Statistics in focus

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Patent activities in the EU: towards high tech patenting 1990 to 2000

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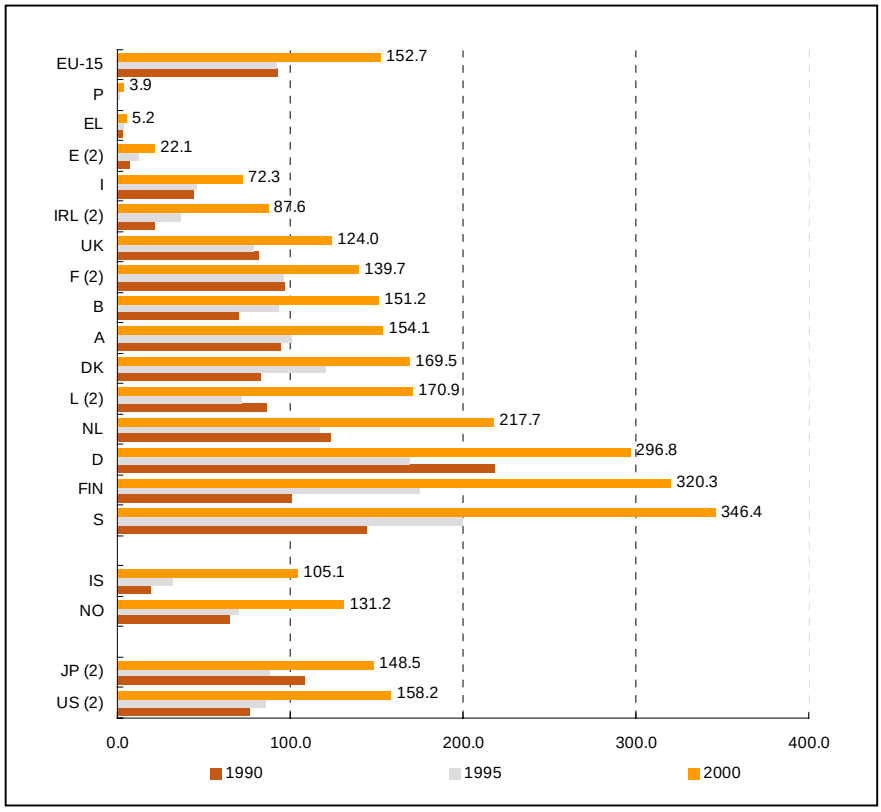
Figure 1: Trend of patent applications to the EPO per million inhabitants from EEA, Japan and the US (1990, 1995, 2000) [1]



(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.

Sources: Eurostat, data: EPO.

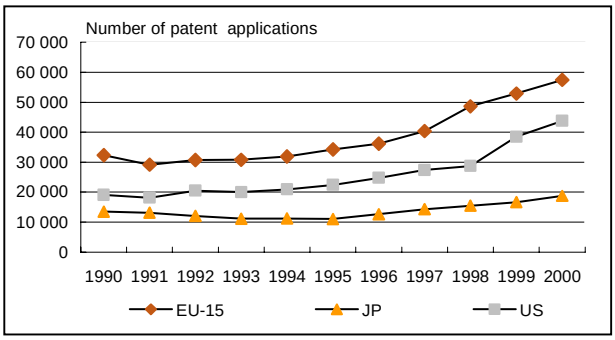
- In 2000, the European Patent Office (EPO) filed 57 473 patent applications from EU-15, 43 761 from the US and 18 780 from Japan. As a proportion of the population, the US recorded the highest ratio (158 patent applications per million inhabitants), followed by the EU (153) and Japan (149).
- Although patent applications to the EPO from the candidate countries are still below the EU average, they all have shown increasing ratios since 1990.
- Within the EU and in absolute terms, Germany accounted for the largest proportion of total EU patent applications to the EPO in 2000. However, when taking population into consideration, Sweden and Finland recorded the highest rates.
- For the 1995-2000 period, patent applications to the EPO in the high tech fields from the EU grew at an annual average growth rate of 22 %; Japanese patent applications grew at 13 % and those coming from the US at 27 %.
- In 2000, the European region with the largest number of high tech patent applications per million inhabitants was Uusimaa (301), in Finland, followed by Oberbayern (281), in Germany, and Noord-Brabant (269), in the Netherlands.

Patent statistics are widely used to derive R&D output indicators. The data presented here refer to patent applications to the European Patent Office (EPO), excluding therefore patent applications to other offices such as the US Patent and Trade Mark Office (USPTO), the Japanese Patent Office (JPO) and other national patent offices.

This Statistics in Focus looks at the structure and trend of patent applications to the EPO. Among these patent applications, an increasing proportion relates to high technology fields; therefore, special attention is paid to the analysis of patent applications in these areas.

Patent applications to the EPO from European countries, Japan and the US have been following an increasing trend in the second part of the nineties

Figure 2: Trend of patent applications to the EPO from EU-15, Japan and the US (1990 to 2000) (1)



(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

In 2000, the EPO filed 57 473 patent applications from EU-15, 43 761 from the US and 18 780 from Japan. As shown in Figure 2, 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 US 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.

Although the EU is leading in absolute terms, differences become smaller when counting patents in relative terms. Up until 1997 (with the exception of 1995), Japan recorded the highest ratio as a proportion of the population. In 1998, the EU was leading, but in 1999 US overtook EU. In 2000, the US registered 158.2 patent applications per million inhabitants, compared to 152.7 in the EU and 148.5 in Japan (Figure 1).

Table 1: Patent applications to the EPO from the candidate countries (1)

	Total number												Per million population										
	BG	CY	CZ	EE	HU	LT	LV	PL	RO	SI	SK	**EU-15**	BG	CY	CZ	EE	HU	LT	LV	PL	RO	SI	SK	**EU-15**
1990	14	2	1	0	131	0	0	24	2	5	0	**32 310**	1.6	2.9	0.1	-	12.6	-	-	0.6	0.1	2.5	-	**93.0**
1995	13	4	44	2	96	3	1	84	18	35	13	**34 205**	1.5	5.5	4.3	1.3	9.4	0.8	0.4	2.2	0.8	17.6	2.4	**92.1**
2000	26	4	125	10	162	4	6	88	21	41	32	**57 473**	3.2	6.0	12.1	6.9	16.1	1.1	2.5	2.3	0.9	20.6	5.9	**152.7**

(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

Table 2: Distribution of patent applications to the EPO by IPC section in the EEA, Japan and the US in 2000 (1)

	IPC section in % (2)								Absolute total number
	A	B	C	D	E	F	G	H	
EU-15	**15.4**	**20.1**	**14.5**	**2.1**	**4.5**	**10.0**	**14.9**	**18.6**	**57 473**
EUR-12	**14.6**	**21.3**	**14.4**	**2.2**	**4.5**	**10.6**	**14.2**	**18.3**	**46 106**
B	15.6	16.5	31.2	3.9	3.3	5.6	12.1	11.8	1 548
DK	24.8	13.2	18.0	1.9	5.6	7.8	14.1	14.7	903
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	5.6	55
E	24.2	22.9	13.9	1.6	7.5	6.8	10.0	12.9	872
F	18.5	19.2	14.5	1.3	3.9	8.7	15.2	18.6	8 272
IRL	22.5	11.2	8.7	0.0	3.7	3.4	26.7	23.8	331
I	20.7	28.1	10.6	3.4	5.7	10.0	9.9	11.5	4 172
L	5.1	32.1	21.2	1.3	0.5	18.7	11.8	9.3	74
NL	13.9	14.1	15.6	0.8	4.1	5.3	20.1	26.2	3 453
A	15.6	22.5	12.5	1.9	9.4	13.6	11.5	13.1	1 248
P	16.7	26.8	16.3	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	1 656
S	15.6	17.8	8.2	3.1	3.5	7.6	13.1	31.1	3 070
UK	19.4	14.5	17.1	1.2	4.8	7.4	19.7	15.8	7 394
EEA	**15.5**	**20.1**	**14.4**	**2.1**	**4.6**	**10.0**	**14.9**	**18.5**	**58 118**
IS	25.3	9.0	16.8	0.0	0.0	10.2	23.9	14.7	29
LI	29.8	29.8	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	16.2	8.6	588
JP	9.3	15.3	16.5	1.3	0.8	7.8	21.9	27.1	18 780
US	19.0	11.7	18.0	1.0	1.8	4.7	23.8	19.9	43 761

(1) 2000 provisional data.
(2) For abbreviations and codes of the International Patent Classification, see methodological notes.

Sources: Eurostat, data: EPO.

Within the EU, Figure 3 shows that Germany still accounts for the lion's share of the European patent applications to the EPO, as in 2000 42.4 % of the EU's total applications came from this country. France and the UK accounted for 14.4 % and 12.9 % respectively, showing therefore how European patent applications to the EPO are largely skewed towards the large economies. Nevertheless, even if in absolute terms smaller countries seem to be lagging with respect to the leading ones, differences are reduced when data are considered in relative terms. This is shown in Figure 1, as in 2000, Sweden and Finland outperformed Germany, France and the UK. In fact, Sweden, Finland, Germany, the Netherlands, Luxembourg and Denmark all registered a ratio of patent applications relative to population above both the EU and US averages.

Table 1 shows the trend of patent applications to the EPO, in absolute terms and per million inhabitants, for the candidate countries. All candidate countries registered rates below the EU average. However, they all have followed an increasing trend, showing therefore the effort to improve their innovative potential. (For further details in data availability see methodological notes).

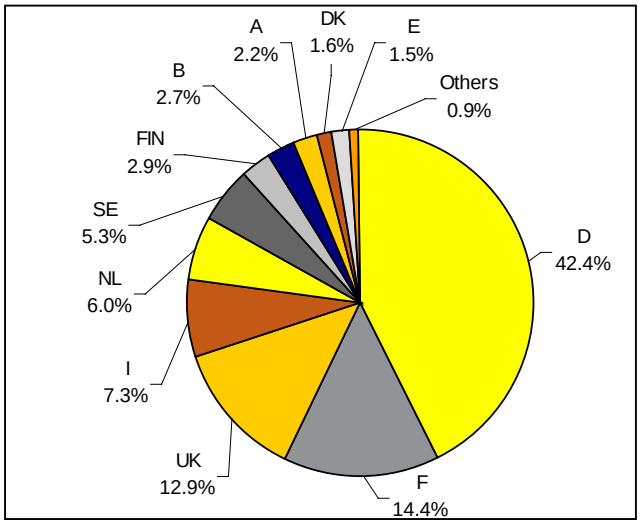
With regard to the distribution of patent applications across International Patent Classification (IPC) sections, in 2000, most of EU applications were in 'Performing operations and transporting' (20.1 %), Japan in 'Electricity' (27.1 %) and the US in 'Physics' (23.8 %) (Table 2). From 1995 to 2000, the fastest growing section in Europe and Japan was 'Electricity', which recorded annual average growth rates of 17.4 % and 15.2 %, respectively. In the US, 'Physics' was the section with the highest annual average growth rate, amounting to 22.0 % between 1995 and 2000.

Patent applications in the high technology fields account for an increasing proportion of the total patent applications to the EPO from Europe, Japan and the US

An increasing proportion of the patent applications to the EPO refers to patents in the high technology fields (For further detail on definitions see methodological note). Figure 4 shows the trend of the percentage of high tech patent applications to the EPO from the EU, Japan and the US. Although, up until 1998, Japan was the country with the highest percentage of high tech patent applications to the EPO, this proportion has been growing faster for the US and EU-15 during the 1995-2000 period. The percentage of patent applications in the high tech fields grew at an annual average growth rate of 11.3 % in the US and 10.0 % in the EU, compared to 2.1 % for Japan. In 2000, high tech patent applications represented 18.2 % of the EU, 24.6 % of Japanese and 31.3 % of USA patent applications.

Growth rates of high tech patents are considerably higher than the ones corresponding to patents in general. This is clearly seen in Table 3, as for many countries, annual average growth rates in the high tech fields double those corresponding to total applications. The growing importance of high tech patent applications calls for a more in depth analysis of this specific group.

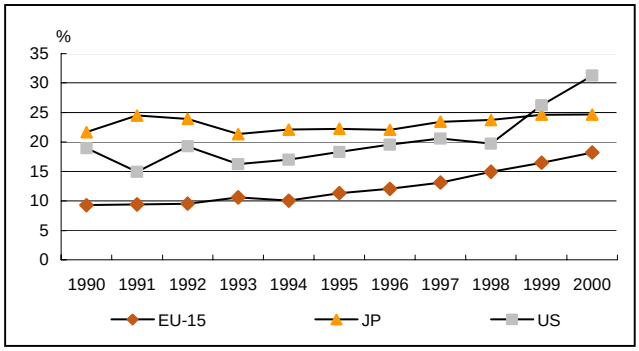
Figure 3: Percentage of patent applications to the EPO from EU-15 by Member State in 2000 (1)



(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

Figure 4: Trend of the percentage of high tech patent applications to the EPO from EU-15, Japan and the US from 1990 to 2000 (1)



(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

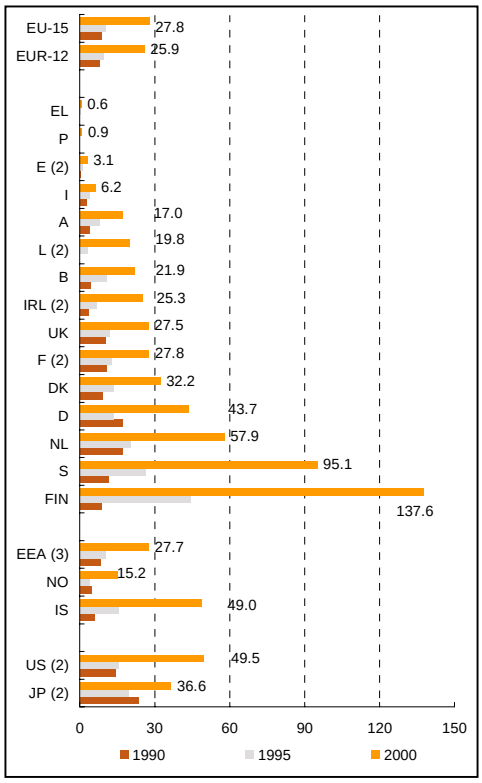
Table 3: Annual average growth rates of high tech patent applications compared to patents overall (1)

	Annual average growth rates of high tech patents		Annual average growth rates of total patents	
	1990-95	1995-2000	1990-95	1995-2000
EU-15	**5.3**	**22.0**	**1.1**	**10.9**
EUR-12	**5.0**	**22.3**	**1.0**	**11.1**
B	19.8	15.3	6.4	10.2
DK	9.1	19.1	8.1	7.6
D	0.7	26.5	0.2	12.0
EL	-	5.9	8.1	5.1
E	29.3	23.9	11.1	12.9
F	3.8	17.4	0.3	8.2
IRL	15.4	31.4	11.2	20.1
I	7.0	9.1	0.9	9.6
L	-	45.1	-2.2	20.4
NL	4.1	23.8	-0.3	13.8
A	16.7	16.6	2.1	9.1
P	-17.7	120.2	24.4	19.6
FIN	39.4	25.8	12.2	13.2
S	18.4	29.3	7.4	11.8
UK	3.2	18.2	-0.5	9.9
EEA	**5.2**	**22.0**	**1.1**	**11.0**
IS	22.5	26.6	11.2	28.1
NO	-2.9	31.6	2.0	14.0
JP	-3.3	13.4	-3.8	11.1
US	2.6	27.2	3.3	14.3

(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

Figure 5: Trend of high tech patent applications to the EPO per million inhabitants from the EEA, Japan and the US [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.

Sources: Eurostat, data: EPO.

In 2000, the EU applied for 10 480 patents in high technology fields, Japan for 4 629 and the US for 13 683. Although Japan seems to be lagging in absolute terms, when taking each economy's population into account, the highest ratio corresponds to the US (49.5 high tech patent applications per million inhabitants), followed by Japan (36.6) and the EU (27.8) (Figure 5).

Within the EU and in absolute terms, Germany, France and the UK are leading also in high tech patenting. However, as a proportion of the population, Finland (137.6 high tech patent applications per million inhabitants), Sweden (95.1) and the Netherlands (57.9) appear as the leading high tech patenting countries, with ratios well above the EU average and even that of the US (Figure 5).

With regard to the composition of high tech patent applications, Table 4 shows that European countries and Japan applied for most high tech patents in the communication technology field. Nevertheless, 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 and the US.

Table 4: Distribution of high tech patent applications to the EPO by high tech group in the EEA, Japan and the US in 2000 [1]

	High tech group in %						
	Aviation	Computer and automated business equipment	Communication technology	Lasers	Micro-organism and genetic engineering	Semiconductors	Absolute total number
EU-15	**1.4**	**25.5**	**48.1**	**1.4**	**13.6**	**10.0**	**10 480**
EUR-12	**1.3**	**25.2**	**47.5**	**1.4**	**12.7**	**11.9**	**7 828**
B	0.7	19.9	35.6	0.7	34.5	8.6	224
DK	0.2	22.5	33.3	1.2	39.4	3.4	172
D	1.5	23.3	45.4	1.3	13.1	15.4	3 593
EL	0.0	33.6	19.4	0.0	39.2	7.8	6
E	5.6	28.6	35.2	0.0	24.7	6.0	121
F	1.8	29.9	42.6	2.4	13.6	9.7	1 647
IRL	0.0	40.9	46.6	2.8	6.7	3.0	96
I	2.0	33.6	34.4	4.1	10.3	15.7	356
L	0.0	46.3	46.2	0.0	7.4	0.0	9
NL	0.1	28.0	49.5	0.1	10.0	12.3	918
A	1.6	24.6	44.8	3.4	17.1	8.6	138
P	0.0	0.0	5.7	3.0	54.1	37.2	9
FIN	0.4	14.6	80.2	0.0	3.8	1.1	711
S	0.5	17.1	70.0	1.2	5.2	6.1	843
UK	2.3	31.8	41.2	1.2	19.8	3.7	1 638
EEA	**1.4**	**25.5**	**48.1**	**1.4**	**13.7**	**10.0**	**10 562**
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	68
JP	0.2	31.5	38.4	2.5	8.9	18.5	4 629
US	0.7	40.1	33.5	1.6	15.7	8.4	13 683

(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

The Finnish region Uusimaa is the leading high tech patenting region

At the regional level, the European regions with the highest number of patent applications in the high tech fields in 2000 were Oberbayern (1 132) in Germany, Île de France (854) and Dutch Noord-Brabant (633). However, in relative terms, the situation changes slightly. As seen in Table 5, the European region with the highest number of patent applications per million inhabitants in 2000 was Finnish Uusimaa (301.2), followed by Oberbayern (280.5) and Noord-Brabant (268.6).

It can be noticed that the country variation in the top 15 high tech patenting regions is greater than that of the top patenting regions overall. German regions have traditionally shown their dominance in total patenting. However, when only high tech fields are considered, other countries like Finland, Sweden and UK are more present among the leading regions. (For further total patent applications data at the regional level see *Patent activities in the EU; International, national and regional perspectives*, Statistics in Focus, Theme 9 — 4/2001).

Figure 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 in 2000, 9 EU countries had at least one region above the EU average: Brabant Wallon (B), Denmark, Oberbayern (D), Île de France (F), Noord-Brabant (NL), Kaernten (A), Uusimaa (FIN), Stockholm (S) and East Anglia (UK). These were also the countries with greatest regional disparities. The most obvious case is that of Finland, where the highest region registered 301.2 high tech patent applications per million inhabitants (Uusimaa) and the lowest applied for none (Åland).

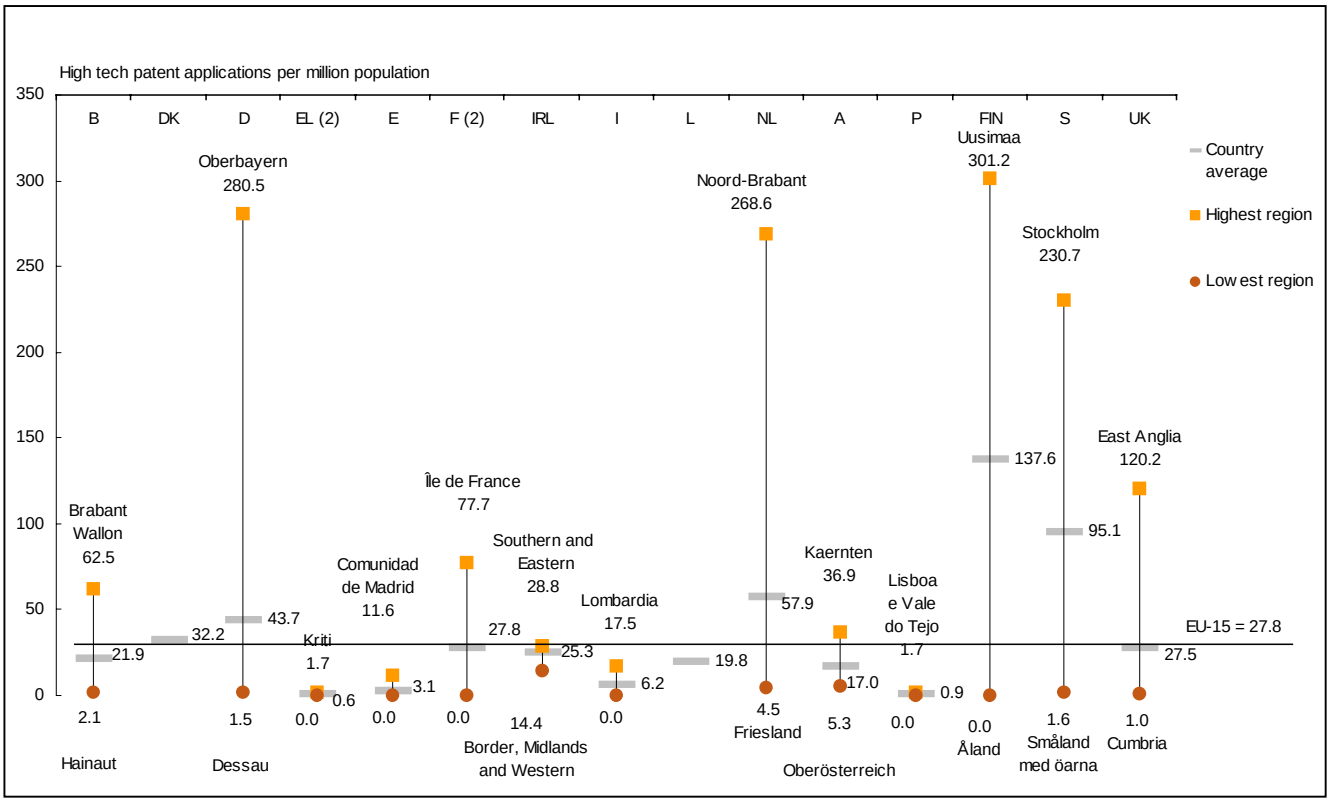
Table 5: Top fifteen high tech patenting regions in Europe in 2000 (1)

Ranking	Country	NUTS 2 region	Number of patent applications to the EPO per million population	Number of patent applications to the EPO per million labour force
1	FIN	Uusimaa (Suuralue)	301.2	530.4
2	D	Oberbayern	280.5	540.9
3	NL	Noord-Brabant	268.6	524.2
4	S	Stockholm	230.7	430.0
5	S	Sydsverige	156.5	336.3
6	FIN	Pohjois-Suomi	153.7	312.1
7	UK	East Anglia	120.2	236.3
8	FIN	Etelä-Suomi	103.1	202.4
9	D	Mittelfranken	95.2	189.7
10	UK	Gloucestershire, Wiltshire and North Somerset	90.4	169.6
11	UK	Hampshire and Isle of Wight	87.5	169.0
12	D	Stuttgart	80.3	162.9
13	D	Oberpfalz	78.1	159.6
14	F (2)	Ile de France	77.7	155.1
15	S	Övre Norrland	76.0	160.5
		EU-15	27.8	60.6

(1) 2000 provisional data.
(2) 2000 regional population data for F has been estimated by Eurostat.

Sources: Eurostat, data: EPO.

Figure 6: High tech patent applications to the EPO per million inhabitants in the EU National averages and regional extremes at NUTS 2 level in 2000 (1)



(1) 2000 provisional data
(2) 2000 regional population data for EL and F have been estimated by Eurostat.
(3) 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 inhabitants 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 (French Guiana, Corse, Martinique); I (Umbria, Molise); P (Alentejo, Acores, Madeira).

Sources: Eurostat, data: EPO.

Looking at the growth of high tech patenting at the regional level, the general trends seen in the national analysis can be confirmed (Table 6). The top high tech patenting regions all show an increasing proportion of patents in the high tech fields and the annual average growth rates of high tech patents are considerably higher than those of patents overall. Concerning the composition of high tech patents, Table 7 shows that communication technology was the largest high technology field for all the top European patenting regions in 2000 except for Oberpfalz in Germany, where most high tech patents were applied for in the field of semiconductors. A few more exceptions occur when looking at the top region of each country: Brabant Wallon (B), Attiki (EL) and Lisboa e Vale do Tejo (P) applied for most high tech patents in the field of micro-organism and genetic engineering. On the other hand, most of the applications from Southern and Eastern (IRL) were in the field of computer and automated business equipment.

Table 6: Growth of high tech patenting in the top European regions — 1990-2000 (1)

			Annual average growth rates						
			of high tech patents		of total patents		% of high tech patents over total patents		
Ranking	Country	NUTS 2 region	1990-95	1995-2000	1990-95	1995-2000	1990	1995	2000
1	FIN	Uusimaa (Suuralue)	50.5	27.7	16.1	14.8	8.3	30.3	51.6
2	D	Oberbayern	-7.0	29.2	-7.3	16.7	21.7	22.1	36.6
3	NL	Noord-Brabant	-2.6	34.2	-5.9	23.2	21.8	26.1	39.9
4	S	Stockholm	19.3	26.2	10.3	13.4	15.9	23.5	40.1
5	S	Sydsverige	32.9	33.0	10.0	15.9	6.8	17.6	34.9
6	FIN	Pohjois-Suomi	86.3	13.8	27.3	10.4	7.0	46.9	54.4
7	UK	East Anglia	6.7	14.9	1.3	14.4	29.3	38.0	38.8
8	FIN	Etelä-Suomi	23.6	29.2	9.1	11.3	9.5	17.7	37.3
9	D	Mittelfranken	70.3	26.2	67.8	12.3	9.6	10.4	18.6
10	UK	Gloucestershire, Wiltshire and North Somerset	6.2	26.2	1.3	12.7	17.6	22.2	39.1
11	UK	Hampshire and Isle of Wight	-2.0	18.2	-4.8	15.2	33.0	38.1	43.3
12	D	Stuttgart	8.7	18.9	3.0	13.2	7.4	9.7	12.4
13	D	Oberpfalz	25.7	36.3	17.7	23.0	8.7	12.1	20.1
14	F	Ile de France	1.4	16.5	-0.4	8.7	16.1	17.6	24.9
15	S	Övre Norrland	16.6	59.5	2.2	20.5	4.5	8.7	35.4
		EU-15	5.3	22.0	1.1	10.9	9.3	11.3	18.2

(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

Table 7: Distribution of high tech patent applications to the EPO by high tech group in the top European regions in 2000 (1)

			High tech group in %						
Ranking	Country	NUTS 2 region	Aviation	Computer and automated business equipment	Communication technology	Lasers	Micro-organism and genetic engineering	Semiconductors	Absolute total number
1	FIN	Uusimaa (Suuralue)	0.0	14.1	80.9	0.0	3.8	1.2	416
2	D	Oberbayern	0.6	26.4	48.7	0.6	6.8	16.9	1 132
3	NL	Noord-Brabant	0.0	29.9	54.1	0.2	0.8	15.1	633
4	S	Stockholm	0.2	11.2	76.2	1.9	4.9	5.5	416
5	S	Sydsverige	0.5	23.3	71.3	0.0	3.6	1.2	199
6	FIN	Pohjois-Suomi	0.0	13.6	81.7	0.0	3.2	1.5	86
7	UK	East Anglia	0.1	24.9	48.0	0.9	18.0	8.1	265
8	FIN	Etelä-Suomi	1.1	14.9	80.4	0.0	3.5	0.1	188
9	D	Mittelfranken	0.4	21.3	60.7	1.5	4.7	11.3	160
10	UK	Gloucestershire, Wiltshire and North Somerset	5.1	35.8	48.9	0.4	7.7	2.0	197
11	UK	Hampshire and Isle of Wight	0.0	42.7	52.5	0.6	3.4	0.8	156
12	D	Stuttgart	1.0	23.4	52.2	2.2	4.5	16.6	315
13	D	Oberpfalz	0.9	16.4	20.9	4.9	6.7	50.1	84
14	F	Ile de France	0.7	27.5	51.3	3.5	12.8	4.2	854
15	S	Övre Norrland	0.0	16.6	82.6	0.0	0.8	0.0	39
		EU-15	1.4	25.5	48.1	1.4	13.6	10.0	10 480

(1) 2000 provisional data.

Sources: Eurostat, data: EPO.

➢ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Eurostat's patents database

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 on its owner the right to stop others from, among other things, making, using or selling such an invention without authorisation. In return for the exclusive right to exploit it, the technical details of the invention are published.

The three criteria that qualify an invention as subject to be patented are its novelty, utility and inventiveness, which are ultimately the grounds for the fundamental hypothesis that a patent represents a codification of inventive activity. It is on the basis of this hypothesis that patent statistics are used to build up indicators of R&D output.

Eurostat maintains its patent database in close co-operation with the European Patent Office (EPO) ([1]). Every year the EPO supplies Eurostat with the latest available data, which are then processed by Eurostat to derive the regional and national indicators. Detailed series of patent data can be obtained from Eurostat's reference database NewCronos; Theme 9; Domain: Patents.

The patents database contains data on patent applications to the EPO by year of filing and is divided into two main collections: patent applications at the national level and patent applications at the regional level. The national patent database has data on patent applications to the EPO at the national level from EU-15 and EEA countries as well as Canada, Japan and the United States. The regional database contains data on patent applications to the EPO from the regions of the Member States of the European Union, Iceland, Liechtenstein and Norway at the NUTS ([2]) levels 1, 2 and 3. Both databases contain data on total patent applications and patent applications in the high technology fields.

Data on patent applications to the EPO by year of filing from the candidate countries and the Russian Federation are also available under NewCronos Theme 9; Domain: Research & Development in the Candidate Countries & Russian Federation. This database contains data for Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Estonia (EE), Hungary (HU), Lithuania (LT), Latvia (LV), Poland (PL), Romania (RO), Slovenia (SI) and Slovakia (SK). It is also intended to extend this database to Turkey (TR) and Malta (MT).

Data in the patent database are given broken down according to the International Patent Classification (IPC) which assigns an invention to an IPC-class according to its function or intrinsic nature or its field of application ([3]). The database covers the period 1989 to 2000, 2000 data being provisional. At times, provisional data may show a slight decrease in the number of patent applications to the EPO compared to the previous years. This could be explained by the fact that for the Patent Co-operation Treaty (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 data are only final 18 months after the priority date (See below). Therefore, 2000 final data will only be available after August 2002.

Different criteria can be chosen to count patents. Depending on the options made, the obtained indicators have different value and different meaning. The criteria used by Eurostat for the data extraction from the EPO refer especially to the regional potential for innovation and are defined as follows:

- *Type of patents covered*: Eurostat's patent statistics refer to applications filed directly under the European Patent Convention ([4]) or to applications filed under the Patent Co-operation Treaty ([5]) and designating the EPO (Euro-PCT).
- *Reference year*: Patent applications 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 is. 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, 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 patent applications is assigned according to the inventor's place of residence, following the methodological recommendations given in 'The Regional Dimension of R&D and Innovation Statistics — Regional Manual'. If one application has more than one inventor, the application is divided equally among all of them and subsequently among their regions, thus avoiding double counting.
- *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.
- *High tech patent applications*: 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 (1999). Here, the following technical fields are defined as high technology: computer and automated business equipment; micro-organism and genetic engineering; aviation; communication technology; semi-conductors; lasers. Each group is constructed by aggregating a list of IPC subclasses.

Calculations for EEA normally include Liechtenstein. However, this country is excluded whenever reference data are not available.

For further information on definitions and explanatory notes see metadata in Eurostat's reference database NewCronos; Theme 9; Domain: Patents and '*Research & Development: Annual Statistics 2001*'.

Statistical abbreviations and symbols

: not available;
- not applicable or real zero.

IPC Sections

Section A: Human necessities
Section B: Performing operations; transporting
Section C: Chemistry; metallurgy
Section D: Textiles; paper
Section E: Fixed constructions
Section F: Mechanical engineering; lighting; heating; weapons; blasting
Section G: Physics
Section H: Electricity.

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(1) See EPO's web site at http://www.epo.org.
(2) For further details refer to 'Regions, Nomenclature Territorial Units for Statistics NUTS', Eurostat, 1998.
(3) For further detail on the IPC classification visit the WIPO's web site at http://www.wipo.int.
(4) European Patent Convention, signed in Munich in October 1973.
(5) Patent Co-operation Treaty, signed in Washington on June 1970.

Further information:

➢ Reference publications

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