humber	.	.	.	.	.	0.28 s	0.28 s	0.31 s	0.37 s	.
East Riding & North Lincolnshire	.	.	.	.	.	.	.	.	.	.
North Yorkshire	.	.	.	.	.	.	.	.	.	.
South Yorkshire	.	.	.	.	.	.	.	.	.	.
West Yorkshire	.	.	.	.	.	.	.	.	.	.
East Midlands	.	.	.	.	.	0.68 s	0.64 s	0.68 s	0.68 s	.
Derbyshire & Nottinghamshire	.	.	.	.	.	.	.	.	.	.
Leicesters., Rutland & Northants	.	.	.	.	.	.	.	.	.	.
Lincolnshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	0.57 s	0.53 s	0.57 s	0.53 s	.
Herefords., Worcesters. & Warks	.	.	.	.	.	.	.	.	.	.
Shropshire & Staffordshire	.	.	.	.	.	.	.	.	.	.
West Midlands	.	.	.	.	.	.	.	.	.	.
Eastern	.	.	.	.	.	1.18 s	1.18 s	1.18 s	1.27 s	.
East Anglia	.	.	.	.	.	.	.	.	.	.
Bedfordshire, Hertfordshire	.	.	.	.	.	.	.	.	.	.
Essex	.	.	.	.	.	.	.	.	.	.
London	.	.	.	.	.	.	.	0.37 s	0.32 s	.
Inner London	.	.	.	.	.	.	.	.	.	.
Outer London	.	.	.	.	.	.	.	.	.	.
South East	.	.	.	.	.	0.92 s	0.88 s	0.90 s	0.93 s	.
Berkshire, Bucks & Oxfordshire	.	.	.	.	.	.	.	.	.	.
Surrey, East & West Sussex	.	.	.	.	.	.	.	.	.	.
Hampshire & Isle of Wight	.	.	.	.	.	.	.	.	.	.
Kent	.	.	.	.	.	.	.	.	.	.
South West	.	.	.	.	.	0.57 s	0.55 s	0.62 s	0.60 s	.
Gloucesters., Wilts., N. Somerset	.	.	.	.	.	.	.	.	.	.
Dorset & Somerset	.	.	.	.	.	.	.	.	.	.
Cornwall & Isles of Scilly	.	.	.	.	.	.	.	.	.	.
Devon	.	.	.	.	.	.	.	.	.	.
Wales	.	.	.	.	.	0.19 s	0.27 s	0.28 s	0.27 s	.
West Wales & The Valleys	.	.	.	.	.	.	.	.	.	.
East Wales	.	.	.	.	.	.	.	.	.	.
Scotland	.	.	.	.	.	0.33 s	0.30 s	0.38 s	0.37 s	.
North Eastern Scotland	.	.	.	.	.	.	.	.	.	.
Eastern Scotland	.	.	.	.	.	.	.	.	.	.
South Western Scotland	.	.	.	.	.	.	.	.	.	.
Highlands & Islands	.	.	.	.	.	.	.	.	.	.
Northern Ireland	.	.	.	.	.	0.29 s	0.37 s	0.32 s	0.38 s	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>EEA</b>	1.29 s	1.37 s	1.35 s	1.37 s	1.30 s	0.59 s	0.60 s	0.62 s	0.64 s	0.45 s
Iceland	.	2.57	2.68	2.70 r	.	.	0.37	0.30	0.33 r	.
<b>Norge</b>	.	1.93	.	1.88	.	.	0.77	.	0.75	.
Oslo og Akershus	.	.	.	.	.	.	.	.	.	.
Hedmark og Oppland	.	.	.	.	.	.	.	.	.	.
Sør-Østlandet	.	.	.	.	.	.	.	.	.	.
Agder og Rogaland	.	.	.	.	.	.	.	.	.	.
Vestlandet	.	.	.	.	.	.	.	.	.	.
Trøndelag	.	.	.	.	.	.	.	.	.	.
Nord-Norge	.	.	.	.	.	.	.	.	.	.
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Japan</b>	.	.	.	.	.	.	.	.	.	.
<b>United States of America</b>	.	.	.	.	.	.	.	.	.	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 24**  
**R&D personnel**  
**At the regional level**

As a % of the labour force  
in head count (HC)

**Table 24B-4**

**R&D personnel at NUTS levels 0, 1 and 2**

Government sector					Higher education sector					
1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	
.	0.37	0.39	0.40	0.38 i	.	0.67	0.72	0.76	0.77	Suomi-Finland
.	0.37	.	0.40	.	.	0.67	.	0.76	.	Manner-Suomi
.	0.18	0.20	0.23	.	.	0.66	0.66	0.67	.	Itä-Suomi
.	0.09	0.12	0.11	.	.	0.40	0.41	0.43	.	Väli-Suomi
.	0.25	0.29	0.31	.	.	0.27	0.29	0.28	.	Pohjois-Suomi
.	.	.	0.28	.	.	.	.	1.00	.	Uusimaa (Suuralue)
.	.	.	0.20	.	.	.	.	0.66	.	Etelä-Suomi
.	0.07	0.02	0.02	.	.	.	.	.	.	Åland
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	0.12	.	0.12	.	.	1.00	.	1.19	.	Sverige
.	0.32	.	0.32	.	.	1.42	.	1.49	.	Stockholm
.	0.18	.	0.18	.	.	1.56	.	1.62	.	Östra Mellansverige
.	0.00	.	0.01	.	.	0.22	.	1.39	.	Sydsverige
.	0.11	.	0.11	.	.	0.36	.	0.41	.	Norra Mellansverige
.	0.01	.	0.03	.	.	0.44	.	0.52	.	Mellersta Norrland
.	0.13	.	0.13	.	.	1.07	.	2.26	.	Övre Norrland
.	0.00	.	0.00	.	.	0.30	.	0.37	.	Småland med Öarna
.	0.01	.	0.01	.	.	1.01	.	1.02	.	Västssverige
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	0.11	0.11	0.11	.	.	.	.	.	United Kingdom
.	.	.	.	.	.	.	.	.	.	North East
.	.	.	.	.	.	.	.	.	.	Tees Valley & Durham
.	.	.	.	.	.	.	.	.	.	Northumberland and Tyne & Wear
.	.	.	.	.	.	.	.	.	.	North West (inc. Merseyside)
.	.	.	.	.	.	.	.	.	.	Cumbria
.	.	.	.	.	.	.	.	.	.	Cheshire
.	.	.	.	.	.	.	.	.	.	Greater Manchester
.	.	.	.	.	.	.	.	.	.	Lancashire
.	.	.	.	.	.	.	.	.	.	Merseyside
.	.	.	.	.	.	.	.	.	.	Yorkshire & The Humber
.	.	.	.	.	.	.	.	.	.	East Riding & North Lincolnshire
.	.	.	.	.	.	.	.	.	.	North Yorkshire
.	.	.	.	.	.	.	.	.	.	South Yorkshire
.	.	.	.	.	.	.	.	.	.	West Yorkshire
.	.	.	.	.	.	.	.	.	.	East Midlands
.	.	.	.	.	.	.	.	.	.	Derbyshire & Nottinghamshire
.	.	.	.	.	.	.	.	.	.	Leicesters., Rutland & Northants
.	.	.	.	.	.	.	.	.	.	Lincolnshire
.	.	.	.	.	.	.	.	.	.	West Midlands
.	.	.	.	.	.	.	.	.	.	Herefords., Worcesters. & Warks
.	.	.	.	.	.	.	.	.	.	Shropshire & Staffordshire
.	.	.	.	.	.	.	.	.	.	West Midlands
.	.	.	.	.	.	.	.	.	.	Eastern
.	.	.	.	.	.	.	.	.	.	East Anglia
.	.	.	.	.	.	.	.	.	.	Bedfordshire, Hertfordshire
.	.	.	.	.	.	.	.	.	.	Essex
.	.	.	.	.	.	.	.	.	.	London
.	.	.	.	.	.	.	.	.	.	Inner London
.	.	.	.	.	.	.	.	.	.	Outer London
.	.	.	.	.	.	.	.	.	.	South East
.	.	.	.	.	.	.	.	.	.	Berkshire, Bucks & Oxfordshire
.	.	.	.	.	.	.	.	.	.	Surrey, East & West Sussex
.	.	.	.	.	.	.	.	.	.	Hampshire & Isle of Wight
.	.	.	.	.	.	.	.	.	.	Kent
.	.	.	.	.	.	.	.	.	.	South West
.	.	.	.	.	.	.	.	.	.	Gloucesters., Wilts., N. Somerset
.	.	.	.	.	.	.	.	.	.	Dorset & Somerset
.	.	.	.	.	.	.	.	.	.	Cornwall & Isles of Scilly
.	.	.	.	.	.	.	.	.	.	Devon
.	.	.	.	.	.	.	.	.	.	Wales
.	.	.	.	.	.	.	.	.	.	West Wales & The Valleys
.	.	.	.	.	.	.	.	.	.	East Wales
.	.	.	.	.	.	.	.	.	.	Scotland
.	.	.	.	.	.	.	.	.	.	North Eastern Scotland
.	.	.	.	.	.	.	.	.	.	Eastern Scotland
.	.	.	.	.	.	.	.	.	.	South Western Scotland
.	.	.	.	.	.	.	.	.	.	Highlands & Islands
.	.	.	.	.	.	.	.	.	.	Northern Ireland
.	.	.	.	.	.	.	.	.	.	Not registered by region
0.20 s	0.19 s	0.19 s	0.19 s	0.19 s	0.49 s	0.50 s	0.53 s	0.53 s	0.54 s	EEA
.	0.11	0.13	0.11 r	.	.	0.30	0.21	0.21 r	.	Iceland
.	0.29	.	0.27	.	.	0.26	.	0.26	.	Norge
.	.	.	.	.	.	.	.	.	.	Oslo og Akershus
.	.	.	.	.	.	.	.	.	.	Hedmark og Oppland
.	.	.	.	.	.	.	.	.	.	Sør-Østlandet
.	.	.	.	.	.	.	.	.	.	Agder og Rogaland
.	.	.	.	.	.	.	.	.	.	Vestlandet
.	.	.	.	.	.	.	.	.	.	Trøndelag
.	.	.	.	.	.	.	.	.	.	Nord-Norge
.	.	.	.	.	.	.	.	.	.	Not registered by region
.	.	.	.	.	.	.	.	.	.	Japan
.	.	.	.	.	.	.	.	.	.	United States of America

For meaning of flag 'i', please refer to the relevant national table; see abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

**Table 25**  
**Patent applications to the EPO**  
**At the national level**

**Table 25A**

**Patent applications to the EPO — Total number**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>30 730</b>	<b>30 782</b>	<b>31 305</b>	<b>34 205</b>	<b>38 130</b>	<b>40 337</b>	<b>43 871</b>	<b>52 308</b>	<b>59 754</b>	<b>60 390</b>
<b>EUR-12</b>	<b>24 711</b>	<b>24 552</b>	<b>25 359</b>	<b>27 210</b>	<b>28 741</b>	<b>31 072</b>	<b>30 243</b>	<b>42 698</b>	<b>47 331</b>	<b>48 516</b>
B	747	827	910	952	958	1 144	1 427	1 432	1 615	1 552
DK	472	526	591	628	638	781	740	805	1 062	1 129
D	12 421 b	12 330	12 733	13 233	14 553	15 834 p	20 317	22 455	25 072	25 430
EL	44	45	35	43	43	55	75	35	64	82
E	358	378	462	478	511	657	823	921	930	987
F	5 464	5 150	5 250	5 534	5 773	6 417	7 325	7 885	8 432	8 530
IRL	33	111	92	133	142	150	204	281	360	327
I	2 625	2 443	2 530	2 635	2 904	3 266	3 707	3 921	4 431	4 313
L	35	24	41	29	42	53	61	36	37	33
NL	1 647	1 872	1 731	1 808	2 100	2 563	2 791	3 110	3 629	3 331
A	724	705	755	807	793	843	1 149	1 134	1 234	1 414
P	13	16	22	18	15	27	24	47	41	58
FIN	547	729	739	843	891	890 p	1 389	1 513	1 777	1 750
S	1 230	1 325	1 450	1 761	1 927	2 330	2 716	2 732	3 208	3 256
UK	4 300	4 370	4 426	4 600	4 330	5 325	5 987	6 603	7 657	7 920
<b>EEA</b>	<b>31 054</b>	<b>31 099</b>	<b>32 137</b>	<b>34 544</b>	<b>38 590</b>	<b>40 922</b>	<b>49 259</b>	<b>53 515</b>	<b>60 431</b>	<b>62 230</b>
IS	11	5	7	4	3	17	23	30	32	33
LI	37	21	23	25	30	43	41	43	34	35
NO	216	291	257	305	330	460	522	540	610	1 300
CA	354	343	398	1 074	1 197	1 437	1 785	1 954	2 417	2 495
JP	12 022	11 105	11 216	11 084	12 641	14 342	15 500	16 649	20 250	22 226
US	20 511	20 064	20 362	22 471	24 317	27 413	28 755	33 562	45 772	47 202

**Table 25B**

**Patent applications to the EPO — Per million inhabitants**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>37</b>	<b>33</b>	<b>34</b>	<b>32</b>	<b>37</b>	<b>43</b>	<b>49</b>	<b>44</b> s	<b>49</b> s	<b>49</b> s
<b>EUR-12</b>	<b>33</b>	<b>33</b>	<b>35</b>	<b>31</b>	<b>35</b>	<b>40</b>	<b>40</b>	<b>41</b> s	<b>43</b> s	<b>43</b> s
B	75	83	90	94	94	112	140	145	153	152
DK	91	104	114	120	120	144	140	153	199	211
D	193 b	153	157	170	173	193 p	243	273	305	310
EL	4	4	3	4	5	5	7	3	6	3 s
E	9	10	12	12	13	17	21	23 e	25 e	24
F	95	90	91	95	99	110	125	130	144	145
IRL	25	31	26	37	39	44	55	70 e	95 ep	85
I	46	43	44	45	51	57	64	63	77	75 e
L	30	61	103	72	101	139	143	201 e	199 e	211 e
NL	109	110	113	117	136	165	173	191	229	243
A	92	83	94	100	93	111	142	140	153	174
P	1	2	2	2	2	3	2	5	4	5 e
FIN	109	144	155	175	174	173 p	260	294	344	333
S	143	152	168	200	213	264	307	308	352	357
UK	74	75	77	79	82	90	101	111	123	133 e
<b>EEA</b>	<b>37</b>	<b>33</b>	<b>34</b>	<b>32</b>	<b>37</b>	<b>43</b>	<b>49</b>	<b>44</b> s	<b>49</b> s	<b>49</b> s
IS	42	19	26	32	30	63	85	110	114	117
LI	1 256	701	925	313	371	1 540	1 307	1 515	1 063	1 030 e
NO	65	63	59	70	87	105	113	121	135	230
CA	30	30	34	37	40	43	53	64	79	80 s
JP	97	89	90	83	101	115	123	132	160	175 s
US	31	23	21	23	24	28	27	32	35	35 s

**Table 25C**

**Patent applications to the EPO — Per million labour force**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>199</b>	<b>139</b>	<b>192</b>	<b>209</b>	<b>219</b>	<b>240</b>	<b>237</b>	<b>303</b>	<b>344</b>	<b>340</b>
<b>EUR-12</b>	<b>204</b>	<b>190</b>	<b>194</b>	<b>209</b>	<b>213</b>	<b>242</b>	<b>233</b>	<b>315</b>	<b>340</b>	<b>333</b>
B	135	213	219	223	223	271	336	339	366	362
DK	163	137	214	224	243	269	262	314	374	363
D	401 b	317	324	355	372	404 p	516	587	635	644
EL	11	11	3	10	11	13	17	19	14	19
E	23	25	30	31	32	41	51	58	55	55
F	223	209	211	223	223	253	285	298	329	331
IRL	65	31	65	93	95	104	126	155	205	134
I	115	103	112	117	127	143	160	163	189	133
L	209	143	244	178	243	335	347	473	463	494
NL	235	235	240	243	235	333	350	394	449	471
A	197	139	195	210	203	236	299	294	332	357
P	3	3	5	3	3	6	5	9	3	11
FIN	216	291	317	353	354	357 p	533	575	637	633
S	273	302	333	391	437	535	627	622	734	715
UK	151	154	153	152	159	138	203	227	261	272
<b>EEA (1)</b>	<b>195</b>	<b>139</b>	<b>191</b>	<b>205</b>	<b>215</b>	<b>240</b>	<b>239</b>	<b>307</b>	<b>343</b>	<b>332</b>
IS	75	35	43	57	55	117	155	196	199	205
LI	.	.	.	.	.	.	.	.	.	.
NO	130	135	120	140	171	202	225	232	259	530
CA	59	53	63	73	80	94	114	124	151	153
JP	133	153	159	158	133	211	223	245	299	329
US (2)	153	143 b	153	153	153	199	207	274	322	323 s

**Methodological notes**

NB: 2001 provisional data.  
 (1) EEA: excludes Liechtenstein as no reference data exist for this country.  
 (2) US: 1993-94 and 1996-97 break in series in MSTI data.  
 See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 26**  
**Patent applications to the EPO**  
**At the national level**

Number of applications

**Table 26A**

**Patent applications to the EPO by IPC section — 1999**

	A	B	C	D	E	F	G	H	Total
<b>EU-15</b>	<b>3 195</b>	<b>11 153</b>	<b>7 313</b>	<b>1 129</b>	<b>2 443</b>	<b>5 243</b>	<b>7 509</b>	<b>9 409</b>	<b>52 399</b>
EUR-12	2 234	9 457	6 230	968	2 025	4 407	5 875	7 525	42 669
B	209	276	477	59	33	52	139	133	1 432
DK	237	157	187	12	39	79	34	118	395
D	2 730	5 205	3 274	457	1 132	2 737	3 087	3 685	22 435
EL	35	7	12	-	2	10	10	9	85
E	208	232	128	24	48	72	39	122	921
F	1 432	1 307	1 048	35	378	748	1 143	1 438	7 685
IRL	30	37	45	2	13	18	40	34	267
I	734	1 057	455	139	207	397	390	505	3 927
L	5	33	27	7	-	3	7	5	88
NL	454	459	570	35	118	185	629	732	3 170
A	187	233	139	35	118	128	132	137	1 134
P	12	7	11	0	3	9	3	3	47
FIN	128	214	107	131	40	70	154	873	1 573
S	453	547	208	68	111	250	377	727	2 732
UK	1 206	1 058	1 208	80	274	508	1 228	1 044	6 608
<b>EEA</b>	<b>3 379</b>	<b>11 239</b>	<b>7 331</b>	<b>1 127</b>	<b>2 527</b>	<b>5 913</b>	<b>7 599</b>	<b>9 473</b>	<b>53 579</b>
IS	12	3	2	-	-	2	5	7	30
LI	12	11	4	7	3	12	4	2	48
NO	100	117	62	-	70	57	32	53	540
CA	393	237	375	37	73	173	232	397	1 939
JP	1 529	2 697	2 735	125	118	1 228	3 593	4 418	16 649
US	7 820	5 190	7 433	443	713	1 973	7 359	7 097	32 552

**Table 26B**

**Patent applications to the EPO by IPC section — 2000**

	A	B	C	D	E	F	G	H	Total
<b>EU-15</b>	<b>9 323</b>	<b>12 012</b>	<b>3 493</b>	<b>1 249</b>	<b>2 439</b>	<b>5 915</b>	<b>3 294</b>	<b>11 035</b>	<b>59 754</b>
EUR-12	7 052	10 155	6 774	1 037	2 150	5 025	6 304	8 733	47 837
B	259	258	493	68	57	88	205	134	1 615
DK	284	145	192	20	55	78	157	180	1 062
D	3 078	5 698	3 587	507	1 119	3 277	3 578	4 354	25 072
EL	22	14	7	-	6	3	9	4	84
E	247	227	132	18	37	68	35	123	920
F	1 535	1 627	1 212	114	338	740	1 307	1 572	8 438
IRL	30	38	38	-	17	12	107	32	380
I	973	1 249	458	148	244	452	469	505	4 437
L	4	28	18	7	7	13	13	3	37
NL	575	504	537	29	144	194	723	323	3 629
A	208	290	180	25	122	170	145	185	1 284
P	7	10	7	7	2	4	4	4	47
FIN	144	259	137	134	38	87	258	714	1 777
S	502	597	255	97	112	244	427	332	3 208
UK	1 570	1 120	1 277	33	384	580	1 573	1 220	7 657
<b>EEA</b>	<b>9 435</b>	<b>12 140</b>	<b>3 539</b>	<b>1 249</b>	<b>2 739</b>	<b>5 978</b>	<b>3 700</b>	<b>11 155</b>	<b>60 437</b>
IS	10	2	5	-	-	3	7	6	32
LI	9	3	7	-	2	3	2	5	34
NO	139	117	78	6	57	65	33	50	670
CA	493	302	398	23	75	184	494	477	2 477
JP	1 907	3 104	3 274	265	163	1 554	4 553	5 437	20 250
US	8 859	5 447	8 074	475	837	2 174	10 974	8 374	45 773

**Table 26C**

**Patent applications to the EPO by IPC section — 2001 (provisional)**

	A	B	C	D	E	F	G	H	Total
<b>EU-15</b>	<b>9 179</b>	<b>11 347</b>	<b>3 715</b>	<b>1 129</b>	<b>2 533</b>	<b>5 933</b>	<b>10 144</b>	<b>11 492</b>	<b>60 399</b>
EUR-12	6 890	10 174	7 000	935	2 033	5 047	7 530	8 369	43 578
B	232	233	445	49	80	95	272	177	1 558
DK	272	148	207	12	52	99	132	159	1 129
D	2 997	5 677	3 770	427	1 038	3 223	3 927	4 447	25 439
EL	19	13	10	-	4	9	13	15	82
E	225	217	142	21	57	78	112	113	987
F	1 573	1 629	1 195	98	327	694	1 453	1 620	8 580
IRL	70	44	29	7	13	12	35	74	327
I	970	1 172	438	148	238	432	420	498	4 373
L	3	28	20	-	3	20	3	7	33
NL	524	477	585	29	113	137	368	1 173	3 337
A	192	375	208	33	123	187	165	214	1 474
P	14	11	13	7	5	7	3	4	58
FIN	137	244	120	133	43	83	272	770	1 750
S	574	572	247	90	93	239	583	333	3 258
UK	1 443	1 059	1 250	33	375	503	1 339	1 448	7 939
<b>EEA</b>	<b>9 473</b>	<b>12 093</b>	<b>3 392</b>	<b>1 134</b>	<b>2 703</b>	<b>6 073</b>	<b>10 330</b>	<b>11 677</b>	<b>62 299</b>
IS	13	7	6	-	-	-	4	4	33
LI	10	10	5	-	3	4	7	2	38
NO	277	217	148	5	153	138	237	149	1 300
CA	433	277	404	35	84	149	558	550	2 495
JP	2 038	3 233	3 433	269	163	1 722	5 340	5 372	22 228
US	8 582	5 355	8 597	455	747	2 137	12 039	9 288	47 202

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

## Patent applications to the EPO in high technology fields At the national level

Table 27A

### High tech patent applications to the EPO — Total number

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>2932</b>	<b>3207</b>	<b>3204</b>	<b>3330</b>	<b>4387</b>	<b>5303</b>	<b>7231</b>	<b>8773</b>	<b>11043</b>	<b>11923</b>
<b>EUR-12</b>	<b>2307</b>	<b>2450</b>	<b>2337</b>	<b>2268</b>	<b>3737</b>	<b>3889</b>	<b>5417</b>	<b>6449</b>	<b>8237</b>	<b>8873</b>
B	27	704	37	170	124	123	172	217	237	240
DK	49	52	59	72	68	117	137	154	206	226
D	332 b	344	308	1708	1333	1628 p	2437	2203	3774	4077
EL	6	5	2	5	3	4	6	9	3	22
E	23	34	31	41	36	56	79	121	132	143
F	637	662	666	733	778	844	1777	1433	1707	1797
IRL	13	12	9	24	25	30	33	57	114	117
I	164	209	217	237	269	269	309	323	333	374
L	-	-	-	7	7	3	3	4	13	5
NL	259	239	237	378	357	503	600	758	970	1700
A	35	43	47	64	67	63	33	100	142	152
P	3	3	0	0	7	5	2	4	3	7
FIN	37	158	149	228	230	295 p	512	620	804	705
S	93	150	136	233	319	344	642	662	904	398
UK	424	604	623	710	739	929	1007	1369	1709	2134
<b>EEA</b>	<b>2944</b>	<b>3237</b>	<b>3219</b>	<b>3902</b>	<b>4330</b>	<b>5349</b>	<b>7393</b>	<b>8773</b>	<b>11133</b>	<b>12190</b>
IS	-	7	7	4	7	4	5	7	15	9
LI	-	0	2	7	-	3	2	0	5	-
NO	12	12	12	17	22	39	75	52	70	223
CA	37	95	143	134	239	333	425	404	633	304
JP	2273	2370	2477	2464	2737	3367	3673	4006	5035	5707
US	3950	3256	3552	4770	4249	5633	5674	10713	14740	15339

Table 27B

### High tech patent applications to the EPO — Per million inhabitants

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>19</b>	<b>23 s</b>	<b>29 s</b>	<b>32 s</b>
<b>EUR-12</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>10</b>	<b>11</b>	<b>13</b>	<b>18</b>	<b>18 s</b>	<b>27 s</b>	<b>29 s</b>
B	3	10	3	11	12	12	17	21	23	23
DK	3	10	11	14	13	21	25	29	33	42
D	14 b	12	11	14	16	20 p	30	35	45	49
EL	7	0	0	0	0	0	7	7	7	2 s
E	7	7	7	7	7	7	2	3 e	3 e	4
F	12	12	11	13	12	15	20	24	29	30
IRL	5	3	2	7	7	3	10	15 e	30 ep	37 p
I	3	4	4	4	5	5	5	7	8	7
L	-	-	-	3	2	6	6	9 e	37 e	17 e
NL	17	19	19	20	23	32	33	43	67	69
A	4	5	6	3	3	3	11	12	17	19
P	0	0	0	0	0	0	0	0	7	7 e
FIN	17	37	29	44	49	53 p	99	120	155	136
S	11	17	16	28	36	45	73	74	102	107
UK	3	10	11	12	14	16	13	23	29	36 e
<b>EEA</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>19</b>	<b>23</b>	<b>29</b>	<b>32 s</b>
IS	-	4	2	18	2	15	17	28	54	37
LI	-	11	77	33	-	30	64	3	154	-
NO	3	3	3	4	5	9	17	12	16	50
CA	3	3	5	6	3	11	14	18	22	26 s
JP	23	19	20	20	22	27	29	32	40	45 s
US	16	13	14	16	13	21	21	37	57	57 s

Table 27C

### High tech patent applications to the EPO by high tech group Total number and as a % of total — 2001 (provisional)

	Total number							As a % of total						
	AVI	CAB	CTE	LSR	MGE	SMC	Total	AVI	CAB	CTE	LSR	MGE	SMC	Total
<b>EU-15</b>	<b>149</b>	<b>3303</b>	<b>5975</b>	<b>783</b>	<b>7545</b>	<b>7089</b>	<b>17923</b>	<b>1.2</b>	<b>23.5</b>	<b>47.7</b>	<b>1.4</b>	<b>13.0</b>	<b>3.9</b>	<b>100</b>
<b>EUR-12</b>	<b>119</b>	<b>2273</b>	<b>4197</b>	<b>111</b>	<b>1121</b>	<b>947</b>	<b>8673</b>	<b>1.4</b>	<b>26.2</b>	<b>47.4</b>	<b>1.3</b>	<b>12.9</b>	<b>10.9</b>	<b>100</b>
B	7	64	33	3	50	39	240	0.6	26.8	34.5	1.3	27.0	16.7	100
DK	7	60	78	2	32	4	225	0.2	26.8	33.6	0.9	36.5	2.0	100
D	66	937	1713	67	607	578	4017	1.7	24.8	42.6	1.7	15.7	14.3	100
EL	7	10	6	-	2	3	22	2.3	45.4	29.0	-	3.3	13.6	100
E	3	43	55	-	36	6	143	2.1	30.2	33.6	-	25.0	4.1	100
F	41	663	324	25	272	128	1797	2.3	37.4	46.0	1.4	11.3	7.7	100
IRL	7	49	33	2	10	3	117	0.9	47.9	44.7	1.5	3.4	2.7	100
I	2	112	132	9	49	40	374	0.5	30.0	43.4	2.5	13.7	10.6	100
L	0	3	2	-	0	-	5	2.7	52.2	33.2	-	6.9	-	100
NL	2	294	337	7	102	119	1700	0.2	26.7	52.3	0.7	9.3	10.3	100
A	2	39	60	3	28	23	152	1.3	25.5	39.4	2.0	16.9	14.9	100
P	-	2	7	-	3	7	7	-	27.7	19.7	-	44.9	14.3	100
FIN	-	103	663	7	24	6	705	-	15.3	30.5	0.7	3.4	0.3	100
S	3	247	342	11	62	32	398	0.9	26.9	60.5	1.2	6.9	3.5	100
UK	19	323	380	40	279	23	2134	0.9	33.6	41.7	1.9	13.7	3.9	100
<b>EEA</b>	<b>143</b>	<b>3487</b>	<b>5713</b>	<b>787</b>	<b>7537</b>	<b>7093</b>	<b>12790</b>	<b>1.2</b>	<b>23.7</b>	<b>47.0</b>	<b>1.4</b>	<b>13.0</b>	<b>3.7</b>	<b>100</b>
IS	-	2	3	-	3	7	9	-	22.8	23.4	-	37.5	11.4	100
LI	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NO	3	37	96	4	32	2	223	1.1	33.3	43.0	1.3	14.3	0.9	100
CA	6	277	377	9	123	19	304	0.3	34.5	46.7	1.1	15.3	2.3	100
JP	16	1925	2177	132	437	303	5707	0.3	35.0	33.7	2.3	3.4	15.9	100
US	125	6572	4337	240	2697	1324	15339	0.3	47.5	30.3	1.5	17.0	3.4	100

#### Methodological notes

NB: 2001 provisional data.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 28

# Patent applications to the EPO At the regional level

Total number

Table 28-1

## Patent applications to the EPO at NUTS levels 0, 1 and 2

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>24 711</b>	<b>24 552</b>	<b>23 269</b>	<b>27 210</b>	<b>23 741</b>	<b>31 572</b>	<b>33 243</b>	<b>42 666</b>	<b>47 831</b>	<b>43 516</b>
<b>EUR-12</b>	<b>24 711</b>	<b>24 552</b>	<b>23 269</b>	<b>27 210</b>	<b>23 741</b>	<b>31 572</b>	<b>33 243</b>	<b>42 666</b>	<b>47 831</b>	<b>43 516</b>
<b>Belgium</b>	<b>747</b>	<b>837</b>	<b>910</b>	<b>952</b>	<b>958</b>	<b>1 144</b>	<b>1 427</b>	<b>1 452</b>	<b>1 615</b>	<b>1 559</b>
Région Bruxelles-capitale/Brussels hoofdstad gewest	30	30	33	36	100	113	130	143	132	120
Vlaams Gewest	501	614	638	668	659	777	927	960	934	952
Antwerpen	212	220	275	238	277	234	217	228	230	234
Limburg (B)	22	25	28	27	34	61	75	60	67	73
Oost-Vlaanderen	77	87	93	93	97	123	167	137	211	174
Vlaams Brabant	123	126	163	158	170	193	241	258	232	242
West-Vlaanderen	67	70	73	80	81	101	123	120	144	129
Région Wallonne	159	180	185	187	193	248	248	271	408	440
Brabant Wallon	52	62	71	71	67	60	53	42	120	137
Hainaut	27	28	33	28	31	31	25	27	30	30
Liège	60	68	67	64	67	103	113	98	119	128
Luxembourg (B)	7	8	10	6	11	11	19	25	20	31
Namur	13	14	13	19	13	21	40	30	32	31
Not registered by region	8	13	3	3	3	3	4	2	2	3
<b>Danmark</b>	<b>472</b>	<b>509</b>	<b>591</b>	<b>628</b>	<b>683</b>	<b>761</b>	<b>740</b>	<b>825</b>	<b>1 062</b>	<b>1 129</b>
<b>Deutschland</b>	<b>12 421</b>	<b>12 280</b>	<b>12 703</b>	<b>13 323</b>	<b>14 288</b>	<b>15 204</b>	<b>20 217</b>	<b>22 405</b>	<b>25 072</b>	<b>25 489</b>
Baden-Württemberg	2 877	2 774	2 921	3 200	3 280	3 280	4 309	5 133	5 677	5 283
Stuttgart	1 134	1 068	1 243	1 362	1 520	1 715	2 153	2 253	2 586	2 317
Karlsruhe	700	738	694	771	771	792	1 049	1 173	1 230	1 319
Freiburg	657	613	569	608	658	732	825	862	1 034	1 028
Tübingen	320	412	421	459	422	511	713	735	818	845
Bayern	2 822	2 655	2 718	2 940	3 240	3 618	4 203	5 203	6 013	6 145
Ooberbayern	1 780	1 226	1 253	1 427	1 628	1 813	2 438	2 903	3 136	3 325
Niederbayern	118	25	123	103	128	137	133	131	225	220
Ooberpfalz	60	170	145	143	205	258	249	268	441	403
Ooberfranken	41	126	142	143	174	149	229	242	228	281
Mittelfranken	30	450	430	432	468	542	675	711	873	872
Unterfranken	225	224	251	275	288	313	401	393	444	430
Schwaben	268	269	223	284	323	402	502	454	532	570
Berlin	237	241	225	269	441	432	503	564	640	736
Brandenburg	39	30	35	61	73	80	134	173	134	209
Bremen	45	41	39	43	38	25	48	58	60	66
Hamburg	204	226	282	281	221	23	240	225	325	370
Hessen	237	241	225	269	441	432	503	564	640	736
Darmstadt	1 138	1 162	1 245	1 371	1 225	1 257	1 381	1 732	1 720	1 825
Gießen	120	176	159	173	201	191	223	277	278	274
Kassel	30	32	115	93	113	93	125	128	171	123
Mecklenburg-Vorpommern	30	13	15	19	22	23	37	35	75	80
Niedersachsen	440	713	741	704	780	835	1 203	1 303	1 733	1 487
Braunschweig	45	126	164	152	160	277	413	568	625	429
Hannover	244	275	283	258	268	373	463	458	542	510
Lüneburg	74	184	193	157	164	177	212	238	269	266
Weser-Ems	30	128	128	128	128	154	210	223	230	232
Nordrhein-Westfalen	2 774	2 280	2 325	2 225	2 280	2 447	4 137	4 604	5 336	5 346
Düsseldorf	1 025	1 110	1 097	1 214	1 183	1 229	1 940	1 858	1 928	1 783
Köln	336	324	372	424	421	580	1 137	1 265	1 571	1 634
Münster	230	278	263	230	220	267	409	470	545	543
Detmold	138	128	205	218	250	234	414	267	332	432
Arnsberg	375	425	433	432	469	537	637	716	826	825
Rheinland-Pfalz	339	313	297	328	374	381	480	498	511	529
Koblenz	362	171	168	202	168	158	225	235	307	269
Trier	40	42	33	38	32	32	37	41	30	30
Rheinhesen-Pfalz	434	600	567	638	734	773	813	870	934	930
Saarland	37	32	103	38	102	103	137	168	172	135
Sachsen	106	.	.	.	.	220	235	235	438	521
Chemnitz	5	.	.	.	.	.	71	94	100	91
Dresden	60	.	.	.	.	.	192	225	261	371
Leipzig	40	.	.	.	.	.	32	38	35	35
Sachsen-Anhalt	7	41	41	64	67	74	97	110	126	125
Dessau	1	13	8	14	11	17	15	13	12	17
Halle	1	15	20	28	29	29	45	53	59	38
Magdeburg	5	12	13	24	23	23	33	39	35	64
Schleswig-Holstein	169	220	228	198	220	214	269	265	326	425
Thüringen	223	.	.	.	.	34	143	131	211	257
Not registered by region	210	225	59	50	68	98	120	27	31	23
<b>Ellada</b>	<b>44</b>	<b>45</b>	<b>35</b>	<b>43</b>	<b>43</b>	<b>55</b>	<b>75</b>	<b>85</b>	<b>84</b>	<b>82</b>
Voreia Ellada	3	3	4	7	11	8	17	19	12	13
Anatoliki Makedonia, Thraki	1	1	1	1	1	1	1	1	1	1
Kentriki Makedonia	1	7	2	8	7	5	14	17	10	13
Dytiki Makedonia	0	1	1	0	3	1	1	1	1	1
Thessalia	0	1	1	1	1	1	2	1	2	1
Kentriki Ellada	3	2	4	2	8	2	3	3	7	10
Ipeiros	1	1	1	1	1	1	1	0	0	0
Ionía Nisia	1	1	1	1	1	1	1	1	1	1
Dytiki Ellada	3	2	4	1	2	1	2	3	4	5
Stereá Ellada	1	1	1	1	1	1	1	1	1	1
Peloponnisos	0	1	1	1	1	1	1	1	2	3
Attiki	31	30	22	30	26	44	49	60	42	44
Nisia Aigaiou, Kriti	2	5	8	2	5	3	3	3	3	3
Voreio Aigaió	1	1	1	1	1	1	1	1	1	1
Notio Aigaió	1	1	1	1	1	1	1	1	1	2
Kriti	2	5	5	2	4	2	3	3	3	7
Not registered by region	3	1	1	1	1	1	2	1	1	2

## Methodological notes

NB: 2001: provisional data.  
D: 1997 — provisional data.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 28-2

Patent applications to the EPO at NUTS levels 0, 1 and 2

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>España</b>	<b>3 260</b>	<b>3 776</b>	<b>4 632</b>	<b>4 766</b>	<b>5 111</b>	<b>5 657</b>	<b>6 223</b>	<b>6 211</b>	<b>6 269</b>	<b>6 677</b>
Noroeste	13	15	19	10	25	24	41	33	28	22
Galicia	4	3	9	2	15	15	27	19	11	11
Principado de Asturias	5	6	9	7	7	6	10	10	12	9
Cantabria	5	6	2	1	3	2	4	4	6	2
Noreste	62	65	61	51	63	123	132	145	134	137
País Vasco	21	21	23	26	20	73	77	66	61	72
Comunidad Foral de Navarra	16	13	10	12	22	23	22	31	26	23
La Rioja	2	3	3	-	1	1	1	4	2	2
Aragón	13	17	9	13	15	28	32	44	25	26
Comunidad de Madrid	300	107	102	120	123	132	157	205	219	187
Centro (E)	9	13	12	22	20	34	48	41	26	26
Castilla y León	6	14	9	14	11	18	29	24	24	25
Castilla-la Mancha	3	4	3	7	7	12	13	14	9	7
Extremadura	-	1	-	1	2	5	6	2	3	4
Este	1 72	1 45	224	2 47	2 26	2 64	2 67	4 08	4 31	4 37
Cataluña	1 50	1 14	1 64	1 85	1 85	2 1 9	2 52	2 54	3 46	3 62
Comunidad Valenciana	21	28	34	33	31	33	35	31	31	104
Illes Balears	1	4	6	3	3	5	10	11	14	11
Sur	18	23	31	21	23	47	55	52	64	66
Andalucía	11	13	27	18	24	44	41	39	51	52
Murcia	7	4	4	3	5	3	14	12	13	14
Ceuta y Melilla	-	-	-	-	-	-	-	-	-	-
Canarias	1	1	11	5	6	9	10	11	15	13
Not registered by region	1	1	2	-	-	2	-	-	2	5
<b>France</b>	<b>5 4 60</b>	<b>5 1 80</b>	<b>5 2 60</b>	<b>5 5 84</b>	<b>5 7 73</b>	<b>6 41 8</b>	<b>7 2 25</b>	<b>7 6 64</b>	<b>8 4 80</b>	<b>8 5 30</b>
Île de France	2 3 73	2 1 65	2 1 63	2 2 59	2 2 62	2 5 50	2 2 23	2 2 43	2 5 05	2 4 23
Bassin Parisien	6 25	5 63	6 29	6 62	7 04	8 42	9 08	8 73	9 71	9 96
Champagne-Ardenne	73	66	62	51	56	64	55	77	59	1 06
Picardie	1 32	1 26	9 5	1 31	1 22	1 47	1 63	1 69	1 57	1 67
Haute-Normandie	50	56	52	111	1 25	1 57	1 73	1 73	2 12	1 80
Centre	1 33	1 46	1 36	1 50	1 62	2 51	2 54	2 25	2 70	2 37
Basse-Normandie	72	60	79	63	55	60	79	63	71	54
Bourgogne	1 04	1 05	1 04	1 25	1 32	1 42	1 42	1 46	1 62	1 46
Nord - Pas-de-Calais	1 32	1 23	1 32	1 22	1 32	1 44	1 57	1 63	2 01	1 92
Est	4 40	4 22	4 25	4 21	4 30	4 35	6 1 3	5 40	6 30	6 52
Lorraine	1 13	1 03	1 11	1 37	1 25	1 45	1 54	1 67	1 96	1 73
Alsace	2 52	2 33	2 23	1 93	2 05	2 3 6	2 57	2 64	3 46	3 07
Franche-Comté	78	56	51	55	1 00	1 09	1 23	1 10	1 54	1 67
Ouest	2 56	2 25	2 21	2 74	2 59	2 3 9	4 62	4 37	5 04	6 32
Pays de la Loire	1 00	1 41	1 03	1 40	1 25	1 53	1 65	2 05	1 89	2 00
Bretagne	1 07	1 20	1 33	1 48	1 25	1 33	2 07	1 95	2 27	2 16
Poitou-Charentes	51	63	50	56	70	53	50	37	73	1 16
Sud-Ouest	3 02	2 66	2 66	2 66	2 43	2 51	4 13	4 26	4 46	4 51
Aquitaine	1 24	1 17	1 12	1 09	1 31	1 33	1 56	1 45	1 40	1 41
Midi-Pyrénées	1 56	1 30	1 62	1 67	1 50	1 30	2 22	2 46	2 74	2 75
Limousin	21	21	21	23	22	23	24	25	23	26
Centre-Est	3 10	3 06	3 22	10 10	1 026	1 21 8	1 31 3	1 37 0	1 4 72	1 5 52
Rhône-Alpes	3 26	3 05	3 33	3 23	3 57	1 11 2	1 20 9	1 24 8	1 3 41	1 3 83
Auvergne	72	67	69	76	69	1 06	1 04	1 22	1 31	1 70
Méditerranée	3 56	3 43	3 49	4 05	4 13	4 6 5	5 2 5	5 6 6	6 6 6	6 52
Languedoc-Roussillon	50	77	78	92	1 07	1 1 8	1 1 9	1 3 9	1 4 6	1 33
Provence-Alpes-Côte d'Azur	3 06	2 66	2 68	3 13	3 10	3 47	4 04	4 1 5	5 1 8	5 1 8
Corse	0	1	3	3	1	2	2	2	2	4
Départements d'Outre-Mer	1	3	2	1	2	5	3	2	6	5
Guadeloupe	1	1	1	0	1	2	-	2	6	1
Martinique	-	-	1	-	1	0	-	0	1	-
Guyane	-	-	0	-	-	0	-	0	-	-
Réunion	-	1	0	1	-	2	3	-	2	4
Not registered by region	14	9	18	12	7	14	5	4	11	24
<b>Ireland</b>	<b>66</b>	<b>111</b>	<b>92</b>	<b>123</b>	<b>142</b>	<b>159</b>	<b>204</b>	<b>261</b>	<b>260</b>	<b>327</b>
Border, Midlands and Western	6	12	11	7	24	14	35	49	71	65
Southern and Eastern	31	99	81	115	108	139	169	212	225	262
Not registered by region	1	4	0	11	11	6	1	-	4	-

## Methodological notes

NB: 2001 provisional data.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.



**Table 28**  
**Patent applications to the EPO**  
**At the regional level**

Total number

**Table 28-3**

**Patent applications to the EPO at NUTS levels 0, 1 and 2**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Italia</b>	2 629	2 448	2 509	2 828	2 904	3 288	3 707	3 821	4 431	4 518
Nord Ovest	408	418	399	410	457	480	508	611	614	582
Piemonte	222	219	215	222	282	408	422	516	502	472
Valle d'Aosta	2	1	5	2	1	0	0	2	5	8
Liguria	72	98	79	80	74	72	88	92	108	102
Lombardia	928	909	898	908	988	1 142	1 212	1 294	1 482	1 528
Nord Est	988	969	968	908	988	1 142	1 212	1 294	1 482	1 528
Trentino-Alto Adige	22	22	22	47	22	27	45	52	60	64
Veneto	252	268	268	274	288	292	408	421	518	498
Friuli-Venezia Giulia	22	74	98	104	87	129	119	119	158	110
Emilia-Romagna	258	262	248	408	447	489	508	582	678	702
Centro (I)	388	382	388	424	488	488	572	581	408	248
Toscana	178	118	122	121	127	148	158	188	258	248
Umbria	9	18	19	19	24	44	24	29	28	27
Marche	42	40	47	50	52	71	59	88	108	81
Lazio	184	181	188	147	184	197	228	289	228	218
Abruzzo-Molise	17	14	20	22	28	39	74	91	78	72
Abruzzo	17	12	20	22	28	39	72	87	68	70
Molise	1	2	0	0	0	1	1	4	2	2
Campania	28	28	41	28	27	47	50	57	72	68
Sud	28	22	21	19	28	44	59	60	84	47
Puglia	17	18	17	14	22	25	27	28	42	22
Basilicata	2	1	2	2	7	10	11	10	2	2
Calabria	9	9	1	2	9	9	11	14	18	11
Sicilia	28	24	28	28	28	42	68	72	77	67
Sardegna	7	7	10	8	12	10	18	17	17	21
Not registered by region	9	8	12	10	1	8	4	2	2	0
<b>Luxembourg</b>	28	24	41	28	42	58	61	88	87	92
<b>Nederland</b>	1 847	1 872	1 731	1 888	2 188	2 588	2 781	3 110	3 628	3 881
Noord-Nederland	78	78	98	101	128	115	122	128	118	128
Groningen	22	28	22	27	48	28	41	51	42	52
Friesland	21	28	28	28	48	28	42	24	48	28
Drenthe	28	22	28	28	41	41	29	42	28	44
Oost-Nederland	222	241	218	228	282	281	481	489	482	481
Overijssel	82	78	98	118	118	129	128	147	158	148
Gelderland	128	154	201	208	228	228	222	281	288	281
Flevoland	10	11	11	17	17	28	29	21	28	28
West-Nederland	982	988	882	788	781	849	944	988	1 182	1 028
Utrecht	72	88	98	102	124	124	188	182	222	197
Noord-Holland	212	181	187	211	207	288	284	287	248	284
Zuid-Holland	201	218	228	278	428	418	482	488	542	582
Zeeland	7	18	21	20	22	42	29	22	42	48
Zuid-Nederland	788	788	884	888	882	1 220	1 217	1 284	1 272	2 128
Noord-Brabant	828	841	884	888	884	978	1 107	1 284	1 621	1 927
Limburg (NL)	112	114	109	110	188	248	210	190	281	242
Not registered by region	2	2	0	-	7	2	8	2	2	5
<b>Osterreich</b>	724	788	788	807	782	888	1 148	1 184	1 284	1 414
Oststerreich	288	281	288	218	278	288	287	422	488	484
Burgenland	7	7	2	8	8	8	18	17	18	28
Niedersterreich	112	108	120	128	121	147	174	201	208	208
Wien	177	148	182	178	188	178	207	208	247	281
Südsterreich	182	184	129	188	187	142	227	288	288	288
Kärnten	27	28	48	28	48	27	74	80	84	67
Steiermark	118	124	98	122	108	182	148	148	172	221
Weststerreich	287	288	228	224	288	418	507	581	588	628
Obersterreich	88	147	141	182	182	201	248	247	282	282
Salzburg	42	28	41	28	48	58	48	58	78	82
Tirol	71	84	74	82	82	88	77	77	88	97
Vorarlberg	58	58	72	71	72	102	127	118	128	188
Not registered by region	7	5	2	8	2	11	8	5	2	22
<b>Portugal</b>	12	18	22	18	18	27	24	47	41	58
Continente	12	18	21	14	14	27	24	47	28	48
Norte	2	5	8	5	2	5	8	12	12	21
Centro (P)	-	1	2	1	1	8	4	7	8	11
Lisboa e Vale do Tejo	10	8	10	8	10	14	12	28	17	22
Alentejo	1	-	-	1	1	1	1	1	-	2
Algarve	-	1	0	-	1	1	0	2	0	1
Açores	-	-	-	-	-	-	-	-	-	-
Madeira	-	-	1	1	1	-	-	-	2	-
Not registered by region	-	-	-	1	-	-	0	-	-	-
<b>Suomi-Finland</b>	547	728	788	828	881	880	1 289	1 518	1 777	1 788
Manner-Suomi	542	721	782	828	882	880	1 280	1 518	1 772	1 748
Itä-Suomi	22	28	41	28	28	21	48	58	82	88
Väli-Suomi	48	82	70	82	72	52	88	121	122	118
Pohjois-Suomi	82	82	82	98	97	100	178	124	174	188
Uusimaa (suuralue)	1 24	228	247	408	407	420	847	728	894	882
Etelä-Suomi	228	242	241	228	271	277	278	474	528	527
Åland	-	1	-	-	-	2	2	2	2	4
Not registered by region	4	7	7	7	7	7	8	1	2	1

**Methodological notes**

NB: 2001: provisional data.  
 FIN: 1997 — provisional data.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 28-4

Patent applications to the EPO at NUTS levels 0, 1 and 2

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Sverige</b>	<b>1 239</b>	<b>1 329</b>	<b>1 490</b>	<b>1 701</b>	<b>1 927</b>	<b>2 209</b>	<b>2 718</b>	<b>2 792</b>	<b>3 203</b>	<b>3299</b>
Stockholm	381	400	422	554	654	783	948	959	1 079	1 101
Östra Mellansverige	190	208	202	200	228	278	447	428	444	540
Sydsverige	120	131	214	270	290	208	262	403	580	555
Norra Mellansverige	100	102	144	140	117	158	170	144	184	178
Mellersta Norrland	32	48	41	38	51	44	54	81	40	50
Övre Norrland	50	37	42	40	58	74	88	93	113	115
Småland med öarna	78	88	70	79	90	108	90	82	120	102
Västsvrige	213	227	301	344	380	404	525	549	638	608
Not registered by region	12	28	19	24	28	23	19	14	4	11
<b>United Kingdom</b>	<b>4 309</b>	<b>4 370</b>	<b>4 488</b>	<b>4 809</b>	<b>4 880</b>	<b>5 225</b>	<b>5 987</b>	<b>6 603</b>	<b>7 897</b>	<b>7939</b>
<b>North East</b>	<b>1 22</b>	<b>127</b>	<b>183</b>	<b>188</b>	<b>188</b>	<b>180</b>	<b>192</b>	<b>200</b>	<b>197</b>	<b>187</b>
Tees Valley and Durham	60	57	80	88	68	53	74	87	78	68
Northumberland, Tyne and Wear	62	80	84	129	100	127	118	112	121	99
<b>North West</b>	<b>908</b>	<b>914</b>	<b>979</b>	<b>978</b>	<b>988</b>	<b>919</b>	<b>981</b>	<b>988</b>	<b>888</b>	<b>713</b>
Cumbria	11	21	21	28	30	39	42	34	44	34
Cheshire	213	178	170	188	187	188	181	174	208	223
Greater Manchester	148	147	138	130	144	149	181	170	171	131
Lancashire	71	72	84	78	71	80	98	98	100	102
Merseyside	68	98	89	88	77	88	80	114	182	184
<b>Yorkshire and The Humber</b>	<b>287</b>	<b>280</b>	<b>248</b>	<b>273</b>	<b>282</b>	<b>281</b>	<b>280</b>	<b>282</b>	<b>487</b>	<b>440</b>
East Riding and North Lincolnshire	34	20	42	40	64	50	40	58	57	50
North Yorkshire	48	48	83	78	80	89	94	80	118	97
South Yorkshire	28	41	40	37	47	52	84	47	73	88
West Yorkshire	191	79	98	120	129	119	181	148	211	204
<b>East Midlands</b>	<b>283</b>	<b>280</b>	<b>281</b>	<b>294</b>	<b>282</b>	<b>288</b>	<b>278</b>	<b>480</b>	<b>482</b>	<b>488</b>
Derbyshire and Nottinghamshire	128	101	117	130	181	178	182	210	231	229
Leicestershire, Rutland and Northants	120	188	120	148	122	189	194	212	238	203
Lincolnshire	31	23	13	18	30	31	30	28	38	28
<b>West Midlands</b>	<b>324</b>	<b>322</b>	<b>383</b>	<b>387</b>	<b>389</b>	<b>287</b>	<b>418</b>	<b>488</b>	<b>508</b>	<b>521</b>
Herefordshire, Worcestershire and Warks	118	120	184	138	188	189	170	199	208	228
Shropshire and Staffordshire	70	84	80	88	87	79	87	104	114	112
West Midlands	132	138	149	180	188	149	198	189	188	184
<b>Eastern</b>	<b>883</b>	<b>889</b>	<b>733</b>	<b>889</b>	<b>788</b>	<b>978</b>	<b>1088</b>	<b>1118</b>	<b>1 347</b>	<b>1418</b>
East Anglia	278	287	347	348	407	488	542	587	708	784
Bedfordshire, Hertfordshire	228	241	229	190	218	249	271	287	382	380
Essex	178	181	187	188	187	202	283	282	288	284
<b>London</b>	<b>447</b>	<b>423</b>	<b>483</b>	<b>428</b>	<b>487</b>	<b>481</b>	<b>600</b>	<b>684</b>	<b>748</b>	<b>821</b>
Inner London	124	188	181	188	197	208	218	282	380	444
Outer London	323	287	302	274	278	278	382	382	388	377
<b>South East</b>	<b>887</b>	<b>1 000</b>	<b>980</b>	<b>987</b>	<b>1 048</b>	<b>1 148</b>	<b>1242</b>	<b>1480</b>	<b>1 748</b>	<b>1888</b>
Berkshire, Bucks and Oxfordshire	342	378	381	387	420	481	512	681	708	784
Surrey, East and West Sussex	280	288	303	314	318	282	348	334	403	413
Hampshire and Isle of Wight	180	208	184	178	184	208	212	288	387	508
Kent	88	90	102	97	118	129	182	200	238	208
<b>South West</b>	<b>388</b>	<b>388</b>	<b>383</b>	<b>388</b>	<b>428</b>	<b>442</b>	<b>487</b>	<b>628</b>	<b>721</b>	<b>719</b>
Gloucestershire, Wiltshire and North Somerset	247	218	217	277	288	287	302	488	588	522
Dorset and Somerset	80	87	88	87	87	82	89	82	102	102
Cornwall and Isles of Scilly	19	17	19	19	27	27	28	32	31	34
Devon	37	40	52	32	34	58	50	58	87	81
<b>Wales</b>	<b>121</b>	<b>117</b>	<b>128</b>	<b>118</b>	<b>122</b>	<b>121</b>	<b>188</b>	<b>197</b>	<b>213</b>	<b>208</b>
West Wales and The Valleys	88	88	83	40	52	49	88	82	98	87
East Wales	81	88	83	78	70	72	87	104	123	119
<b>Scotland</b>	<b>184</b>	<b>227</b>	<b>212</b>	<b>278</b>	<b>288</b>	<b>307</b>	<b>382</b>	<b>411</b>	<b>488</b>	<b>487</b>
North Eastern Scotland	28	44	38	68	71	81	88	88	98	108
Eastern Scotland	88	88	88	120	128	130	170	188	198	228
South Western Scotland	54	88	79	78	88	89	98	120	121	114
Highlands and Islands	3	3	8	10	4	4	8	8	18	23
Northern Ireland	38	21	23	28	27	24	32	48	62	72
Not registered by region	88	81	102	82	94	79	79	38	48	98
<b>EEA</b>	<b>31 854</b>	<b>31 888</b>	<b>32 187</b>	<b>34 544</b>	<b>34 880</b>	<b>40 822</b>	<b>49 288</b>	<b>53 518</b>	<b>60 431</b>	<b>62 880</b>
Iceland	11	9	7	9	8	17	23	30	32	30
Liechtenstein	37	21	28	28	30	48	41	48	34	28
<b>Norge</b>	<b>278</b>	<b>281</b>	<b>287</b>	<b>308</b>	<b>380</b>	<b>480</b>	<b>522</b>	<b>640</b>	<b>810</b>	<b>1300</b>
Oslo og Akershus	100	117	107	107	109	189	203	188	203	477
Hedmark og Oppland	10	9	9	9	8	14	11	9	17	28
Sør-Østlandet	82	81	44	88	88	83	88	118	138	288
Agder og Rogaland	47	51	29	84	88	91	109	98	111	208
Vestlandet	27	21	22	28	47	37	58	83	68	121
Trøndelag	28	22	24	28	32	37	38	42	48	122
Nord-Norge	8	8	4	9	13	11	18	17	28	37
Not registered by region	8	9	9	8	17	19	11	8	8	17

## Methodological notes

NB: 2001 provisional data.  
EEA includes Liechtenstein.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 29**  
**Patent applications to the EPO**  
**At the regional level**

Number of applications  
 2000

**Table 29-1**

**Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2**

	A	B	G	D	E	F	G	H	Total
<b>EU-15</b>	<b>9 323</b>	<b>12 012</b>	<b>3 433</b>	<b>1 243</b>	<b>2 630</b>	<b>5 025</b>	<b>3 204</b>	<b>11 025</b>	<b>59 734</b>
<b>EUR-12</b>	<b>7 052</b>	<b>10 155</b>	<b>3 774</b>	<b>1 037</b>	<b>2 150</b>	<b>3 925</b>	<b>2 504</b>	<b>8 723</b>	<b>47 331</b>
Belgique-Belgie	269	263	400	63	51	33	205	134	1 019
Région Bruxelles-capitale/Brussels hoofdstad gewest	24	22	32	9	5	10	18	13	132
Vlaams Gewest	155	174	280	43	23	23	148	141	584
Antwerpen	39	55	80	2	9	8	84	45	230
Limburg (B)	9	19	9	1	4	9	10	7	67
Oost-Vlaanderen	39	38	71	3	2	8	22	26	211
Vlaams Brabant	41	40	103	14	3	7	42	37	262
West-Vlaanderen	26	23	12	29	14	10	3	23	144
Région Wallonne	31	72	130	11	13	26	42	29	468
Brabant Wallon	51	14	20	6	1	4	15	9	133
Hainaut	2	20	40	1	4	5	5	6	33
Liège	19	20	31	4	5	21	11	3	119
Luxembourg (B)	2	12	5	-	1	6	2	1	30
Namur	6	6	21	-	3	3	9	4	52
Not registered by region	-	-	0	-	-	1	1	-	2
Danmark	264	145	132	20	55	78	151	180	1 082
Deutschland	3 076	5 636	3 537	501	1 119	3 211	3 573	4 334	28 072
Baden-Württemberg	533	1 287	437	133	233	1 172	233	380	5 687
Stuttgart	116	655	74	64	101	723	254	430	2 538
Karlsruhe	139	258	202	24	57	180	139	182	1 230
Freiburg	180	191	181	13	40	132	132	138	1 034
Tübingen	126	203	90	54	21	134	93	105	313
Bayern	591	1 171	473	74	208	657	1 144	1 703	8 019
Oberbayern	284	476	271	25	31	278	713	1 063	3 193
Niederbayern	15	60	15	1	13	27	33	54	225
Oberpfalz	27	70	21	3	19	64	70	181	441
Oberfranken	32	30	11	7	20	32	47	57	235
Mittelfranken	109	134	53	4	17	134	172	230	373
Unterfranken	52	188	65	7	19	55	32	40	444
Schwaben	73	131	37	23	33	70	71	84	582
Berlin	122	86	32	15	13	27	119	136	643
Brandenburg	19	31	25	9	6	13	27	40	134
Bremen	10	22	5	0	3	7	5	6	63
Hamburg	97	28	30	5	9	14	39	18	235
Hessen	268	502	427	50	33	213	243	248	2 138
Darmstadt	239	421	231	43	45	143	191	208	1 739
Gießen	39	73	30	1	20	25	35	34	278
Kassel	33	33	6	1	23	31	17	13	171
Mecklenburg-Vorpommern	19	18	18	1	4	3	10	7	75
Niedersachsen	199	555	136	15	30	238	242	247	1 733
Braunschweig	23	284	30	3	20	157	92	70	685
Hannover	52	133	56	4	19	42	101	126	542
Lüneburg	43	30	31	2	20	29	32	22	289
Weser-Ems	70	34	19	8	21	81	17	18	233
Nordrhein-Westfalen	635	1 194	1 147	129	260	614	559	707	5 268
Düsseldorf	232	421	562	58	113	171	147	131	1 509
Köln	200	233	380	33	45	201	200	271	1 571
Münster	59	129	118	13	52	65	43	66	543
Detmold	35	146	23	12	60	26	72	23	332
Arnsberg	59	240	60	14	25	140	92	126	338
Rheinland-Pfalz	201	233	480	22	45	34	93	117	1 311
Koblenz	59	100	29	4	19	29	23	23	207
Trier	4	12	3	2	11	10	4	5	50
Rheinhesen-Pfalz	123	183	429	18	15	23	66	23	384
Saarland	23	45	31	4	15	25	20	9	172
Sachsen	33	112	53	12	14	23	75	115	488
Chemnitz	6	23	18	9	6	15	13	7	100
Dresden	26	78	31	3	8	15	42	104	201
Leipzig	6	13	11	-	2	3	15	5	55
Sachsen-Anhalt	22	31	23	1	6	9	13	11	138
Dessau	1	4	1	0	0	1	3	1	12
Halle	9	10	24	1	1	4	7	3	59
Magdeburg	12	17	13	-	5	4	3	6	65
Schleswig-Holstein	109	105	26	3	17	26	45	42	289
Thüringen	29	37	29	7	3	11	87	23	211
Not registered by region	7	5	3	0	1	3	5	2	31
Ellada	22	14	7	-	8	3	9	4	64
Voreia Ellada	6	1	2	-	-	2	2	-	12
Anatoliki Makedonia, Thraki	-	-	-	-	-	-	-	-	-
Kentriki Makedonia	6	1	2	-	-	1	1	-	10
Dytiki Makedonia	-	-	-	-	-	-	-	-	-
Thessalia	-	-	-	-	-	1	1	-	2
Kentriki Ellada	1	3	0	-	1	-	1	0	7
Ipeiros	-	-	0	-	-	-	-	-	0
Ionía Nisia	-	-	-	-	-	-	-	-	-
Dytiki Ellada	-	2	-	-	1	-	1	0	4
Sterea Ellada	-	-	-	-	-	-	-	-	-
Peloponnisos	1	1	-	-	-	-	0	-	2
Attiki	14	9	4	-	5	1	5	4	42
Nisia Aigaiou, Kriti	1	1	1	-	-	-	0	-	3
Voreio Aigaio	-	-	-	-	-	-	-	-	-
Notio Aigaio	-	-	-	-	-	-	-	-	-
Kriti	1	1	1	-	-	-	0	-	3
Not registered by region	-	-	0	-	-	-	-	-	-

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 29-2 Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2

	A	B	G	D	E	F	G	H	Total
<b>España</b>	<b>241</b>	<b>227</b>	<b>122</b>	<b>13</b>	<b>31</b>	<b>66</b>	<b>95</b>	<b>123</b>	<b>689</b>
Noroeste	7	5	7	-	2	3	4	1	29
Galicia	3	1	2	-	1	0	3	-	11
Principado de Asturias	1	3	4	-	1	2	0	0	12
Cantabria	3	0	1	-	-	1	1	0	6
Noreste	29	40	6	1	19	19	10	11	134
País Vasco	15	26	3	1	15	9	4	5	81
Comunidad Foral de Navarra	6	6	2	-	1	3	5	4	26
La Rioja	2	-	0	-	-	-	0	-	2
Aragón	6	3	1	-	3	3	2	2	25
Comunidad de Madrid	44	28	34	1	3	12	29	54	210
Centro (E)	6	9	9	1	4	2	2	2	30
Castilla y León	5	5	7	1	2	2	1	-	24
Castilla-la Mancha	1	3	2	-	1	0	-	2	9
Extremadura	-	1	-	-	2	-	1	-	3
Este	134	113	65	15	26	27	40	50	461
Cataluña	33	34	42	14	27	19	29	43	248
Comunidad Valenciana	33	34	22	0	12	5	10	9	131
Illes Balears	3	1	1	1	-	2	-	-	14
Sur	20	9	9	-	7	5	3	6	64
Andalucía	14	7	7	-	6	5	7	6	51
Murcia	6	2	2	-	1	-	2	-	13
Ceuta y Melilla	-	-	-	-	-	-	-	-	-
Canarias	2	6	1	-	1	3	2	1	15
Not registered by region	-	-	2	-	-	-	-	-	2
<b>France</b>	<b>1 535</b>	<b>1 627</b>	<b>1 212</b>	<b>114</b>	<b>203</b>	<b>740</b>	<b>1 201</b>	<b>1 572</b>	<b>3 433</b>
Île de France	647	562	444	21	107	330	629	788	2 509
Bassin Parisien	153	200	113	13	55	125	95	58	571
Champagne-Ardenne	16	26	10	7	5	15	3	3	59
Picardie	13	31	19	4	22	21	11	11	137
Haut-Normandie	19	79	46	5	2	25	15	13	212
Centre	25	31	13	2	13	60	26	25	270
Basse-Normandie	25	13	2	1	4	2	11	13	71
Bourgogne	40	42	15	0	9	13	24	19	182
Nord - Pas-de-Calais	33	59	52	6	14	15	13	10	201
Est	149	145	119	17	60	50	63	37	609
Lorraine	42	26	26	2	22	14	16	17	198
Alsace	74	64	77	15	25	26	22	48	249
Franche-Comté	33	44	5	-	3	16	26	22	154
Ouest	39	119	31	4	15	53	53	134	304
Pays de la Loire	45	57	17	3	9	23	13	26	199
Bretagne	23	23	3	-	4	26	27	26	227
Poitou-Charentes	11	26	5	1	2	4	4	12	73
Sud-Ouest	106	70	63	5	15	26	60	35	446
Aquitaine	43	22	27	5	5	12	18	9	140
Midi-Pyrénées	57	45	28	1	9	13	40	67	274
Limousin	6	3	3	-	1	6	4	10	33
Centre-Est	276	277	237	41	43	32	203	284	1 472
Rhône-Alpes	254	211	264	37	33	73	197	260	1 341
Auvergne	22	66	23	4	4	4	6	2	131
Méditerranée	127	39	33	2	14	26	175	127	688
Languedoc-Roussillon	50	20	23	1	4	6	17	13	143
Provence-Alpes-Côte d'Azur	77	67	55	1	10	23	153	114	518
Corse	-	2	-	-	-	-	-	-	2
Départements d'Outre-Mer	3	1	1	-	-	-	2	1	8
Guadeloupe	2	-	0	-	-	-	2	1	6
Martinique	0	-	0	-	-	-	-	-	1
Guyane	-	-	-	-	-	-	-	-	-
Réunion	-	1	-	-	-	-	0	-	2
Not registered by region	2	2	4	-	1	0	2	1	11
<b>Ireland</b>	<b>30</b>	<b>28</b>	<b>26</b>	<b>-</b>	<b>11</b>	<b>12</b>	<b>101</b>	<b>32</b>	<b>260</b>
Border, Midlands and Western	26	16	6	-	2	3	5	19	71
Southern and Eastern	4	22	20	-	10	3	96	60	239
Not registered by region	-	-	2	-	-	-	-	2	4

**Table 29**  
**Patent applications to the EPO**  
**At the regional level**

Number of applications  
 2000

**Table 29-3**

**Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2**

	A	B	C	D	E	F	G	H	Total
<b>Italia</b>	913	1 246	436	148	244	482	463	916	4 401
Nord Ovest	92	213	43	19	26	26	63	62	614
Piemonte	72	180	26	19	22	66	46	62	502
Vale d'Aosta	-	1	-	-	-	-	3	1	5
Liguria	20	24	3	0	4	17	19	9	108
Lombardia	243	264	131	31	71	128	183	238	1 482
Nord Est	193	196	63	18	59	76	73	96	733
Trentino-Alto Adige	10	21	2	0	7	3	10	1	60
Veneto	183	174	61	12	41	91	48	95	913
Friuli-Venezia Giulia	31	40	15	4	11	13	16	19	159
Emilia-Romagna	123	200	45	3	26	34	49	33	673
Centro (I)	100	66	26	24	19	43	35	42	400
Toscana	62	69	27	21	10	26	27	29	288
Umbria	13	13	5	2	-	3	2	-	39
Marche	25	27	7	1	9	20	5	13	108
Lazio	67	33	54	2	3	4	31	21	220
Abruzzo-Molise	39	3	6	0	1	4	3	3	70
Abruzzo	37	3	6	0	1	4	3	3	68
Molise	2	-	-	-	-	-	-	-	2
Campania	21	18	13	0	4	7	4	3	72
Sud	13	10	6	-	7	13	10	5	64
Puglia	7	3	5	-	1	12	7	3	43
Basilicata	0	0	1	-	-	0	1	2	3
Calabria	5	3	0	-	6	1	2	0	18
Sicilia	9	7	6	-	4	5	13	23	77
Sardegna	6	5	1	-	1	1	1	3	17
Not registered by region	0	-	-	-	-	3	-	-	3
<b>Luxembourg</b>	4	26	16	1	1	13	13	3	87
<b>Nederland</b>	515	504	531	29	144	194	733	920	3 629
Noord-Nederland	29	20	20	2	6	10	13	7	113
Groningen	14	5	12	0	2	0	5	3	43
Friesland	13	15	2	1	3	3	4	2	48
Drenthe	2	6	5	1	1	7	4	1	28
Oost-Nederland	106	104	101	6	24	26	59	45	483
Overijssel	23	27	27	0	10	12	13	27	159
Gelderland	67	63	66	4	12	23	40	19	289
Flevoland	10	5	3	1	2	4	2	3	38
West-Nederland	282	182	236	3	97	74	139	114	1 192
Utrecht	46	33	65	2	19	19	22	25	232
Noord-Holland	63	64	77	1	31	19	50	36	348
Zuid-Holland	131	73	130	5	59	26	63	50	942
Zeeland	6	12	14	0	1	4	5	5	42
Zuid-Nederland	127	137	175	13	13	72	51	78	1 272
Noord-Brabant	103	121	76	9	16	60	43	73	1 021
Limburg (NL)	13	60	39	4	2	12	23	28	251
Not registered by region	1	1	0	-	-	-	1	-	3
<b>Österreich</b>	266	260	180	25	122	170	145	185	1 284
Ostösterreich	35	33	70	14	24	43	62	78	469
Burgenland	3	5	2	1	2	1	0	3	18
Niederösterreich	27	40	28	12	20	29	24	26	208
Wien	56	26	41	1	12	13	23	48	247
Südösterreich	34	33	23	3	23	13	27	31	258
Kärnten	7	14	6	-	3	3	11	23	54
Steiermark	27	40	22	3	20	14	29	13	173
Westösterreich	37	143	60	7	60	110	47	37	599
Oberösterreich	27	34	25	4	25	32	13	3	253
Salzburg	10	14	4	0	3	21	7	7	78
Tirol	24	18	13	0	19	14	6	6	93
Vorarlberg	21	26	9	2	3	23	14	16	129
Not registered by region	-	0	1	0	0	-	0	-	2
<b>Portugal</b>	7	10	7	1	2	4	4	4	41
Continente	5	10	7	1	2	4	4	4	39
Norte	2	3	2	-	1	3	1	2	13
Centro (P)	1	5	-	-	-	0	1	0	3
Lisboa e Vale do Tejo	3	2	5	1	1	1	3	2	17
Alentejo	-	-	-	-	-	-	-	-	-
Algarve	-	-	-	-	-	-	0	0	0
Açores	-	-	-	-	-	-	-	-	-
Madeira	2	-	-	-	-	-	-	-	2
Not registered by region	-	-	-	-	-	-	-	-	-
<b>Suomi-Finland</b>	144	269	137	134	26	67	256	794	1 777
Manner-Suomi	143	269	137	134	26	67	255	792	1 772
Itä-Suomi	13	14	3	6	1	6	7	3	52
Väli-Suomi	12	24	7	48	4	12	10	16	132
Pohjois-Suomi	10	7	11	1	3	2	24	117	174
Uusimaa (suuralue)	65	62	75	31	10	25	127	485	884
Etelä-Suomi	42	73	26	51	17	22	33	130	520
Åland	1	1	1	-	-	-	-	-	2
Not registered by region	0	0	-	-	-	0	1	2	3

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 29-4 Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2

	A	B	C	D	E	F	G	H	Total
<b>Sverige</b>	<b>502</b>	<b>501</b>	<b>255</b>	<b>97</b>	<b>112</b>	<b>244</b>	<b>421</b>	<b>932</b>	<b>3 203</b>
Stockholm	130	112	79	19	23	93	144	472	1 079
Östra Mellansverige	97	97	47	2	12	26	74	127	444
Sydsverige	71	68	46	9	22	34	108	197	580
Norra Mellansverige	12	47	12	44	11	13	10	28	134
Mellersta Norrland	3	12	8	7	1	2	4	2	40
Övre Norrland	12	19	12	1	9	13	19	32	113
Småland med öarna	22	44	4	8	10	28	9	9	120
Västsvrige	129	181	48	17	23	88	81	119	633
Not registered by region	0	-	1	-	-	0	2	1	4
<b>United Kingdom</b>	<b>1 910</b>	<b>1 250</b>	<b>1 277</b>	<b>33</b>	<b>264</b>	<b>980</b>	<b>1 913</b>	<b>1 220</b>	<b>7 887</b>
North East	27	26	79	3	12	11	12	18	197
Tees Valley and Durham	11	12	29	-	4	4	7	7	78
Northumberland, Tyne and Wear	16	23	50	3	8	7	9	8	121
North West	129	128	128	21	28	28	102	48	688
Cumbria	4	20	3	1	1	2	11	2	44
Cheshire	44	23	72	9	9	8	28	12	203
Greater Manchester	29	20	44	2	9	8	21	21	171
Lancashire	12	28	9	8	11	12	14	3	100
Merseyside	90	17	28	7	-	10	19	9	183
Yorkshire and The Humber	38	103	28	18	28	23	47	29	457
East Riding and North Lincolnshire	12	14	13	0	2	1	7	2	57
North Yorkshire	29	28	17	1	11	7	14	18	118
South Yorkshire	11	18	21	1	3	9	3	4	73
West Yorkshire	39	82	26	13	9	19	17	28	211
East Midlands	101	82	89	9	13	82	38	89	482
Derbyshire and Nottinghamshire	98	44	29	1	14	21	29	28	231
Leicestershire, Rutland and Northants	23	27	28	3	3	28	39	48	239
Lincolnshire	8	10	1	-	1	4	2	2	28
West Midlands	82	121	99	4	82	71	88	94	589
Herefordshire, Worcestershire and Warks	21	48	21	2	19	28	39	32	208
Shropshire and Staffordshire	19	28	12	-	12	24	3	12	114
West Midlands	27	99	26	2	21	22	20	10	198
Eastern	299	189	240	9	20	80	284	279	1 247
East Anglia	121	82	112	3	14	28	193	120	709
Bedfordshire, Hertfordshire	111	28	71	2	11	14	82	41	282
Essex	87	28	97	-	9	28	42	94	288
London	179	88	110	3	28	28	212	118	749
Inner London	99	27	82	-	12	11	122	48	380
Outer London	77	48	48	3	13	28	90	89	289
South East	348	172	280	14	88	141	402	318	1 748
Berkshire, Bucks and Oxfordshire	142	81	128	9	24	42	188	108	700
Surrey, East and West Sussex	120	48	82	1	21	24	74	22	423
Hampshire and Isle of Wight	23	28	28	3	12	22	128	119	287
Kent	99	22	89	9	7	42	27	9	228
South West	103	28	99	9	27	48	201	178	721
Gloucestershire, Wiltshire and North Somerset	70	88	24	8	19	28	182	148	520
Dorset and Somerset	21	22	3	1	3	9	29	12	102
Cornwall and Isles of Scilly	1	8	3	1	0	9	3	1	31
Devon	19	3	9	1	4	3	14	18	87
Wales	41	47	44	3	18	19	27	22	212
West Wales and The Valleys	19	28	28	2	2	10	11	8	90
East Wales	28	21	24	2	3	9	17	17	122
Scotland	39	88	81	3	88	22	39	48	428
North Eastern Scotland	10	12	7	1	47	11	9	2	99
Eastern Scotland	42	22	21	2	9	9	49	28	199
South Western Scotland	22	19	21	-	3	3	28	10	121
Highlands and Islands	4	2	1	-	-	4	4	1	19
Northern Ireland	21	19	9	1	2	3	8	9	82
Not registered by region	11	7	10	1	4	2	4	8	49
<b>EEA</b>	<b>9 439</b>	<b>12 190</b>	<b>8 938</b>	<b>1 249</b>	<b>2 720</b>	<b>9 978</b>	<b>9 100</b>	<b>11 199</b>	<b>60 431</b>
Iceland	10	2	9	-	-	3	7	8	32
Liechtenstein	9	3	7	-	2	3	2	9	34
<b>Norge</b>	<b>129</b>	<b>117</b>	<b>78</b>	<b>8</b>	<b>97</b>	<b>89</b>	<b>92</b>	<b>90</b>	<b>810</b>
Oslo og Akershus	48	28	28	1	12	10	50	20	202
Hedmark og Oppland	4	9	0	-	-	8	1	-	17
Sør-Østlandet	27	27	22	8	7	19	12	3	128
Agder og Rogaland	20	28	8	-	28	19	3	7	111
Vestlandet	18	13	10	-	7	12	7	0	89
Trøndelag	7	7	7	-	3	4	17	4	43
Nord-Norge	19	3	4	-	2	4	1	-	28
Not registered by region	9	1	0	-	0	1	1	-	3

Methodological notes

NB: EEA includes Liechtenstein.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 30**  
**Patent applications to the EPO**  
**At the regional level**

Number of applications  
2001 (provisional)

**Table 30-1**

**Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2**

	A	B	C	D	E	F	G	H	Total
<b>EU-15</b>	<b>9 119</b>	<b>11 341</b>	<b>3 700</b>	<b>1 129</b>	<b>2 003</b>	<b>5 933</b>	<b>10 144</b>	<b>11 402</b>	<b>67 300</b>
<b>EUR-12</b>	<b>8 260</b>	<b>10 114</b>	<b>7 000</b>	<b>929</b>	<b>2 003</b>	<b>5 047</b>	<b>7 500</b>	<b>9 989</b>	<b>48 918</b>
Belgique-Belgie	212	283	40	49	60	50	212	177	1 083
Région Bruxelles-capitale/Brussels hoofdstad gewest	30	29	37	2	7	7	23	14	183
Vlaams Gewest	137	181	230	37	38	46	183	140	982
Antwerpen	39	78	70	4	3	21	89	47	334
Limburg (B)	3	29	10	1	5	6	11	7	73
Oost-Vlaanderen	39	23	26	4	5	7	29	31	174
Vlaams Brabant	33	31	60	4	6	4	33	40	242
West-Vlaanderen	20	28	11	23	11	9	11	13	129
Région Wallonne	89	83	187	10	18	42	38	20	440
Brabant Wallon	33	17	73	4	4	7	15	8	197
Hainaut	9	29	41	1	4	6	5	3	93
Liège	18	28	37	4	5	22	10	3	123
Luxembourg (B)	1	13	5	0	2	6	1	2	31
Namur	5	3	12	0	2	2	6	1	31
Not registered by region	0	3	0	-	-	-	-	-	3
<b>Danmark</b>	<b>272</b>	<b>146</b>	<b>207</b>	<b>12</b>	<b>52</b>	<b>99</b>	<b>132</b>	<b>159</b>	<b>1 129</b>
<b>Deutschland</b>	<b>2 991</b>	<b>5 877</b>	<b>3 770</b>	<b>427</b>	<b>1 008</b>	<b>3 225</b>	<b>3 931</b>	<b>4 447</b>	<b>28 489</b>
Baden-Württemberg	527	1 482	911	130	212	1 188	1 019	932	5 689
Stuttgart	113	723	36	52	94	789	499	510	2 317
Karlsruhe	127	308	209	18	42	137	231	199	1 319
Freiburg	180	280	144	10	28	99	223	123	1 003
Tübingen	127	230	80	52	37	132	97	120	349
Bayern	996	1 237	426	60	139	734	1 213	1 712	8 149
Oberbayern	288	527	293	13	67	307	792	1 078	3 339
Niederbayern	20	68	11	2	22	21	39	43	220
Oberpfalz	29	70	24	2	12	63	63	128	403
Oberfranken	28	70	29	3	18	29	33	84	281
Mittelfranken	39	129	44	8	23	130	179	271	372
Unterfranken	39	102	52	4	19	39	41	90	430
Schwaben	69	181	47	20	31	78	71	74	570
Berlin	139	34	119	20	13	24	144	139	738
Brandenburg	23	22	40	4	7	12	32	31	209
Bremen	5	22	11	1	4	5	12	7	68
Hamburg	102	77	60	3	10	20	73	17	370
Hessen	370	488	588	40	72	200	243	241	2 232
Darmstadt	207	388	328	23	48	142	180	193	1 299
Gießen	37	74	23	4	17	29	49	37	274
Kassel	26	37	6	2	3	29	14	11	133
Mecklenburg-Vorpommern	18	20	13	-	3	6	14	5	33
Niedersachsen	132	281	193	9	67	210	283	214	1 487
Braunschweig	41	120	44	0	13	77	78	38	439
Hannover	56	80	96	2	14	62	117	119	510
Lüneburg	34	20	20	2	21	28	41	23	288
Weser-Ems	51	72	23	4	19	49	19	13	282
Nordrhein-Westfalen	840	1 180	1 180	104	273	827	927	889	5 243
Düsseldorf	297	408	494	59	130	178	133	138	1 783
Köln	204	309	403	23	52	206	209	278	1 834
Münster	54	129	141	7	37	51	47	62	543
Detmold	77	103	32	13	30	48	47	69	492
Arnsberg	43	291	74	8	34	140	101	122	339
Rheinland-Pfalz	199	303	421	34	41	191	100	114	1 309
Koblenz	46	69	21	5	13	40	23	19	283
Trier	4	14	2	2	6	9	6	7	50
Rheinhesen-Pfalz	149	183	289	27	18	82	70	38	680
Saarland	19	42	13	1	12	20	20	13	199
Sachsen	41	129	93	12	9	24	99	193	521
Chemnitz	7	34	3	0	3	6	13	14	91
Dresden	29	80	34	5	4	14	70	128	371
Leipzig	10	14	11	2	2	3	12	5	59
Sachsen-Anhalt	22	28	43	2	2	14	13	10	139
Dessau	0	2	9	0	1	1	1	2	17
Halle	7	13	21	0	0	5	6	3	59
Magdeburg	19	12	13	1	1	7	11	4	64
Schleswig-Holstein	110	129	26	3	12	29	71	90	439
Thüringen	32	49	49	5	9	19	66	46	287
Not registered by region	7	5	4	1	1	0	6	5	23
<b>Ellada</b>	<b>19</b>	<b>13</b>	<b>10</b>	<b>-</b>	<b>4</b>	<b>9</b>	<b>13</b>	<b>19</b>	<b>32</b>
Voreia Ellada	4	-	0	-	-	4	6	4	13
Anatoliki Makedonia, Thraki	-	-	-	-	-	-	-	-	-
Kentriki Makedonia	4	-	0	-	-	4	6	4	13
Dytiki Makedonia	-	-	-	-	-	-	-	-	-
Thessalia	-	-	-	-	-	-	-	-	-
Kentriki Ellada	2	2	1	-	-	2	3	-	10
Ipeiros	-	-	-	-	-	-	-	-	-
Ionia Nisia	-	-	-	-	-	-	-	-	-
Dytiki Ellada	1	0	1	-	-	1	3	-	5
Sterea Ellada	-	-	-	-	-	-	-	-	-
Peloponnisos	1	2	0	-	-	1	-	-	3
Attiki	3	10	7	-	4	2	4	9	44
Nisia Aigaiou, Kriti	5	1	2	-	-	-	-	1	9
Voreio Aigaio	-	-	-	-	-	-	-	-	-
Notio Aigaio	1	-	1	-	-	-	-	-	2
Kriti	4	1	1	-	-	-	-	1	7
Not registered by region	-	-	-	-	-	1	-	1	2

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 30-2 Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2

	A	B	C	D	E	F	G	H	Total
<b>España</b>	<b>225</b>	<b>217</b>	<b>142</b>	<b>21</b>	<b>57</b>	<b>78</b>	<b>112</b>	<b>113</b>	<b>987</b>
Noroeste	7	5	3	-	1	1	2	3	22
Galicia	3	2	1	-	1	1	-	3	11
Principado de Asturias	3	2	1	-	-	-	1	1	8
Cantabria	1	0	-	-	-	-	1	-	2
Noreste	22	26	3	3	10	27	14	13	137
Pais Vasco	18	24	1	3	5	18	3	4	72
Comunidad Foral de Navarra	8	4	1	-	1	5	4	2	23
La Rioja	-	2	-	-	-	-	-	-	2
Aragón	9	8	1	0	4	8	8	7	39
Comunidad de Madrid	28	31	26	-	7	3	21	28	187
Centro (E)	12	7	5	-	3	1	2	2	38
Castilla y León	9	5	4	-	4	1	2	0	25
Castilla-La Mancha	2	1	-	-	2	-	-	2	7
Extremadura	1	1	0	-	2	-	-	-	4
Este	112	119	78	13	20	28	35	31	487
Cataluña	91	100	50	15	13	21	42	44	282
Comunidad Valenciana	25	18	28	2	10	5	12	7	104
Illes Balears	2	3	2	-	1	2	1	-	11
Sur	18	13	17	0	1	5	7	8	88
Andalucía	15	11	9	-	0	5	5	8	52
Murcia	1	2	7	0	1	-	2	0	14
Ceuta y Melilla	-	-	-	-	-	-	-	-	-
Canarias	2	8	2	-	1	4	2	3	19
Not registered by region	2	1	0	-	-	2	-	-	5
<b>France</b>	<b>1 573</b>	<b>1 829</b>	<b>1 195</b>	<b>98</b>	<b>321</b>	<b>894</b>	<b>1 453</b>	<b>1 820</b>	<b>3 580</b>
Ile de France	844	977	413	11	88	332	899	729	3 423
Bassin Parisien	180	280	138	14	50	111	99	132	688
Champagne-Ardenne	25	20	19	4	5	12	7	4	108
Picardie	19	28	28	8	13	13	8	24	187
Haute-Normandie	22	83	54	2	4	19	3	12	133
Centre	52	74	21	1	20	52	30	47	287
Basse-Normandie	20	17	5	1	2	8	24	21	94
Bourgogne	23	47	15	1	7	3	24	23	148
Nord - Pas-de-Calais	43	48	34	5	10	18	24	13	192
Est	148	142	110	13	88	24	74	88	682
Lorraine	45	43	29	1	28	10	18	11	178
Alsace	59	50	20	12	29	13	25	28	207
Franche-Comté	43	48	8	-	11	18	33	18	187
Ouest	91	141	37	4	20	49	93	203	632
Pays de la Loire	48	55	19	2	10	23	19	28	200
Bretagne	32	27	11	1	7	14	81	182	318
Poitou-Charentes	13	28	3	1	3	8	13	15	118
Sud-Ouest	37	31	87	9	12	28	88	91	451
Aquitaine	43	28	27	2	3	13	12	17	141
Midi-Pyrénées	40	51	28	8	9	20	48	83	275
Limousin	5	4	2	1	1	7	8	11	38
Centre-Est	281	310	297	38	45	95	221	238	1 582
Rhône-Alpes	281	228	297	33	41	82	220	252	1 283
Auvergne	20	32	46	5	3	4	11	4	170
Méditerranée	115	74	93	1	28	27	203	119	682
Languedoc-Roussillon	22	17	28	1	7	9	21	17	133
Provence-Alpes-Côte d'Azur	32	57	64	1	13	17	181	102	318
Corse	2	-	-	-	-	1	1	0	4
Départements d'Outre-Mer	3	2	-	-	-	-	-	-	5
Guadeloupe	-	1	-	-	-	-	-	-	1
Martinique	-	-	-	-	-	-	-	-	-
Guyane	-	-	-	-	-	-	-	-	-
Réunion	3	1	-	-	-	-	-	-	4
Not registered by region	1	5	4	1	-	2	5	7	24
<b>Ireland</b>	<b>70</b>	<b>44</b>	<b>28</b>	<b>1</b>	<b>13</b>	<b>12</b>	<b>35</b>	<b>74</b>	<b>227</b>
Border, Midlands and Western	24	12	1	0	1	1	8	20	85
Southern and Eastern	48	32	28	0	12	11	27	54	142
Not registered by region	-	-	-	-	-	-	-	-	-



**Table 30**  
**Patent applications to the EPO**  
**At the regional level**

Number of applications  
 2001 (provisional)

**Table 30-3**

**Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2**

	A	B	C	D	E	F	G	H	Total
<b>Italia</b>	910	1 172	438	148	228	482	420	488	4 316
Nord Ovest	83	130	80	10	23	31	70	71	388
Piemonte	49	128	47	10	28	72	55	26	472
Valle d'Aosta	1	5	-	-	-	-	1	1	8
Liguria	19	29	13	0	3	9	13	14	102
Lombardia	203	342	219	74	73	146	154	213	1 328
Nord Est	179	184	44	24	55	37	80	26	689
Trentino-Alto Adige	12	22	1	0	11	9	5	3	64
Veneto	149	113	28	18	28	59	44	48	488
Friuli-Venezia Giulia	21	29	4	3	9	13	11	3	110
Emilia-Romagna	134	217	23	3	41	20	42	25	703
Centro (I)	83	95	29	28	15	51	23	26	348
Toscana	39	72	19	23	8	31	21	20	249
Umbria	11	3	5	1	2	5	0	1	27
Marche	19	20	8	1	7	18	7	5	81
Lazio	73	29	22	2	3	7	23	29	213
Abruzzo-Molise	35	18	7	0	3	3	5	4	73
Abruzzo	34	18	8	0	2	3	5	4	70
Molise	1	-	1	-	1	-	-	-	3
Campania	22	10	7	2	4	8	5	5	69
Sud	8	8	4	-	4	13	4	8	47
Puglia	5	2	3	-	3	17	2	1	33
Basilicata	0	1	0	-	-	-	-	1	3
Calabria	0	3	1	-	1	1	2	4	11
Sicilia	10	8	8	-	4	3	20	19	67
Sardegna	7	2	3	-	1	2	4	2	21
Not registered by region	-	0	-	-	-	-	-	-	0
<b>Luxembourg</b>	3	28	20	-	3	20	3	7	93
<b>Nederland</b>	524	477	525	29	113	131	283	1 113	3 281
Noord-Nederland	29	27	24	2	7	19	18	12	128
Groningen	14	3	14	-	2	7	7	8	53
Friesland	9	18	5	-	3	1	3	2	39
Drenthe	8	3	8	2	1	11	5	5	44
Oost-Nederland	102	25	24	7	17	46	40	70	261
Overijssel	23	29	28	0	5	15	11	23	148
Gelderland	71	80	51	8	9	31	25	23	281
Flevoland	9	7	7	-	3	0	5	4	39
West-Nederland	243	179	230	10	79	82	184	37	1 099
Utrecht	49	24	20	1	9	10	28	19	197
Noord-Holland	59	20	20	3	19	17	31	23	254
Zuid-Holland	129	71	113	8	47	23	73	20	599
Zeeland	8	4	13	0	5	2	4	2	40
Zuid-Nederland	143	178	178	11	15	84	84	94	2 130
Noord-Brabant	115	118	20	7	13	20	82	92	1 507
Limburg (NL)	28	29	92	3	3	13	20	24	243
Not registered by region	1	1	1	0	-	-	1	-	5
<b>Osterreich</b>	192	215	208	33	128	181	185	214	1 414
Oststerreich	38	91	82	10	22	23	32	28	284
Burgenland	4	9	2	-	-	8	0	3	26
Niedersterreich	32	40	22	3	20	22	23	32	209
Wien	50	28	37	2	12	5	33	33	281
Südsterreich	13	83	48	9	27	23	32	82	238
Kärnten	2	10	8	1	9	3	10	28	67
Steiermark	17	58	42	3	13	20	23	26	221
Weststerreich	33	120	94	14	84	103	50	83	620
Obersterreich	22	20	51	10	28	48	13	14	233
Salzburg	16	10	5	1	5	22	17	5	82
Tirol	22	13	13	0	9	11	3	11	97
Vorarlberg	23	29	20	2	24	21	3	32	158
Not registered by region	8	8	3	-	5	2	-	1	22
<b>Portugal</b>	14	11	13	1	5	7	3	4	58
Continente	14	11	13	1	5	7	3	4	58
Norte	4	7	8	1	-	1	1	1	21
Centro (P)	0	1	1	-	4	3	1	-	11
Lisboa e Vale do Tejo	9	2	8	-	1	2	1	2	23
Alentejo	-	-	-	-	-	-	0	-	0
Algarve	-	1	-	-	-	-	-	-	1
Açores	-	-	-	-	-	-	-	-	-
Madeira	-	-	-	-	-	-	-	-	-
Not registered by region	-	-	-	-	-	-	-	-	-
<b>Suomi-Finland</b>	137	244	130	133	48	38	272	710	1 780
Manner-Suomi	137	242	130	133	48	38	272	708	1 748
Itä-Suomi	5	9	4	3	3	11	3	3	38
Väli-Suomi	3	13	4	25	3	15	15	22	116
Pohjois-Suomi	15	13	5	3	2	7	23	107	138
Uusimaa (suuralue)	70	28	70	82	13	23	32	32	283
Etelä-Suomi	40	111	27	40	19	23	104	213	527
Åland	-	2	-	-	2	-	-	-	4
Not registered by region	-	-	-	-	-	-	-	1	1

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 30-4** Patent applications to the EPO by IPC section at NUTS levels 0, 1 and 2

	A	B	C	D	E	F	G	H	Total
<b>Sverige</b>	<b>514</b>	<b>572</b>	<b>247</b>	<b>90</b>	<b>50</b>	<b>280</b>	<b>503</b>	<b>338</b>	<b>3 258</b>
Stockholm	153	103	30	13	21	81	203	492	1 101
Östra Mellansverige	87	105	52	2	3	62	106	126	540
Sydsverige	38	102	45	3	13	41	123	134	555
Norra Mellansverige	12	49	13	28	11	18	20	20	178
Mellersta Norrland	10	11	3	7	1	3	8	3	50
Övre Norrland	13	13	5	2	9	5	20	28	115
Småland med öarna	22	28	3	4	8	18	8	3	102
Västsvrige	127	141	42	23	19	73	75	34	605
Not registered by region	4	-	8	-	-	1	-	-	11
<b>United Kingdom</b>	<b>1 443</b>	<b>1 000</b>	<b>1 250</b>	<b>93</b>	<b>375</b>	<b>503</b>	<b>1 389</b>	<b>1 446</b>	<b>7 589</b>
North East	13	25	57	4	3	9	24	12	187
Tees Valley and Durham	8	18	21	2	1	5	13	5	63
Northumberland, Tyne and Wear	12	19	26	3	7	5	11	7	59
North West	147	202	213	21	27	28	108	73	713
Cumbria	2	5	7	2	2	-	10	7	34
Cheshire	53	23	75	3	9	7	30	18	223
Greater Manchester	29	21	41	5	4	17	41	23	191
Lancashire	14	25	17	3	11	11	11	9	102
Merseyside	45	9	73	3	2	4	15	3	184
Yorkshire and The Humber	94	34	70	13	25	23	83	57	440
East Riding and North Lincolnshire	12	11	17	1	4	4	1	2	53
North Yorkshire	23	15	15	0	8	2	14	11	97
South Yorkshire	14	22	13	1	8	9	12	3	85
West Yorkshire	35	26	34	10	9	17	38	26	204
East Midlands	102	74	84	8	20	53	77	56	453
Derbyshire and Nottinghamshire	57	42	37	2	12	29	29	21	229
Leicestershire, Rutland and Northants	42	27	25	3	7	24	45	20	203
Lincolnshire	4	5	2	1	2	5	3	4	25
West Midlands	88	105	55	8	52	74	33	75	521
Herefordshire, Worcestershire and Warks	32	47	15	4	11	32	45	29	225
Shropshire and Staffordshire	10	24	13	1	10	21	17	15	112
West Midlands	24	34	28	2	20	21	28	20	134
Eastern	282	140	220	4	28	82	217	346	1 419
East Anglia	92	71	111	3	23	27	205	253	784
Bedfordshire, Hertfordshire	141	28	73	1	3	17	55	45	380
Essex	49	21	45	-	9	19	53	45	254
London	152	28	100	1	21	24	281	125	621
Inner London	33	44	71	0	4	13	182	87	444
Outer London	89	45	29	1	17	21	119	85	377
South East	341	188	234	11	48	85	351	370	1 383
Berkshire, Bucks and Oxfordshire	134	21	148	4	12	23	219	132	784
Surrey, East and West Sussex	97	45	44	1	18	28	112	58	413
Hampshire and Isle of Wight	42	43	32	1	9	10	193	172	508
Kent	87	13	80	5	10	13	32	9	205
South West	105	25	47	13	20	45	133	194	719
Gloucestershire, Wiltshire and North Somerset	87	86	20	12	13	24	148	130	522
Dorset and Somerset	20	13	3	0	9	10	17	20	102
Cornwall and Isles of Scilly	1	10	8	0	1	3	3	4	34
Devon	18	8	3	-	1	7	17	11	81
Wales	23	45	21	5	13	13	23	23	208
West Wales and The Valleys	16	25	10	2	3	7	13	7	87
East Wales	22	18	21	3	10	8	24	18	119
Scotland	85	42	53	3	25	27	110	82	487
North Eastern Scotland	4	13	3	2	57	12	8	4	105
Eastern Scotland	22	18	23	4	19	11	87	23	225
South Western Scotland	28	9	9	2	7	11	33	18	114
Highlands and Islands	4	4	3	-	2	3	3	4	23
Northern Ireland	13	11	13	1	1	2	14	12	72
Not registered by region	20	18	12	-	7	4	11	21	99
<b>EEA</b>	<b>9 413</b>	<b>12 093</b>	<b>3 352</b>	<b>1 134</b>	<b>2 763</b>	<b>5 073</b>	<b>10 260</b>	<b>11 817</b>	<b>62 259</b>
Iceland	13	1	8	-	-	-	4	4	33
Liechtenstein	10	10	5	-	3	4	1	2	38
Norge	271	211	146	5	153	126	231	140	1 200
Oslo og Akershus	103	50	45	-	44	24	133	73	477
Hedmark og Oppland	9	14	4	1	-	10	1	-	39
Sør-Østlandet	37	71	46	1	13	28	34	25	289
Agder og Rogaland	43	25	10	-	58	22	17	25	203
Vestlandet	40	17	13	3	17	14	10	2	121
Trøndelag	20	13	18	-	10	21	23	24	132
Nord-Norge	13	5	3	-	8	3	2	-	37
Not registered by region	8	2	1	-	1	5	2	-	17

**Methodological notes**

NB: 2001: provisional data.  
EEA includes Liechtenstein.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.



**Table 31**  
**Patent applications to the EPO**  
**At the regional level**

**Table 31-2**

**Patent applications to the EPO at NUTS level 0, 1 and 2**

Per million inhabitants (1)

Per million labour force

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>España</b>	17	21	23 e	26 e	24	41	46	54	58	55
Noroeste	6	9	8	6	5	14	24	19	18	12
Galicia	6	10	7	4	4	14	24	17	9	10
Principado de Asturias	6	9	9	11	8	18	26	26	26	21
Cantabria	4	8	7	11	4	12	21	19	22	10
Noreste	31	33	38	33	34	73	77	88	77	78
Pais Vasco	28	37	32	28	28	82	86	73	68	80
Comunidad Foral de Navarra	43	41	57	48	43	101	97	137	114	99
La Rioja	4	4	15	9	8	10	10	26	22	19
Aragón	24	27	38	21	23	59	66	92	50	77
Comunidad de Madrid	28	31	40	40	38	82	72	92	97	80
Centro (E)	7	9	8	7	7	17	23	20	17	17
Castilla y León	7	11	10	10	10	18	26	26	24	25
Castilla-la Mancha	7	8	8	5	4	19	21	21	14	10
Extremadura	5	5	2	3	4	13	14	5	7	9
Este	28	36	40	48	48	61	83	94	102	103
Cataluña	28	48	55	56	62	82	108	128	128	140
Comunidad Valenciana	15	22	23	23	28	36	52	54	78	59
Illes Balears	7	13	15	18	14	17	31	38	41	32
Sur	6	7	8	8	8	15	17	18	19	19
Andalucía	6	6	5	7	7	18	15	14	18	18
Murcia	3	13	11	12	12	7	31	27	27	30
Ceuta y Melilla	.	.	.	.	.	.	.	.	.	.
Canarias	6	6	7	9	11	14	14	18	22	28
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>France</b>	110	128	131	144	148	280	288	300	329	331
Île de France	231	264	268 p	319	312	420	547	602	637	621
Bassin Parisien	80	88	94 p	93	98	130	207	198	217	224
Champagne-Ardenne	48	70	84 p	74	79	117	174	140	184	191
Picardie	79	88	91 p	84	80	128	247	217	197	203
Haute-Normandie	88	97	97 p	119	103	138	217	207	250	235
Centre	102	98	92 p	110	121	234	228	215	254	270
Basse-Normandie	57	58	58 p	60	66	147	128	148	128	178
Bourgogne	87	87	91 p	100	92	204	208	207	234	229
Nord - Pas-de-Calais	38	39	41 p	50	48	91	98	98	118	118
Est	98	120	109 p	128	128	228	273	228	287	289
Lorraine	63	84	72 p	88	77	188	197	188	188	184
Alsace	128	172	182 p	200	178	318	382	328	428	373
Franche-Comté	97	114	98 p	128	148	213	280	219	314	319
Ouest	44	60	63 p	68	81	102	128	128	147	190
Pays de la Loire	48	62	64 p	81	82	110	117	128	123	148
Bretagne	48	72	87 p	78	108	107	188	148	180	228
Poitou-Charentes	23	38	53 p	48	71	78	128	124	118	179
Sud-Ouest	57	87	89 p	72	73	128	188	180	181	181
Aquitaine	48	54	50 p	48	48	101	123	110	107	102
Midi-Pyrénées	78	92	98 p	107	107	172	214	228	234	240
Limousin	28	34	50 p	48	51	94	82	127	108	128
Centre-Est	178	188	197 p	211	222	388	428	482	481	508
Rhône-Alpes	197	213	221 p	238	244	428	478	500	503	544
Auvergne	81	79	93 p	100	129	193	193	227	228	318
Méditerranée	68	74	79 p	94	92	172	200	200	241	248
Languedoc-Roussillon	51	62	61 p	64	57	128	123	188	188	188
Provence-Alpes-Côte d'Azur	77	90	92 p	114	114	128	214	228	288	292
Corse	9	8	8 p	8	14	34	.	18	28	78
Départements d'Outre-Mer	.	2	1 p	5	3	.	5	.	.	8
Guadeloupe	.	.	5 p	13	2	.	.	.	.	8
Martinique	.	.	8 p	2	.	.	.	.	.	.
Guyane	.	.	2 p	.	.	.	.	.	.	.
Réunion	.	3	.	2	8	.	12	.	.	15
Not registered by region	.	.	.	.	.	.	.	.	.	.
<b>Ireland</b>	44	58	70	88	87	104	128	154	207	184
Border, Midlands and Western	.	26	49	71	68	.	.	.	184	147
Southern and Eastern	.	62	77	103	94	.	.	.	218	198
Not registered by region	.	.	.	.	.	.	.	.	.	.

**Methodological notes**

NB: 2001: provisional data.  
 (1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.  
 See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 31**  
**Patent applications to the EPO**  
**At the regional level**

**Table 31-3**

**Patent applications to the EPO at NUTS levels 0, 1 and 2**

Per million inhabitants (1)

Per million labour force

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>Italia</b>	57	64	68	77	75	140	160	168	189	183
Nord Ovest	79	84	101	102	97	189	201	237	237	228
Piemonte	98	98	120	117	110	221	231	277	287	282
Valle d'Aosta	4	3	22	42	66	8	8	47	80	148
Liguria	44	52	57	68	63	112	122	140	184	189
Lombardia	127	146	143	184	189	291	329	322	388	374
Nord Est	76	87	90	111	101	178	200	204	281	228
Trentino-Alto Adige	41	48	58	84	88	92	108	128	141	180
Veneto	75	91	94	118	110	171	208	213	288	244
Friuli-Venezia Giulia	108	101	100	131	92	288	238	237	311	218
Emilia-Romagna	119	126	142	170	177	288	300	311	371	383
Centro (I)	48	48	52	68	60	108	118	124	182	140
Toscana	41	58	53	72	68	98	120	128	170	188
Umbria	50	29	38	47	23	122	72	88	112	79
Marche	48	40	61	72	58	117	97	143	172	130
Lazio	28	40	49	42	41	94	108	121	162	160
Abruzzo-Molise	40	48	57	40	48	112	121	148	114	118
Abruzzo	54	57	68	60	58	140	150	178	128	144
Molise	3	3	14	8	8	8	8	38	18	20
Campania	8	9	10	12	10	21	24	28	28	29
Sud	8	9	9	10	7	19	28	28	27	20
Puglia	8	9	9	11	8	18	28	24	20	23
Basilicata	18	18	18	9	4	48	51	47	19	12
Calabria	9	9	7	9	8	14	18	20	24	18
Sicilia	8	12	14	18	13	28	38	41	44	38
Sardegna	8	10	10	11	13	17	28	28	27	23
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>Luxembourg</b>	129	140	201	199	214	324	348	477	488	494
<b>Nederland</b>	168	178	197	228	240	328	360	394	448	471
Noord-Nederland	70	74	77	71	82	182	188	188	148	188
Groningen	68	73	91	78	94	147	188	188	188	188
Friesland	58	68	88	77	82	128	148	113	188	128
Drenthe	88	94	90	88	93	188	173	188	121	192
Oost-Nederland	118	122	140	148	128	248	281	288	288	288
Overijssel	122	128	137	147	128	288	277	288	288	288
Gelderland	128	128	147	180	148	248	248	288	287	280
Flevoland	92	100	102	112	108	188	288	288	288	280
West-Nederland	117	128	132	188	148	248	288	281	282	282
Utrecht	124	188	174	201	178	248	288	288	277	281
Noord-Holland	102	114	118	137	140	202	222	224	287	280
Zuid-Holland	128	128	138	180	180	248	280	272	311	287
Zeeland	113	77	88	113	107	244	188	184	221	224
Zuid-Nederland	288	281	447	528	622	722	787	888	1 088	1 217
Noord-Brabant	423	477	583	688	822	891	948	1 148	1 342	1 578
Limburg (NL)	218	184	187	228	213	491	382	341	448	432
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>Osterreich</b>	111	142	140	188	174	228	288	294	322	387
Oststerreich	98	118	124	137	141	200	228	284	281	282
Burgenland	23	57	81	57	80	80	122	131	120	197
Niedersterreich	98	113	131	134	128	200	248	277	282	280
Wien	108	128	128	184	188	222	287	294	288	310
Südsterreich	80	134	118	148	182	180	288	282	234	280
Kärnten	67	131	108	180	118	182	288	288	287	271
Steiermark	87	128	121	144	184	182	284	280	317	289
Weststerreich	144	178	173	191	213	300	388	382	388	448
Obersterreich	148	178	180	184	208	308	378	388	383	428
Salzburg	107	94	114	148	188	222	191	222	288	222
Tirol	88	118	118	148	148	191	248	248	288	311
Vorarlberg	237	288	341	388	483	828	828	714	772	840
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>Portugal</b>	3	2	5	4	5	8	5	9	8	11
Continente	3	2	5	4	5	8	5	10	8	11
Norte	1	2	3	4	8	3	3	8	7	11
Centro (P)	4	3	4	4	8	7	5	7	8	11
Lisboa e Vale do Tejo	4	4	7	5	7	8	8	18	10	13
Alentejo	2	1	3	8	1	5	2	7	-	1
Algarve	3	8	8	1	3	8	1	13	2	8
Açores	-	-	-	-	-	-	-	-	-	-
Madeira	-	-	-	8	-	-	-	-	17	-
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>Suomi-Finland</b>	173 p	280	284	344	388	387 p	520	578	687	683
Manner-Suomi	172 p	280	288	344	388	388 p	520	578	688	688
Itä-Suomi	48 p	71	84	78	80	102 p	184	183	181	170
Väli-Suomi	73 p	120	171	188	187	188 p	281	282	288	318
Pohjois-Suomi	178 p	313	341	313	323	377 p	677	688	688	683
Uusimaa (suuralue)	217 p	481	504	648	682	-	-	281	1 140	1 013
Etelä-Suomi	183 p	288	281	288	288	-	-	511	581	643
Åland	119 p	119	91	78	188	280 p	288	180	144	282
Not registered by region	-	-	-	-	-	-	-	-	-	-

**Methodological notes**

NB: 2001: provisional data.

(1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

## Patent applications to the EPO At the regional level

Table 31-4

### Patent applications to the EPO at NUTS level 0, 1 and 2

Per million inhabitants (1)

Per million labour force

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>Sverige</b>	284	307	303	362	367	928	827	823	734	719
Stockholm	440	528	503	528	610	378	1 123	1 101	1 119	1 089
Östra Mellansverige	250	269	289	298	362	908	928	961	807	723
Sydsvrige	288	301	317	458	428	988	834	883	978	888
Norra Mellansverige	184	200	171	220	211	279	380	322	462	432
Mellersta Norrland	113	140	159	108	122	227	278	234	224	274
Övre Norrland	141	168	180	219	224	288	334	388	462	482
Småland med öarna	138	112	102	180	128	270	228	201	211	283
Västsvrige	248	288	312	382	340	903	828	831	728	672
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>United Kingdom</b>	90	101	111	128	120	188	208	227	281	272
<b>North East</b>	68	74	77	78	88	192	188	173	188	142
Tees Valley and Durham	48	64	79	88	88	98	148	167	138	129
Northumberland, Tyne and Wear	88	88	79	88	88	128	184	178	188	192
<b>North West</b>	78	81	89	100	100	182	177	182	208	217
Cumbria	78	88	89	88	88	187	180	141	188	148
Cheshire	188	184	177	211	228	342	387	381	423	481
Greater Manchester	88	88	88	88	74	123	124	128	128	181
Lancashire	88	88	88	70	71	118	180	143	148	147
Merseyside	88	88	81	118	118	142	128	194	271	272
<b>Yorkshire and The Humber</b>	88	71	88	90	87	121	148	127	188	181
East Riding and North Lincolnshire	87	48	89	84	80	122	98	128	122	129
North Yorkshire	94	127	107	188	129	188	240	217	287	282
South Yorkshire	40	40	38	88	88	88	188	77	123	143
West Yorkshire	87	78	70	88	88	118	188	148	188	188
<b>East Midlands</b>	88	90	108	117	108	178	180	214	221	218
Derbyshire and Nottinghamshire	88	81	108	118	114	178	188	218	228	224
Leicestershire, Rutland and Northants	118	119	127	180	120	218	228	281	282	282
Lincolnshire	28	48	48	42	40	71	87	90	82	81
<b>West Midlands</b>	78	78	92	94	87	194	188	188	194	201
Herefordshire, Worcestershire and Warks	140	140	184	188	184	281	284	310	287	288
Shropshire and Staffordshire	80	88	70	78	78	107	117	128	180	180
West Midlands	87	80	70	71	70	128	128	183	184	182
<b>Eastern</b>	184	204	207	248	281	383	388	488	488	501
East Anglia	220	248	284	322	288	488	488	588	623	683
Bedfordshire, Hertfordshire	188	171	188	218	228	308	318	384	410	411
Essex	148	177	182	178	187	220	282	222	288	289
<b>London</b>	88	84	92	100	113	172	187	208	208	228
Inner London	78	88	101	128	137	181	213	281	282	282
Outer London	88	82	88	82	84	187	171	182	188	188
<b>South East</b>	148	188	180	218	220	288	307	384	414	448
Berkshire, Bucks and Oxfordshire	217	248	288	320	280	482	482	488	580	627
Surrey, East and West Sussex	140	128	120	187	188	288	278	283	228	213
Hampshire and Isle of Wight	117	121	200	217	284	228	288	283	419	583
Kent	82	87	127	140	128	170	188	287	288	289
<b>South West</b>	81	102	127	148	148	180	204	283	281	280
Gloucestershire, Wiltshire and North Somerset	128	184	210	228	228	284	300	403	447	484
Dorset and Somerset	48	78	70	87	88	82	188	128	188	178
Cornwall and Isles of Scilly	78	84	88	82	88	112	148	148	148	147
Devon	80	47	82	82	87	88	107	128	128	117
<b>Wales</b>	42	80	87	72	70	82	121	188	181	187
West Wales and The Valleys	28	28	48	48	47	88	118	113	113	110
East Wales	88	82	88	118	111	181	204	224	224	220
<b>Scotland</b>	80	71	80	88	81	124	148	187	173	188
North Eastern Scotland	128	184	184	228	228	388	382	419	418	418
Eastern Scotland	78	88	98	101	114	180	208	208	208	223
South Western Scotland	28	41	88	82	48	88	124	119	119	112
Highlands and Islands	11	22	22	42	82	88	87	87	82	78
Northern Ireland	18	28	27	37	42	34	48	80	88	98
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>EEA</b>	188	198	141	188	188	248	288	308	348	382
Iceland	88	88	110	114	117	117	188	188	188	208
Liechtenstein	1 840	1 287	1 818	1 882	1 880 e	-	-	-	-	-
<b>Norge</b>	108	118	121	128	288	201	228	228	280	381
Oslo og Akershus	178	213	188	288	487	323	383	388	371	383
Hedmark og Oppland	87	28	28	48	188	78	88	81	88	288
Sør-Østlandet	88	104	124	148	288	181	201	288	283	388
Agder og Rogaland	148	178	187	178	228	288	228	282	341	343
Vestlandet	47	70	81	88	188	82	124	188	188	288
Trøndelag	87	88	107	124	287	187	182	211	244	388
Nord-Norge	28	28	28	88	78	48	48	71	117	184
Not registered by region	-	-	-	-	-	-	-	-	-	-

#### Methodological notes

NB: 2001: provisional data.

EEA per million inhabitants includes Liechtenstein;

EEA per million labour force excludes Liechtenstein as no reference data exists for this country.

(1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 32**

**Patent applications to the EPO in high technology fields  
At the regional level**

**Table 32-1**

**High tech patent applications to the EPO at NUTS levels 0, 1 and 2**

	Total number					Per million inhabitants (1)				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>9 203</b>	<b>7 281</b>	<b>8 773</b>	<b>11 040</b>	<b>11 258</b>	<b>14</b>	<b>13</b>	<b>23</b>	<b>29</b>	<b>32</b>
<b>EUR-12</b>	<b>3 800</b>	<b>5 417</b>	<b>8 354</b>	<b>8 231</b>	<b>8 875</b>	<b>12</b>	<b>18</b>	<b>22</b>	<b>27</b>	<b>29</b>
Région Bruxelles-capitale/Brussels hoofdstad gewest	123	172	217	231	240	12	17	21	23	23
Région Bruxelles-capitale	17	20	24	22	20	18	21	28	22	32
Vlaams Gewest	94	128	187	184	179	18	23	27	28	30
Antwerpen	28	43	53	58	62	21	28	32	34	38
Limburg (B)	3	5	7	5	9	3	8	9	8	12
Oost-Vlaanderen	20	40	59	46	41	15	28	29	24	20
Vlaams Brabant	22	43	47	48	51	23	43	46	48	50
West-Vlaanderen	8	8	11	11	18	7	7	10	10	14
Région Wallonne	11	13	28	44	20	3	4	8	13	9
Brabant Wallon	8	4	18	22	12	17	12	42	84	38
Hainaut	1	2	2	3	3	1	2	2	2	2
Liège	3	4	8	8	7	3	3	8	7	7
Luxembourg (B)	1	-	-	1	2	2	-	-	4	7
Namur	2	4	3	10	5	4	8	8	23	11
Not registered by region	0	0	-	1	1	-	-	-	-	-
<b>Danmark</b>	<b>111</b>	<b>131</b>	<b>154</b>	<b>208</b>	<b>229</b>	<b>21</b>	<b>28</b>	<b>29</b>	<b>38</b>	<b>42</b>
<b>Deutschland</b>	<b>1 828</b>	<b>2 431</b>	<b>2 289</b>	<b>3 714</b>	<b>4 017</b>	<b>20</b>	<b>28</b>	<b>28</b>	<b>48</b>	<b>49</b>
Baden-Württemberg	329 p	368	304	626	719	32 p	28	46	80	88
Stuttgart	174 p	222	281	322	371	48 p	57	72	82	95
Karlsruhe	82 p	88	94	119	151	24 p	28	28	43	58
Freiburg	88 p	81	87	108	98	31 p	28	41	48	48
Tübingen	37 p	48	42	38	38	18 p	28	24	48	55
Bayern	833 p	1 080	1 278	1 938	1 987	57 p	87	108	127	128
Oberbayern	482 p	608	681	1 186	1 138	121 p	202	248	288	282
Niederbayern	29 p	23	24	37	32	22 p	20	21	31	27
Oberpfalz	58 p	29	55	82	83	82 p	37	51	82	78
Oberfranken	13 p	12	14	28	28	12 p	11	12	23	25
Mittelfranken	54 p	107	128	186	178	32 p	84	78	92	104
Unterfranken	8 p	18	18	18	29	8 p	11	11	14	22
Schwaben	28 p	48	50	88	72	28 p	28	28	33	41
Berlin	78 p	121	117	188	200	22 p	28	24	48	59
Brandenburg	10 p	17	20	34	84	4 p	8	12	13	28
Bremen	4 p	4	8	5	10	8 p	7	9	8	18
Hamburg	3 p	88	58	44	53	2 p	28	20	28	21
Hessen	110 p	131	151	201	229	18 p	22	28	33	37
Darmstadt	87 p	108	121	188	183	24 p	28	33	42	49
Gießen	13 p	18	24	28	32	12 p	18	22	28	30
Kassel	10 p	4	8	15	10	8 p	3	5	12	8
Mecklenburg-Vorpommern	3 p	8	7	12	12	2 p	3	4	7	7
Niedersachsen	110 p	132	158	240	229	14 p	17	20	28	28
Braunschweig	28 p	28	47	88	78	18 p	23	28	38	42
Hannover	73 p	82	79	128	108	34 p	28	37	58	49
Lüneburg	11 p	7	24	41	37	7 p	4	18	28	22
Weser-Ems	2 p	5	5	8	13	1 p	2	2	4	5
Nordrhein-Westfalen	204 p	268	289	588	688	11 p	18	22	31	34
Düsseldorf	48 p	87	118	128	133	8 p	17	22	24	25
Köln	79 p	118	158	237	233	19 p	28	38	53	55
Münster	31 p	42	45	81	82	12 p	18	17	23	24
Detmold	28 p	31	38	72	108	12 p	15	18	28	32
Arnsberg	24 p	48	44	74	72	8 p	13	12	19	19
Rheinland-Pfalz	17 p	48	58	88	78	4 p	11	14	22	19
Koblenz	3 p	8	13	20	18	2 p	8	8	13	11
Trier	1 p	4	5	4	7	2 p	9	10	8	13
Rheinhessen-Pfalz	13 p	13	18	24	32	7 p	18	19	22	28
Saarland	3 p	7	8	9	7	3 p	7	5	8	7
Sachsen	11 p	48	59	107	154	3 p	11	13	24	35
Chemnitz	.	4	7	7	12	.	2	4	4	7
Dresden	.	42	49	88	122	.	24	28	44	78
Leipzig	.	2	3	5	11	.	2	3	4	10
Sachsen-Anhalt	8 p	8	11	23	23	3 p	3	4	9	9
Dessau	2 p	1	0	1	2	4 p	2	1	2	3
Halle	2 p	2	7	9	8	3 p	3	7	10	10
Magdeburg	3 p	5	4	13	13	3 p	4	3	10	11
Schleswig-Holstein	20 p	20	43	28	47	7 p	11	18	13	17
Thüringen	12 p	23	18	28	28	5 p	9	7	18	18
Not registered by region	24 p	18	8	3	8	-	-	-	-	-
<b>Ellada</b>	<b>4</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>22</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>
Voreia Ellada	-	-	0	-	8	-	-	0	-	2
Anatoliki Makedonia, Thraki	-	-	-	-	-	-	-	-	-	-
Kentriki Makedonia	-	-	0	-	8	-	-	0	-	3
Dytiki Makedonia	-	-	-	-	-	-	-	-	-	-
Thessalia	-	-	-	-	-	-	-	-	-	-
Kentriki Ellada	1	1	1	1	3	0	0	0	0	0
Ipeiros	-	0	0	-	-	-	0	1	-	-
Ionia Nisia	-	-	-	-	-	-	-	-	-	-
Dytiki Ellada	1	1	1	1	3	1	1	1	1	4
Stereia Ellada	-	-	-	-	-	-	-	-	-	-
Peloponnisos	-	-	-	-	0	-	-	-	-	0
Attiki	2	4	8	8	11	1	1	2	2	3
Nisia Aigaiou, Kriti	1	1	-	1	1	1	1	-	-	-
Voreio Aigaio	-	-	-	-	-	-	-	-	-	-
Notio Aigaio	-	-	-	-	1	-	-	-	-	2
Kriti	1	-	-	1	1	2	-	-	2	1
Not registered by region	-	-	-	-	1	-	2	-	-	-

**Methodological notes**

**NB:** 2001: provisional data.  
(1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.  
See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

Table 32

## Patent applications to the EPO in high technology fields At the regional level

Table 32-2

### High tech patent applications to the EPO at NUTS level 0, 1 and 2

Total number Per million inhabitants (1)

	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>España</b>	<b>58</b>	<b>70</b>	<b>121</b>	<b>132</b>	<b>140</b>	<b>1</b>	<b>2</b>	<b>3 e</b>	<b>3 e</b>	<b>4</b>
Noroeste	2	2	5	2	2	0	0	1	1	0
Galicia	2	1	4	1	1	1	0	2	0	0
Principado de Asturias	1	0	1	2	1	0	0	1	1	1
Cantabria	-	0	-	-	-	-	0	-	-	-
Noreste	1	3	3	3	8	0	1	1	1	1
País Vasco	1	3	2	1	2	0	1	1	0	1
Comunidad Foral de Navarra	0	-	1	1	2	0	-	1	2	3
La Rioja	-	-	-	-	-	-	-	-	-	-
Aragón	-	-	1	1	2	-	-	0	1	2
Comunidad de Madrid	22	27	53	65	77	4	5	11	13	9
Centro (E)	3	3	3	8	1	1	1	1	1	0
Castilla y León	3	2	3	8	1	1	1	1	2	1
Castilla-la Mancha	0	1	0	0	-	0	1	0	0	-
Extremadura	-	-	-	-	-	-	-	-	-	-
Este	28	40	50	47	63	2	4	5	4	8
Cataluña	21	30	42	37	51	3	5	7	8	8
Comunidad Valenciana	3	8	7	9	18	1	2	2	2	4
Iles Balears	2	-	1	1	1	2	-	2	1	1
Sur	2	3	8	9	18	0	0	1	1	2
Andalucía	1	3	8	9	13	0	0	1	1	2
Murcia	1	1	-	-	3	1	1	-	-	3
Ceuta y Melilla	-	-	-	-	-	-	-	-	-	-
Canarias	-	0	-	-	2	-	0	-	-	1
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>France</b>	<b>394</b>	<b>1 177</b>	<b>1 403</b>	<b>1 701</b>	<b>1 751</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>29</b>	<b>30</b>
Île de France	422	821	748	873	888	44	55	62 p	60	61
Bassin Parisien	52	50	72	87	82	8	5	7 p	8	8
Champagne-Ardenne	1	2	5	2	1	1	1	3 p	2	1
Picardie	7	13	9	4	5	4	7	5 p	2	3
Haute-Normandie	4	7	8	8	8	2	4	3 p	4	3
Centre	34	19	29	33	33	14	8	12 p	14	14
Basse-Normandie	7	8	10	10	23	5	4	7 p	7	18
Bourgogne	8	8	14	10	14	4	2	8 p	8	8
Nord - Pas-de-Calais	10	15	13	13	15	3	4	3 p	5	4
Est	42	83	70	85	85	8	12	14 p	13	11
Lorraine	9	13	15	13	12	4	8	8 p	8	5
Alsace	30	33	48	37	29	18	19	27 p	21	17
Franche-Comté	2	12	9	10	13	2	11	8 p	9	12
Ouest	50	82	93	118	122	7	11	12 p	15	23
Pays de la Loire	9	10	7	12	17	3	3	2 p	4	5
Bretagne	41	82	83	103	138	14	24	25 p	28	34
Poitou-Charentes	1	4	3	2	7	0	2	2 p	1	4
Sud-Ouest	37	48	81	74	94	8	7	10 p	12	15
Aquitaine	3	9	3	4	10	1	3	1 p	1	3
Midi-Pyrénées	34	37	58	70	84	13	14	23 p	27	33
Limousin	-	1	-	1	0	-	1	-	1	0
Centre-Est	144	174	227	284	280	21	25	33 p	38	38
Rhône-Alpes	141	170	223	285	240	25	30	40 p	45	42
Auvergne	4	5	4	8	10	3	3	3 p	8	8
Méditerranée	82	128	158	212	221	10	18	22 p	31	31
Languedoc-Roussillon	5	9	17	20	21	2	4	7 p	8	9
Provence-Alpes-Côte d'Azur	88	118	139	200	198	14	28	31 p	44	44
Corse	-	-	-	-	-	-	-	-	-	-
Départements d'Outre-Mer	-	-	-	1	-	-	-	-	0	-
Guadeloupe	-	-	-	0	-	-	-	-	1	-
Martinique	-	-	-	-	-	-	-	-	-	-
Guyane	-	-	-	-	-	-	-	-	-	-
Réunion	-	-	-	0	-	-	-	-	0	-
Not registered by region	1	0	0	2	5	-	-	-	-	-
<b>Ireland</b>	<b>20</b>	<b>28</b>	<b>37</b>	<b>114</b>	<b>117</b>	<b>8</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>21</b>
Border, Midlands and Western	-	3	-	13	18	-	3	-	13	18
Southern and Eastern	20	24	37	93	101	-	13	21	23	28
Not registered by region	-	1	-	2	-	-	-	-	-	-

#### Methodological notes

NB: 2001: provisional data.

(1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.



**Table 32**

**Patent applications to the EPO in high technology fields  
At the regional level**

**Table 32-3**

**High tech patent applications to the EPO at NUTS levels 0, 1 and 2**

	Total number					Per million inhabitants (1)				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>Italia</b>	269	309	329	390	374	9	9	9	7	8
Nord Ovest	20	37	40	41	55	6	6	7	7	9
Piemonte	28	32	38	20	40	7	7	8	8	10
Vale d'Aosta	0	-	-	1	1	2	-	-	10	8
Liguria	9	9	4	7	11	3	-	2	4	7
Lombardia	122	157	189	180	174	19	17	18	20	19
Nord Est	7	14	24	28	31	1	2	4	5	5
Trentino-Alto Adige	1	1	3	8	4	1	2	3	6	4
Veneto	4	10	14	19	22	1	2	3	4	5
Friuli-Venezia Giulia	2	3	7	10	8	2	2	6	8	5
Emilia-Romagna	28	29	19	28	22	7	7	4	7	6
Centro (I)	10	12	18	21	19	2	2	3	4	3
Toscana	9	9	12	17	18	2	2	3	5	5
Umbria	4	2	2	6	1	4	2	2	6	1
Marche	1	3	3	4	1	1	2	2	3	1
Lazio	30	30	29	29	31	6	4	5	6	6
Abruzzo-Molise	4	4	4	7	2	3	3	3	5	1
Abruzzo	4	4	4	7	2	3	3	3	6	2
Molise	-	-	-	-	-	-	-	-	-	-
Campania	8	9	4	7	8	1	1	1	1	1
Sud	4	9	9	9	9	1	1	1	1	1
Puglia	1	3	2	7	3	0	1	1	2	1
Basilicata	2	2	2	2	1	4	2	4	3	2
Calabria	0	1	-	0	1	0	0	0	0	0
Sicilia	12	24	29	34	28	2	5	6	7	5
Sardegna	-	2	2	2	4	-	1	1	1	3
Not registered by region	1	-	1	-	-	-	-	-	-	-
<b>Luxembourg</b>	3	3	4	13	9	8	8	9	31	11
<b>Nederland</b>	903	800	798	970	1 000	32	28	28	31	39
Noord-Nederland	10	17	18	18	20	6	11	10	10	12
Groningen	8	11	8	9	15	19	20	14	19	28
Friesland	1	3	5	3	1	2	4	8	5	2
Drenthe	0	4	3	4	4	1	8	7	9	8
Oost-Nederland	28	28	41	68	63	12	12	13	20	19
Overijssel	20	17	13	23	29	18	18	12	21	27
Gelderland	17	19	24	36	38	9	10	13	19	14
Flevoland	2	2	4	7	8	7	8	14	22	20
West-Nederland	122	148	154	201	177	18	20	21	27	24
Utrecht	21	30	34	47	38	20	20	31	43	35
Noord-Holland	28	33	48	62	60	14	13	19	28	24
Zuid-Holland	69	81	72	87	78	21	24	21	28	22
Zeeland	8	1	1	5	2	20	2	3	13	5
Zuid-Nederland	323	288	349	626	640	34	119	157	198	240
Noord-Brabant	303	289	319	641	609	131	139	220	272	342
Limburg (NL)	20	28	30	48	28	17	24	28	26	30
Not registered by region	-	0	-	1	-	-	-	-	-	-
<b>Österreich</b>	63	68	100	142	152	8	11	12	17	19
Ostösterreich	44	48	81	88	88	13	14	18	28	29
Burgenland	0	1	0	2	2	0	5	1	7	7
Niederösterreich	14	19	19	28	31	9	10	10	18	20
Wien	30	32	49	88	88	19	20	28	38	41
Südösterreich	9	21	22	26	28	9	13	13	20	18
Kärnten	9	17	18	22	14	8	21	28	28	25
Steiermark	4	8	8	15	14	3	9	9	12	12
Westösterreich	10	17	18	20	28	3	6	6	7	9
Oberösterreich	8	7	9	7	8	4	5	4	5	6
Salzburg	3	2	9	9	8	8	3	9	10	15
Tirol	1	9	4	9	8	1	7	9	8	8
Vorarlberg	-	3	2	2	3	-	9	7	7	9
Not registered by region	0	-	1	-	0	-	-	-	-	-
<b>Portugal</b>	9	2	4	8	7	0	0	0	1	1
Continente	9	2	4	8	7	0	0	0	1	1
Norte	-	1	1	3	2	-	0	0	1	1
Centro (P)	0	-	-	0	0	-	-	-	0	0
Lisboa e Vale do Tejo	4	1	3	9	9	1	0	1	1	1
Alentejo	0	-	-	-	-	0	-	-	-	-
Algarve	-	-	-	0	-	-	-	-	-	-
Açores	-	-	-	-	-	-	-	-	-	-
Madeira	-	-	-	-	-	-	-	-	-	-
Not registered by region	-	-	-	-	-	-	-	-	-	-
<b>Suomi-Finland</b>	228 p	312	620	804	708	98 p	98	120	158	138
Manner-Suomi	228 p	312	620	802	704	98 p	100	121	158	137
Itä-Suomi	1 p	9	3	4	8	1 p	7	9	8	12
Väli-Suomi	9 p	8	10	19	12	7 p	8	14	21	18
Pohjois-Suomi	9 p	108	91	28	84	28 p	108	183	171	191
Uusimaa (suuralue)	177 p	288	378	482	268	130 p	222	278	357	288
Etelä-Suomi	97 p	94	140	198	204	32 p	92	77	107	112
Åland	-	-	-	-	-	-	-	-	-	-
Not registered by region	0 p	-	0	3	1	-	-	-	-	-

**Methodological notes**

NB: 2001: provisional data.

(1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

## Patent applications to the EPO in high technology fields At the regional level

Table 32-4

### High tech patent applications to the EPO at NUTS level 0, 1 and 2

	Total number					Per million inhabitants (1)				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
<b>Sverige</b>	234	242	252	264	268	48	70	74	102	101
Stockholm	240	405	373	440	444	140	231	209	248	248
Östra Mellansverige	37	61	67	90	119	28	41	48	60	80
Sydsverige	48	74	91	201	181	38	69	72	157	142
Norra Mellansverige	13	22	14	11	21	18	28	18	13	24
Mellersta Norrland	1	4	3	5	2	1	11	8	14	8
Övre Norrland	20	23	31	28	40	28	48	60	78	78
Småland med öarna	4	4	6	1	4	5	5	7	2	5
Västsvrige	21	48	68	114	88	12	28	28	68	48
Not registered by region	1	4	0	1	1	-	-	-	-	-
<b>United Kingdom</b>	229	1 001	1 289	1 708	2 134	18	18	23	29	38
<b>North East</b>	8	8	10	12	18	3	2	4	5	8
Tees Valley and Durham	3	2	4	3	5	2	1	4	2	5
Northumberland, Tyne and Wear	5	6	6	9	13	4	3	4	7	7
<b>North West</b>	28	38	63	87	84	5	8	9	10	12
Cumbria	-	2	3	1	2	-	5	5	1	4
Cheshire	10	20	22	22	20	10	20	20	22	20
Greater Manchester	17	18	24	28	28	7	7	9	10	13
Lancashire	2	7	8	12	8	1	5	5	8	8
Merseyside	5	5	8	7	7	4	3	4	5	5
<b>Yorkshire and The Humber</b>	20	23	18	62	78	4	5	4	12	15
East Riding and North Lincolnshire	3	1	1	3	3	3	1	1	4	3
North Yorkshire	4	8	3	14	17	6	11	4	19	23
South Yorkshire	5	5	2	9	14	4	4	2	7	10
West Yorkshire	8	9	13	28	44	4	4	8	17	21
<b>East Midlands</b>	22	30	41	65	57	8	7	10	17	13
Derbyshire and Nottinghamshire	14	15	14	31	28	7	7	7	15	13
Leicestershire, Rutland and Northants	18	13	25	34	28	10	9	18	22	18
Lincolnshire	3	2	2	4	3	4	3	3	7	5
<b>West Midlands</b>	23	28	40	48	63	4	5	7	9	12
Herefordshire, Worcestershire and Warks	13	13	22	28	37	10	11	18	21	30
Shropshire and Staffordshire	4	3	9	8	7	3	2	8	5	5
West Midlands	7	12	9	14	19	3	5	3	5	7
<b>Eastern</b>	288	284	284	428	512	54	68	68	78	94
East Anglia	188	224	228	274	288	38	103	103	124	188
Bedfordshire, Hertfordshire	60	71	68	84	74	28	48	41	52	48
Essex	28	68	61	78	68	28	42	38	43	42
<b>London</b>	101	188	180	237	288	14	23	22	31	41
Inner London	43	88	70	128	188	18	24	28	48	71
Outer London	58	100	91	109	100	13	22	20	28	22
<b>South East</b>	219	220	377	448	604	28	28	47	58	78
Berkshire, Bucks and Oxfordshire	81	82	150	170	214	28	28	71	80	101
Surrey, East and West Sussex	68	68	90	98	103	28	28	19	37	40
Hampshire and Isle of Wight	68	84	187	188	288	37	28	94	93	148
Kent	5	8	10	14	20	3	5	8	9	18
<b>South West</b>	117	118	187	237	248	24	23	28	48	50
Gloucestershire, Wiltshire and North Somerset	90	98	181	207	288	42	44	74	98	94
Dorset and Somerset	13	13	17	14	23	11	11	15	12	20
Cornwall and Isles of Scilly	2	-	3	4	5	3	-	8	7	11
Devon	12	7	7	12	11	12	8	8	11	10
<b>Wales</b>	14	11	19	23	31	5	4	8	8	10
West Wales and The Valleys	8	5	8	8	9	3	3	4	4	5
East Wales	6	6	11	15	22	7	8	10	14	20
<b>Scotland</b>	58	58	88	88	82	11	11	13	13	18
North Eastern Scotland	4	8	1	5	4	10	14	3	10	9
Eastern Scotland	34	41	42	48	61	18	21	22	23	31
South Western Scotland	19	9	22	17	19	8	4	9	7	8
Highlands and Islands	1	1	-	2	8	2	3	-	5	22
Northern Ireland	1	4	9	13	13	0	2	8	7	8
Not registered by region	13	13	5	18	41	-	-	-	-	-
<b>EEA</b>	5 348	7 383	8 778	11 138	12 199	14	19	23	29	32
Iceland	4	5	7	15	9	15	17	28	54	31
Liechtenstein	3	2	0	5	-	80	84	8	134	-
<b>Norge</b>	28	78	92	70	222	9	17	12	18	50
Oslo og Akershus	22	52	31	48	138	24	58	32	50	138
Hedmark og Oppland	-	0	-	1	1	-	0	-	3	2
Sør-Østlandet	4	8	3	8	27	5	7	4	7	31
Agder og Rogaland	8	11	5	9	28	9	18	9	14	44
Vestlandet	0	2	7	1	4	0	3	9	1	5
Trøndelag	4	2	3	4	24	9	8	9	9	81
Nord-Norge	3	1	1	2	5	8	2	3	4	11
Not registered by region	-	-	-	-	-	-	-	-	-	-

#### Methodological notes

NB: 2001: provisional data.

EEA per million inhabitants includes Liechtenstein.

(1) 2001 population data for all regions with the exception of those in Spain: Eurostat estimation.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — EPO.

**Table 33**  
**Patents granted by the USPTO**  
**At the national level**

**Table 33A**

**Patents granted by the USPTO — Total number**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>17 353</b>	<b>17 262</b>	<b>17 019</b>	<b>17 303</b>	<b>18 194</b>	<b>19 139</b>	<b>25 040</b>	<b>26 044</b>	<b>27 342</b>	<b>30 235</b>
<b>EUR-12</b>	<b>14 332</b>	<b>13 827</b>	<b>13 553</b>	<b>13 497</b>	<b>14 207</b>	<b>14 858</b>	<b>19 275</b>	<b>19 264</b>	<b>21 325</b>	<b>23 198</b>
B	408	436	437	500	520	633	246	374	397	458
DK	207	223	227	278	237	334	466	562	500	587
D	7 542	7 169	7 076	6 977	7 270	7 444	9 707	10 008	10 977	12 127
EL	9	9	17	17	23	18	25	23	25	36
E	145	124	167	181	186	222	307	298	327	350
F	3 158	3 040	2 937	2 994	3 075	3 273	3 920	4 138	4 234	4 573
IRL	60	64	63	66	70	99	93	130	164	183
I	1 374	1 346	1 283	1 154	1 272	1 343	1 707	1 617	1 342	1 394
L	33	37	27	30	23	32	27	23	33	57
NL	952	830	942	897	907	942	1 443	1 477	1 435	1 574
A	392	345	387	373	390	422	479	569	626	677
P	4	5	6	3	3	9	12	10	15	20
FIN	387	306	329	372	472	437	686	700	670	809
S	663	620	752	844	925	923	1 344	1 520	1 737	1 893
UK	2 596	2 593	2 490	2 746	2 757	3 034	3 255	4 103	4 279	4 624
<b>EEA</b>	<b>17 979</b>	<b>17 395</b>	<b>17 153</b>	<b>17 455</b>	<b>18 327</b>	<b>19 397</b>	<b>25 273</b>	<b>26 303</b>	<b>28 149</b>	<b>30 975</b>
IS	3	5	5	7	5	5	7	13	19	24
LI	.	.	.	.	.	.	.	.	.	.
NO	113	123	137	145	152	157	226	252	233	306
CA	.	.	.	.	.	.	3 254	3 587	3 732	3 936
JP	21 939	22 407	22 540	21 977	23 232	23 433	31 255	31 507	31 740	33 733
US	52 529	56 870	56 870	56 263	61 230	62 620	81 726	85 456	85 737	89 636

**Table 33B**

**Patents granted by the USPTO — Per million inhabitants**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>49</b>	<b>47</b>	<b>48</b>	<b>47</b>	<b>49</b>	<b>51</b>	<b>67</b>	<b>67</b>	<b>69 s</b>	<b>74 s</b>
<b>EUR-12</b>	<b>49</b>	<b>47</b>	<b>45</b>	<b>45</b>	<b>47</b>	<b>49</b>	<b>64</b>	<b>64</b>	<b>66 s</b>	<b>70 s</b>
B	47	43	43	49	50	62	33	30	33	33
DK	40	43	43	41	54	73	33	106	94	106
D	94	89	86	85	83	97	112	122	134	147
EL	7	7	2	7	2	2	2	3	2	3 s
E	4	5	4	5	5	6	3	7 e	3 e	9
F	55	53	51	52	52	55	62	72	72	77
IRL	17	13	19	13	23	27	27	35 e	43 ep	49 p
I	23	24	22	20	22	23	30	32	33 e	33 e
L	25	34	67	74	56	77	64	65 e	132 e	176 e
NL	63	53	67	53	59	67	92	93	94	93
A	50	43	47	47	43	52	59	70	77	83
P	0	7	7	0	0	7	7	7	7	2 e
FIN	73	67	65	73	92	94	123	126	130	156
S	77	73	86	98	106	104	152	172	195	214
UK	45	44	43	47	47	52	67	69	72	77 e
<b>EEA</b>	<b>48</b>	<b>47</b>	<b>48</b>	<b>48</b>	<b>49</b>	<b>57</b>	<b>67</b>	<b>69</b>	<b>74</b>	<b>80</b>
IS	37	19	19	28	19	19	26	47	63	85
LI	.	.	.	.	.	.	.	.	.	.
NO	23	30	32	33	35	36	57	57	64	63
CA	.	.	.	.	.	.	107	118	123	123 s
JP	177	130	130	175	136	133	243	249	250	265 s
US	207	227	213	215	234	235	304	315	315	322 s

**Table 33C**

**Patents granted by the USPTO — Per million labour force**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>103</b>	<b>105</b>	<b>103</b>	<b>104</b>	<b>103</b>	<b>114</b>	<b>147</b>	<b>151</b>	<b>160</b>	<b>174</b>
<b>EUR-12</b>	<b>112</b>	<b>107</b>	<b>104</b>	<b>103</b>	<b>103</b>	<b>112</b>	<b>143</b>	<b>146</b>	<b>155</b>	<b>169</b>
B	100	107	104	120	143	150	199	136	208	223
DK	77	73	30	77	100	136	165	197	176	200
D	193	133	179	177	134	190	246	253	273	306
EL	2	2	4	3	5	4	6	6	6	3
E	10	12	11	12	12	14	13	17	13	20
F	129	123	113	120	119	127	153	164	164	174
IRL	44	47	42	46	63	65	60	77	94	105
I	53	59	57	57	56	59	74	69	79	80
L	196	279	159	130	135	135	154	155	313	270
NL	136	124	130	123	122	124	137	136	134	197
A	107	92	85	93	102	117	125	147	162	174
P	7	7	7	7	7	2	2	2	3	4
FIN	145	122	132	133	133	143	253	265	257	302
S	150	155	173	133	210	217	310	346	392	477
UK	97	89	83	97	97	108	133	147	145	157
<b>EEA</b>	<b>103</b>	<b>104</b>	<b>102</b>	<b>104</b>	<b>103</b>	<b>113</b>	<b>149</b>	<b>151</b>	<b>160</b>	<b>173</b>
IS	56	35	34	47	34	34	47	34	119	149
LI	.	.	.	.	.	.	.	.	.	.
NO	55	60	64	67	63	69	97	103	122	129
CA	.	.	.	.	.	.	210	224	235	245
JP	334	339	339	330	347	345	460	465	469	500
US	404	423	428 b	427	457	455 b	537	607	670	622 s

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat, data — USPTO.

Table 34

1 ECU/EUR = ...national currency

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	-	-	-	-	-	-	-	-	-	-	-
<b>EUR-12</b>	-	-	-	-	-	-	-	-	-	-	-
BEF	42.2233	41.5932	40.4713	39.6666	38.5519	38.2388	40.5382	40.6207	40.3300	40.3300	40.3300
DKK	7.90364	7.80925	7.54959	7.54828	7.32804	7.36934	7.43361	7.49930	7.43666	7.45332	-
DEM	2.06076	2.02081	1.93639	1.92458	1.87375	1.90954	1.91433	1.96113	1.95633	1.95533	1.95533
GRD	225.216	247.026	263.563	282.008	302.939	306.546	309.365	330.731	325.763	336.630	336.630
ESP	128.469	132.526	149.124	152.913	162.000	160.743	166.337	167.134	166.336	166.336	166.336
FRF	6.97332	6.84339	6.63363	6.53262	6.52506	6.49300	6.61260	6.60141	6.55957	6.56957	6.56957
IEP	0.767309	0.760713	0.799952	0.793613	0.815525	0.793443	0.747516	0.736245	0.737564	0.737564	0.737564
ITL	1.933.24	1.995.52	1.841.23	1.915.06	2.130.14	1.953.96	1.929.30	1.943.65	1.936.27	1.936.27	1.936.27
LUF	42.2233	41.5932	40.4713	39.6666	38.5519	38.2388	40.5382	40.6207	40.3300	40.3300	40.3300
NLG	2.31003	2.27432	2.17521	2.15327	2.09391	2.13973	2.21081	2.21987	2.20871	2.20371	2.20371
ATS	14.4309	14.2169	13.6233	13.5396	13.1324	13.4345	13.3240	13.2646	13.7608	13.7608	13.7608
PTE	173.814	174.714	182.370	196.396	196.106	195.781	193.589	201.695	200.432	200.432	200.432
FIM	5.00211	5.30703	6.69623	6.19077	5.70356	5.32317	5.33064	5.92351	5.94573	5.94573	5.94573
SEK	7.47327	7.53295	9.12151	9.16308	9.33192	8.51472	8.65117	8.91593	8.9762	8.44519	8.44519
GBP	0.701012	0.737660	0.779933	0.775908	0.823739	0.813793	0.892304	0.876434	0.853736	0.899473	0.823457
<b>EEA</b>	-	-	-	-	-	-	-	-	-	-	-
ISK	73.0013	74.6534	79.2523	83.1063	84.6353	84.6563	80.4391	79.6976	77.1324	72.5343	-
NOK	3.01701	3.04177	3.30954	3.37420	3.23575	3.19669	3.01261	2.46627	3.31041	3.11292	3.10661
JPY	166.4930	164.2230	130.1430	121.3220	123.0120	132.0840	137.0770	145.4150	121.3170	99.4743	-
USD	1.239160	1.292100	1.171000	1.139520	1.308010	1.269750	1.134040	1.121090	1.065730	0.921937	-

Table 35

1 PPS = ...national currency

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	-	-	-	-	-	-	-	-	-	-	-
<b>EUR-12</b>	-	-	-	-	-	-	-	-	-	-	-
BEF	1.0316	1.0137	0.9977	0.9941	1.0040	0.9906	0.9266	0.9233	1.0176	1.0073	1.0173
DKK	9.75217	9.39799	9.43356	9.36659	9.27369	9.09343	9.06759	9.10234	9.30380	9.32130	9.01090 f
DEM	1.1373	1.1431	1.1601	1.1379	1.1380	1.1246	1.0901	1.0930	1.0662	1.0376	1.0375
GRD	0.5026	0.5402	0.5336	0.6123	0.6569	0.6311	0.7243	0.7416	0.7377	0.7336	0.7526
ESP	0.7061	0.7465	0.7533	0.7342	0.8087	0.8095	0.8096	0.8330	0.8166	0.8200	0.8340
FRF	1.0546	1.0539	1.0810	1.0859	1.0856	1.0870	1.0333	1.0843	1.0801	1.0400	1.0336
IEP	0.8992	0.8766	0.8970	0.8713	0.8333	0.9266	0.9104	0.9707	1.0011	1.0236	1.0715
ITL	0.8007	0.8153	0.8646	0.8517	0.8326	0.8369	0.9104	0.8331	0.8743	0.8763	0.8336
LUF	1.0235	1.0292	1.0633	1.0664	1.0622	1.0679	1.0367	1.0931	1.0712	1.0693	1.0966
NLG	1.0630	1.0433	1.0450	1.0367	1.0141	1.0063	0.9799	0.9543	0.9723	0.9699	1.0029
ATS	1.0943	1.0993	1.0863	1.0873	1.1001	1.0706	1.0494	1.0636	1.0306	1.0104	1.0133
PTE	0.5327	0.6239	0.6292	0.6336	0.6547	0.6624	0.6474	0.6309	0.6917	0.6964	0.7169
FIM	1.1295	1.1565	1.1043	1.1113	1.0387	1.0742	1.0792	1.0987	1.0357	1.0915	1.1059
SEK	10.58719	10.60342	10.60753	10.64559	10.71387	10.49342	10.33732	10.45871	10.50102	10.30626	10.43292 f
GBP	0.674742	0.666453	0.637621	0.694233	0.720437	0.693234	0.690455	0.691374	0.709620	0.691079	0.696231 f
<b>EEA</b>	-	-	-	-	-	-	-	-	-	-	-
ISK	90.1765	91.0411	83.7431	90.4010	83.5976	83.2220	85.0366	83.5256	83.4630	89.4644	94.3906
NOK	10.2743	10.2135	9.4323	9.3074	10.0753	9.3319	9.3336	10.1531	10.0724	10.0912	10.3316 f
JPY	206.925	208.010	197.671	192.450	189.016	199.702	176.220	173.296	176.545	162.225	164.513 f
USD	1.06134	1.05633	1.07925	1.07126	1.07963	1.08506	1.07433	1.06907	1.03954	1.07164	1.08153 f

Source: Eurostat.

**Tables 36 and 37**  
**Reference data**  
**At the national level**

Gross domestic product

**Table 36**

**GDP deflator — 1995 = 100**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	-	-	-	-	-	-	-	-	-	-	-
EUR-12	-	-	-	-	-	-	-	-	-	-	-
B	99.9	99.0	99.7	99.8	100	101.2	100.9	104.2	106.6	106.9	109.3
DK	92.8	95.3	95.6	98.3	100	102.6	104.7	106.3	108.6	112.6	116.0
D	97.8	92.2	95.6	98.0	100	101.0	101.7	102.3	103.3	102.9	104.2
EL	62.3 e	71.5 e	81.9 e	91.1 e	100	107.4	114.7	120.7	124.3	128.5	132.6
E	92.2	97.3	97.7	99.3	100	103.6	106.9	108.6	111.6	115.4	119.9
F	92.7	94.6	96.7	98.4	100	101.6	102.3	108.7	104.3	106.1	106.6
IRL	88.3	90.7	95.4	97.1	100	102.3	106.6	112.3	117.6	122.6	129.1 f
I	84.7	88.6	92.0	96.2	100	106.3	107.3	110.7	112.6	116.0	118.0
L	86.3	89.0	94.3	97.6	100	101.6	106.0	107.1	110.6	113.6	116.2
NL	91.9	94.1	95.3	98.1	100	101.2	108.2	106.0	106.3	110.3	116.0
A	89.1	92.3	95.0	97.6	100	101.3	102.2	102.3	103.6	104.7	106.6
P	75.3	88.9	90.1	96.7	100	103.0	106.9	111.0	114.6	118.1	123.9
FIN	91.2	92.0	94.2	96.0	100	99.3	101.3	104.9	104.7	108.0	110.4
S	91.0	91.9	94.4	96.6	100	101.4	108.2	104.1	104.3	106.3	108.0
UK	90.2	93.3	95.2	97.6	100	103.3	106.2	109.4	112.2	114.2	117.0
<b>EEA</b>	-	-	-	-	-	-	-	-	-	-	-
IS	90.0	93.3	92.3	97.3	100	102.0	106.6	110.3	114.7	118.1	123.2 f
NO	95.6	96.1	97.2	97.0	100	104.4	107.6	108.7	113.4	116.9	124.2 f
JP	93.0	99.7	100.3	100.4	100	99.2	99.6	99.5	98.1	96.1	94.3
US	91.4	93.6	95.9	97.9	100	101.9	108.9	106.2	106.7	109.1	111.6

**Table 37**

**GDP in millions EUR at current prices and current exchange rates**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15 (1)</b>	<b>5 740 533 s</b>	<b>6 013 109 s</b>	<b>6 031 437 s</b>	<b>6 323 463 s</b>	<b>6 574 543 s</b>	<b>6 906 323 s</b>	<b>7 272 114 s</b>	<b>7 473 533 s</b>	<b>8 003 500 s</b>	<b>8 515 563 s</b>	<b>8 795 420 s</b>
EUR-12 (1)	4 624 809 s	4 374 156 s	4 325 303 s	5 143 119 s	5 336 400 s	5 613 236 s	5 740 531 s	5 974 727 s	6 244 506 s	6 642 320 s	6 789 260 s
B	163 437	174 276	184 466	193 401	211 708	212 663	216 404	224 312	236 538	243 336	256 691
DK	108 446	113 604	113 641	123 024	137 733	144 156	149 169	154 069	163 216	173 329	181 436
D	1 432 662	1 561 713	1 670 311	1 763 730	1 830 207	1 876 161	1 868 453	1 916 370	1 974 300	2 026 600	2 063 000
EL	73 012 e	76 964 e	79 731 e	84 360 e	89 339	97 372	107 102	108 973	113 007	122 331	130 436
E	443 716	463 263	426 936	426 089	446 331	430 636	436 627	526 436	566 433	603 737	660 193
F	937 210	1 040 641	1 089 369	1 139 319	1 123 101	1 224 606	1 241 129	1 291 674	1 366 102	1 416 377	1 463 722
IRL	33 643	41 447	42 670	46 143	50 890	57 627	70 609	77 240	89 029	103 470	116 473 e
I	939 612	951 166	849 037	863 368	839 042	917 066	1 029 991	1 063 947	1 103 497	1 164 767	1 216 633
L	9 702	10 402	11 306	12 961	13 323	14 299	15 422	16 392	18 636	20 316	21 610
NL	244 624	263 603	277 767	293 923	317 324	324 479	332 664	361 643	373 664	401 039	424 307
A	136 673	146 956	153 611	163 108	179 340	182 364	181 646	133 646	136 663	204 342	210 701
P	66 634	75 479	73 636	76 308	82 631	83 310	93 390	100 320	107 741	116 042	122 706
FIN	99 329	83 361	73 666	84 369	93 333	100 623	108 072	116 266	120 436	131 229	136 067
S	200 132	197 161	184 133	174 216	133 697	206 273	210 316	213 702	227 607	243 479	234 162
UK	336 147	323 109	323 609	373 109	367 743	336 614	1 171 543	1 271 036	1 363 131	1 560 364	1 690 763
<b>EEA (1,2)</b>	<b>5 370 228 s</b>	<b>5 119 079 s</b>	<b>5 135 993 s</b>	<b>5 432 347 s</b>	<b>5 691 993 s</b>	<b>7 036 071 s</b>	<b>7 416 340 s</b>	<b>7 762 613 s</b>	<b>8 166 933 s</b>	<b>8 700 433 s</b>	<b>8 937 244 s</b>
IS	5 469	5 363	5 199	5 230	5 330	5 717	6 623	7 246	8 043	9 370 f	8 662 f
NO	95 224	97 607	99 123	103 600	112 039	124 026	136 703	131 636	144 091	176 506	183 047 f
JP	2 313 309	2 932 493	3 733 214	4 063 971	4 046 264	3 699 223	3 307 082	3 623 112	4 219 008	5 162 462	4 632 634
US	4 330 330	4 367 332	5 672 369	5 930 333	5 667 333	6 163 332	7 336 177	7 333 012	8 606 674	10 639 461	11 397 708

**Methodological notes**

- (1) EEA, EU-15 and EUR-12: exclude Luxembourg.
- (2) EEA: excludes Liechtenstein.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 38 — Population  
Table 39 — Labour force

Tables 38 and 39  
Reference data  
At the national level

Table 38

Population in thousands

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>365 332</b>	<b>367 091</b>	<b>368 935</b>	<b>370 323</b>	<b>371 442</b>	<b>372 474</b>	<b>373 487</b>	<b>374 345</b>	<b>375 277</b>	<b>376 422</b>	<b>378 017 s</b>
EUR-12	293 950	295 343	296 954	298 080	298 910	299 633	300 462	301 113	301 712 s	302 667 s	303 923 s
B	9 227	10 022	10 062	10 101	10 131	10 143	10 170	10 192	10 214	10 230	10 262
DK	5 146	5 162	5 131	5 137	5 216	5 251	5 275	5 295	5 314	5 330	5 340
D	79 753	80 275	80 975	81 332	81 530	81 317	82 012	82 057	82 037	82 162	82 260
EL	10 200	10 294	10 349	10 410	10 442	10 465	10 487	10 511	10 522	10 554	10 577 s
E	33 375	33 355	33 057	33 138	33 137	33 249	33 302	33 322	33 519 e	33 722 e	40 122
F	56 241	57 111	57 369	57 566	57 752	57 926	58 116	58 299	58 497	58 740	59 037
IRL	3 521	3 547	3 569	3 522	3 522	3 520	3 522	3 594	3 725 e	3 777 ep	3 826 p
I	56 744	56 757	56 960	57 122	57 260	57 323	57 461	57 563	57 613	57 620	57 244 e
L	324	300	305	401	407	412	412	424	429 e	436 e	441 e
NL	15 010	15 129	15 239	15 342	15 424	15 494	15 567	15 654	15 760	15 864	15 927
A	7 769	7 252	7 952	2 015	2 040	2 055	2 052	2 075	2 022	2 102	2 121
P	9 277	9 251	9 265	9 222	10 013	10 041	10 070	10 102	10 150	10 192	10 262 e
FIN	4 222	5 029	5 055	5 072	5 090	5 117	5 132	5 147	5 160	5 171	5 121
S	2 591	2 644	2 692	2 745	2 816	2 827	2 844	2 842	2 854	2 861	2 822
UK	57 625	57 907	58 099	58 222	58 500	58 704	58 905	59 090	59 291	59 623	59 262 e
<b>EEA (1)</b>	<b>392 917</b>	<b>371 824</b>	<b>373 527</b>	<b>374 944</b>	<b>376 022</b>	<b>377 144</b>	<b>378 120</b>	<b>379 098</b>	<b>380 030</b>	<b>381 272</b>	<b>382 237</b>
IS	256	260	262	266	267	262	270	272	276	279	282
LI	29	29	30	30	31	31	31	31	32	32	32 e
NO	4 250	4 274	4 299	4 325	4 342	4 370	4 393	4 412	4 445	4 472	4 502
JP	124 043	124 452	124 754	125 024	125 570	125 504	124 845	126 110	126 451	126 919 i	127 191 s
US	250 660	252 529	252 537	253 159	251 627	254 162	256 400	259 106	271 626	275 422 i	277 922 s

Table 39

Labour force in thousands

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	<b>195 299</b>	<b>194 211</b>	<b>195 122</b>	<b>195 959</b>	<b>198 172</b>	<b>197 397</b>	<b>198 213</b>	<b>199 159</b>	<b>192 221</b>	<b>173 425</b>	<b>174 221</b>
EUR-12	129 209	128 299	129 459	130 445	130 475	131 652	132 370	134 242	126 240	126 922	127 421
B	3 222	4 041	4 072	4 142	4 122	4 122	4 215	4 252	4 262	4 411	4 302
DK	2 209	2 202	2 275	2 759	2 792	2 215	2 222	2 221	2 222	2 244	2 222
D	20 026	22 294	23 112	23 227	22 921	23 022	23 162	23 292	23 522	23 447	23 602
EL	3 229	3 222	4 062	4 154	4 201	4 222	4 221	4 445	4 422	4 427	4 222
E	15 014	15 141	15 222	15 422	15 521	15 272	15 022	15 222	17 124	17 172	17 110
F	24 247	24 522	24 712	24 222	25 022	25 242	25 220	25 204	25 571	25 752	25 909
IRL	1 242	1 222	1 222	1 412	1 424	1 421	1 529	1 621	1 620	1 747	1 722
I	22 222	22 770	22 622	22 524	22 607	22 722	22 222	22 122	22 247	22 475	22 642
L	122	122	122	170	127	171	172	175	120	122	122
NL	6 211	7 022	7 022	7 224	7 204	7 407	7 202	7 742	7 291	2 020	2 222
A	3 207 i	3 279 i	3 224 i	3 220 i	3 242	3 219	3 202	3 222	3 222	3 222	3 221
P	5 012	4 222	4 714	4 729	4 722	4 720	4 242	4 929	5 022	5 022	5 127
FIN	2 571 i	2 522 i	2 504 i	2 422 i	2 422	2 445	2 422	2 511	2 642	2 624	2 679
S	4 520 i	4 422 i	4 279 i	4 224 i	4 422	4 409	4 222	4 222	4 222	4 224	4 222
UK	22 222	22 222	22 419	22 222	22 404	22 515	22 244	22 221	22 129	22 245	22 270
<b>EEA (1)</b>	<b>192 292</b>	<b>197 224</b>	<b>197 402</b>	<b>192 222</b>	<b>192 501</b>	<b>192 727</b>	<b>192 222</b>	<b>192 222</b>	<b>174 702</b>	<b>175 227</b>	<b>174 742</b>
IS	141 b	142 i	144 i	145 i	142 i	142	145	149	154	160	161
LI	.	.	.	.	.	.	.	.	.	.	.
NO	2 122 i	2 129 i	2 121 i	2 121 i	2 120	2 224	2 272	2 222	2 222	2 222	2 224
JP	62 020 i	62 720 i	62 120 i	62 420 i	62 620 i	67 110 i	67 270 i	67 220 i	67 720 i	67 620 i	67 520 i
US	122 424 i	120 071 i	120 220 i	122 772 b	122 224 i	122 502 i	127 270 b	129 122 i	140 222 i	142 222 i	144 022 s

PART 3 — REFERENCE DATA

Methodological notes

- i: OECD-MSTI data.
- (1) EEA includes Liechtenstein.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 40**  
**Reference data**  
**At the national level**

General government expenditure

**Table 40**

**Total general government expenditure in millions EUR**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>EU-15</b>	:	:	:	:	:	3 529 904	3 595 213	3 895 833	3 834 414	3 951 701	4 164 445
EUR-12	.	.	.	.	2 276 236	2 267 416	2 242 972	2 209 070	2 073 190	2 040 108	2 220 720
B	22 921	25 025	102 642	105 262	111 777	112 322	111 122	112 491	112 126	122 417	125 640
DK	.	.	.	.	.	26 127	26 504	22 741	21 302	22 272	27 754
D	6 17 262	750 214	222 022	262 267	1 054 275	244 272	2 12 542	225 221	262 020	220 760	1 000 520
EL	.	.	.	.	45 222	42 170	51 175	52 101	52 615	61 227	62 042
E	.	.	.	.	201 222	210 224	202 222	212 222	221 022	242 117	252 222
F	502 212	552 212	601 224	622 427	652 222	672 412	682 204	622 722	722 222	742 222	772 022
IRL	.	.	.	.	21 022	22 202	22 222	27 124	21 144	22 222	22 215
I	521 222	522 222	422 222	471 022	442 012	512 222	522 222	522 222	542 122	542 022	522 722
L	4 222	4 777	5 222	5 722	6 222	6 502	6 742	7 112	7 742	2 224	2 622
NL	124 022	144 041	152 022	157 211	172 222	161 044	160 442	162 014	172 222	122 212	122 022
A	.	.	.	.	102 022	102 222	22 222	102 222	102 701	102 222	110 240
P	.	.	.	.	27 212	40 422	42 027	44 222	42 222	52 222	52 222
FIN	52 222	52 222	47 222	52 222	52 222	60 222	61 222	61 222	62 222	62 222	62 222
S	.	.	112 222	122 222	124 122	124 771	122 222	122 222	122 222	142 422	124 422
UK	222 222	272 147	272 222	222 222	222 122	402 027	421 212	202 022	222 222	612 222	642 422
<b>EEA</b>	:	:	:	:	:	:	:	:	:	:	:
IS	.	.	.	.	.	.	.	.	.	.	.
NO	52 742	52 222	52 122	52 422	52 222	61 222	62 222	62 222	71 222	72 222	22 222
JP	.	.	.	.	.	.	.	.	.	.	.
US	.	.	.	.	.	.	.	.	.	.	.

Source: Eurostat.





**Table 41**  
**Reference data**  
**At the regional level**

GDP by region

**Table 41-2**

**GDP in millions of EUR at NUTS levels 0, 1 and 2**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>España</b>	<b>442 715</b>	<b>463 268</b>	<b>425 936</b>	<b>425 080</b>	<b>446 287</b>	<b>420 525</b>	<b>405 627</b>	<b>525 436</b>	<b>566 423</b>	<b>608 737</b>
Noroeste	41 463	43 307	39 702	39 231	41 500	44 232	45 306	47 333	51 133	.
Galicia	24 377	25 973	23 864	23 636	25 702	26 797	27 394	28 320	30 340	.
Principado de Asturias	11 026	11 456	10 508	10 301	10 374	11 432	11 737	12 370	13 067	.
Cantabria	5 600	5 977	5 323	5 337	5 536	5 954	6 130	6 543	7 133	.
Noreste	56 069	56 761	57 732	57 542	53 388	57 737	59 434	63 197	67 647	.
Pais Vasco	29 046	29 236	27 272	27 023	23 250	20 774	20 999	23 337	25 027	.
Comunidad Foral de Navarra	7 637	7 932	7 734	7 200	7 677	3 235	3 547	4 077	4 677	.
La Rioja	3 424	3 594	3 275	3 233	3 476	3 663	3 730	3 990	4 197	.
Aragón	14 397	15 350	14 056	14 077	14 674	15 730	16 733	16 799	17 752	.
Comunidad de Madrid	73 425	77 708	77 770	70 997	75 727	80 675	84 043	90 329	97 973	.
Centro (E)	50 354	52 447	43 336	43 345	50 766	54 395	55 749	53 772	61 902	.
Castilla y León	26 409	27 390	25 637	25 532	27 297	23 998	29 326	30 596	32 633	.
Castilla-la Mancha	16 073	16 747	15 246	15 149	15 773	17 075	17 333	13 672	19 437	.
Extremadura	7 854	8 266	7 600	7 634	7 695	3 323	3 435	3 563	4 733	.
Este	136 259	142 556	129 393	130 437	137 177	143 204	153 233	167 739	173 990	.
Cataluña	32 330	33 237	79 742	79 737	84 663	91 672	94 035	93 426	106 237	.
Comunidad Valenciana	43 453	45 270	47 052	40 377	42 277	45 455	47 477	50 533	54 607	.
Baleares	3 943	70 425	97 177	9 334	10 232	11 137	11 337	12 275	13 703	.
Sur	73 544	75 749	63 006	63 392	77 436	77 067	79 900	83 104	90 227	.
Andalucía	61 739	63 576	57 375	57 330	59 936	64 643	66 379	69 670	75 537	.
Murcia	10 674	10 996	9 177	9 933	10 243	11 045	11 524	12 276	13 127	.
Ceuta y Melilla	1 157	1 136	1 122	1 109	1 253	1 343	1 397	1 573	1 569	.
Canarias	16 149	17 306	16 733	16 297	16 939	13 323	19 064	20 709	22 677	.
<b>France</b>	<b>937 270</b>	<b>1 040 547</b>	<b>1 089 369</b>	<b>1 139 379</b>	<b>1 133 707</b>	<b>1 224 606</b>	<b>1 247 729</b>	<b>1 297 574</b>	<b>1 356 702</b>	<b>1 416 377</b>
Île de France	277 676	292 754	310 606	326 706	336 064	343 005	353 037	366 622	380 733	.
Bassin Parisien	157 956	165 077	169 975	179 097	187 476	191 306	192 937	202 232	210 070	.
Champagne-Ardenne	21 753	22 395	22 239	23 473	24 749	25 466	25 724	27 643	28 627	.
Picardie	26 295	27 542	23 337	29 340	31 332	32 064	32 037	33 636	34 536	.
Haute-Normandie	26 997	23 004	29 308	31 370	33 703	33 679	33 707	35 442	37 236	.
Centre	33 446	40 439	40 393	42 304	44 267	45 726	45 327	47 999	49 673	.
Basse-Normandie	19 742	21 222	22 770	23 444	24 222	24 906	25 703	25 772	26 933	.
Bourgogne	24 356	25 627	26 663	27 695	29 739	29 956	30 579	31 999	33 077	.
Nord - Pas-de-Calais	52 735	54 731	56 539	59 933	63 133	66 227	65 729	63 650	71 322	.
Est	77 333	82 272	85 357	90 379	95 739	97 074	96 757	107 477	106 360	.
Lorraine	33 262	34 663	35 367	37 233	39 733	40 273	39 934	47 324	43 423	.
Alsace	23 620	30 730	32 256	34 404	35 703	36 906	36 790	33 660	40 746	.
Franche-Comté	15 092	16 873	17 254	13 574	19 642	19 956	19 933	20 993	21 797	.
Ouest	106 794	112 973	116 999	123 426	123 376	133 139	135 447	141 733	147 535	.
Pays de la Loire	44 542	47 940	49 733	52 933	54 333	56 303	57 724	60 277	63 233	.
Bretagne	39 397	47 573	43 130	45 067	47 469	49 292	50 732	52 373	54 753	.
Poitou-Charentes	27 355	23 469	24 046	25 476	26 524	27 045	27 547	23 533	29 593	.
Sud-Ouest	33 700	32 793	35 936	100 499	106 509	109 406	112 776	117 772	122 773	.
Aquitaine	41 330	44 769	45 407	47 637	50 347	52 393	53 977	57 249	59 750	.
Midi-Pyrénées	36 659	33 299	39 777	47 532	43 973	45 070	46 933	47 325	50 033	.
Limousin	9 667	10 337	10 763	11 250	11 634	11 943	12 047	12 533	12 995	.
Centre-Est	111 776	116 232	120 947	126 446	133 466	133 430	142 003	149 749	156 006	.
Rhône-Alpes	93 673	97 290	107 070	106 662	117 352	116 347	119 340	125 703	130 743	.
Auvergne	13 153	13 942	13 377	20 734	21 673	22 139	22 673	24 046	24 267	.
Méditerranée	100 259	104 533	107 990	113 534	119 732	122 933	124 597	130 345	135 290	.
Languedoc-Roussillon	23 377	29 443	30 730	32 699	34 374	35 493	36 395	33 273	40 203	.
Provence-Alpes-Côte d'Azur	63 342	77 325	73 739	77 233	81 577	83 576	84 052	83 793	91 360	.
Corse	3 127	3 297	3 432	3 643	3 907	3 970	4 150	4 134	4 723	.
Départements d'Outre-Mer	.	.	.	.	17 623	13 494	13 923	19 766	20 576	.
<b>Ireland</b>	<b>33 643</b>	<b>41 447</b>	<b>42 570</b>	<b>46 742</b>	<b>50 390</b>	<b>57 627</b>	<b>70 899</b>	<b>77 240</b>	<b>89 069</b>	<b>103 470</b>

PART 3 — REFERENCE DATA

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.







**Table 42**  
**Reference data**  
**At the regional level**

Population by region

**Table 42-2**

**Population in thousands at NUTS levels 0, 1 and 2**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
España	39 968	39 087	39 136	39 197	39 249	39 303	39 358	39 413	39 470	40 122
Noroeste	4 252	4 246	4 244	4 235	4 223	4 211	4 200	4 202	4 207	4 203
Galicia	2 722	2 722	2 722	2 723	2 723	2 718	2 710	2 707	2 706	2 722
Principado de Asturias	1 032	1 030	1 028	1 028	1 024	1 023	1 024	1 023	1 023	1 023
Cantabria	527	527	527	527	527	528	528	527	528	528
Noreste	4 073	4 066	4 060	4 053	4 045	4 037	4 022	4 023	4 020	4 041
Pais Vasco	2 100	2 094	2 088	2 081	2 074	2 069	2 065	2 062	2 062	2 067
Comunidad Foral de Navarra	521	521	521	520	520	520	521	520	520	520
La Rioja	282	282	282	281	281	281	281	281	281	280
Aragón	1 188	1 187	1 186	1 184	1 182	1 179	1 178	1 172	1 169	1 168
Comunidad de Madrid	4 984	4 985	4 986	4 985	4 983	4 982	4 980	4 980	4 982	4 982
Centro (E)	5 287	5 287	5 288	5 272	5 271	5 264	5 258	5 250	5 251	5 261
Castilla y León	2 540	2 532	2 525	2 518	2 510	2 500	2 491	2 481	2 472	2 468
Castilla-la Mancha	1 883	1 879	1 878	1 884	1 880	1 883	1 887	1 891	1 893	1 893
Extremadura	1 063	1 065	1 068	1 070	1 071	1 071	1 071	1 071	1 072	1 078
Este	10 848	10 870	10 888	10 893	10 920	10 948	10 980	10 941	10 927	11 070
Cataluña	6 068	6 071	6 073	6 072	6 075	6 084	6 085	6 115	6 141	6 128
Comunidad Valenciana	3 889	3 891	3 892	3 904	3 915	3 928	3 941	3 955	4 008	4 070
Baleares	714	718	720	723	720	720	744	760	775	801
Sur	8 157	8 204	8 251	8 290	8 319	8 348	8 378	8 414	8 484	8 541
Andalucía	6 978	7 015	7 052	7 084	7 108	7 128	7 148	7 172	7 208	7 267
Murcia	1 053	1 061	1 066	1 075	1 081	1 083	1 085	1 085	1 117	1 123
Ceuta y Melilla	126	128	129	131	132	134	135	137	139	141
Canarias	1 508	1 517	1 520	1 543	1 558	1 577	1 601	1 629	1 662	1 718
France	57 111	57 269	57 368	57 753	57 928	58 118	58 299	58 437	58 748	59 007
Île de France	10 804	10 868	10 922	10 973	11 027	11 088	11 158	10 948 p	10 979	.
Bassin Parisien	10 246	10 281	10 322	10 454	10 479	10 508	10 528	10 494 p	10 480	.
Champagne-Ardenne	1 249	1 250	1 251	1 253	1 252	1 251	1 251	1 249 p	1 243	.
Picardie	1 820	1 841	1 848	1 855	1 863	1 869	1 872	1 858 p	1 863	.
Haute-Normandie	1 758	1 764	1 771	1 777	1 782	1 785	1 789	1 780 p	1 787	.
Centre	2 298	2 412	2 422	2 433	2 443	2 454	2 464	2 440 p	2 446	.
Basse-Normandie	1 298	1 405	1 408	1 413	1 418	1 422	1 428	1 422 p	1 427	.
Bourgogne	1 818	1 819	1 821	1 824	1 824	1 828	1 827	1 811 p	1 812	.
Nord - Pas-de-Calais	3 974	3 980	3 988	3 995	4 002	4 007	4 009	3 997 p	4 005	.
Est	5 053	5 080	5 088	5 115	5 130	5 143	5 152	5 181 p	5 179	.
Lorraine	2 208	2 209	2 211	2 212	2 212	2 211	2 209	2 212 p	2 213	.
Alsace	1 845	1 885	1 878	1 890	1 902	1 914	1 924	1 920 p	1 947	.
Franche-Comté	1 103	1 107	1 109	1 113	1 118	1 117	1 119	1 117 p	1 120	.
Ouest	7 505	7 541	7 562	7 608	7 640	7 663	7 728	7 783 p	7 809	.
Pays de la Loire	3 037	3 108	3 122	3 140	3 158	3 174	3 182	3 220 p	3 242	.
Bretagne	2 813	2 828	2 824	2 847	2 881	2 879	2 898	2 904 p	2 920	.
Poitou-Charentes	1 655	1 605	1 613	1 619	1 623	1 620	1 628	1 640 p	1 647	.
Sud-Ouest	6 011	6 040	6 087	6 080	6 101	6 129	6 155	6 189 p	6 202	.
Aquitaine	2 828	2 844	2 855	2 868	2 877	2 882	2 907	2 907 p	2 923	.
Midi-Pyrénées	2 481	2 478	2 483	2 484	2 508	2 520	2 522	2 550 p	2 587	.
Limousin	722	721	720	719	718	717	718	711 p	711	.
Centre-Est	6 770	6 821	6 852	6 885	6 923	6 961	6 997	6 949 p	6 987	.
Rhône-Alpes	5 451	5 503	5 538	5 582	5 608	5 648	5 682	5 640 p	5 677	.
Auvergne	1 318	1 318	1 318	1 315	1 315	1 315	1 315	1 308 p	1 310	.
Méditerranée	6 747	6 807	6 861	6 909	6 957	7 009	7 073	7 055 p	7 109	.
Languedoc-Roussillon	2 159	2 182	2 203	2 221	2 244	2 267	2 294	2 292 p	2 314	.
Provence-Alpes-Côte d'Azur	4 328	4 370	4 400	4 428	4 452	4 481	4 517	4 523 p	4 594	.
Corse	252	255	258	260	261	261	262	260 p	261	.
Départements d'Outre-Mer	.	.	.	.	.	.	1 826	1 862 p	1 898	.
Ireland	3 547	3 562	3 580	3 593	3 620	3 652	3 694	3 735 p	3 777 p	3 828 p
Border, Midlands and Western	.	.	.	.	.	.	979	987	998	.
Southern and Eastern	.	.	.	.	.	.	2 756	2 758	2 780	.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.



**Table 42**  
**Reference data**  
**At the regional level**

Population by region

**Table 42-4**

**Population in thousands at NUTS levels 0, 1 and 2**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Sverige</b>	<b>8 844</b>	<b>8 862</b>	<b>8 748</b>	<b>8 816</b>	<b>8 827</b>	<b>8 844</b>	<b>8 848</b>	<b>8 854</b>	<b>8 881</b>	<b>8 883</b>
Stockholm	1 838	1 870	1 888	1 703	1 728	1 744	1 757	1 783	1 803	.
Östra Mellansverige	1 470	1 473	1 460	1 501	1 501	1 498	1 488	1 482	1 490	.
Sydsvrige	1 229	1 228	1 248	1 289	1 289	1 288	1 288	1 272	1 274	.
Norra Mellansverige	884	884	888	888	883	887	880	843	838	.
Mellersta Norrland	397	397	397	397	394	391	388	384	380	.
Övre Norrland	519	522	528	527	527	524	522	518	515	.
Småland med Öarna	.	.	.	.	.	791	802	802	798	.
Västsvrige	.	.	.	.	.	1 772	1 787	1 780	1 782	.
<b>United Kingdom</b>	<b>57 907</b>	<b>58 099</b>	<b>58 250</b>	<b>58 500</b>	<b>58 704</b>	<b>58 905</b>	<b>59 080</b>	<b>59 301</b>	<b>59 623</b>	<b>59 863</b> *
<b>North East</b>	<b>2 808</b>	<b>2 810</b>	<b>2 811</b>	<b>2 807</b>	<b>2 803</b>	<b>2 807</b>	<b>2 802</b>	<b>2 808</b>	<b>2 808</b>	<b>2 808</b>
Tees Valley and Durham	1 188	1 187	1 188	1 187	1 188	1 189	1 189	1 183	1 188	.
Northumberland, Tyne and Wear	1 420	1 443	1 444	1 440	1 437	1 432	1 428	1 422	1 422	.
<b>North West</b>	<b>8 838</b>	<b>8 838</b>	<b>8 833</b>	<b>8 801</b>	<b>8 808</b>	<b>8 808</b>	<b>8 808</b>	<b>8 808</b>	<b>8 808</b>	<b>8 808</b>
Cumbria	490	490	490	490	490	491	490	492	493	.
Cheshire	987	989	974	977	979	981	983	983	988	.
Greater Manchester	2 572	2 578	2 579	2 578	2 577	2 574	2 576	2 577	2 583	.
Lancashire	1 412	1 417	1 422	1 423	1 423	1 423	1 428	1 428	1 428	.
Merseyside	1 468	1 443	1 428	1 431	1 424	1 417	1 411	1 407	1 407	.
<b>Yorkshire and The Humber</b>	<b>4 923</b>	<b>5 008</b>	<b>5 020</b>	<b>5 027</b>	<b>5 023</b>	<b>5 028</b>	<b>5 040</b>	<b>5 048</b>	<b>5 059</b>	<b>5 059</b>
East Riding and North Lincolnshire	879	883	887	883	883	888	894	892	894	.
North Yorkshire	721	722	724	723	723	728	740	748	750	.
South Yorkshire	1 303	1 308	1 308	1 305	1 304	1 305	1 304	1 303	1 308	.
West Yorkshire	2 088	2 088	2 103	2 109	2 108	2 110	2 112	2 114	2 121	.
<b>East Midlands</b>	<b>4 049</b>	<b>4 072</b>	<b>4 083</b>	<b>4 113</b>	<b>4 123</b>	<b>4 149</b>	<b>4 183</b>	<b>4 200</b>	<b>4 201</b>	<b>4 201</b>
Derbyshire and Nottinghamshire	1 988	1 978	1 982	1 987	1 992	1 998	2 008	2 004	2 012	.
Leicestershire, Rutland and Northamptonshire	1 487	1 487	1 507	1 517	1 527	1 528	1 542	1 550	1 580	.
Lincolnshire	594	588	604	609	614	618	621	628	630	.
<b>West Midlands</b>	<b>5 272</b>	<b>5 284</b>	<b>5 292</b>	<b>5 301</b>	<b>5 312</b>	<b>5 319</b>	<b>5 327</b>	<b>5 334</b>	<b>5 348</b>	<b>5 348</b>
Herefordshire, Worcestershire and Warwickshire	1 179	1 188	1 182	1 195	1 195	1 201	1 208	1 215	1 219	.
Shropshire and Staffordshire	1 483	1 488	1 489	1 474	1 477	1 481	1 488	1 492	1 497	.
West Midlands	2 608	2 608	2 621	2 623	2 640	2 637	2 629	2 627	2 623	.
<b>Eastern</b>	<b>5 183</b>	<b>5 184</b>	<b>5 208</b>	<b>5 240</b>	<b>5 275</b>	<b>5 313</b>	<b>5 358</b>	<b>5 388</b>	<b>5 430</b>	<b>5 430</b>
East Anglia	2 028	2 031	2 059	2 114	2 122	2 152	2 172	2 189	2 201	.
Bedfordshire, Hertfordshire	1 528	1 528	1 544	1 553	1 561	1 571	1 584	1 598	1 608	.
Essex	1 627	1 625	1 605	1 574	1 592	1 591	1 601	1 612	1 621	.
<b>London</b>	<b>7 098</b>	<b>7 135</b>	<b>7 138</b>	<b>7 138</b>	<b>7 138</b>	<b>7 138</b>	<b>7 138</b>	<b>7 138</b>	<b>7 138</b>	<b>7 138</b>
Inner London	.	.	.	.	.	2 719	2 744	2 769	2 822	.
Outer London	.	.	.	.	.	4 381	4 411	4 417	4 417	.
<b>South East</b>	<b>7 858</b>	<b>7 728</b>	<b>7 781</b>	<b>7 816</b>	<b>7 871</b>	<b>7 927</b>	<b>7 991</b>	<b>8 041</b>	<b>8 098</b>	<b>8 098</b>
Berkshire, Buckinghamshire and Oxfordshire	1 982	1 988	2 010	2 023	2 037	2 078	2 092	2 108	2 121	.
Surrey, East and West Sussex	2 488	2 474	2 484	2 488	2 493	2 492	2 492	2 496	2 498	.
Hampshire and Isle of Wight	1 711	1 716	1 724	1 730	1 747	1 759	1 767	1 778	1 788	.
Kent	1 577	1 569	1 543	1 549	1 564	1 582	1 570	1 581	1 591	.
<b>South West</b>	<b>4 732</b>	<b>4 787</b>	<b>4 783</b>	<b>4 813</b>	<b>4 834</b>	<b>4 859</b>	<b>4 888</b>	<b>4 919</b>	<b>4 948</b>	<b>4 948</b>
Gloucestershire, Wiltshire and North Somerset	2 083	2 088	2 107	2 120	2 130	2 142	2 158	2 171	2 188	.
Dorset and Somerset	1 120	1 128	1 148	1 159	1 162	1 189	1 177	1 183	1 188	.
Cornwall and Isles of Scilly	.	.	.	.	.	488	488	493	498	.
Devon	.	.	.	.	.	1 082	1 088	1 072	1 078	.
<b>Wales</b>	<b>2 898</b>	<b>2 903</b>	<b>2 910</b>	<b>2 915</b>	<b>2 919</b>	<b>2 924</b>	<b>2 930</b>	<b>2 938</b>	<b>2 948</b>	<b>2 948</b>
West Wales and The Valleys	.	.	.	.	.	1 870	1 888	1 887	1 872	.
East Wales	.	.	.	.	.	1 054	1 042	1 051	1 076	.
<b>Scotland</b>	<b>5 109</b>	<b>5 120</b>	<b>5 122</b>	<b>5 127</b>	<b>5 128</b>	<b>5 129</b>	<b>5 129</b>	<b>5 119</b>	<b>5 119</b>	<b>5 119</b>
North Eastern Scotland	.	442	448	448	448	442	428	440	428	.
Eastern Scotland	.	1 944	1 981	1 988	1 987	1 980	1 988	1 984	1 988	.
South Western Scotland	.	2 284	2 288	2 281	2 289	2 280	2 282	2 248	2 240	.
Highlands and Islands	.	370	372	372	372	371	370	368	367	.
Northern Ireland	1 810	1 828	1 837	1 845	1 852	1 850	1 858	1 862	1 868	.
<b>EEA (1)</b>	<b>371 824</b>	<b>373 837</b>	<b>374 944</b>	<b>376 053</b>	<b>377 144</b>	<b>378 189</b>	<b>379 098</b>	<b>380 039</b>	<b>381 212</b>	<b>382 337</b>
Iceland	280	282	288	287	288	270	272	278	279	283
Liechtenstein	39	30	30	31	31	31	31	32	32	33 *
<b>Norge (2)</b>	<b>4 274</b>	<b>4 289</b>	<b>4 295</b>	<b>4 348</b>	<b>4 370</b>	<b>4 393</b>	<b>4 418</b>	<b>4 448</b>	<b>4 479</b>	<b>4 503</b>
Oslo og Akershus	889	888	907	918	923	941	958	983	978	981
Hedmark og Oppland	370	370	371	370	369	368	368	368	370	371
Sør-Østlandet	828	829	831	834	837	842	848	858	863	870
Agder og Rogaland	598	592	590	604	608	613	618	628	631	638
Vestlandet	780	783	787	770	774	777	779	782	788	798
Trøndelag	380	381	383	384	385	388	388	388	390	392
Nord-Norge	483	488	487	489	489	487	484	483	484	484

**Methodological notes**

- (1) EEA includes Liechtenstein.
- (2) Norge regional data — Source: Statistics Norway.

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.





**Table 43**  
**Reference data**  
**At the regional level**

Labour force by region

**Table 43-2**

**Labour force in thousands at NUTS levels 0, 1 and 2**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>España</b>	<b>15 141</b>	<b>15 262</b>	<b>15 458</b>	<b>15 581</b>	<b>15 672</b>	<b>16 068</b>	<b>16 326</b>	<b>17 184</b>	<b>17 572</b>	<b>17 710</b>
Noroeste	1 774	1 768	1 742	1 702	1 717	1 708	1 708	1 704	1 762	1 768
Galicia	1 180	1 182	1 142	1 110	1 121	1 112	1 108	1 118	1 157	1 152
Principado de Asturias	421	412	398	392	398	392	397	388	402	392
Cantabria	120	201	200	200	200	201	210	200	202	221
Noreste	1 827	1 828	1 888	1 888	1 882	1 888	1 700	1 701	1 748	1 788
Pais Vasco	872	888	881	878	882	882	888	894	918	908
Comunidad Foral de Navarra	208	198	204	208	211	222	228	234	227	228
La Rioja	100	100	100	102	102	102	100	102	108	102
Aragón	488	488	474	488	477	488	488	482	492	508
Comunidad de Madrid	1 888	1 928	1 988	2 012	2 184	2 124	2 181	2 222	2 288	2 224
Centro (E)	2 007	2 010	1 977	1 988	1 988	1 981	2 028	2 088	2 108	2 107
Castilla y León	928	928	978	941	971	988	977	988	988	988
Castilla-la Mancha	812	818	802	802	812	808	804	808	872	888
Extremadura	284	412	400	388	388	388	408	412	440	427
Este	4 284	4 278	4 428	4 588	4 588	4 682	4 878	4 888	4 788	4 827
Cataluña	2 808	2 888	2 882	2 888	2 821	2 888	2 788	2 872	2 708	2 718
Comunidad Valenciana	1 528	1 588	1 588	1 618	1 648	1 684	1 688	1 684	1 782	1 771
Baleares	284	277	284	284	282	282	287	282	342	380
Sur	2 244	2 288	2 088	2 088	2 188	2 221	2 282	2 284	2 412	2 288
Andalucía	2 811	2 882	2 882	2 821	2 888	2 788	2 788	2 884	2 881	2 888
Murcia	281	408	417	418	418	408	448	448	474	488
Ceuta y Melilla	41	41	42	48	48	51	54	58	57	57
Canarias	581	584	611	622	624	687	688	678	710	702
<b>France</b>	<b>24 828</b>	<b>24 718</b>	<b>24 888</b>	<b>25 022</b>	<b>25 242</b>	<b>25 288</b>	<b>25 214</b>	<b>25 871</b>	<b>25 788</b>	<b>25 888</b>
Île de France	8 217	8 218	8 247	8 288	8 282	8 282	8 242	8 481	8 508	8 511
Bassin Parisien	4 288	4 287	4 282	4 242	4 412	4 417	4 282	4 478	4 487	4 442
Champagne-Ardenne	582	572	588	548	588	582	588	582	541	584
Picardie	788	882	787	742	734	748	742	777	787	822
Haute-Normandie	788	742	742	802	808	808	788	828	842	781
Centre	884	877	1 022	1 047	1 088	1 078	1 048	1 048	1 082	1 101
Basse-Normandie	810	887	824	824	828	848	888	888	888	827
Bourgogne	882	718	887	882	881	888	888	704	881	847
Nord - Pas-de-Calais	1 881	1 888	1 821	1 882	1 824	1 878	1 888	1 842	1 782	1 888
Est	2 141	2 181	2 187	2 184	2 124	2 178	2 287	2 287	2 282	2 428
Lorraine	918	972	987	981	918	922	988	984	1 042	1 088
Alsace	782	782	728	742	738	748	778	812	818	822
Franche-Comté	488	488	471	481	487	508	508	488	482	522
Ouest	3 181	3 218	3 282	3 248	3 218	3 221	3 288	3 388	3 431	3 288
Pays de la Loire	1 281	1 422	1 288	1 488	1 274	1 288	1 414	1 488	1 488	1 288
Bretagne	1 888	1 171	1 288	1 227	1 242	1 248	1 288	1 288	1 281	1 227
Poitou-Charentes	842	888	887	888	782	782	788	787	882	882
Sud-Ouest	2 811	2 882	2 821	2 882	2 782	2 722	2 884	2 888	2 778	2 888
Aquitaine	1 148	1 148	1 212	1 288	1 227	1 218	1 288	1 218	1 284	1 288
Midi-Pyrénées	1 188	1 128	1 088	1 088	1 088	1 108	1 088	1 078	1 172	1 142
Limousin	284	284	278	281	288	288	288	278	300	288
Centre-Est	2 788	2 848	3 108	3 088	3 174	3 142	3 082	3 021	3 082	3 078
Rhône-Alpes	2 281	2 418	2 874	2 824	2 828	2 888	2 888	2 488	2 818	2 842
Auvergne	514	522	528	528	548	548	528	528	548	522
Méditerranée	2 881	2 888	2 748	2 747	2 788	2 718	.	2 782	2 788	2 884
Languedoc-Roussillon	784	824	822	818	817	881	888	888	900	888
Provence-Alpes-Côte d'Azur	1 711	1 781	1 748	1 787	1 888	1 788	1 882	1 888	1 788	1 788
Corse	78	72	78	78	88	88	.	88	71	88
Départements d'Outre-Mer	.	.	.	.	.	.	872	.	.	888
<b>Ireland</b>	<b>1 282</b>	<b>1 288</b>	<b>1 412</b>	<b>1 424</b>	<b>1 481</b>	<b>1 528</b>	<b>1 621</b>	<b>1 688</b>	<b>1 747</b>	<b>1 782</b>
Border, Midlands and Western	.	.	.	.	.	.	.	.	424	448
Southern and Eastern	.	.	.	.	.	.	.	.	1 288	1 227

PART 3 — REFERENCE DATA

See abbreviations and other methodological notes starting on page 172.

Source: Eurostat.

Table 43-3

Labour force in thousands at NUTS levels 0, 1 and 2

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Italia	22 770	22 682	22 834	22 807	22 789	22 829	23 158	23 047	23 478	23 682
Nord Ovest	2 959	2 912	2 913	2 945	2 983	2 944	2 928	2 938	2 991	2 974
Piemonte	1 871	1 818	1 828	1 838	1 871	1 849	1 831	1 862	1 894	1 873
Valle d'Aosta	52	54	54	54	54	54	54	55	57	58
Liguria	828	842	834	855	858	842	830	860	850	848
Lombardia	3 918	3 918	3 899	3 878	3 904	3 919	3 928	4 028	4 028	4 028
Nord Est	2 793	2 782	2 773	2 789	2 812	2 843	2 868	2 894	2 927	2 968
Trentino-Alto Adige	3 926	2 888	2 87	2 88	3 04	3 11	3 11	4 18	4 28	4 27
Veneto	1 900	1 901	1 888	1 893	1 929	1 948	1 980	1 977	2 003	2 031
Friuli-Venezia Giulia	4 94	4 88	4 88	4 9	4 9	4 94	4 98	5 01	5 05	5 11
Emilia-Romagna	1 777	1 788	1 772	1 784	1 773	1 817	1 793	1 809	1 824	1 837
Centro (I)	2 408	2 410	2 388	2 414	2 418	2 407	2 397	2 402	2 470	2 468
Toscana	1 431	1 438	1 477	1 489	1 479	1 470	1 484	1 488	1 508	1 517
Umbria	3 28	3 28	3 21	3 2	3 24	3 22	3 21	3 48	3 48	3 47
Marche	8 68	8 67	8 51	8 53	8 68	8 69	8 62	8 18	8 18	8 28
Lazio	2 082	2 040	2 028	2 081	2 081	2 081	2 118	2 148	2 182	2 188
Abruzzo-Molise	8 68	8 18	8 07	8 18	8 28	8 18	8 18	8 12	8 11	8 18
Abruzzo	4 82	4 88	4 79	4 81	4 81	4 87	4 87	4 87	4 88	4 88
Molise	1 28	1 30	1 28	1 27	1 27	1 29	1 28	1 28	1 28	1 28
Campania	1 988	1 979	2 020	1 978	1 983	2 029	2 078	2 020	2 040	2 033
Sud	2 378	2 331	2 368	2 383	2 388	2 388	2 401	2 418	2 418	2 394
Puglia	1 442	1 388	1 378	1 388	1 388	1 388	1 442	1 462	1 462	1 438
Basilicata	2 18	2 10	2 11	2 10	2 08	2 11	2 18	2 12	2 20	2 12
Calabria	7 22	7 28	7 19	7 27	7 23	8 83	7 41	7 38	7 28	7 44
Sicilia	1 877	1 873	1 883	1 884	1 872	1 888	1 744	1 741	1 771	1 781
Sardegna	8 13	8 28	8 22	8 10	8 17	8 28	8 41	8 58	8 48	8 58
Luxembourg	1 88	1 88	1 70	1 87	1 71	1 73	1 78	1 80	1 88	1 88
Nederland	7 003	7 068	7 224	7 304	7 407	7 609	7 748	7 831	8 080	8 238
Noord-Nederland	8 68	7 01	7 08	7 28	7 44	7 88	7 72	8 00	8 14	8 22
Groningen	2 42	2 48	2 48	2 49	2 68	2 87	2 88	2 74	2 78	2 87
Friesland	2 88	2 83	2 81	2 70	2 77	2 80	2 82	2 82	2 87	2 88
Drenthe	1 97	2 08	2 01	2 08	2 11	2 17	2 28	2 23	2 30	2 27
Oost-Nederland	1 382	1 484	1 484	1 500	1 513	1 587	1 587	1 682	1 688	1 721
Overijssel	4 94	4 83	4 78	4 83	4 88	4 88	5 00	5 24	5 42	5 44
Gelderland	8 23	8 28	8 28	8 28	8 28	8 11	8 28	8 21	8 71	1 002
Flevoland	1 08	1 13	1 21	1 28	1 31	1 41	1 41	1 87	1 73	1 73
West-Nederland	3 388	3 388	3 448	3 488	3 488	3 603	3 603	3 718	3 810	3 888
Utrecht	5 03	5 07	5 24	5 28	5 44	5 58	5 58	5 78	5 90	5 97
Noord-Holland	1 181	1 180	1 180	1 202	1 224	1 280	1 272	1 281	1 288	1 288
Zuid-Holland	1 523	1 517	1 572	1 547	1 580	1 618	1 684	1 678	1 743	1 772
Zeeland	1 81	1 88	1 88	1 87	1 70	1 70	1 72	1 77	1 81	1 78
Zuid-Nederland	1 544	1 588	1 603	1 622	1 682	1 680	1 718	1 748	1 778	1 782
Noord-Brabant	1 038	1 048	1 080	1 088	1 119	1 148	1 187	1 180	1 207	1 228
Limburg (NL)	5 08	5 40	5 19	5 27	5 23	5 48	5 48	5 68	5 83	5 83
Oostenrijk	3 878	3 794	3 888	3 842	3 819	3 808	3 828	3 888	3 888	3 881
Ostösterreich	1 848	1 848	1 848	1 848	1 848	1 848	1 848	1 848	1 848	1 848
Burgenland	1 20	1 20	1 20	1 20	1 20	1 20	1 20	1 20	1 20	1 20
Niederösterreich	7 28	7 28	7 28	7 28	7 28	7 28	7 28	7 28	7 28	7 21
Wien	7 83	7 83	7 83	7 83	7 83	7 83	7 83	7 83	7 83	7 83
Südösterreich	7 92	7 92	7 92	7 92	7 92	7 92	7 92	7 92	7 92	7 92
Kärnten	2 48	2 48	2 48	2 48	2 48	2 48	2 48	2 48	2 48	2 48
Steiermark	5 43	5 43	5 43	5 43	5 43	5 43	5 43	5 43	5 43	5 43
Westösterreich	1 488	1 488	1 488	1 488	1 488	1 488	1 488	1 488	1 488	1 488
Oberösterreich	8 74	8 74	8 74	8 74	8 74	8 74	8 74	8 74	8 74	8 74
Salzburg	2 80	2 80	2 80	2 80	2 80	2 80	2 80	2 80	2 80	2 80
Tirol	3 14	3 14	3 14	3 14	3 14	3 14	3 14	3 14	3 14	3 14
Vorarlberg	1 87	1 87	1 87	1 87	1 87	1 87	1 87	1 87	1 87	1 87
Portugal	4 888	4 714	4 788	4 783	4 780	4 842	4 928	5 083	5 088	5 187
Contingente	4 487	4 382	4 348	4 381	4 378	4 403	4 777	4 848	4 878	4 883
Norte	1 830	1 888	1 870	1 888	1 871	1 882	1 810	1 834	1 828	1 888
Centro (P)	8 31	8 20	8 20	8 28	8 04	8 08	8 28	8 48	8 73	8 87
Lisboa e Vale do Tejo	1 838	1 838	1 838	1 818	1 818	1 822	1 838	1 888	1 871	1 882
Alentejo	2 38	2 38	2 38	2 33	2 31	2 29	2 28	2 28	2 30	2 34
Algarve	1 84	1 88	1 88	1 82	1 88	1 88	1 87	1 72	1 88	1 88
Açores	82	84	84	84	84	88	88	1 00	1 01	1 02
Madeira	1 17	1 17	1 18	1 18	1 11	1 13	1 24	1 19	1 19	1 22
Suomi-Finland	2 938	2 904	2 888	2 828	2 848	2 883	2 911	2 882	2 884	2 879
Manner-Suomi	2 417	2 417	2 417	2 417	2 417	2 417	2 417	2 417	2 417	2 417
Itä-Suomi	2 82	2 82	2 82	2 82	2 82	2 82	2 82	2 82	2 82	2 82
Väli-Suomi	3 18	3 18	3 18	3 18	3 18	3 18	3 18	3 18	3 18	3 18
Pohjois-Suomi	2 84	2 84	2 84	2 84	2 84	2 84	2 84	2 84	2 84	2 84
Uusimaa	2 77	2 77	2 77	2 77	2 77	2 77	2 77	2 77	2 77	2 77
Etelä-Suomi	7 88	7 88	7 88	7 88	7 88	7 88	7 88	7 88	7 88	7 88
Åland	12	12	12	12	12	12	12	12	12	12

## Methodological notes

i: OECD-MSTI data.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

**Table 43**  
**Reference data**  
**At the regional level**

Labour force by region

**Table 43-4**

**Labour force in thousands at NUTS levels 0, 1 and 2**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Sverige</b>	<b>4 456 1</b>	<b>4 379 1</b>	<b>4 284 1</b>	<b>4 203</b>	<b>4 109</b>	<b>4 009</b>	<b>3 920</b>	<b>3 828</b>	<b>3 741</b>	<b>3 658</b>
Stockholm	.	.	.	303	281	264	242	221	207	1 019
Östra Mellansverige	.	.	.	782	769	749	747	739	732	747
Sydsverige	.	.	.	623	609	593	582	577	570	561
Norra Mellansverige	.	.	.	427	423	418	418	410	406	408
Mellersta Norrland	.	.	.	193	204	199	197	199	190	180
Övre Norrland	.	.	.	287	270	260	260	240	244	255
Småland med Öarna	.	.	.	.	.	209	208	209	207	208
Västsvrige	.	.	.	.	.	384	376	371	364	361
<b>United Kingdom</b>	<b>28 958</b>	<b>28 419</b>	<b>28 268</b>	<b>28 404</b>	<b>28 915</b>	<b>28 844</b>	<b>28 861</b>	<b>29 129</b>	<b>29 348</b>	<b>29 370</b>
<b>North East</b>					<b>1 187</b>	<b>1 185</b>	<b>1 188</b>	<b>1 154</b>	<b>1 190</b>	<b>1 180</b>
Tees Valley and Durham	.	.	.	.	503	503	514	522	546	529
Northumberland, Tyne and Wear	.	.	.	.	649	652	642	632	644	651
<b>North West</b>					<b>3 221</b>	<b>3 204</b>	<b>3 187</b>	<b>3 222</b>	<b>3 279</b>	<b>3 283</b>
Cumbria	.	.	.	.	241	234	229	242	236	233
Cheshire	.	.	.	.	477	489	483	498	492	493
Greater Manchester	.	.	.	.	1 213	1 209	1 208	1 220	1 255	1 263
Lancashire	.	.	.	.	677	677	644	664	663	661
Merseyside	.	.	.	.	613	603	589	589	602	602
<b>Yorkshire and The Humber</b>	<b>2 441</b>	<b>2 448</b>	<b>2 419</b>	<b>2 404</b>	<b>2 418</b>	<b>2 398</b>	<b>2 428</b>	<b>2 421</b>	<b>2 468</b>	<b>2 429</b>
East Riding and North Lincolnshire	.	.	.	.	419	419	419	424	431	414
North Yorkshire	.	.	.	.	287	289	288	307	329	329
South Yorkshire	.	.	.	.	588	579	584	614	626	628
West Yorkshire	.	.	.	.	1 038	1 038	1 031	1 018	1 097	1 048
<b>East Midlands</b>	<b>2 043</b>	<b>2 047</b>	<b>2 022</b>	<b>2 049</b>	<b>2 078</b>	<b>2 094</b>	<b>2 093</b>	<b>2 100</b>	<b>2 128</b>	<b>2 097</b>
Derbyshire and Nottinghamshire	.	.	.	.	588	587	582	578	586	581
Leicestershire, Rutland and Northamptonshire	.	.	.	.	300	309	304	311	323	307
Lincolnshire	.	.	.	.	310	301	308	314	321	309
<b>West Midlands</b>	<b>2 980</b>	<b>2 977</b>	<b>2 981</b>	<b>2 977</b>	<b>2 994</b>	<b>2 977</b>	<b>2 912</b>	<b>2 922</b>	<b>2 997</b>	<b>2 988</b>
Herefordshire, Worcestershire and Warwickshire	.	.	.	.	623	649	643	642	629	631
Shropshire and Staffordshire	.	.	.	.	792	741	749	769	760	750
<b>West Midlands</b>					<b>1 204</b>	<b>1 192</b>	<b>1 229</b>	<b>1 210</b>	<b>1 269</b>	<b>1 207</b>
<b>Eastern</b>					<b>2 689</b>	<b>2 687</b>	<b>2 749</b>	<b>2 732</b>	<b>2 772</b>	<b>2 834</b>
<b>East Anglia</b>	<b>1 052</b>	<b>1 064</b>	<b>1 073</b>	<b>1 078</b>	<b>1 071</b>	<b>1 067</b>	<b>1 094</b>	<b>1 102</b>	<b>1 130</b>	<b>1 149</b>
Bedfordshire, Hertfordshire	.	.	.	.	323	329	348	317	359	362
Essex	.	.	.	.	788	791	802	814	794	824
<b>London</b>							<b>3 482</b>	<b>3 699</b>	<b>3 833</b>	<b>3 888</b>
Inner London	.	.	.	.	.	.	1 308	1 324	1 391	1 382
Outer London	.	.	.	.	.	.	2 178	2 378	2 442	2 506
<b>South East</b>					<b>4 009</b>	<b>4 013</b>	<b>4 081</b>	<b>4 100</b>	<b>4 228</b>	<b>4 241</b>
Berkshire, Buckinghamshire and Oxfordshire	.	.	.	.	1 123	1 120	1 123	1 147	1 188	1 199
Surrey, East and West Sussex	.	.	.	.	1 238	1 269	1 284	1 289	1 318	1 318
Hampshire and Isle of Wight	.	.	.	.	387	389	387	394	428	418
Kent	.	.	.	.	300	298	298	290	297	308
<b>South West</b>	<b>2 340</b>	<b>2 342</b>	<b>2 288</b>	<b>2 273</b>	<b>2 289</b>	<b>2 424</b>	<b>2 434</b>	<b>2 478</b>	<b>2 478</b>	<b>2 482</b>
Gloucestershire, Wiltshire and North Somerset	.	.	.	.	1 122	1 129	1 107	1 130	1 184	1 190
Dorset and Somerset	.	.	.	.	549	589	587	594	607	574
Cornwall and Isles of Scilly	.	.	.	.	.	.	228	231	208	233
Devon	.	.	.	.	.	.	524	520	500	528
<b>Wales</b>	<b>1 307</b>	<b>1 278</b>	<b>1 287</b>	<b>1 302</b>	<b>1 302</b>	<b>1 324</b>	<b>1 328</b>	<b>1 312</b>	<b>1 324</b>	<b>1 312</b>
<b>West Wales and The Valleys</b>							<b>800</b>	<b>802</b>	<b>797</b>	<b>798</b>
<b>East Wales</b>							<b>494</b>	<b>511</b>	<b>527</b>	<b>518</b>
<b>Scotland</b>	<b>2 943</b>	<b>2 479</b>	<b>2 912</b>	<b>2 482</b>	<b>2 487</b>	<b>2 484</b>	<b>2 490</b>	<b>2 499</b>	<b>2 519</b>	<b>2 519</b>
North Eastern Scotland	.	.	.	.	.	.	228	228	237	244
Eastern Scotland	.	.	.	.	.	.	998	937	988	983
South Western Scotland	.	.	.	.	.	.	1 074	1 090	1 018	1 020
Highlands and Islands	.	.	.	.	.	.	219	213	266	262
<b>Northern Ireland</b>	<b>687</b>	<b>680</b>	<b>680</b>	<b>683</b>	<b>709</b>	<b>728</b>	<b>728</b>	<b>720</b>	<b>729</b>	<b>730</b>
<b>EEA (1)</b>	<b>187 634</b>	<b>187 493</b>	<b>188 282</b>	<b>188 991</b>	<b>189 787</b>	<b>179 838</b>	<b>172 828</b>	<b>174 703</b>	<b>179 997</b>	<b>179 748</b>
Iceland	143	144	145	149	148	149	149	154	160	161
Liechtenstein	.	.	.	.	.	.	.	.	.	.
<b>Norge (2)</b>	<b>2 130 1</b>	<b>2 131 1</b>	<b>2 131 1</b>	<b>2 130</b>	<b>2 224</b>	<b>2 278</b>	<b>2 323</b>	<b>2 328</b>	<b>2 393</b>	<b>2 394</b>
Oslo og Akershus	.	.	.	.	.	522	531	529	546	553
Hedmark og Oppland	.	.	.	.	.	183	187	184	188	188
Sør-Østlandet	.	.	.	.	.	402	440	442	448	450
Agder og Rogaland	.	.	.	.	.	318	323	328	328	324
Vestlandet	.	.	.	.	.	297	408	410	411	408
Trøndelag	.	.	.	.	.	199	197	197	199	201
Nord-Norge	.	.	.	.	.	218	228	228	227	228

PART 3 — REFERENCE DATA

**Methodological notes**

- i: OECD-MSTI data.
- (1) EEA excludes Liechtenstein.
- (2) Norge regional data — Source: Statistics Norway.

See abbreviations and other methodological notes starting on page 172.

Sources: Eurostat, OECD.

## Abbreviations and other methodological notes to the Tables

### General abbreviations

-	not applicable or real zero or zero by default
<b>0</b>	less than half of the unit used
:	not available
<b>p</b>	provisional value
<b>e</b>	estimated value
<b>s</b>	Eurostat estimate
<b>r</b>	revised value
<b>f</b>	forecast
<b>b</b>	break in series.

### R&D expenditure and personnel

#### R&D expenditure in national currencies, EUR and PPS

<b>• Japan</b>			
Total of sectors, BES and HES	1981-95 1996	Overestimated or based on overestimated data Break in series with previous year for which data are available – MSTI data.	
<b>• United States</b>			
Total of sectors	1981-2000	Excludes most or all capital expenditures – MSTI data	
BES	1981-2000	Excludes most or all capital expenditures – MSTI data	
GOV	1981-98	Federal or central government only – MSTI data	
HES	1981-2000	Excludes most or all capital expenditures – MSTI data	
Total of sectors, BES, GOV and HES	2000	Provisional.	
<b>• Data for Japan and the United States</b>		Main science and technology indicators – MSTI 2002-1 data.	

#### GDP — R&D expenditure as a % of GDP

<b>• At the national level</b>			
Iceland	1981-91	GDP estimated using the year on year growth rates of GDP with ESA '79 data and applying these growth rates retrospectively to the missing ESA '95 series.	
Portugal	1981-94		
Sweden	1981-92		
<b>• At the regional level</b>			
All EEA countries	1981-94	ESA '79 data.	

## Abbreviations and other methodological notes to the Tables

### R&D expenditure and personnel (cont.)

#### R&D personnel in FTE

- **Japan**

All sectors, BES and HES	1981-95	Overestimated or based on overestimated data – MSTI data.
All sectors, BES and HES	1996	Break in series with previous year for which data is available – MSTI data.

#### R&D researchers, scientist and engineers in FTE

- **Japan**

Total of sectors, BES and HES	1981-95	Overestimated or based on overestimated data – MSTI data.
Total of sectors, BES and HES	1996	Break in series with previous year for which data is available – MSTI data.
- **United States**

Total of sectors	1985-97	Underestimated or based on underestimated data.
Total of sectors, GOV and HES	1985	Break in series with previous year for which data is available – MSTI data.
GOV	1981-97	Federal or central government only.
GOV	1985-97	Underestimated or based on underestimated data
BES	1998-99	Defence excluded. Provisional.

### European patent applications

#### International patent classification — IPC — section titles

- |                  |   |
|------------------|---|
| <b>Section A</b> | Human necessities;  |
| <b>Section B</b> | Performing operations; transporting;                          |
| <b>Section C</b> | Chemistry; metallurgy;  |
| <b>Section D</b> | Textiles; paper;  |
| <b>Section E</b> | Fixed constructions;  |
| <b>Section F</b> | Mechanical engineering; lighting; heating; weapons; blasting; |
| <b>Section G</b> | Physics;  |
| <b>Section H</b> | Electricity.  |

## Abbreviations and other methodological notes to the Tables

### European patent applications

#### High tech group titles

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

### Nomenclature of territorial units for statistics — NUTS

- The Nomenclature of Territorial Units for Statistics — NUTS — is defined only for the Member States of the European Union. For the candidate countries that are in the process of accession to the EU, for the additional countries comprising the European Economic Area — EEA — and also for Switzerland, a coding of Statistical Regions has been defined by Eurostat in agreement with the countries concerned. The purpose of both nomenclatures is to define a set of hierarchical regions in a comparable manner. Thus, a map referring to NUTS 2 refers also, where relevant, to Level 2 Statistical Regions.
- Arbitrary breakdown of NUTS codes due to the changes that appeared between NUTS '95 and NUTS '98.  
**Germany: Meissen** — NUTS code DED25 — includes Hoyerswerda, Kreisfreie Stadt — DED23, Saechsische Schweiz — DED29 — and Kamenz — DED2B.

# Abbreviations and symbols

## Abbreviations

### A

AAGR	.....	annual average growth rate
AGR	.....	annual growth rate

### B

BCRD	.....	(civil research and development budget
BERD	.....	expenditure on R&D in the business enterprise sector
BES	.....	business enterprise sector

### C

CD-ROM	.....	compact disc read-only memory
CEC	.....	Commission of the European Communities
CERN	.....	European Centre for Nuclear Research
CIMPS	.....	conférence interministérielle de la politique scientifique
CNR	.....	National Research Council (I)
CNES	.....	French Space Agency
CSF	.....	Community Support Framework

### D

DG	.....	directorate-general
DG RTD	.....	Research Directorate-General

### E

EC	.....	European Community/Communities
EEA	.....	European Economic Area
ELEFTHO	.....	Programme for the development of incubators and S&T parks in Greece
ENEA	.....	National Agency for New Technologies and Environment
EPIC	.....	Industrial and commercial public undertakings
EPO	.....	European Patents Office
EPST	.....	Public science and technology establishments
ESA	.....	European system of integrated accounts
ESA	.....	European Space Agency's
EU/EU-15	.....	European Union
EUR-12	.....	Eurozone (B, D, EL, E, F, IRL, I, L, NL, A, P, FIN)
Eurostat	.....	Statistical Office of the European Communities

### F

FAR	.....	Fund for the Facilities to Research
FhG-ISI	.....	Frauenhofer Institut für Systemtechnik und Innovationsforschung
FP	.....	Framework programme
FTE	.....	full-time equivalent
FUNN	.....	(or RDCTI) Research and Development in a Creative Trade and Industry

# Abbreviations and symbols

## G

GBAORD	Government budget appropriations or outlays for R&D
GDP	gross domestic product
GERD	gross domestic expenditure on R&D
GISCO	Geographic Information System for the Commission (Eurostat)
GOV	Government sector
GSRT	General Secretariat for Research and Technology (Greece)
GUF	General University Funds

## H

HC	head count
HEA	Higher Education Authority
HEI	higher education institutions
HERON	employment of new researchers in enterprises
HES	higher education sector

## I

ICT	information and communications technologies
IPC	International Patent Classification
ISBN	International Standard Book Number
ISCO	International Standard Classification of Occupations
IT	information technology

## J

JPO	Japanese Patent Office
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## K

KNAW	Royal Netherlands Academy of Arts and Sciences
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## L

LF	labour force
LFS	Labour Force Survey

## M

MERNT	Ministère de l'éducation nationale, de la recherche et de la technologie (F)
Mio	million
MIUR	Italian ministry of education, university and research
MSTI	Main Science and Technological Indicators



# Abbreviations and symbols

## N

NABS	Nomenclature for the analysis and comparison of science budgets and programmes
NACE	General Industrial Classification of Economic Activities within the European Communities
NESTI	Group of National Experts on Science and Technology Indicators; Nesti Group
NewCronos	Eurostat's statistical reference database
NHS	National Health Service
NUTS	Nomenclature of Territorial Units for Statistics
NWO	Netherlands Organisation for Scientific Research

## O

OECD	Organisation for Economic Cooperation and Development
OP	Operation Programme
OPOCE	Office for Official Publications of the European Communities
OST	Office of Science and Technology (UK)

## P

PAVET	Programme for the development of industrial research and technology
PENED	Programme for the reinforcement of research manpower
PEPER	Demonstration projects
PCT	Patent Cooperation Treaty
PHD	Philosophiae Doctor (doctor of philosophy)
PNP	private non-profit sector
PPP	purchasing power parities
PPS	purchasing power standard
PRAXE	Programme for the market exploitation of research results through the establishment of academics spin-offs

## R

R&D	research and development
RSE	researchers
RTD	research and technological development

## S

SF	structural funds
S&T	science and technology

## T

TRIPS	Trade-Related Aspects of Intellectual Property Rights
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## U

USPTO	United States Patent and Trademark Office
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## W

WIPO	United States Patent and Trademark Office
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# Abbreviations and symbols

## Statistical symbols and abbreviations

fax	.....	.facsimile number
No.	.....	.number
p.	.....	.page
tel	.....	.telephone number
%	.....	.percentage
1990-92	.....	.period of several calendar years (e.g. from 1.1.1990 to 31.12.92)
1991/92	.....	.period of 12 consecutive months

## Countries

### EU-15

B	.....	.Belgium
DK	.....	.Denmark
D	.....	.Germany
EL	.....	.Greece
E	.....	.Spain
F	.....	.France
IRL	.....	.Ireland
I	.....	.Italy
L	.....	.Luxembourg
NL	.....	.Netherlands
A	.....	.Austria
P	.....	.Portugal
FIN	.....	.Finland
S	.....	.Sweden
UK	.....	.United Kingdom

### Other countries

IS	.....	.Iceland
JP	.....	.Japan
LI	.....	.Liechtenstein
NO	.....	.Norway
US	.....	.United States

# Abbreviations and symbols

## Currencies

### EU-15

ECU	.....	.ecu (European currency unit - up to 1998)
EUR	.....	.euro (European currency unit - from 1999)
ATS	.....	.Austrian shilling
BEF	.....	.Belgian franc
DEM	.....	.German mark
DKK	.....	.Danish crown (krone)
ESP	.....	.Spanish peseta
FIM	.....	.Finnish markka
FRF	.....	.French franc
GBP	.....	.pound sterling
GRD	.....	.Greek drachma
IEP	.....	.Irish pound (punt)
ITL	.....	.Italian lira
LUF	.....	.Luxembourg franc
NLG	.....	.Dutch guilder
PTE	.....	.Portuguese escudo
SEK	.....	.Swedish crown (krona)

### Other countries

ISK	.....	.Icelandic króna
JPY	.....	.Yen
NOK	.....	.Norwegian krone
USD	.....	.US dollar

## Notice to the reader

**A**

nalyses in this publication refer to the data on the Eurostat database *NewCronos* at the time of writing. Because *NewCronos* is regularly updated as and when new data are received, it may be that data in extractions made or requested subsequently differ somewhat to those available at the time of writing. Similarly, indicated pathways for accessing specific tables in *NewCronos* may also have changed.

The periods under analysis presented in this publication were chosen according to availability. Data included in the time series either cover the period 1986 to 2001 or 1991 to 2001.

For the analysis, the general aim was to keep the year that ensured the greatest degree of harmonisation between countries. For this reason it was not possible in some cases to present all the data for all countries. The complete data time series are available from Eurostat on the *NewCronos* database.

Readers should note that the data used for the analyses of R&D in Europe – Part 1 are those available in the third quarter of 2002. They may not correspond exactly with those in the tables in Part 3, or in Eurostat's *NewCronos* database, when these have been subsequently updated.