



# Statistics in focus

## SCIENCE AND TECHNOLOGY

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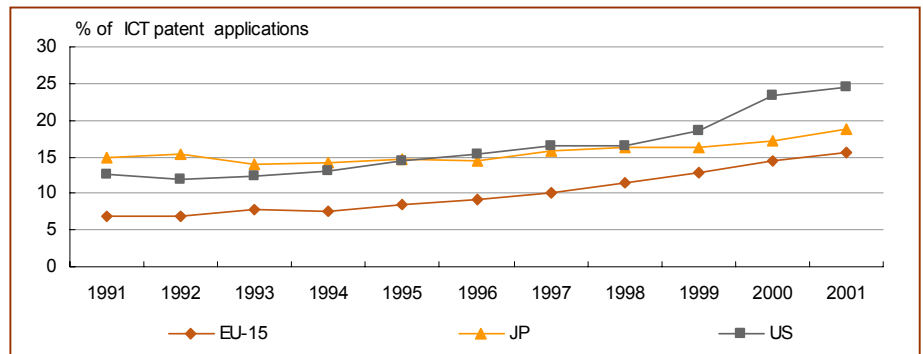


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# Increase of patent applications to the EPO in the ICT sector between 1991 and 2001

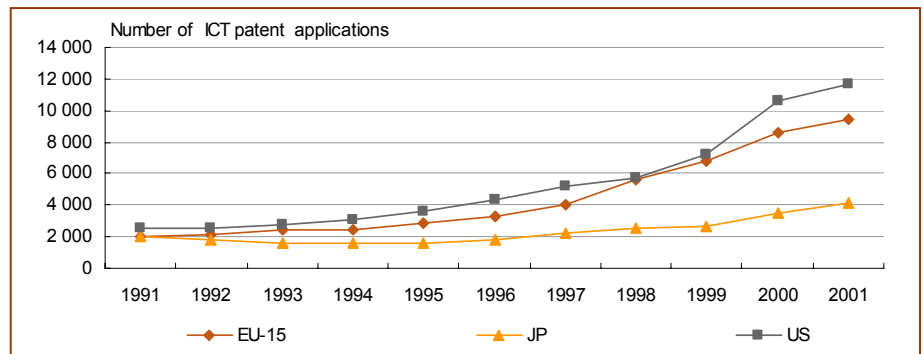
*Guido Strack*

Figure 1: Evolution of the ICT sector's share in total patent applications to the EPO from EU-15, Japan and the USA (1)



(<sup>1</sup>) 2001: provisional data.

Figure 2: Evolution of ICT sector patent applications to the EPO from EU-15, Japan and the USA — Total number (1)



(<sup>1</sup>) 2001: provisional data.

- In 2001, the share of the Information and Communication Technology (ICT) sector in the total number of patent applications to the European Patent Office (EPO) from EU-15 was 2.3 times larger than that of 1991. This ratio was 1.3 and 2.0 times larger for Japan and the US respectively.
- ICT patent applications to the EPO accounted for 15.5 % of the total for the EU in 2001, 18.7 % for JP and 24.6 % for the United States.
- 6 countries accounted for 90.7 % of the EU's ICT patent applications to the EPO: Germany (29.9 %), UK (18.6 %), France (15.3 %), the Netherlands (10.4 %), Sweden (8.9 %) and Finland (7.5 %).
- In relative terms, Finland led with 136 ICT patent applications per million inhabitants. Following Finland were Sweden and the Netherlands, with 94 and 62 ICT patent applications per million inhabitants respectively.
- ICT patent applications to the EPO from most candidate countries still accounted for a relatively small proportion of total applications.
- At the regional level, Oberbayern (D) showed the highest number of ICT patent applications (855), followed by Dutch Noord-Brabant (800) and the French capital regions of Île de France (748).
- Taking population into consideration, Noord-Brabant (NL) led (340 ICT patent applications per million inhabitants), followed by Uusimaa in Finland (280) and Stockholm in Sweden (240).

## Patent applications to the EPO in the ICT sector are becoming increasingly important

The Information and Communication Technology (ICT) sector has become a key element in the new economy. In 2000, 3.4 % of the EU workers were employed in ICT sector, whereas the value added they generated amounted to 4.5 % of the EU's GDP (Table 1). At the national level, the highest proportion of employment accounted for by the ICT sector was retained by Sweden (6.4 %), whereas value added as a % of GDP was highest in Finland (9.1 %).

The growing importance of the ICT sector is reflected in the increasing number of patent applications to the EPO (Figure 2) as well as its rising share in total patents. From 1991 to 2001 in the EU, the percentage of ICT patent applications to the EPO more than doubled from 6.8 % to 15.5 % (Figure 1).

In terms of annual average growth rates, ratios for applications in the ICT sector are well above those of patents overall not only for EU Member States but also for the US and Japan (Table 2). For the 1996-2001 period, the annual average growth rates of patent applications to the EPO in the ICT sector were 23.4 % for the EU, 17.7 % for Japan and 22.0 % for the US.

In 2001, inventors from the EU filed for 9 421 ICT patents (Table 3), of which 29.9 % were accounted for by German inventors, 18.6 % by inventors from the UK and 15.3 % by inventors from France (Figure 3). Compared to patents overall, the Netherlands (10.4 %), Sweden (8.9 %) and Finland (7.5 %) also accounted for a significant part of the total.

Table 1: The ICT sector in 2000 (1)

	ICT sector					Total Economy	
	Number of enterprises	Employment		Value added at factor cost		Employment In thousands	GDP In million EUR
		Number of employed	As a % of total Economy	In million EUR	As a % of GDP		
EU-15 (2)	527 471 p	5 544 575 p	3.4	382 103 p	4.5	161 663	8 438 754
B	8 327	162 912	3.9	12 939	5.2	4 139	247 469
DK	10 881	140 280	5.0	8 700	5.1	2 794	171 668
D	29 425 p	826 097 p	2.1 p	64 472 p	3.2 p	38 687	2 030 000
EL	:	:	:	:	:	3 935	123 121
E	39 851	422 252	2.7	24 523	4.0	15 714	609 319
F	75 378	845 514	3.5	49 179	3.5	24 037	1 416 877
IRL	2 763 p	65 576	4.1	4 243	4.7	1 617	89 770
I	112 608	710 685	3.1	44 323	3.8	22 694	1 166 548
L	1 560 p	10 413 p	5.7 p	1 193 p	5.7 p	183	20 815
NL	23 290	308 004	3.8	13 555	3.4	8 112	402 599
A	12 253	148 291	3.7	9 663	4.7	4 050	207 037
P	7 490	94 421	1.9	4 892	4.2	4 951 f	115 546
FIN	8 403	126 393	5.5	11 847	9.1	2 299	130 234
S	34 525	274 322	6.4	18 606	7.2	4 258	260 120
UK	160 717	1 409 415 p	5.0	113 969	7.3	28 053	1 559 392
IS	:	:	:	:	:	140	9 281
NO	11 358	94 691	4.1	6 471	3.6	2 304	180 589
JP	:	:	:	324 005	6.3	66 610 f	5 160 872
US	:	5 512 600 e	3.7 s	866 391 s	8.1 s	149 805	10 637 193

(1) Exception to the reference year — IRL: 1999.

(2) EU-15 excludes EL.

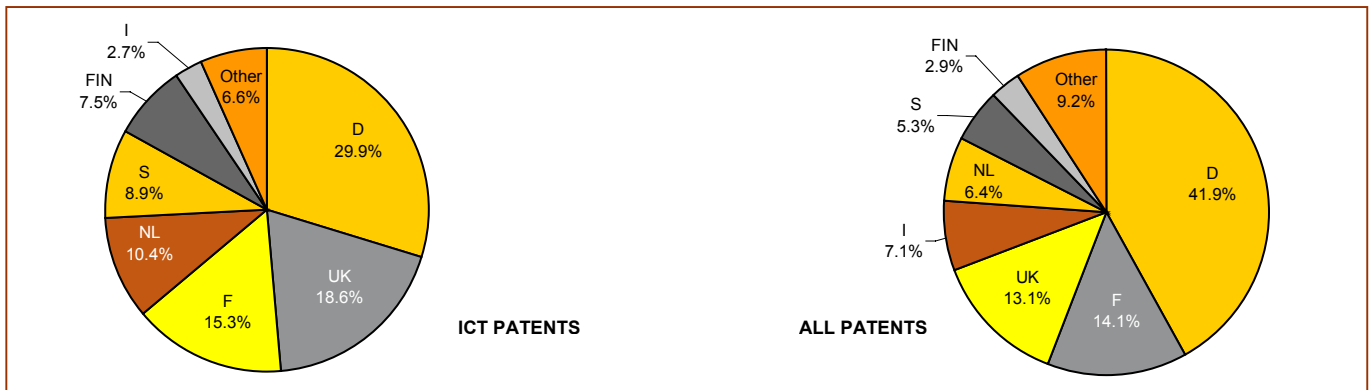
See detailed methodological notes in page 7.

Table 2: Patent applications to the EPO — Annual average growth rates 1996-2001 (1)

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	JP	US
ICT patents	23.4	11.9	41.8	23.9	40.3	38.6	21.3	35.5	10.4	45.7	28.4	18.4	41.3	24.0	22.5	24.1	17.7	22.0
Computing; calculating; counting	32.5	27.7	89.5	28.1	82.1	63.6	26.6	47.6	9.7	30.5	37.1	15.8	24.6	53.6	43.3	39.6	21.8	27.7
Basic electric circuitry	11.4	6.8	18.1	13.2	-	-10.3	2.5	-4.4	-7.7	-	22.6	19.6	-	17.9	15.8	10.7	9.9	6.9
Electric communication technique	21.6	6.9	33.3	24.0	29.4	34.9	22.0	33.8	16.8	-	26.8	19.8	-	21.5	18.4	17.7	16.7	18.8
All patents	11.0	10.3	10.6	11.9	11.4	13.6	8.2	18.1	8.3	17.5	13.0	12.3	30.0	14.5	11.1	10.6	11.9	10.9

(1) 2001: provisional data.

Figure 3: Distribution of patent applications to the EPO from EU-15 by Member State in 2001 — ICT patents and all patents (1)



(1) 2001: provisional data.

When taking population into account, Finland led with 136 ICT patent applications per million inhabitants in 2001, followed by Sweden with 94 and the Netherlands with 62.

Regarding the sectoral distribution, in 2001, 59.6 % of the ICT patent applications from the EU were filed in the IPC *Electric communication technique* class (which includes fields like *telephonic communication, broadcast communication* or

*television*), 32.6 % in *Computing; Calculating; Counting* and 7.8 % in *Basic electric circuitry*.

ICT patent applications to the EPO by most candidate countries still accounted for a relatively small proportion of total applications. However, the percentage of total applications made in the ICT fields was above the EU average (15.5 %) in Hungary (21.2 %), Cyprus (18.2 %) and Slovenia (17.9 %).

Table 3: Patent applications to the EPO in the ICT sector — 2001 (1)

	All patents Total number	Total number	ICT patents			Per million inhabitants	As a % of total
			Computing; calculating; counting	Of which (in %) Basic electric circuitry	Electric communication technique		
<b>EU-15 (2)</b>	<b>60 890</b>	<b>9 421</b>	<b>32.6</b>	<b>7.8</b>	<b>59.6</b>	<b>25</b>	<b>15.5</b>
B	1 558	140	35.1	5.7	59.1	14	9.0
DK	1 129	149	40.6	8.5	50.8	28	13.2
D	25 489	2 812	30.5	8.6	60.9	34	11.0
EL (2)	82	16	61.0	-	39.0	2	20.1
E	967	88	35.9	1.4	62.7	2	9.1
F	8 580	1 446	36.5	6.5	57.0	24	16.8
IRL (4)	327	104	46.6	2.7	50.7	27	31.6
I (3)	4 318	259	27.5	10.0	62.5	4	6.0
L (3)	93	4	57.7	-	42.3	10	4.6
NL	3 881	984	27.0	13.9	59.1	62	25.4
A	1 414	118	30.6	18.6	50.8	15	8.4
P (3)	56	3	53.2	-	46.8	0	5.0
FIN	1 750	707	15.0	4.7	80.3	136	40.4
S	3 256	835	27.2	7.8	65.0	94	25.6
UK (3)	7 989	1 757	44.0	5.4	50.6	29	22.0
<b>EEA (2)</b>	<b>62 259</b>	<b>9 601</b>	<b>32.8</b>	<b>7.7</b>	<b>59.5</b>	<b>25</b>	<b>15.4</b>
IS	33	4	44.3	-	55.7	16	13.5
LI	36	-	-	-	-	-	-
NO	1 300	175	45.3	-	54.7	39	13.5
<b>ACC (5)</b>	<b>568</b>	<b>69</b>	<b>37.1</b>	<b>2.9</b>	<b>60.0</b>	<b>1</b>	<b>12.2</b>
CY	11	2	50.0	-	50.0	3	18.2
CZ	110	4	75.0	-	25.0	0	3.6
EE (4)	15	1	100.0	-	-	1	6.7
HU (2)	190	40	38.0	2.5	59.5	4	21.2
LV	18	-	-	-	-	-	-
LT	9	-	-	-	-	-	-
MT	4	-	-	-	-	-	-
PL	97	4	42.3	-	57.7	0	4.4
SK	33	3	-	-	100.0	1	9.1
SI	81	14	24.2	6.9	68.9	7	17.9
RO	17	-	-	-	-	-	-
BG	17	2	100.0	-	-	0	11.8
TR (2)	72	11	45.5	-	54.5	0	15.3
JP (2)	22 226	4 156	38.5	9.1	52.4	33	18.7
US (2)	47 202	11 615	52.8	5.1	42.0	42	24.6

(1) 2001: provisional data.

(2) EU-15, EEA, EL, HU, TR, JP and US 2001 population data: Eurostat estimations.

(3) I, L, P and UK 2001 population data: national estimation.

(4) IRL and EE 2001 population data: provisional data.

(5) Accessing Countries: CY, CZ, EE, HU, LV, LT, MT, PL, SK and SI.

Figure 4: Evolution of ICT patent applications to the EPO per million inhabitants — 1991, 1996 and 2001 (1)

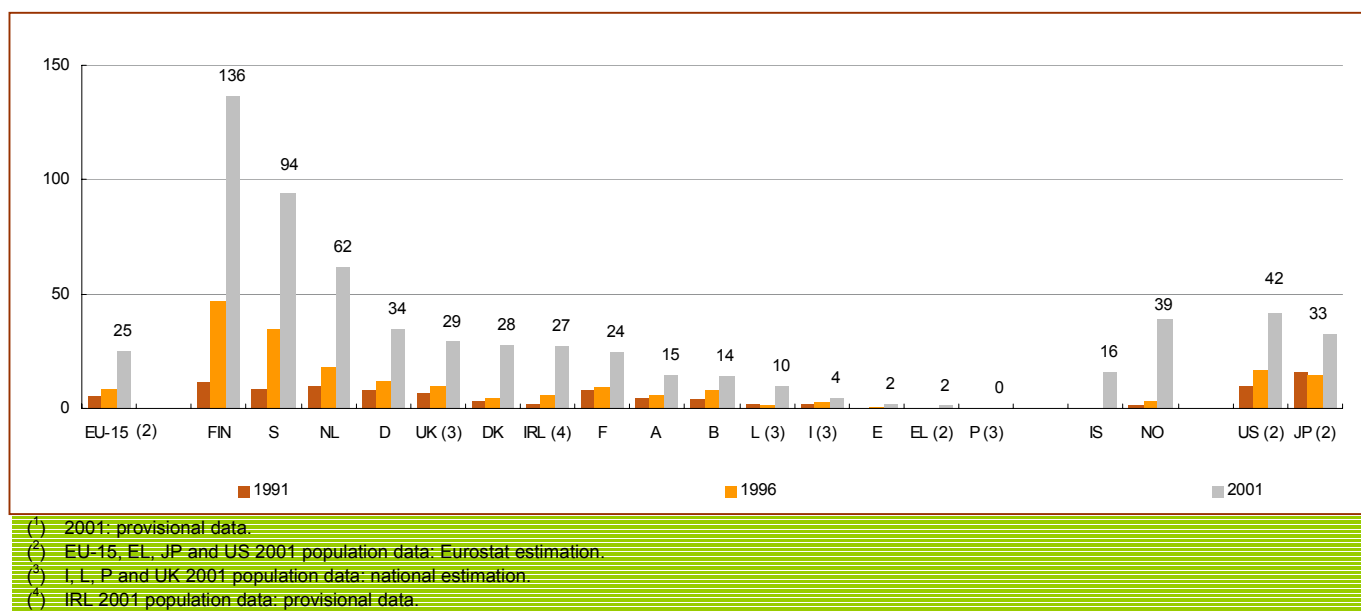


Table 4: Top three regions in each Member State in terms of the total number of ICT patent applications to the EPO — 2001 (1)

Ranking in relative terms	Country	NUTS 2 region	All patents		ICT patents			Per million inhabitants	As a % of total
			Total number	Total number	Of which (in %)				
					Computing; calculating; counting	Basic electric circuitry	Electric communication		
	<b>EU-15</b>		<b>60 890</b>	<b>9421</b>	<b>32.6</b>	<b>7.8</b>	<b>59.6</b>	<b>25</b>	<b>15.5</b>
41		Antwerpen	334	42	29.9	2.4	67.7	25	12.5
40	B	Vlaams Brabant	242	27	32.1	16.5	51.4	27	11.3
66		Oost-Vlaanderen	174	22	26.2	2.3	71.5	16	12.8
38	DK	Denmark	1 129	149	40.6	8.5	50.8	28	13.2
4		Oberbayern	3 325	855	25.4	10.9	63.7	212	25.7
14	D	Stuttgart	2 817	320	32.0	7.6	60.4	82	11.4
24		Köln	1 684	164	32.5	4.5	63.0	38	9.7
153		Attiki	44	7	34.8	-	65.2	2	15.4
134	EL	Kentriki Makedonia	18	6	83.3	-	16.7	3	33.8
129		Dytiki Ellada	5	3	100.0	-	-	4	49.1
103		Comunidad de Madrid	187	33	13.0	3.0	84.0	6	17.8
120	E	Cataluna	382	28	61.8	-	38.2	5	7.3
147		Comunidad Valenciana	104	10	41.9	-	58.1	2	9.2
15		Ile de France	3 423	748	32.0	4.7	63.3	68	21.8
22	F	Provence-Alpes-Côte d'Azur	516	176	62.6	5.1	32.2	39	34.2
18		Bretagne	316	164	15.3	5.7	79.0	56	52.1
30	IRL	Southern and Eastern	262	87	55.2	3.0	41.7	31	33.3
67		Border, Midlands and Western	65	16	-	0.8	99.2	16	24.8
73		Lombardia	1 528	127	21.8	12.6	65.6	14	8.3
98	I	Piemonte	472	30	30.9	7.7	61.4	7	6.4
130		Lazio	218	18	26.3	8.7	65.0	3	8.3
90	L	Luxembourg	93	4	57.7	-	42.3	10	4.6
1		Noord-Brabant	1 937	800	25.7	16.2	58.1	340	41.3
78	NL	Zuid-Holland	509	43	42.4	4.6	53.0	13	8.5
71		Noord-Holland	354	37	48.8	0.0	51.2	15	10.4
28		Wien	251	53	27.8	3.4	68.7	33	21.2
64	A	Niederösterreich	209	26	29.8	9.6	60.6	17	12.4
42		Kärnten	67	14	3.7	80.5	15.8	24	20.5
172	P	Lisboa e Vale do Tejo	23	2	27.5	-	72.5	1	8.1
176		Norte	21	1	100.0	-	-	0	4.7
2		Uusimaa (Suuralue)	803	386	15.6	2.6	81.8	280	48.1
9	FIN	Etelä-Suomi	597	206	15.9	4.7	79.4	113	34.5
5		Pohjois-Suomi	180	94	9.0	13.6	77.4	168	52.1
3		Stockholm	1 101	432	20.7	9.4	69.9	240	39.3
6	S	Sydsverige	555	175	41.2	6.3	52.5	137	31.5
16		Östra Mellansverige	540	90	33.8	7.8	58.4	60	16.7
8		East Anglia	784	284	34.0	6.7	59.3	129	36.2
7	UK	Hampshire and Isle of Wight	506	244	44.8	4.1	51.1	137	48.2
11		Gloucestershire, Wiltshire and North Somerset	522	188	31.7	6.7	61.6	86	36.0

(1) 2001: provisional data.  
 2001 population data for all regions — with the exception of those in Spain: Eurostat estimations.  
 P: only two regions presented since the rest of the regions in the country did not apply for any ICT patents in 2001.

## At the regional level, ICT patenting is led by Oberbayern in absolute terms, but Noord-Brabant holds the highest rate per million inhabitants

Table 4 shows the top three ICT patenting regions of each Member State in absolute terms in 2001. It provides details on the total number of ICT patent applications to the EPO, their distribution by ICT fields, their ratio per million inhabitants and the proportion accounted for by ICT patents in the total number of applications.

As seen at the national level, ICT patenting in the EU is led by the top regions of Germany, France, the Netherlands, Finland, Sweden and the UK.

Most leading regions of each Member State are specialised in *Electric communication technique*. However, the majority of the applications from Kentriki Makedonia (EL), Dytiki Ellada (EL), Cataluna (E), Provence-Alpes-Côte d'Azur (F), Southern and Eastern (IRL), Luxembourg (L) and Norte (P) were made in *Computing; Calculating; Counting*. Kärnten (A) is the only leading region specialised in *Basic electric circuitry*.

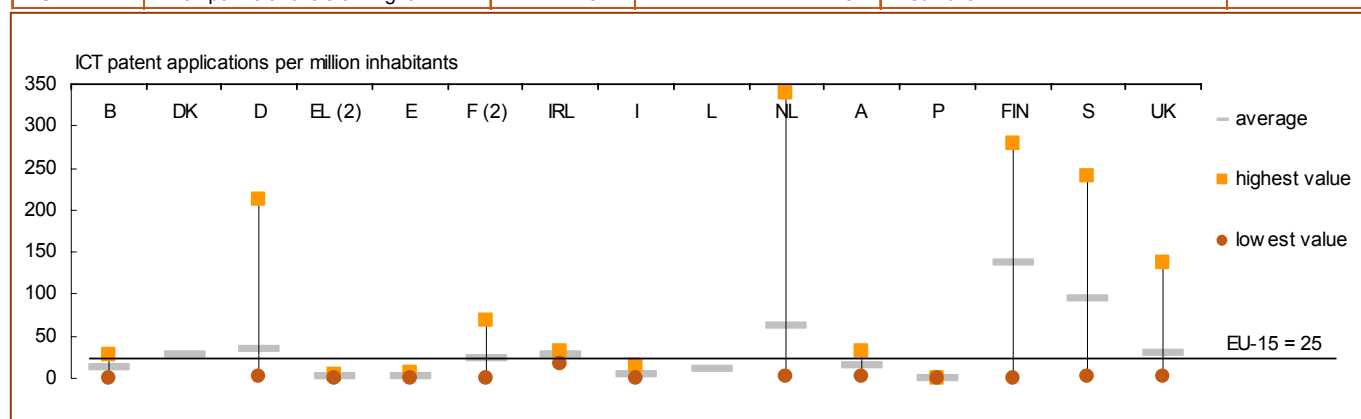
Figure 5 shows the regional distribution of ICT patent applications to the EPO in the EU, by mapping the national averages and the regional extremes at the NUTS 2 level (See Methodology).

In 2001, 10 EU countries had at least one region above the EU average. However, all countries that are structured into more than one region have at least one region that is below that average.

Germany, the Netherlands, Finland, Sweden and the UK are the countries with the biggest regional disparities. The most obvious case is that of the Netherlands, where the highest region registered 340 ICT patent applications per million inhabitants (Noord-Brabant) and the lowest applied only for 2 (Friesland).

Figure 5: ICT patent applications to the EPO per million inhabitants in the EU  
National averages and regional extremes at NUTS 2 level in 2001 (1)

Country	Region with highest value		Country average	Region with lowest value	
B	Vlaams Brabant	27	14	Hainaut	1
DK	-	-	28	-	-
D	Oberbayern	212	34	Halle	1
EL (2)	Dytiki Ellada	4	2	(3)	-
E	Comunidad de Madrid	6	2	(3)	-
F (2)	Ile de France	68	24	(3)	-
IRL	Southern and Eastern	31	27	Border, Midlands and Western	16
I	Lombardia	14	4	(3)	-
L	-	-	10	-	-
NL	Noord-Brabant	340	62	Friesland	2
A	Wien	33	15	Burgenland	2
P	Lisboa e Vale do Tejo	1	0	(3)	-
FIN	Uusimaa (Suuralue)	280	136	Åland	-
S	Stockholm	240	94	Småland med öarna	2
UK	Hampshire and Isle of Wight	137	29	Cumbria	2



(1) 2001: provisional data.

(2) 2001 population data for all regions — with the exception of those in Spain: Eurostat estimations.

(3) For EL, E, F, I and P, the regions with lowest value are various.

For all of these regions, the number of ICT patent applications per million inhabitants in 2000 was equal to zero.

These regions were:

- EL: Sterea Ellada, Peloponnisos, Notio Aigaio, Kriti, Anatoliki Makedonia, Thraki, Dytiki Makedonia, Thessalia, Ipeiros, Ionia Nisia, Voreio Aigaio;
- E: Principado de Asturias, Cantabria, La Rioja, Castilla y Leon, Castilla-la Mancha, Extremadura, Baleares, Ceuta y Melilla;
- F: Limousin, Corse, Guadeloupe, Reunion, Martinique, Guyane;
- I: Valle d'Aosta, Molise, Puglia;
- P: Centro, Alentejo, Algarve, Madeira, Acores.

Expressed in relation to the population, Noord-Brabant (NL) leads in ICT patenting, as in 2001 it recorded 340 ICT patent applications per million inhabitants, followed by Uusima (FIN) with 280 and Stockholm with 240 (Table 5).

The EU regions most specialised in ICT patenting are considered in Table 6. For this purpose, only regions that retained ratios of ICT patent applications per million inhabitants at least equal to the EU average (25) have been taken into account. With around half their applications in ICT fields, Pohjois-Suomi (FIN), Bretagne (F), Hampshire and Isle of Wight (UK) and Uusimaa (FIN) are the regions for which ICT patents account for a larger proportion of the total.

Table 7 provides data on the regions with the highest growth in ICT patent applications for the 1996-2001 period. The EU region for which ICT patent applications to the EPO are growing fastest is Västsverige in Sweden, which recorded an annual average growth rate of 47.8 % during the 1996-2001 period, followed by Köln in Germany (42.4 %) and Denmark (41.8 %).

Concerning the leading regions by ICT subgroups, in absolute terms Île de France (F) leads in *Computing; Calculating; Counting*, Noord-Brabant (NL) in *Basic electric circuitry* and Oberbayern (D) in *Electric communication technique* (Table 8).

Table 5: Top 15 regions in ICT patents per million inhabitants — 2001 (1)

Ranking in relative terms	Country	NUTS 2 region	Total number	Per million inhabitants
	<b>EU-15</b>		<b>9 421</b>	<b>25</b>
1	NL	Noord-Brabant	800	340
2	FIN	Uusimaa (Suuralue)	386	280
3	S	Stockholm	432	240
4	D	Oberbayern	855	212
5	FIN	Pohjois-Suomi	94	168
6	S	Sydsverige	175	137
7	UK	Hampshire and Isle of Wight	244	137
8	UK	East Anglia	284	129
9	FIN	Etelä-Suomi	206	113
10	D	Mittelfranken	147	87
11	UK	Gloucesters., Wilts. & North Somerset	188	86
12	UK	Berkshire, Bucks and Oxfordshire	181	85
13	S	Övre Norrland	44	85
14	D	Stuttgart	320	82
15	F	Île de France	748	68

(<sup>1</sup>) 2001: provisional data.

2001 population data for all regions — with the exception of those in Spain: Eurostat estimations.

Table 6: Regions most specialised in ICT patenting (1) — 2001 (2)

Ranking in relative terms	Country	NUTS 2 region	Total number	As a % of total
	<b>EU-15</b>		<b>9421</b>	<b>15.5</b>
5	FIN	Pohjois-Suomi	94	52.1
18	F	Bretagne	164	52.1
7	UK	Hampshire and Isle of Wight	244	48.2
2	FIN	Uusimaa (Suuralue)	386	48.1
1	NL	Noord-Brabant	800	41.3
3	S	Stockholm	432	39.3
13	S	Övre Norrland	44	38.0
17	UK	Inner London	161	36.3
8	UK	East Anglia	284	36.2
11	UK	Gloucesters., Wilts. & North Somerset	188	36.0
9	FIN	Etelä-Suomi	206	34.5
22	F	Provence-Alpes-Côte d'Azur	176	34.2
30	IRL	Southern and Eastern	87	33.3
6	S	Sydsverige	175	31.5
4	D	Oberbayern	855	25.7

(<sup>1</sup>) With a ratio of ICT patent applications per million inhabitants at least equal to the EU average (25).

(<sup>2</sup>) 2001: provisional data.

Table 7: Regions with the highest growth in ICT patenting (1) — 1996-2001 (2)

Ranking in relative terms	Country	NUTS 2 region	Total number	AAGR (3) 1996-2001
20	S	Västsverige	71	47.8
24	D	Köln	164	42.4
38	DK	Denmark	149	41.8
33	D	Braunschweig	50	41.0
13	S	Övre Norrland	44	37.8
22	F	Provence-Alpes-Côte d'Azur	176	36.8
17	UK	Inner London	161	36.6
30	IRL	Southern and Eastern	87	35.5
1	NL	Noord-Brabant	800	34.9
23	D	Berlin	131	34.4
18	F	Bretagne	164	33.5
7	UK	Hampshire and Isle of Wight	244	33.1
16	S	Östra Mellansverige	90	31.6
34	NL	Overijssel	32	31.5
39	UK	Herefords., Worcesters. & Warks	33	30.8
	<b>EU-15 (2)</b>		<b>9421</b>	<b>23.4</b>

(<sup>1</sup>) With a ratio of ICT patent applications per million inhabitants at least equal to the EU average (25).

(<sup>2</sup>) 2001 provisional data.

(<sup>3</sup>) AAGR: Annual average growth rate.

Table 8: Top 5 regions in terms of the number of ICT patents by subgroup — 2001 (1)

ICT subgroup	Country	NUTS 2 region	Total number	Per million inhabitants
	<b>EU-15</b>		<b>3 068</b>	<b>8</b>
Computing; Calculating; Counting	F	Île de France	239	22
	D	Oberbayern	217	54
	NL	Noord-Brabant	205	87
	F	Provence-Alpes-Côte d'Azur	110	24
	UK	Hampshire and Isle of Wight	109	61
	<b>EU-15</b>		<b>738</b>	<b>2</b>
Basic electric circuitry	NL	Noord-Brabant	130	55
	D	Oberbayern	93	23
	S	Stockholm	41	22
	F	Île de France	35	3
	D	Stuttgart	24	6
	<b>EU-15</b>		<b>5 615</b>	<b>15</b>
Electric communication technique	D	Oberbayern	544	135
	F	Île de France	473	43
	NL	Noord-Brabant	465	197
	FIN	Uusimaa (Suuralue)	316	229
	S	Stockholm	302	167

(<sup>1</sup>) 2001: provisional data.



## ➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

This SIF focuses on patenting in the ICT sector. (For further information on total patenting please refer to the SIF *Patent applications to the EPO continue on an upward trend — 1990 to 2001*, Eurostat, Theme 9, 4/2003).

### Sources

Data on patents in the Information and Communication Technology (ICT) sector originate from Eurostat's patents database, which comprise applications filed directly under the European Patent Convention and applications filed under the Patent Cooperation Treaty (PCT) that designate the EPO for protection (Euro-PCTs).

Data on the number of enterprises, number of persons employed and value added in the ICT sector come from Eurostat's SBS database, with the exception of data for Japan and the US, which were extracted from the OECD. GDP and employment data for the Economy total were obtained from Eurostat's National accounts database.

### Composition of the ICT sector

The ICT definitions adopted for this Statistics in Focus are those used by the OECD.

For patents data, the International Patent Classification — IPC classes defined as ICT are:

G06	Computing; Calculating; Counting
H03	Basic electric circuitry
H04	Electric communication technique

For data other than patents, the Statistical Classification of Economic Activities in the European Community — NACE Rev. 1 classes used in the reporting of ICT sector data are (1):

#### ICT Manufacturing:

30	Manufacture of office machinery and computers
31.3	Manufacture of insulated wire and cable
32.1	Manufacture of electronic valves and tubes and other electronic components
32.2	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
32.3	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
33.20	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
33.30	Manufacture of industrial process control equipment

#### ICT services:

51.43	Wholesale of electrical household appliances and radio and television goods
51.64	Wholesale of office machinery and equipment
51.65	Wholesale of other machinery for use in industry, trade and navigation
64.20	Telecommunications
71.33	Renting of office machinery and equipment, including computers
72	Computer and related activities

For data presented in Table 1, exceptions to this definition are specified below:

#### Number of enterprises

B, D: Excluding NACE G5143, G5164, G5165 and K7133; DK, E, F, L, A, P, FIN, S, UK, NO: Excluding NACE K7133; IRL: Excluding NACE I642 and K7133; NL: Excluding NACE G5164 and K7133.

#### Number of persons employed

B, DK, E, A, P, FIN, S, UK, NO: Excluding NACE K7133; D: Excluding NACE G5143, G5164, G5165 and K7133; F: Excluding NACE I642 and K7133; IRL: Excluding NACE I642 and K7133; L: Excluding NACE DL30, DL322, DL323, DL333 and K7133; NL: Excluding NACE DL322, DL323, G5164 and K7133.

#### Value added at factor cost

B, DK, E, A, P, FIN, S, UK, NO: Excluding NACE K7133; D: Excluding NACE G5143, G5162, G5165 and K7133; F: Excluding NACE I642 and K7133; IRL: Excluding NACE I642 and K7133; L: Excluding NACE DL30, DL322, DL323, DL333 and K7133; NL: Excluding NACE DL323, G5164, I642 and K7133; JP: Excluding NACE 72.10, 72.50 and 72.60 and including NACE 74.13.

(1) See *Measuring the information Economy — Annex 1. The OECD definition of the ICT sector*, OECD, 2002.

### Definitions

#### Number of enterprises

A count of the number of enterprises registered to the population concerned in the business register corrected for errors, in particular frame errors. Dormant units are excluded. This statistic should include all units active during at least a part of the reference period.

#### Number of persons employed

The number of persons employed is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams). It includes persons absent for a short period and also those on strike, but not those absent for an indefinite period. It also includes part-time workers who are regarded as such under the laws of the country concerned and who are on the pay-roll, as well as seasonal workers, apprentices and home workers on the pay-roll. The number of persons employed excludes manpower supplied to the unit by other enterprises.

#### United States

Employment data are from Appendix Table 5.3 of 'Digital Economy 2002'. Employment data originate from the Current Employment Statistics Survey (CES) conducted monthly on a sample of non-farm establishments by the Bureau of Labor Statistics (BLS) in conjunction with state employment security agencies.

#### Value added at factor cost

Value added at factor cost is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production. Alternatively it can be calculated from gross operating surplus by adding personnel costs. Value added at factor costs is calculated "gross" as value adjustments (such as depreciation) are not subtracted.

#### Japan

Value added is at producer price. For establishments with 30 or more persons engaged for example it is calculated as follows: value added = production – value of excise taxes – value of raw materials, fuel and electricity consumed, and cost of contract and commission work done by outside parties – depreciation value.

#### United States

Value added corresponds to Gross Product Originating by Industry (GPO). GPO by industry is the contribution of each private industry and government to Gross Domestic Product (GDP). An industry GPO, is equal to its gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus its intermediate inputs (consumption of goods and services purchased from other industries or imported).

Regional data are broken down according to the 2-digit level of the Nomenclature of Territorial Units for Statistics (NUTS). For DK and L, the national level corresponds to the 2 digit level. For further information see 'Regions, Nomenclature Territorial Units for Statistics NUTS', Eurostat, 1999.

For further information on definitions and explanatory notes see metadata in Eurostat's reference database *NewCronos*:

- Theme 9 — Domain: *Patents*,
- Theme 4 — Domain: *Structural Business Statistics (Industry, Construction, Trade and Services)* and
- Theme 2 — Domains: *National accounts — Aggregates — Annual data and Auxiliary indicators (Population, employment and exchange rates)*.

### Statistical abbreviations and symbols

:	not available
-	not applicable or real zero
0	less than 50 % of the indicated unit
p	provisional data
f	forecast
e	estimated value
s	Eurostat estimate

# Further information:

## ➤ Reference publications

Title Statistics on Science and Technology - Data 1991-2001  
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## ➤ Databases

New Cronos, Theme 9,  
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