

# **Basic CIS3 statistics on four European countries (France, Germany, Spain and United Kingdom)\***

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\* Comparative statistics computed from national CIS3 data as part of research project “Innovation and Employment in European Firms: Microeconomic Evidence” (IEEF).

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Note: Tables (b) are computed for firms with 20 or more employees

### **Methodological notes**

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**Note:**

Although CIS3 is a EU harmonised survey some differences across countries remain, which imply that very specific comparisons must be handled with care. In particular, statistical errors associated with each number can differ greatly. Differences in statistical definitions, in wording and structure of the questionnaire and the different institutional framework for some questions may induce different responses. Importantly the various methods used to deal with the difficult problem of non-response can lead to further differences in the numbers, both across countries and potentially within the national statistics. Therefore the numbers presented have been checked both at the national and international levels, to ensure that they present a useful and reliable picture taken as a whole.

Table 1(a). Sample size (no. of firms)  
Year 2000

	France	Germany	Spain	United Kingdom
Transport equipment	–	77	358	325
Chemicals	–	124	403	128
Machinery and equipment	–	254	377	236
Electrical	–	240	495	481
<i>High- technology sectors</i>	–	695	1633	1170
Food, beverages and tobacco	–	150	672	227
Textile and leather	–	102	903	185
Wood and paper	–	147	802	465
Rubber and plastic products	–	151	245	158
Non-metallic mineral products	–	88	427	83
Metallic products	–	270	807	416
NEC and recycling	–	71	554	404
<i>Low-technology sectors</i>	–	979	4410	1938
<b>Manufacturing</b>	–	1674	6043	3108

Notes:

Population are firms with 10 or more employees.

The symbol “–” means non-available data.

Table 1(b). Sample size  
(no. of firms)

	France		Germany		Spain		United Kingdom	
	1996	2000	1996	2000	1996	2000	1996	2000
Transport equipment	222	222	81	74	395	301	133	270
Chemicals	361	433	133	113	457	354	85	115
Machinery and equipment	451	462	317	220	302	281	113	186
Electrical	497	518	260	213	451	375	231	403
<i>High- technology sectors</i>	1531	1635	791	620	1605	1311	562	974
Food, beverages and tobacco	850	898	116	130	453	527	106	205
Textile and leather	562	599	102	85	610	675	99	144
Wood and paper	559	451	110	120	605	560	133	349
Rubber and plastic products		301		128	521	185		129
Non-metallic mineral products	465	180	245	70		320	137	60
Metallic products	809	673	262	235	648	606	145	280
NEC and recycling	210	242	80	63	321	415	66	333
<i>Low-technology sectors</i>	3455	3344	915	831	3158	3288	686	1500
<b>Manufacturing</b>	4986	4979	1706	1451	4763	4599	1248	2474

Notes:

Population for 1996 and 2000 are firms with 20 or more employees.

Data for 1996 include Rubber and plastic products and Non-metallic mineral products together.

Table 2(a). Estimated population (no. of firms)  
Year 2000

	France	Germany	Spain	United Kingdom
Transport equipment	–	1334	1427	1685
Chemicals	–	1745	1574	1718
Machinery and equipment	–	7214	3492	3995
Electrical	–	5712	2128	4157
<i>High- technology sectors</i>	–	16005	8620	11555
Food, beverages and tobacco	–	5466	6288	2574
Textile and leather	–	2656	6962	2942
Wood and paper	–	7267	5896	7191
Rubber and plastic products	–	3615	1962	2662
Non-metallic mineral products	–	2505	3294	1412
Metallic products	–	9445	7309	8182
NEC and recycling	–	2559	3895	2840
<i>Low-technology sectors</i>	–	33513	35606	27803
<b>Manufacturing</b>	–	49519	44226	39358

Notes:  
Population are firms with 10 or more employees.  
The symbol “–” means non-available data.

Table 2(b). Estimated population  
(no. of firms)

	France		Germany		Spain		United Kingdom	
	1996	2000	1996	2000	1996	2000	1996	2000
Transport equipment	793	871	1059	1192	642	900	1522	1348
Chemicals	1166	1264	1322	1439	927	1057	1290	1429
Machinery and equipment	2060	2291	5648	5410	1281	1983	3188	2897
Electrical	2204	2301	4162	4714	942	1274	3291	3026
<i>High-technology sectors</i>	6223	6727	12191	12755	3792	5213	9291	8701
Food, beverages and tobacco	3107	3104	4140	4350	3093	3576	2212	2099
Textile and leather	3085	2878	2387	2010	3104	4439	2825	2099
Wood and paper	3132	3010	4889	5006	2310	3338	4114	4764
Rubber and plastic products		1490		2857		1187		2046
Non-metallic mineral products	2273	880	4685	1831	2450	1929	2920	885
Metallic products	4638	5073	6502	7606	2685	3812	4517	5188
NEC and recycling	1133	1349	2267	1839	1377	2022	1998	1955
<i>Low-technology sectors</i>	17368	17785	24870	25499	15019	20303	18586	19036
<b>Manufacturing</b>	23591	24512	37061	38253	18811	25516	27877	27737

Notes:

Population for 1996 and 2000 are firms with 20 or more employees.

Data for 1996 include Rubber and plastic products and Non-metallic mineral products together.

Table 3(a). Firm size (no. of employees)  
Total population, year 2000

	France	Germany	Spain	United Kingdom
Transport equipment	–	642.7	147.7	184.1
Chemicals	–	330.7	113.4	161
Machinery and equipment	–	126.4	45.2	72.4
Electrical	–	162.2	72.9	112.3
<i>High- technology sectors</i>	–	204.5	81.5	116.2
Food, beverages and tobacco	–	79.5	48.0	147.5
Textile and leather	–	84.3	36.7	65.7
Wood and paper	–	76.2	38.8	78.5
Rubber and plastic products	–	80.9	50.0	78.3
Non-metallic mineral products	–	99.9	46.2	109.5
Metallic products	–	93.3	39.3	43.7
NEC and recycling	–	67.5	32.3	60.5
<i>Low-technology sectors</i>	–	83.8	40.7	73
<b>Manufacturing</b>	–	122.8	48.6	85.7

Notes:  
Population are firms with 10 or more employees.  
The symbol “–” means non-available data.

Table 3(b). Firm size (no. of employees)  
Total population, year 2000

	France	Germany	Spain	United Kingdom
Transport equipment	509	716.5	225.7	226.7
Chemicals	250	398.9	161.9	190.6
Machinery and equipment	130	164.3	68.6	94.5
Electrical	215	194.2	112.1	148.9
<i>High- technology sectors</i>	231	253.4	125.3	149.7
Food, beverages and tobacco	135	96.9	73.6	177.9
Textile and leather	79	106.9	49.5	86.4
Wood and paper	96	104.5	57.7	111.2
Rubber and plastic products	159	98.9	73.7	97.7
Non-metallic mineral products	148	130.4	69.2	166.3
Metallic products	96	112.9	62.2	60.6
NEC and recycling	102	88.0	48.6	81.5
<i>Low-technology sectors</i>	108	106.0	60.7	100.1
<b>Manufacturing</b>	142	155.1	73.9	115.6

Notes:  
Population are firms with 20 or more employees.

Table 4. Firm size (no. of employees)  
Innovators, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	937	973.0	283.5	263.9
Chemicals	319	470.3	169.4	215.3
Machinery and equipment	195	157.3	60.3	107.4
Electrical	313	225.1	99.2	152.8
<i>High- technology sectors</i>	345	274.8	124.6	163.3
Food, beverages and tobacco	218	92.2	73.5	193.7
Textile and leather	112	123.3	46.1	104.7
Wood and paper	142	96.8	45.0	106
Rubber and plastic products	219	100.7	61.8	125
Non-metallic mineral products	192	155.2	64.6	193
Metallic products	168	134.9	61.2	64
NEC and recycling	143	84.0	43.5	86.9
<i>Low-technology sectors</i>	173	111.9	56.5	106.9
<b>Manufacturing</b>	238	173.4	74.0	132.9

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 5(a). Percentage of innovators (product and/or process)  
Total population, year 2000

	France	Germany	Spain	United Kingdom
Transport equipment	–	62.8	39.0	37.8
Chemicals	–	67.4	52.7	50
Machinery and equipment	–	73.6	43.9	39.3
Electrical	–	67.2	50.2	48.6
<i>High- technology sectors</i>	–	69.7	46.3	44
Food, beverages and tobacco	–	50.8	34.4	31.2
Textile and leather	–	49.5	25.3	24.3
Wood and paper	–	57.9	35.6	34.1
Rubber and plastic products	–	63.0	43.0	37.1
Non-metallic mineral products	–	49.1	32.8	22.6
Metallic products	–	53.8	30.3	27.5
NEC and recycling	–	59.3	35.4	25.6
<i>Low-technology sectors</i>	–	54.9	32.4	29.7
<b>Manufacturing</b>	–	59.7	35.1	33.9

Notes:  
Population are firms with 10 or more employees.  
The symbol “–” means non-available data.

Table 5(b). Percentage of innovators (product and/or process)  
Total population

	France		Germany		Spain		United Kingdom	
	1996	2000	1996	2000	1996	2000	1996	2000
Transport equipment	49	46.7	72	66.4	46	41.5	63	42.5
Chemicals	68	64.3	75	69.2	62	60.4	81	55.9
Machinery and equipment	63	51.7	84	77.4	46	53.9	63	45
Electrical	61	59.6	78	70.3	55	55.2	76	50.1
<i>High- technology sectors</i>		56.1		72.8		53.4		48.2
Food, beverages and tobacco	45	40.2	68	52.6	22	42.0	58	32.9
Textile and leather	30	27.0	62	54.3	18	30.1	56	29.4
Wood and paper	32	30.3	59	66.3	21	37.3	51	36.4
Rubber and plastic products		51.9		65.7		51.5		38
Non-metallic mineral products	49	45.7	67	52.7	31	37.1	53	30.4
Metallic products	31	30.5	59	56.9	25	36.0	56	30.9
NEC and recycling	38	38.8	69	57.7	23	45.8	44	28.1
<i>Low-technology sectors</i>		34.8		58.5		38.0		32.8
<b>Manufacturing</b>	43	40.6	69	63.3	29	41.1	59	37.6

Notes:

Population for 1996 and 2000 are firms with 20 or more employees.

Data for 1996 include Rubber and plastic products and Non-metallic mineral products together.

Table 6. Percentage of product innovators  
Total population, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	40.2	52.3	30.4	28.4
Chemicals	59.8	59.7	43.4	46.6
Machinery and equipment	48.0	66.0	36.1	31.5
Electrical	54.0	62.2	40.8	40.8
<i>High-technology sectors</i>	51.3	62.8	37.7	36.6
Food, beverages and tobacco	34.0	39.2	22.8	18.9
Textile and leather	23.4	39.5	13.8	16.4
Wood and paper	20.3	36.8	19.6	19.3
Rubber and plastic products	44.8	52.9	30.1	30
Non-metallic mineral products	42.1	44.6	21.1	17.9
Metallic products	21.0	35.5	17.7	17.6
NEC and recycling	31.2	42.2	25.4	17.9
<i>Low-technology sectors</i>	27.4	39.8	20.0	19.3
<b>Manufacturing</b>	33.9	47.2	23.4	24.4

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 7. Percentage of process innovators  
Total population, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	26.1	44.1	27.6	26
Chemicals	35.9	40.2	33.1	23.5
Machinery and equipment	22.3	42.7	27.1	21.1
Electrical	32.8	31.2	32.6	24.4
<i>High-technology sectors</i>	28.9	38.5	29.6	23.4
Food, beverages and tobacco	24.2	30.8	25.9	27.7
Textile and leather	13.4	20.4	18.9	15.1
Wood and paper	20.3	42.7	27.5	23.9
Rubber and plastic products	35.3	36.8	26.8	26
Non-metallic mineral products	18.8	28.2	25.2	14.5
Metallic products	21.3	39.3	20.3	19.2
NEC and recycling	21.2	37.1	24.1	17.4
<i>Low-technology sectors</i>	21.4	35.9	23.4	21
<b>Manufacturing</b>	23.5	36.7	24.6	21.7

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 8. Percentage of firms with intramural R&D  
Total population, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	38.9	49.1	19.0	22.5
Chemicals	58.0	57.8	37.2	42.2
Machinery and equipment	44.3	58.1	28.0	37.9
Electrical	48.8	57.2	31.0	34.1
<i>High-technology sectors</i>	47.7	57.0	29.0	35
Food, beverages and tobacco	25.7	19.1	13.3	22.7
Textile and leather	18.0	43.6	6.6	16.5
Wood and paper	20.1	21.6	8.6	11
Rubber and plastic products	42.5	36.9	21.7	29.7
Non-metallic mineral products	31.4	42.6	11.0	13.9
Metallic products	20.8	35.9	10.7	12.3
NEC and recycling	26.6	23.4	11.8	20.9
<i>Low-technology sectors</i>	23.9	30.3	10.8	16.2
<b>Manufacturing</b>	30.4	38.9	14.3	22.3

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 9. R&D effort (intramural R&D expenditure over total turnover, %)  
Total population, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	4.8	3.9	0.7	0.6
Chemicals	1.4	3.0	0.7	7.1
Machinery and equipment	1.9	3.3	1.0	0.9
Electrical	5.6	5.6	1.9	4.3
<i>High-technology sectors</i>	3.2	4.0	0.9	4.1
Food, beverages and tobacco	0.5	0.2	0.2	0.2
Textile and leather	0.6	0.3	0.4	0.2
Wood and paper	0.4	0.5	0.2	0.1
Rubber and plastic products	1.2	0.8	0.6	0.7
Non-metallic mineral products	0.7	1.3	0.3	0.3
Metallic products	0.6	0.6	0.3	0.2
NEC and recycling	1.1	0.4	0.4	1.1
<i>Low-technology sectors</i>	0.6	0.5	0.3	0.3
<b>Manufacturing</b>	2.1	2.6	0.6	2.2

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 10. R&D effort (intramural R&D expenditure over total turnover, %)  
Innovators, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	4.8	4.0	0.8	0.4
Chemicals	1.7	3.2	0.8	9.0
Machinery and equipment	2.2	3.5	1.4	1.1
Electrical	6.1	6.1	2.4	2.1
<i>High-technology sectors</i>	3.8	4.2	1.1	4.1
Food, beverages and tobacco	0.7	0.3	0.3	0.2
Textile and leather	1.2	0.5	0.9	0.2
Wood and paper	0.8	0.6	0.4	0.1
Rubber and plastic products	1.6	1.0	1.0	0.9
Non-metallic mineral products	1.0	1.7	0.7	0.6
Metallic products	1.0	0.7	0.5	0.2
NEC and recycling	1.8	0.5	0.7	2.0
<i>Low-technology sectors</i>	1.0	0.7	0.5	0.4
<b>Manufacturing</b>	2.8	3.0	0.8	2.4

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 11. Percentage of firms with innovation expenditure  
Total population, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	41.6	72.2	33.8	50.4
Chemicals	61.9	67.2	49.7	70.2
Machinery and equipment	45.5	79.4	45.2	57.4
Electrical	51.9	74.6	47.9	64.5
<i>High-technology sectors</i>	50.3	75.7	44.7	60.7
Food, beverages and tobacco	32.5	57.9	32.3	47.2
Textile and leather	19.6	55.8	21.1	36.8
Wood and paper	21.9	60.8	32.5	49
Rubber and plastic products	45.8	65.1	41.2	55.2
Non-metallic mineral products	38.1	63.5	28.7	49.1
Metallic products	23.2	55.2	29.1	46.6
NEC and recycling	30.2	58.7	32.7	48.3
<i>Low-technology sectors</i>	27.2	58.9	29.7	47.4
<b>Manufacturing</b>	33.5	64.3	32.6	51.3

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 12(a). Innovation effort (total innovation expenditure over total turnover, %)  
Total population, year 2000

	France	Germany	Spain	United Kingdom
Transport equipment	–	7.6	2.6	1.9
Chemicals	–	4.7	1.3	8.2
Machinery and equipment	–	5.8	2.1	3.1
Electrical	–	8.9	3.0	6.5
<i>High-technology sectors</i>	–	6.8	2.2	5.4
Food, beverages and tobacco	–	0.9	1.1	1.4
Textile and leather	–	1.4	1.5	1.4
Wood and paper	–	4.5	2.4	1.6
Rubber and plastic products	–	3.4	1.9	2.1
Non-metallic mineral products	–	3.1	1.8	1.8
Metallic products	–	1.9	1.7	1.9
NEC and recycling	–	1.4	2.1	1.8
<i>Low-technology sectors</i>	–	2.2	1.6	1.6
<b>Manufacturing</b>	–	5.0	1.9	3.5

Notes:  
Population are firms with 10 or more employees.  
The symbol “–” means non-available data.

Table 12(b). Innovation effort (total innovation expenditure over total turnover, %)  
Total population

	France		Germany		Spain		United Kingdom	
	1996	2000	1996	2000	1996	2000	1996	2000
Transport equipment	6.7	5.2	4.0	7.6	2.9	2.6	1.7	1.9
Chemicals	3.4	2.8	7.4	4.7	1.8	1.3	2.8	8.3
Machinery and equipment	3.7	2.5	3.9	5.8	2.0	2.2	4.2	3.2
Electrical	11.7	8.5	7.6	9.3	3.8	3.0	7.3	6.5
<i>High- technology sectors</i>		4.8		6.9		2.2		5.5
Food, beverages and tobacco	0.9	1.3	2.1	0.9	0.9	1.1	2.2	1.4
Textile and leather	1.2	0.7	1.7	1.4	1.0	1.5	3.2	1.6
Wood and paper	0.9	0.8	1.7	4.5	1.4	2.3	3.6	1.5
Rubber and plastic products		1.7		3.3		1.7		2.1
Non-metallic mineral products	2.9	1.1	2.5	3.1	1.5	1.7	3.1	1.8
Metallic products	1.6	1.1	2.2	1.9	1.4	1.7	2.5	1.8
NEC and recycling	1.9	1.5	2.2	1.3	1.7	2.2	2.4	1.8
<i>Low-technology sectors</i>		1.2		2.2		1.6		1.6
<b>Manufacturing</b>	3.9	3.2	4.1	5.1	1.8	1.9	3.2	3.5

Notes:

Population for 1996 and 2000 are firms with 20 or more employees.

Data for 1996 include Rubber and plastic products and Non-metallic mineral products together.

Table 13. Innovation effort (total innovation expenditure over total turnover, %)  
Innovators, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	5.5	7.8	3.0	3.2
Chemicals	3.5	5.0	1.4	12.7
Machinery and equipment	3.0	6.1	3.0	4.6
Electrical	9.3	9.8	3.8	5.6
<i>High-technology sectors</i>	5.5	7.2	2.5	7.6
Food, beverages and tobacco	1.9	1.2	1.8	2.5
Textile and leather	1.5	1.9	3.1	3.1
Wood and paper	1.8	5.7	4.8	3.2
Rubber and plastic products	2.2	4.2	3.3	2.8
Non-metallic mineral products	1.5	3.8	3.5	3.9
Metallic products	1.7	2.3	2.8	3.1
NEC and recycling	2.4	1.9	3.3	3.5
<i>Low-technology sectors</i>	1.8	2.9	2.9	3.0
<b>Manufacturing</b>	4.2	5.8	2.7	5.5

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 14. Percentage of firms with R&D employment  
Total population, year 2000

	France	Germany	Spain	United Kingdom
Transport equipment		55.5	17.0	40.3
Chemicals		58.5	37.3	72.1
Machinery and equipment		62.1	25.3	44.9
Electrical		59.6	30.7	54.4
<i>High- technology sectors</i>		60.3	27.5	51.7
Food, beverages and tobacco		24.6	12.8	44.1
Textile and leather		34.0	6.5	27.2
Wood and paper		23.1	7.6	19.5
Rubber and plastic products		41.2	21.1	37.2
Non-metallic mineral products		42.6	10.5	26.4
Metallic products		37.2	10.3	22.9
NEC and recycling		29.0	11.2	31.6
<i>Low-technology sectors</i>		32.0	10.3	26.9
<b>Manufacturing</b>		41.2	13.6	34.3

Notes:  
Population are firms with 10 or more employees.  
Available French data are not comparable.

Table 15. Percentage of firms with R&D employment  
Innovators, year 2000

	France	Germany	Spain	United Kingdom
Transport equipment		79.1	41.2	67.1
Chemicals		83.8	63.4	95.1
Machinery and equipment		76.3	52.6	77.4
Electrical		80.1	56.9	80.5
<i>High- technology sectors</i>		78.6	54.4	80.4
Food, beverages and tobacco		45.0	35.0	71.9
Textile and leather		59.8	22.4	59.0
Wood and paper		36.3	20.6	38.4
Rubber and plastic products		63.8	47.4	68.7
Non-metallic mineral products		63.5	30.4	76.9
Metallic products		64.7	31.7	55.8
NEC and recycling		45.8	30.7	69.7
<i>Low-technology sectors</i>		53.1	29.8	56.1
<b>Manufacturing</b>		62.8	36.1	65.5

Notes:  
Population are firms with 10 or more employees.  
Available French data are not comparable.

Table 16. Percentage of R&D employees.  
Firms with R&D employees, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	9.4	7.4	4.3	3.4
Chemicals	8.8	9.7	4.8	16.8
Machinery and equipment	5.6	6.0	5.5	6.5
Electrical	13.7	7.5	9.0	14.1
<i>High-technology sectors</i>	10.1	7.5	5.7	11.2
Food, beverages and tobacco	3.3	2.2	2.5	1.9
Textile and leather	3.5	6.0	4.3	3.2
Wood and paper	3.7	3.8	3.2	2.5
Rubber and plastic products	5.2	4.0	3.7	3.6
Non-metallic mineral products	3.4	3.3	3.1	1.9
Metallic products	2.4	1.5	2.7	2.9
NEC and recycling	4.7	2.7	4.2	4.4
<i>Low-technology sectors</i>	3.5	2.8	3.2	2.7
<b>Manufacturing</b>	7.7	5.9	4.5	7.0

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 17. Percentage of firms with public financial support for innovation  
Innovators, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	33.2	47.7	37.0	10.4
Chemicals	25.0	29.0	34.1	10.0
Machinery and equipment	26.1	27.0	19.3	19.4
Electrical	38.2	35.1	36.0	19.3
<i>High-technology sectors</i>	31.0	31.5	29.4	16.7
Food, beverages and tobacco	21.5	21.7	38.8	16.9
Textile and leather	25.1	32.6	31.5	13.5
Wood and paper	34.4	29.9	31.4	5.9
Rubber and plastic products	37.3	13.7	25.0	6.5
Non-metallic mineral products	13.9	27.9	32.4	15.4
Metallic products	34.3	31.9	27.0	17.5
NEC and recycling	28.6	25.4	30.0	12.4
<i>Low-technology sectors</i>	29.1	26.9	31.4	11.9
<b>Manufacturing</b>	29.8	28.6	30.9	13.7

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 18. Innovative sales (turnover due to new or significantly improved products over total Turnover, %) Product innovators, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	30.3	76.7	59.8	44.6
Chemicals	10.6	23.1	13.2	26.3
Machinery and equipment	19.3	32.4	29.8	26.0
Electrical	31.3	59.3	40.2	50.5
<i>High-technology sectors</i>	22.7	51.7	37.8	38.0
Food, beverages and tobacco	8.3	18.2	18.9	11.3
Textile and leather	14.8	23.9	31.0	31.8
Wood and paper	10.2	49.6	22.2	23.8
Rubber and plastic products	13.8	34.3	25.9	26.7
Non-metallic mineral products	9.8	36.2	26.9	16.7
Metallic products	9.8	27.4	24.1	23.0
NEC and recycling	21.3	33.8	41.7	36.8
<i>Low-technology sectors</i>	10.7	30.4	24.0	20.8
<b>Manufacturing</b>	18.7	45.0	32.4	30.4

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

Table 19. Sales covered by patents (turnover covered by patent applications or valid patents over total turnover, %)  
Innovators, year 2000

	France*	Germany	Spain	United Kingdom
Transport equipment	39.3	–	16.3	–
Chemicals	24.0	–	6.6	–
Machinery and equipment	24.0	–	18.1	–
Electrical	40.7	–	22.3	–
<i>High-technology sectors</i>	32.6	–	13.8	–
Food, beverages and tobacco	3.6	–	4.8	–
Textile and leather	7.0	–	8.1	–
Wood and paper	3.0	–	3.8	–
Rubber and plastic products	12.9	–	11.9	–
Non-metallic mineral products	10.9	–	5.6	–
Metallic products	11.5	–	8.8	–
NEC and recycling	15.8	–	15.1	–
<i>Low-technology sectors</i>	7.7	–	7.0	–
<b>Manufacturing</b>	23.8	–	10.3	–

Notes:

Population are firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees.

The symbol “–” means non-available data.

## **Methodological notes:**

Table overview details 19 basic comparative tables completed using CIS3 data from Spain, Germany, France and United Kingdom. In what follows, table features are explained.

Tables refer to Manufacturing, with figures detailed up to a breakdown of 11 industries and for a High and Low technology sectors breakdown (see details below). The 11 industries breakdown coincides with the sectors used in the Eurostat report entitled "Statistics on Innovation in Europe. Data 1996-1997," Catalogue No: KS-32-00-895-EN-IFormat, with the unique exception that additionally splits one of the sectors in two.

All estimates are referred to a frame or target population including the firms with 10 or more employees, except for France, where population concerns firms with 20 or more employees. To facilitate comparisons, between countries and with 1996 data, tables 1, 2, 3, 5 and 12 are also computed for the subpopulation of firms with 20 or more employees (tables marked with (b)).

Most tables report estimated figures for a population of reference, using weighting factors. Weighting factors are the inverse of the ratios between the number of enterprises in the sample and the total estimated number of enterprises in each stratum of the frame population. In Germany the survey is voluntary, a non-response analysis is carried out to check for potential non-response bias, and weighting factors are corrected for non-response biases.

Estimated average values for the population of reference are obtained by adding the individual variable values multiplied by their corresponding weighting factor and dividing by the sum of the weighting factors that have been employed in the numerator. This is the method used in tables 3, 4, 5, 6, 7, 8, 11, 14, 15, and 17. Estimated ratios between two variables are obtained by computing the sums of the individual variable values multiplied by their corresponding weighting factors and obtaining the ratio of the sums. This is the method used in tables 9, 10, 12, 13, 16, 18, and 19.

Populations of reference are, in our case, total population, innovators, product innovators and firms with R&D employment. Each X in Table overview details the population of reference (some estimates are computed for more than one population of reference). Innovators are simply defined as the firms which introduce product or process innovations.

Tables 1 and 2 are aimed at giving an idea of the sample design and the structure of Manufacturing in each country. Table 3 is aimed at roughly comparing the average country-specific firm sizes.

Table contents are specified using the variable names reported in the Core Questionnaire.

Industry definitions:

NACE Code	Industry Name	
34-35	Transport equipment	High- technology sectors
23-24	Chemicals	
29	Machinery and equipment	
30-33	Electrical	
15-16	Food, beverages and tobacco	Low- technology sectors
17-19	Textile and leather	
20-22	Wood and paper	
25	Rubber and plastic products	
26	Non-metallic mineral products	
27-28	Metallic products	
36-37	NEC and recycling	

Table overview						
	Table	Content (using core questionnaire names)	Format	Population of reference		
				Total population	Innovators	Product inn. /Firms with R&D empl.
Sample size (no. of firms)	1		#	X		
Estimated population (no. of firms)	2		#	X		
Firm size (no. of employees)	3, 4	Mean of EMP	##	X	X	
Percentage of innovators (product and/or process)	5	Mean of 1(INPDT=yes or INPCS=yes)*100	##	X		
Percentage of product innovators	6	Mean of 1(INPDT=yes)*100	##	X		
Percentage of process innovators	7	Mean of 1(INPCS=yes)*100	##	X		
Percentage of firms with intramural R&D	8	Mean of 1(RRDINX>0)*100	##	X		
R&D effort (intramural R&D expenditure over total turnover, %)	9, 10	Ratio of RRDINX to TURN (*100)	##	X	X	
Percentage of firms with innovation expenditure	11	Mean of 1(RTOT>0)*100	##	X		
Innovation effort (total innovation expenditure over total turnover, %)	12, 13	Ratio of RTOT to TURN (*100)	##	X	X	
Percentage of firms with R&D employment	14, 15	Mean of 1(RDPER>0)*100	##	X	X	

Percentage of R&D employees	16	Ratio of RDPER to EMP(*100)	##			X
Percentage of firms with public financial support for innovation	17	Mean of 1(FUNLOC=yes or FUNGMT=yes or FUNEU=yes or FUNRTD=yes)*100	##		X	
Innovative sales (turnover due to new or significantly improved products over total turnover, %)	18	Ratio of (TURNIN*TURN) to TURN	##			X
Sales covered by patents (turnover covered by patent applications or valid patents over total turnover, %)	19	Ratio of (TURNPA*TURN) to TURN	##		X	