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Innovative enterprises and the use of patents and other intellectual property rights

Patents and Community Innovation Survey (CIS) statistics

Intellectual property rights (IPR) are the link between innovation, inventions and other intellectual creations and the market. Applying for a patent, for example, makes an invention public but at the same time gives it protection.

Innovative enterprises tend to make more use of intellectual property (IP) protection. Both enterprise size and economic sector play an important role in whether a firm chooses to protect its intellectual property.

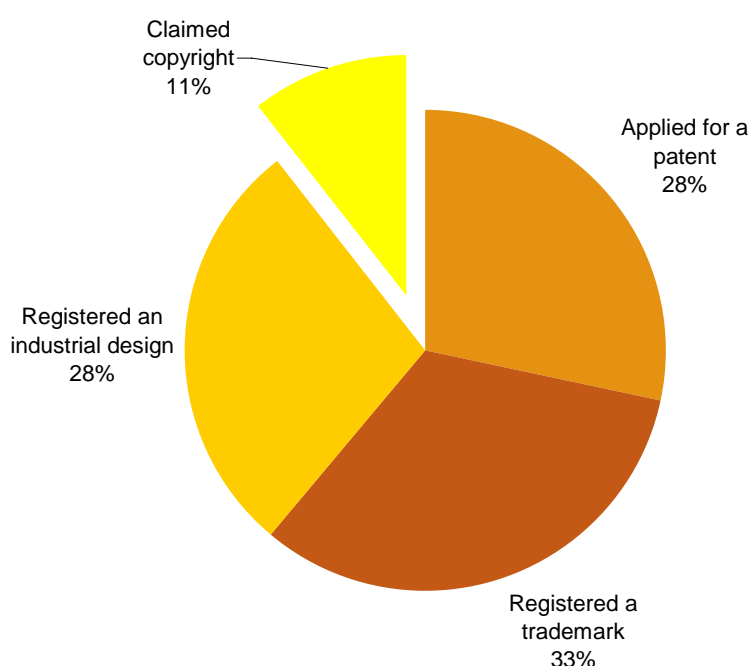
In Europe, there is no marked trend over time in the use of protection methods but rather a complex pattern of change in each country and for each method.

The most commonly used protection methods in EU-27

As part of the fourth Community Innovation Survey (CIS 4) enterprises with 10 or more employees were asked about their use of four different methods of protecting intellectual property.

Figure 1 shows the shares of these protection methods for innovative enterprises at EU-27 level. The most common protection method, with one third of the four methods, is “to register a trademark”. Patent applications and registered industrial designs are used to a similar extent, with 28 % each, while the least used protection method is copyright, with 11 %.

Figure 1: Distribution of innovative enterprises using protection methods, EU-27



Source: Eurostat – Community Innovation Survey, 2004

Missing/confidential data: LV, AT, SE, UK, SI, MT (only claimed copyrights)



What is intellectual property and how to protect it?

The ownership of creations and inventions resulting from an intellectual or mental effort is called intellectual property (IP).

Intellectual property rights (IPR) protect the interests of creators and inventors by giving them property rights over their creations and inventions. They bestow control over how an IP is used and hold out the prospect of reward, at the same time encouraging further innovation and creativity. There are two distinct branches of IPR: copyright and industrial property rights.

Copyright protects artistic creations such as literature, art, music, sound recordings, films and broadcasts and computer programs.

The branch of industrial property rights is made up of three main protection methods: patents, industrial designs and trademarks.

Patents protect the technical and functional aspects of products and processes. An invention is patentable when it fulfils the criteria of industrial applicability, novelty, inventiveness and patentable subject matter.

Industrial designs protect the visual appearance or eye appeal of useful articles.

Trademarks protect signs or combinations of signs that can distinguish the goods and services of different traders.

However, IP also covers utility models, trade secrets, plant varieties, geographical indications, performers' rights and so on. Often, more than one type of IP may apply to the same creation. A technical invention can be

protected by a patent and the drawings of the invention by a copyright.

The IP laws are different in each country but in most cases comparable.

The period of protection is limited and differs for each method. Whereas patents are as a general rule granted for 20 years, copyrights often stay in force around 70 years after the death of the author.

The fees too vary with protection methods. Whereas applying for a patent may be very expensive a copyright does not involve any fees.

Commonly, inventors and creators first seek IP protection in their home country. Their first step is normally to file an application at the national patent office. Patent offices are mostly responsible for delivering different types of IPR. Such offices or comparable institutions exist in most countries all over the world.

If inventors/creators want to protect their invention in more than one country they can approach a regional office, e.g. for patents the European Patent Office (EPO) or for trademarks and industrial designs the Office for Harmonisation in the Internal Market (OHIM).

It is also possible to seek IP protection at international level. In such cases the inventors/creators contact the World Intellectual Property Organization (WIPO). At the WIPO it is only possible to apply for patents. The grant procedure will be finalised at a national patent office or at the EPO.

Examples of main international IP organisations

Office for Harmonisation in the Internal Market (OHIM - Alicante, Spain)

The OHIM is the Community Agency which has been in charge of carrying out the Community trade marks procedures since 1996 and the Community registered design procedures since 2003. These IPRs are valid in all the countries of the EU.

The *Community trademark* gives its proprietor a uniform right applicable in all Member States of the European Union on the strength of a single procedure which simplifies trade mark policies at European level.

The *Community registered design* gives the exclusive right to use the design in commerce and take legal action against infringers and to claim damages, serves as a deterrent against infringement, is a rapidly obtained right with few formalities, and is valid throughout the EU market.

Source: based on <http://oami.europa.eu>

European Patent Office (EPO - Munich, Germany)

The European Patent Office (EPO) grants European patents for the contracting states to the European Patent Convention (EPC). There are currently 32 contracting states; the EU-27 Member States, Iceland, Liechtenstein, Switzerland, Monaco and Turkey. The EPO is the executive arm of the European Patent Organisation, an intergovernmental body set up under the EPC, whose members are the EPC contracting states.

Source: based on <http://www.european-patent-office.org>

World Intellectual Property Organization (WIPO - Geneva, Switzerland)

The World Intellectual Property Organization (WIPO) is a specialised agency of the United Nations. It is dedicated to developing a balanced and accessible international intellectual property (IP) system which rewards creativity, stimulates innovation and contributes to economic development while safeguarding the public interest.

Source: based on <http://www.wipo.int>

Innovation activity and intellectual property are strongly linked

Table 2: Protection methods used by enterprises, as a percentage of innovative enterprises and as a percentage of non-innovative enterprises, by country, EU-27 Member States and Norway

	Innovative enterprises				Non-innovative enterprises			
	Applied for a patent	Registered a trademark	Registered an industrial design	Claimed copyright	Applied for a patent	Registered a trademark	Registered an industrial design	Claimed copyright
Belgium	11.0	13.4	4.3	3.5	0.5	3.8	0.6	0.4
Bulgaria	7.6	18.5	6.8	3.9	0.8	2.8	0.4	0.3
Czech Republic	5.1	7.9	20.8	4.3	0.7	1.3	5.9	0.9
Denmark	19.6	25.0	9.8	9.5	3.2	7.1	3.2	4.8
Germany	20.1	19.1	18.0	8.0	4.0	5.1	4.7	3.0
Estonia	5.5	2.0	18.6	2.9	1.0	0.2	5.0	0.1
Ireland	16.9	5.1	20.7	9.3	0.9	0.6	3.3	1.0
Greece	3.0	5.5	24.8	9.0	0.0	1.6	8.9	2.6
Spain	11.8	21.5	10.2	1.7	1.9	6.1	2.3	0.2
France	22.2	33.5	18.4	9.7	3.2	10.7	4.5	2.3
Italy	13.4	7.3	15.8	2.1	2.2	2.0	6.4	0.7
Cyprus	1.0	4.8	1.0	1.3	0.0	0.0	0.0	0.0
Lithuania	8.9	6.4	22.8	6.4	0.6	0.1	4.5	0.5
Luxembourg	8.8	9.4	21.0	12.3	2.1	2.4	6.5	1.8
Hungary	6.5	4.8	9.5	1.9	0.7	0.4	2.5	0.7
Malta	9.0	7.6	3.5	: c	:	1.3	: c	: c
Netherlands	14.4	17.3	5.7	5.1	0.8	3.7	0.5	0.7
Poland	4.9	18.8	9.8	6.7	0.3	3.1	0.9	0.6
Portugal	7.0	19.1	4.3	3.3	1.9	7.0	1.2	0.8
Romania	6.9	7.4	17.1	3.4	0.5	0.9	2.2	0.3
Slovenia	: c	: c	: c	: c	: c	: c	: c	: c
Slovakia	3.7	7.1	18.4	6.0	0.6	1.1	5.5	1.4
Finland	18.2	19.9	9.6	2.3	0.9	2.9	0.7	0.1
Norway	17.1	22.1	8.6	11.5	2.0	4.7	0.9	1.9

Source: Eurostat – Community Innovation Survey, 2004

Table 2 compares the use of protection methods by innovative enterprises and non-innovative enterprises. Unsurprisingly, non-innovative enterprises make much less use of the four protection methods shown in the table. They too use them, but do not usually bring them as innovations onto the market.

An analysis at national level reveals many differences between countries and also between the four protection methods. It is not a straightforward enterprise to find a general rule designing clearly those countries that use more easily protection methods compared to the others. It may seem that the shares of innovative enterprises using protection methods are often higher in larger Member States than in smaller Member States. But there is no simple rule and exceptions can be found rather effortlessly.

What are the reasons why innovative enterprises of some countries protect their innovations less? Are they less aware that their innovations might get copied? Are patent applications too expensive for innovative enterprises in these countries? Is there a lack of information on IPR? Or a lack of awareness of the potential risks that an innovation runs if it is not protected?

A closer look at individual Member States reveals marked contrasts. One fifth of all French innovative enterprises applied for a patent, and even one third of them registered a trademark. One out of four Greek

enterprises engaged in innovation registered an industrial design. With 12 % of innovative enterprises claiming copyrights, Luxembourg is the only EU country where the share of innovative enterprises using this protection method exceeds 10 %.

Of the non-innovative enterprises, the Germans have the highest share (4 %) that applied for a patent. For registered trademarks, French firms lead the non-innovative enterprises. With 11 % France is the only country exceeding the 10 %-mark for registered trademarks of non-innovative enterprises. For industrial design Greece gains the highest score, with 9 % of non-innovative enterprises. With a rate of 5 % for claimed copyrights among non-innovative enterprises, Denmark registers the highest share for this IP method.

At the other end of the scale is Cyprus; where for nearly all protection methods and regardless of whether the firms are engaged in innovation or not, the share almost never exceeds 1 %. Only for registered trademarks does the share of Cypriot innovative enterprises reach 5 %.

Innovation influences strongly the use of IP protection methods, but there may be other factors that play a significant role. One of them is the size structure of the enterprises concerned. A correlation of enterprise size and protection method may give a pointer to the difference in shares of innovative enterprises that use IP protections in old and new Member States.

Enterprise size and protection methods are correlated

Table 3: Protection methods used by enterprises engaged in innovation activities, as a percentage of innovative enterprises, by enterprise size and by country, EU-27 Member States and Norway

	Applied for a patent			Registered a trademark			Registered an industrial design			Claimed copyright		
	10 - 49 employees	50 - 249 employees	250+ employees	10 - 49 employees	50 - 249 employees	250+ employees	10 - 49 employees	50 - 249 employees	250+ employees	10 - 49 employees	50 - 249 employees	250+ employees
BE	8.6	14.4	26.4	9.6	23.0	23.5	3.6	4.8	10.9	3.3	3.5	5.5
BG	5.8	6.9	23.0	14.5	20.9	41.4	5.1	6.5	20.4	3.7	2.7	9.4
CZ	2.9	6.9	13.7	6.1	9.5	14.6	17.9	24.5	27.7	5.0	2.4	5.4
DK	14.6	28.5	40.9	22.5	26.8	45.1	8.1	12.9	17.3	7.5	12.1	22.1
DE	12.7	28.0	48.9	13.4	25.7	39.7	11.6	25.3	41.3	6.1	9.8	16.0
EE	5.0	5.3	15.4	1.6	2.4	6.9	15.4	25.0	37.2	2.3	4.0	6.4
IE	12.4	24.6	33.6	2.6	8.7	16.8	19.3	22.3	28.8	9.0	7.5	19.0
EL	2.6	4.3	5.5	4.9	8.7	3.2	22.8	32.4	32.8	7.8	13.9	10.1
ES	9.9	17.1	24.6	19.6	27.9	28.7	8.9	14.9	15.1	1.3	3.2	4.0
FR	15.6	30.1	48.3	28.2	38.9	56.3	15.9	20.6	30.6	8.7	9.6	16.4
IT	9.8	24.3	39.8	5.2	13.9	21.6	12.5	26.3	36.6	1.8	2.6	7.6
CY	0.9	1.7	0.0	2.2	12.2	22.7	0.9	1.7	0.0	0.9	2.6	4.6
LT	8.9	7.0	16.8	5.7	6.2	12.4	16.9	28.5	39.4	6.5	5.7	8.0
LU	5.6	7.9	39.8	5.4	14.0	25.6	16.0	23.1	55.2	12.7	11.2	13.3
HU	5.7	6.0	12.0	4.3	5.7	5.9	6.6	12.7	18.9	2.1	1.1	2.5
MT	6.3	10.7	20.0	6.3	: c	: c	: c	:	: c	: c	:	:
NL	10.1	21.9	29.4	15.5	19.4	27.1	4.7	7.2	9.9	5.2	4.5	6.7
PL	2.9	6.3	11.0	16.8	18.7	29.0	8.0	10.9	15.5	6.8	5.4	10.4
PT	5.5	10.5	11.6	15.7	27.2	29.9	3.6	5.2	9.7	2.7	4.4	7.5
RO	6.1	6.3	11.2	4.4	8.8	15.9	12.9	20.6	26.3	2.3	4.6	5.1
SI	: c	: c	: c	: c	: c	: c	: c	: c	: c	: c	: c	: c
SK	2.4	2.3	10.3	6.2	7.0	9.8	13.6	23.9	21.7	5.3	6.1	7.8
FI	12.9	20.7	49.5	14.6	24.5	45.1	7.7	10.9	19.6	2.0	1.1	8.2
NO	13.8	21.7	35.4	21.2	21.9	31.6	7.8	10.8	10.2	10.7	12.4	17.2

Source: Eurostat – Community Innovation Survey, 2004

Table 3 shows that for industrial protection methods such as patents, trademarks and industrial designs, enterprise size and frequency of the use of these kinds of protection are strongly correlated. In all countries the share of innovative enterprises that use one of these three methods increases along with the enterprise size. The only exception are registered trademarks in Greece, where the share of medium-sized enterprises (9 %) is the highest, small enterprises (5 %) came second and large enterprises (3 %) third.

For copyrights claimed, the correlation between enterprise size and the share of enterprises that claim copyrights is not so straightforward. In seven countries (Bulgaria, Czech Republic, Lithuania, Luxembourg, Hungary, Netherlands and Poland) the share of small enterprises that claim copyrights are higher than for

medium-sized firms. In Greece more medium-sized enterprises (14 %) claim copyrights than large enterprises (10 %).

In some of the countries surveyed the differences between small and large enterprises are very large. In Finland 13 % of small innovative enterprises applied for a patent, compared with half of the large enterprises. Germany shows comparable shares, with 13 % of small enterprises and 49 % of large enterprises. A similar divergence linked to enterprise size can also be found in Finland for registered trademarks, with a small enterprises accounting for 15 % and a 45 %. In Luxembourg 16 % of small enterprises registered an industrial design compared to 55 % of large enterprises.

How the economic sector influences the choice of a protection method

Another aspect of how protection methods are used is the economic sector. Is there a difference in the use of such methods between manufacturing and services?

At first glance there does seem to be a tendency in the manufacturing sector to seek more actively to protect inventions. This observation is consistent with the fact that, for example, one of the criteria that patents have to fulfil is industrial applicability. So it is not surprising that with the sole exception of Estonia, in all countries a

greater proportion of innovative enterprises in manufacturing applied for a patent than in services.

In most of the countries more innovative enterprises in the manufacturing sector registered an industrial design than in the services sector. Only in the Czech Republic, Estonia, Greece and Slovakia did a higher share of innovative enterprises in services register industrial designs compared to innovative enterprises in manufacturing.

In a majority of countries the share of manufacturing enterprises that registered a trademark is higher than for services enterprises. In six countries the opposite is the case (Spain, France, Netherlands, Portugal, Finland and Norway).

For most countries the shares of innovative enterprises that claimed copyrights is higher or nearly equal in the services sector than in the manufacturing sector. Exceptions are Greece and Germany, where the services sector shares of claimed copyrights are 3 and 5 percentage points lower than in manufacturing.

In general, it can be said that services enterprises apply less for patents because very often their innovations do not fit the patent criteria, and they therefore use trademarks or copyrights as an alternative. But copyrights must be used carefully because they may create problems. Obtaining protection by a copyright is cost-free, but it can be very expensive to defend this protection. Going to court to protect an infringed copyright was estimated recently to cost about EUR 1.5 million.

Table 4: Protection methods used by enterprises engaged in innovation activities, as a percentage of innovative enterprises, for manufacturing and services and by country, EU-27 Member States and Norway

	Manufacturing				Services			
	Applied for a patent	Registered a trademark	Registered an industrial design	Claimed copyright	Applied for a patent	Registered a trademark	Registered an industrial design	Claimed copyright
Belgium	13.2	13.8	5.5	3.5	8.5	12.7	3.0	3.5
Bulgaria	: c	20.8	: c	3.0	5.1	13.6	5.0	6.4
Czech Republic	6.5	9.8	18.3	3.1	2.6	4.7	25.9	6.7
Denmark	26.5	27.6	12.4	10.1	11.0	22.0	6.5	8.9
Germany	30.8	24.5	28.2	10.2	7.7	12.7	5.9	5.5
Estonia	4.8	3.0	17.6	3.3	6.3	1.1	20.3	2.5
Ireland	23.0	7.9	20.8	9.4	9.2	1.6	20.9	9.3
Greece	4.5	8.7	23.6	10.4	1.2	1.6	26.7	7.5
Spain	13.9	20.0	12.0	1.6	8.6	24.3	7.5	1.9
France	27.1	32.4	22.8	7.2	16.3	35.0	13.3	12.7
Italy	16.9	9.0	16.2	2.0	3.9	2.6	14.7	2.5
Cyprus	1.4	5.2	1.7	1.1	0.4	4.4	0.0	1.8
Lithuania	10.9	8.5	26.5	5.9	6.7	4.3	19.5	7.4
Luxembourg	24.5	23.3	35.4	12.4	4.6	5.5	17.0	12.4
Hungary	7.6	6.9	9.9	1.2	4.4	1.6	9.1	2.8
Malta	11.0	8.5	4.9	: c	6.6	6.6	: c	-
Netherlands	19.5	15.9	7.8	4.4	9.3	18.5	3.6	5.9
Poland	6.8	19.3	11.0	4.8	1.7	18.7	8.2	10.4
Portugal	7.1	19.4	5.1	2.6	6.9	19.6	3.2	4.7
Romania	7.8	9.0	17.5	3.3	5.0	4.1	16.5	3.6
Slovenia	: c	: c	: c	: c	: c	: c	: c	: c
Slovakia	4.9	7.9	17.1	3.0	1.2	5.6	21.3	12.9
Finland	22.8	19.7	13.5	1.7	12.7	21.0	4.8	3.4
Norway	20.2	19.8	9.1	8.9	13.8	25.8	8.8	15.0

Source: Eurostat – Community Innovation Survey, 2004

Is there a change in the use of protection methods?

A closer look at Table 5 that compares CIS 3 to CIS 4 data shows no marked trend in the use of protection methods but only a slight tendency towards the declining use of protection methods, especially of registered industrial designs.

The CIS 4 questions were nominal questions on whether or not the enterprise obtained any of the four types of intellectual property rights during the three-year observation period (2002-2004). So the results deliver no information on the number, for example, of patents per enterprise. All we can conclude is that if a lower share of enterprises applied for patents in a country then fewer enterprises in that country used this

protection method. This however absolutely does not mean that the enterprises applied for fewer patents. Perhaps a concentration effect took place. Fewer enterprises produced a higher number of patents each, offsetting at the same time the decline in the number of enterprises.

For patent applications, the difference in the shares of innovative enterprises declaring at CIS 3 (2000) that they used this IP protection compared with CIS 4 (2004) ranged from -4 percentage points for France to +6 percentage points for Denmark.

Table 5: Protection methods used by enterprises engaged in innovation activities, by country, EU-27 Member States and selected countries, as a percentage of innovative enterprises, CIS 3 (2000) and CIS 4 (2004)

	CIS 3 (2000)				CIS 4 (2004)			
	Applied for a patent	Registered a trademark	Registered an industrial design	Claimed copyright	Applied for a patent	Registered a trademark	Registered an industrial design	Claimed copyright
Belgium	14.9	21.7	14.0	7.5	11.0	13.4	4.3	3.5
Bulgaria	5.9	13.0	5.1	3.2	7.6	18.5	6.8	3.9
Czech Republic	7.5	23.4	6.7	10.3	5.1	7.9	20.8	4.3
Denmark	14.0	25.1	13.9	6.6	19.6	25.0	9.8	9.5
Germany	17.6	17.5	15.8	6.7	20.1	19.1	18.0	8.0
Estonia	9.2	26.4	4.3	6.7	5.5	2.0	18.6	2.9
Ireland	:	:	:	:	16.9	5.1	20.7	9.3
Greece	6.3	23.4	5.4	6.4	3.0	5.5	24.8	9.0
Spain	11.6	15.4	12.0	2.8	11.8	21.5	10.2	1.7
France	26.6	33.6	17.0	6.2	22.2	33.5	18.4	9.7
Italy	13.4	16.9	10.1	2.5	13.4	7.3	15.8	2.1
Cyprus	0.2	12.7	1.6	1.6	1.0	4.8	1.0	1.3
Latvia	9.9	23.8	9.2	9.7	:	:	:	:
Lithuania	6.1	23.5	7.0	7.7	8.9	6.4	22.8	6.4
Luxembourg	8.0	19.2	9.8	11.5	8.8	9.4	21.0	12.3
Hungary	5.3	8.9	7.8	7.7	6.5	4.8	9.5	1.9
Malta	9.8	5.5	9.8	3.7	9.0	7.6	3.5	: c
Netherlands	13.6	15.1	8.2	7.1	14.4	17.3	5.7	5.1
Austria	17.7	20.6	16.3	10.2	:	:	:	:
Poland	8.3	26.9	11.0	:	4.9	18.8	9.8	6.7
Portugal	5.7	17.9	4.4	1.9	7.0	19.1	4.3	3.3
Romania	6.5	13.9	7.7	4.3	6.9	7.4	17.1	3.4
Slovenia	8.9	8.9	8.9	2.1	: c	: c	: c	: c
Slovakia	6.1	17.9	7.7	7.7	3.7	7.1	18.4	6.0
Finland	20.0	25.4	12.3	10.6	18.2	19.9	9.6	2.3
Sweden	28.2	40.9	17.6	21.5	:	:	:	:
United Kingdom	12.7	32.9	22.7	31.1	:	:	:	:
Iceland	5.2	13.5	2.2	6.0	:	:	:	:
Norway	17.5	27.2	10.0	14.3	17.1	22.1	8.6	11.5

Source: Eurostat – Community Innovation Statistics

Whereas the share of Estonian enterprises that registered trademarks fell about 24 percentage points, the share in Spain increased by some 6 percentage points.

In Belgium, the number of enterprises that registered an industrial design dropped about 10 %, while in Greece this number grew at a rate of 19 %.

The share of innovative enterprises that claimed copyrights was down in Finland by 8 % but up in France by some 4 %.

Table 6 shows data on patent applications to the European Patent Office (EPO) for 2000 and 2003 and the annual average growth rate over the period 2000-2003. Even if countries often apply first for a patent at their home office, the EPO figures still give an indication of patent activity in each country.

Data in Table 5 and 6 are not comparable but both give complementary information. Whereas Table 5 indicates the growth in the shares of innovative enterprises that applied for patents. Table 6 explains the changes in the number of patent applications to the EPO.

Ten countries have positive growth rates in both tables, which means that more enterprises are involved in a growing number of patent applications. In two countries, Malta and Finland, the opposite is true. There are fewer patent producing companies.

In Belgium, the Czech Republic, Estonia, Greece, France, Poland and Slovakia patent applications are increasing but not the share of enterprises applying for patents. This may be a sign that patenting is becoming more concentrated. Hungary and Luxembourg report the opposite, with more enterprises involved in patenting but producing fewer patent applications.

Table 6: Patent applications to the European Patent Office by country, total number, 2000, 2003 and average annual growth rate (AAGR) 2000-2003, EU-27 Member States

	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
2000	1 490	23	107	1 196	25 221	15 288	74	1 058	8 439	4 493	11	16	9	102	207	5 3 907	1 393	121	59	19	72	39	1 814	3 269	7 769		
2003	1 496	34	163	1 270	25 728	21 306	123	1 274	9 202	5 002	12	14	20	90	192	4 3 956	1 581	160	78	26	101	44	1 591	2 547	7 217		
AAGR	0.1	13.8	15.0	2.0	0.7	13.1	2.1	18.5	6.4	2.9	3.6	3.0	-5.0	32.2	-4.0	-2.5	-8.0	0.4	4.3	9.8	10.0	11.2	11.9	4.0	-4.3	-8.0	-2.4

Source: Eurostat – Patents statistics

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

The Community Innovation Survey (CIS) is a survey on innovation activity in enterprises covering EU Member States, candidate countries, Iceland and Norway.

The data are collected on a two-yearly basis (from 2004 onwards). The third survey (CIS 3) was carried out in 2000/2001 in most countries. The latest survey (CIS 4) was carried out in 25 Member States, candidate countries, Iceland and Norway in 2005, based on the reference year 2004.

In order to ensure comparability across countries, Eurostat, in close cooperation with the EU Member States, developed standard core questionnaires for CIS 3 and CIS 4, accompanied by a set of definitions and methodological recommendations.

CIS 3 and CIS 4 are based on the *Oslo Manual* (2nd edition, 1997), which gives methodological guidelines and defines the concept of innovation, and on Commission Regulation No 1450/2004.

Table 5 of this issue of Statistics in Focus compares data compiled from CIS 3 and CIS 4. As the questionnaires for the two surveys are not fully identical, the results are sometimes not fully comparable.

STATISTICAL UNITS

The main statistical unit for both CIS 3 and CIS 4 was the enterprise.

The target population for CIS 3 and CIS 4 was the total population of enterprises (with 10 or more employees) engaged primarily in the following market activities: mining and quarrying (NACE 10-14), manufacturing (NACE 15-37), electricity, gas and water supply (NACE 40-41), wholesale trade (NACE 51), transport, storage and communication (NACE 60-64), financial intermediation (NACE 65-67), computer and related activities (NACE 72), architectural and engineering activities (NACE 74.2) and technical testing and analysis (NACE 74.3).

TYPE OF SURVEY

Most Member States and other countries ran their CIS 3 and CIS 4 by means of a stratified sample survey, while a number used a census or a combination of the two.

The enterprise size classes referred to in this publication are:

- small: 10-49 employees;
- medium-sized: 50-249 employees;
- large: 250+ employees.

The economic activities covered by this publication are based on the NACE Rev. 1.1 classification. The two sectors used are:

- manufacturing (NACE D); and
- services, which includes NACE I and J plus NACE divisions 51, 72, 74.2 and 74.3.

The CIS 3 and CIS 4 data are organised in the Eurostat reference database following broadly the same structure as the questionnaire.

REFERENCE PERIOD

CIS 3 covered the observation period 1998-2000 inclusive, i.e. the three-year period from the beginning of 1998 to the end of 2000. The reference period for CIS 3 was the year 2000.

Norway used the period 1999 to 2001 instead of 1998 to 2000. Spain used an earlier version of the CIS 3 core questionnaire than

the other countries. The Czech Republic, Hungary, Latvia, Lithuania and Slovakia chose 1999-2001 as the observation period, while Romania opted for 2000-2002. Slovenia used a two-year observation period (2001-2002) and Bulgaria 2001-2003.

The data for Poland are generally based on the observation periods 1998-2000 for industry and 1997-1999 for services.

CIS 4 covered the observation period 2002-2004 inclusive, i.e. the three-year period from the beginning of 2002 to the end of 2004. The reference period for CIS 4 was 2004.

All the countries collected data for this observation period; only the Czech Republic took 2003-2005 as the observation period.

DEFINITION

[OSLO MANUAL 1997](#)

Innovation: a new or significantly improved product (good or service) introduced to the market or a new or significantly improved process introduced within an enterprise. Innovations are based on the results of new technological developments, new combinations of existing technology or utilisation of other knowledge acquired by the enterprise.

Enterprises engaged in innovation activity (propensity to innovate): enterprises that introduce new or significantly improved products (goods or services) to the market or enterprises that implement new or significantly improved processes. Innovations are based on the results of new technological developments, new combinations of existing technology or utilisation of other knowledge acquired by the enterprise. The term covers all types of innovator, i.e. product innovators, process innovators and enterprises with only ongoing and/or abandoned innovation activities.

PATENT STATISTICS

The production of patent statistics at Eurostat was reorganised in 2005. The aggregated patent statistics are produced on a raw data set delivered by the OECD. This will be replaced by PATSTAT for the next data productions.

Since 2005, Eurostat has been producing the patent statistics using the priority year of the application, and not the year of filing as previously. The data values are, however, similar. These data are in general less extensive than the data released by Eurostat before 2005. This is because all PCT applications filed to the EPO (i.e. applications made in accordance with the procedure under the Patent Cooperation Treaty) are taken into consideration by Eurostat, whereas the OECD datasets do so only in part. The resultant data provide a better reflection of the innovation and R&D performance of an economy.

SYMBOLS AND ABBREVIATIONS

c Confidential data
: Not available

Data presented in this publication reflect the data available in Eurostat's reference database on 28 March 2007.

Further information:

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

-  **Science and technology**
-  Research and development
-  **Community innovation survey**
-  High-tech industry and knowledge-intensive services
-  **Patent statistics**

Journalists can contact the media support service:

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European Statistical Data Support:

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

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

Contact details for this support network can be found on our Internet site: <http://ec.europa.eu/eurostat/>

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This publication has been prepared in conjunction with Gesina Dierickx.