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PATENTS
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EUROPEAN INTERNAL MARKET:
BACKGROUND & RECENT DEVELOPMENTS

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Patents and the European Internal Market: Background & Recent Developments

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Abstract

This article has two main purposes. First it provides background information on patents and explains how patents become trade-related, as they are a source of distortions in trade and competition. Secondly, it analyses the advantages and disadvantages of the different patent systems that coexist in Europe and examines the recent proposal for a European Council Regulation on the Community patent in light of the shortcoming of the existing systems. This draft Regulation provides for the coexistence of the Community, 'European' and national patent systems. This option of coexistence although an improvement over today, does not eliminate but only reduces distortions in the European internal market. However, it may have been the only feasible option with the present level of knowledge regarding the socially optimal rate of innovation and the responsiveness of socially useful innovation to changes in patent law provisions.

JEL Classification No.: K33, O34, O38
KEY WORDS: patents, Community patent, patent policy reform

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PATENTS AND THE EUROPEAN INTERNAL MARKET: BACKGROUND & RECENT DEVELOPMENTS

FELI MARTINEZ

1) Introduction

Patents arose primarily as private rights under national law in response to the economic demands of their nationals to meet an instrument for protecting innovation. More recently, the growing globalisation of markets, the expansion of international trade in high technology products, and the fact that innovation crosses national boundaries have all led industries to demand patent protection for their trading and licensing activities in foreign markets. At present there is no supranational patent, countries retain control over their patent systems using patent-related policies to serve their national interests. Further, innovative firms do not pursue world wide patenting strategies due to cost and other strategic consideration. Consequently, patents create important non-tariff barriers to trade, segment the international market of patented goods and generate cross-country differences in market structures.

Continuing national differences in patent policy within the European Community (EC) constitutes at present a major obstacle to the goal of forming a truly integrated European internal market. The Luxembourg Convention on the Community Patent of 1975 and the Agreement relating to Community Patent signed in 1989, which aimed to create a unitary patent with equal effect throughout the EC, never entered into force as only France, Germany, Greece, Denmark, Luxembourg, the United Kingdom and the Netherlands ratified the Convention. The resistance of certain countries to the entry into force of the Community patent reflects different national attitudes towards innovation depending on whether the comparative advantage of a particular country lies on innovation or in imitation. However, these national differences are inconsistent with the goal of the completion of a single market in the EC.

A complicated system of national and so-called 'European' patents that usually do not cover the whole EC territory have, while playing the role of encouraging innovation in the EC, introduced distortions in the European internal market. However, Intergovernmental Conventions might be replaced by full scale EC legislation on the grounds that Community patent rights cannot be created by approximating national legislation. Recognising the need for improving the functioning of the internal market and, for adapting the market of patented goods to the Community dimension, the European Commission has very recently launched a proposal for a Council Regulation on the Community patent (hereinafter referred as the draft Regulation).[1]

[1] Proposal for a Council Regulation on the Community patent of 1.8.2000, COM(2000) 412 final, on the basis of Article 308 of the EC Treaty.

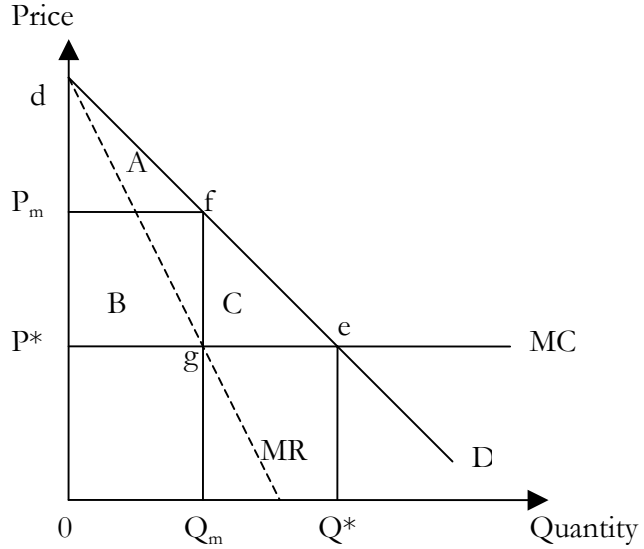
The main purpose of this paper is to examine the reforms of the patent systems currently under way in the EC with special focus on the proposal, in light of the shortcomings of the existing systems. The paper is organised as follows. Section 2 summarises the economic case for patent protection. Section 3 discusses some key issues of patent law. Section 4 explains how patents distort trade and competition. Section 5 applies this analytical perspective to the EC case. Section 6 analyses the advantages and disadvantages of the different patent systems that coexist in Europe and examines the suggested reform. Conclusions are presented in the final section.

The economic case for patent protection

The argument most commonly used in support of public policy intervention to provide intellectual property rights (IPRs) protection in general, and patent protection in particular, is that, without such protection, competitive market systems fail to give private agents sufficient incentives to induce the socially optimal amount of investment in new ideas and information with industrial application.

New productive knowledge has the characteristic of a public good in that consumption of this knowledge by one economic agent does not reduce the consumption possibilities of others. Substantial fixed costs of original innovation and lower costs of imitation call for public intervention. Hence, while the cost of innovation is born by the innovator (investment in research and development (R&D) which can be modelled as a fixed cost $\alpha > 0$), its benefits accrue to other agents as well. Unless the latter are forced to remunerate the innovator for these benefits, the innovator's net private benefits from an innovation will be less than the net social benefits. Consequently, socially profitable investments in new knowledge and technology will not be undertaken. This argument can be illustrated using the following diagram (Figure 1), which illustrates the welfare economics of patents.

Figure 1. Welfare economics of product patents



In the figure, D is the demand curve for a just innovated new product in country A. Once the new product is available, social optimality requires that it be sold at its marginal cost (MC) of production at point e. For simplicity we assume no fixed cost of production. From the equilibrium output Q^* that would result, society would derive maximum social surplus dP^*e, composed of triangles A and C and the rectangle B. This solution may however provide each firm with profit less than α, in which case the innovator's net profit is negative. Consequently, no firm will have any incentive to innovate.

One solution is to *grant patents* to reward the production of new innovative products, which gives the innovator the rights to charge a monopoly price for the product for a limited period of time. Monopoly would result in a higher price P_m and a lower output Q_m. This outcome generates a dead-weight loss relative to the competitive solution of area fge.[2] *Compared to the situation of no innovation*, however, society obtains a net gain of monopoly profit (rectangle B) plus remaining consumer surplus of (triangle A) minus associated R&D cost.

An optimal patent system will induce the development of all innovations for which gains exceed R&D costs. In practice, however, there are competitive tools such as product quality, delivery capacity, customer-oriented products, technical/individual customer service, and price policy, which allow firms totally or partially to cover R&D costs by appropriating some rents from their innovated new products or processes. Surveys usually rate patents lowest among the factors affecting competitive position and inducing innovation except for some sectors including pharmaceuticals and chemicals (Levin et al., 1987 and Roland Berg Forschungs, 1995). For those products that would be developed and sold anyway, the availability of patent protection simply reduces consumer surplus and raises monopoly profits, witch nevertheless may encourage additional innovation.

Once society has decided to provide for patent protection to encourage innovation, it has to decide the optimal strength of the patent system balancing a number of trade-offs. For instance, patents are only more efficient in resource allocation in research than trade secrets if strategic information is disclosed at an early stage. However, early disclosure may deter innovation. Also, due to the cumulative nature of much technical progress, right incentives have to be given to both first and incremental innovators. The weight given to static and dynamic concerns are a political choice. 'Weak patent protection need not be inimical to economic growth and, conversely, strong patent protection need not be a enemy of diffusion' (Ordover, 1991, footnote 1, p. 2).

3) A note on patent law

Intellectual property (IP) protects the application of ideas and information that are of application in industry. The three central types of IPRs are patents for inventions,

[2] This welfare loss could be avoided if the innovator is instead provided a large enough lump sum but the innovation instead is made freely available. A large literature exists on non-patent responses to this problem, such as state funding of R&D. For an introduction to this literature see Beath et al. (1995).

copyright for literary and artistic works and associated products, and trademarks and names for the goodwill attaching to marketing symbols like trade names of businesses, all of which cover distinct subject matter and pursue different objectives.[3]

The main characteristic of all types of IP is that the rights granted are essentially negative. IPRs do not confer the right of exploitation of goods or services embodying IPRs but rather entail the IPR holder to prevent others from exploiting them without its license so as to guarantee the IPR holder a monopoly in the exploitation of its rights.
International minimum standards on patent law are provided on the Agreement on trade related aspects on intellectual property rights (TRIPS 1994).[4] These minimum standards guarantee that they enable the patent holder to prevent for a limited period of time the unauthorised use, sale, importation or manufacture of goods embodying the patented subject matter within the territory for which protection is granted, whether those goods are imported or locally produced (Articles 27 & 28 of TRIPs). These legal rights are conferred on the owner of a *granted* patent. Nevertheless, patent *applications* usually confer on the applicant similar provisional rights subject to the patent being granted.

3.A) The granting procedure
Patents are usually granted following a granting procedure involving a search and examination procedure to confirm that the invention fulfils a set of patentability requirements. Sometimes, however, national patent offices operate as mere registration offices granting patents to applicants that submit applications fulfilling some minimum formal requirements without any further substantial examination. The TRIPs Agreement failed to define the patentability requirements —conditions and examination requirements for granting a patent— and therefore signatories are free to determine their scope and the stringency of the granting procedure.

Patents are intended to protect embodiments of inventive activities. Therefore most national patent laws include exclusions from patentability abstract or non-embodied ideas such as discoveries, scientific theories, mathematical methods, rules and methods for doing business and computer programs[5], or non-technical issues such as aesthetic creations. Normally, inventions offensive to public morals are also excluded. In general, however, Article 27 of TRIPs provides for the extension of patentability to all inventions—products as well as processes including microbiological —and to all fields of technology.

In the following description of the patentability requirements we are going to focus on the European standards set in the European Patent Convention (EPC) and the rules of interpretation lay down at the European Patent Office (EPO) as a proxy of developed

[3] See Cornish (1996) for a detailed description of IPRs.

[4] See Evans (1995) for a detailed historical view on the making of the Agreement.

[5] In relation to the EPC note that article 52 (2) EPC, which excludes computer programmes from patentability is one of the articles to be revised at the intergovernmental conference, aiming to revise the EPC text to enter into force before 1 July 2002. In relation to the EU see Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, *OJ L 122 17.05.91, p. 42*.

countries' (DCs') patentability requirements indicating the main divergences in developing countries (LDCs) regulations afterwards.

An invention, in order to be patentable must:

a) Be *new* (Article 54 EPC). An invention is considered to be new if it does not form part of the state of the art. The state of the art is defined as everything made available to the public by means of a written or oral description, by use or any other way, before the date of filing of the patent application or the date of priority claimed. Therefore, the EPC provides a universal and global concept. Non-prejudicial disclosures include disclosure of an invention in an official exhibition or as a consequence of abuse in relation to the applicant, if the application is filed within the following six months.

b) Involve an *inventive step* (Article 56 EPC). This requirement is fulfilled if, having regard to the state of the art, the invention is not *obvious* to a person skilled in the art. The term obvious, which can be interpreted with more or less laxity, means that which does not go beyond the normal progress of technology but merely follows logically from the prior art. The person skilled in the art is normally thought of as an ordinary practitioner, aware of what was common general knowledge in the art, and presumed to have had access to everything in the state of the art, and to have had at his disposal the normal means and capacity for routine work and experimentation. There may be instances where it is more appropriate to think in terms of a group of persons rather than a single one.

c) Have *industrial application* (Article 57 EPC). It is normally considered that an invention would fulfil this requirement if it can be made or used in any kind of industry, including agriculture. Industry is normally understood in its broad sense as including any physical activity of technical character.

d) Be *described in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art* (Article 83 EPC). The purpose of this provision is to ensure the application contains sufficient technical information to enable a skilled person to put the invention into practice (which does not have to be the best way), and to enable the reader to understand the contribution to the art, which the inventor has made. Since the reader is presumed to have the general background technical knowledge appropriate to the art, the applicant is not required to insert any explanatory matter which is obtainable from textbooks or is otherwise well known. All this qualifies the extent of the diffusion of the patent system.

e) Be a *solution of a technical problem* (Rules 27&28 EPC). There are three main categories of patents: *product* patent, *process* patent and patent *for use*. In the process patent and the patent for use, the novelty and inventive step test is applied to the process or the use claimed respectively. The resulting product from the new process or the product or process for which a new use is claimed need not to be new. Product patents provide broader protection than process patent because the former provide protection for the resulting product regardless of the process used in its production whereas the same product can be obtained by more than one process.

Patents can be transferred within and across countries through licensing where the licensor authorises the licensee to make use of his rights in return for fees and/or royalty payments for the whole or part of the territory in which is granted in an exclusive or non-exclusive way.

A protection system that complements patents is the one of utility models or petty patents. Traditionally utility models are of shorter duration (4 to 10 years typically) and are granted without a prior search to establish novelty and inventive step. Thus, their virtues include quick and simple registration procedures and lower costs than for a patent. They are thus particularly important for small and medium-sized enterprises (SMEs) and appropriate to current trends in technological development, which is increasingly characterised by a growing number of relatively short-lived minor inventions and shorter production cycles. Such protection is usually extended to minor inventions, with a requirement that an invention to be embodied in three-dimensional forms excluding process inventions.[6] DCs tend to seek for utility models the same requirements as in the case of patents,[7] whereas LDCs require little or no inventive step and generally only national novelty, applying them to adaptive inventions.

A patent document contains the description of the invention, one or more claims, any drawing referred to in the description or the claims and the abstract (Article 78 EPC). The degree of protection is determined by the claims (Article 84 EPC), which determines the scope for imitation and is generally higher in developed/innovator countries. Developing/imitating countries have traditionally provided weaker protection relaxing the requirements of the novelty and non-obviousness/inventiveness test, limiting the number of claims per patent, barring from patent protection product patents or certain classes of products[8], or requiring compulsory licensing immediately upon granting patent protection on the grounds of insufficient or no local exploitation, or on the grounds of 'public interest'.[9]

[6] Since they are granted without a previous search, the aim of this exclusion is to cover by utility models inventions where infringements can be identify, and protection define and implemented easily.

[7] See the proposal for a European Parliament and Council Directive approximating the legal arrangement for the protection of inventions by utility models of 17.12.1997.

[8] 'In 1988 it was established that at that time pharmaceutical products were not patentable in 49, food products in 35, chemical products in 22, pharmaceutical process in 10, process for the manufacture of food in 9 and micro-organism in 9 of a total of 92 Paris Union states' (Strauss, 1996, p. 174). As a matter of example, pharmaceutical products and processes only became patentable in Spain in October 1992, 6 years after its accession to the European Union according to transitional arrangements. (Transitional provision 1.1 of the Spanish Patent Law 11/1986.

[9] Local working provisions of patents, excluding processes from patentability and discriminating by field of technology contravene the international legal setting from the entry into force of the TRIPs agreement subject to transitional agreements and early implementation of individual countries.

3.B) Patents and imitation

Patents increase the cost and time required for imitation. Mansfield et al. (1981) found that within 4 years of their introduction, 60% of the patented successful innovations in their sample were legally imitated.

In their survey study, Levin et al. (1987) found that duplicating major innovations tends to cost more and take longer than duplicating typical innovations and that for each category of innovation the reported effectiveness of patents was positively correlated with the increase in duplication costs. In particular, they found that patents raise imitation costs by 40% for both major and typical new drugs, by 30% for major new chemical products, and by 25% for typical chemical products. In electronics, although differing somewhat for semiconductors, computers, and communication equipment, the range was 7 to 15% for major products and 7 to 10 for typical products. However in several industries (mainly guided missiles and several types of industrial machinery) patents were found to be relatively ineffective and duplication costs were very high whether or not the innovation was patented. In these instances the relative complexity of the products presumably makes reverse engineering inherently costly despite relatively weak patent protection.

4) Patents as a source of distortions in trade and competition

IPRs arose initially as *private rights* under national law as part of their industrial policy and therefore, national differences in IP system arose reflecting cross-country differences in economic development. More recently, the fact that innovation generates cross-border externalities, the growing globalisation of markets and the increase of international trade in high technology products have led industry to demand extraterritorial IP protection for their trading and licensing activities in the global market. It is therefore essential to understand patenting in a multi-country context.

Figure 2: Welfare economics of product patents in a Two-Country model

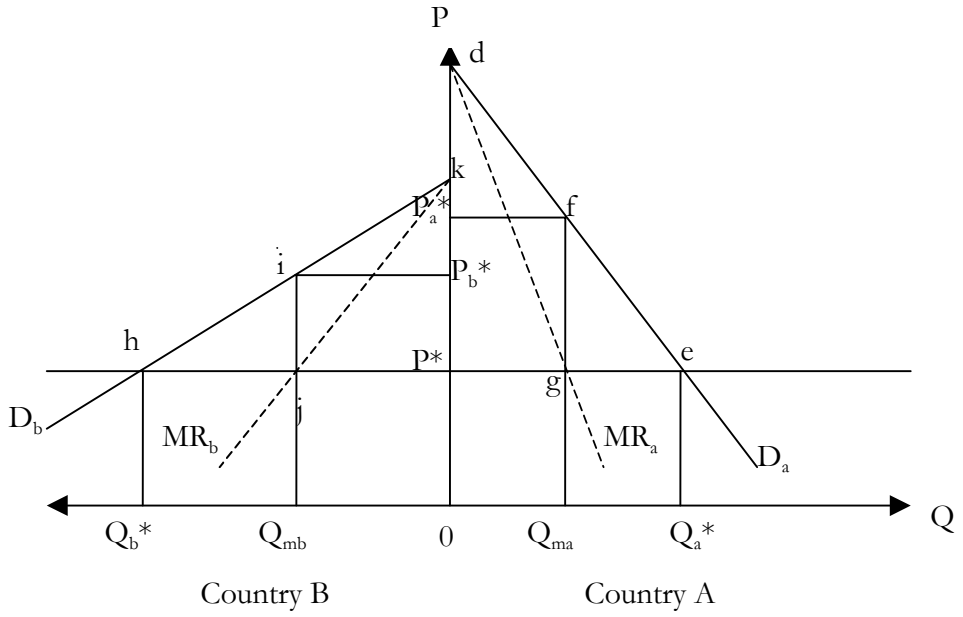


Figure 2 above introduces a second country B to the analysis of welfare economics of patent protection.[10] The left quadrant shows the market in Country B for the new product developed in Country A. For convenience demand in Country B (D_b) is shown as more elastic than demand in Country A (D_a).

Suppose that the innovator holds a patent in Country A and hence sells the new product at the monopolist equilibrium price of P_a*. Country B does not provide patent protection at all or provides weak patent protection with imperfect or no enforceability of patent rights. If we assume that imitation is costless and immediate and produces a perfect substitute, the monopolist would have to sell its new product in Country B at its marginal cost of production at point *h*. From the equilibrium output Q_b* that would result in Country B, society would derive maximum consumer surplus *kP*h*.

This solution provides zero economic profit for the innovator in Country B but, as the profits in Country A covered the R&D costs, it should not affect the existing rate of innovation. However, monopolist profits also in Country B could provide additional incentives to develop new products that otherwise would not cover R&D costs.

But if Country B provided perfectly enforceable patent protection and the innovator chose to enjoy a parallel or equivalent patent in Country B, and it could prevent international arbitrage, it would also enjoy a monopoly in Country B with equilibrium at point *i*. This outcome corresponds to the standard monopoly price-discrimination model, with the parallel patents generating the monopoly prices and segmenting the markets. Consequently, it would charge a higher price P_b* and produce a lower output Q_{mb}. This outcome generates a dead-weight loss relative to the competitive solution of area *ijh* in this market. Note that the monopolist price is lower and the monopolist output higher in Country B relative to market A because we have assumed a more elastic demand in that market.

The main arguments on the dynamic welfare effects of the approximation of IP standards, can be seen in Table 1 below. In particular, part of the literature argued that strengthening IPRs and in particular patents would have a positive effect on innovation, foreign direct investment and licensing of technology, trade and growth. In other words, by assuming the direction of causality goes from strong IPRs to economic development, this literature supports the attempts of globalisation and standardisation of IP laws carried out in the GATT arena. It was argued that these benefits would outweigh the increase in market power that IPR holders would enjoy, their possible abuse of dominant position and the increased cost of administration of the stronger IP system. Competition policies were left to rectify possible abuses of market power. Contrary to this view, it was also argued that different IPR systems respond to different stages of development and therefore could be a useful industrial policy tool for less industrialised countries. Note that in IPRs the traditional infant-industry argument for protection calls for weak or no patent protection.

[10] For a detailed analysis on the welfare effects of patent protection see Deardorff (1992, pp. 35-51).

Table 1: Main benefits and costs of strengthening IPRs discussed in the literature

BENEFITS	COSTS
Increase in innovation[11]	Increase in administration and enforcement costs
Growth[12]	Increased royalty payments
Increase in technology transfer[13]	Displacement of imitator activities
Encouragement of international trade[14]	Anti-competitive effects

The literature on IPRs and the welfare implications of strengthening IPRs world-wide concluded that strengthening IPRs would have indeterminate effects on innovation, technology transfer, trade and growth. Nevertheless, there have been a number of regional and multilateral agreements on IPRs, including the Final Act of the Uruguay Round signed in 1994 containing the TRIPs agreement, which provides for minimum standards of intellectual property law. The main aim of this standardisation was to avoid distortions in the global market of products covered by an IPR as a result of different national IP policies. However, the TRIPs Agreement only provides for minimum standards and distortions remain.

The use of quantitative restrictions on trade to protect IPRs is one of the limited exceptions allowed under the current multilateral trade regime. Articles XI(1) and XX(d) of GATT 1947 (reproduced in GATT 1994), standing for free trade of goods and its limited exceptions respectively determines how IPRs become trade-related.

Article XI(1) of GATT, which prohibits quantitative restrictions to trade, reads:

> No prohibition or restrictions other than duties, taxes or other charges, whether made effective through quotas, imports or exports licenses or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any contracting party.

Article XX(d) of GATT, which provides an exception to the above general rule on the grounds of IPR protection, reads:

> Subject to the requirement that such measures are not applied in a manner which constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: …

[11] Studies of IPRs and innovation include Diwan and Rodrick (1991), Helpman (1993) and Mansfield (1986).

[12] Studies of IPRs and growth include Gould and Gruben (1996) and Taylor (1994).

[13] Studies on IPRs and technology transfer include Fosfuri (2000), Maskus (1997) and Lee and Mansfield (1996).

[14] Studies of IPRs and trade include Taylor (1993), Ferrantino (1993), Maskus and Penubarti (1995), Smith (1999) and Fink and Primo Braga (1999).

> d) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to …. *the protection of patents, trade marks and copyrights*.

Therefore, quantitative restrictions to trade can be imposed as to secure domestic IP protection as far as those measures fulfil a number of requirements. In particular, the measures adopted must (1) be necessary to ensure compliance, (2) not be inconsistent with GATT, (3) not be the means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, and (4) not be a disguised restriction on international trade.

The World Intellectual Property Organisation (WIPO) provides the main pre-TRIPs international forum for the discussion of the legal or administrative aspects of intellectual property protection and the harmonisation of IP Law,[15] whereas the EC has developed the more far reaching regional developments in IPRs.[16] However, in most cases these developments only approximate rather than displace national laws.

The main pre-TRIPs instruments of international law regarding patents are the Paris Convention (1883)[17] on substantive protection and the Patent Co-operation Treaty (PCT, 1970)[18] and the European Patent Convention (EPC, 1973) that facilitate the acquisition of patent protection in several countries.

Regarding substantive protection, the Paris Convention establishes the national treatment principle for nationals of countries of the Paris Union in Articles 2 and 3. Article 2(1) of the Paris Convention provides:

> Nationals of any country of the Union shall…enjoy in all the other countries of the Union the advantages that their respective laws now grant, or may hereafter grant, to nationals…and the same legal remedy against any infringement of their rights, provided that the conditions and formalities imposed upon nationals are complied with.

GATT and traditional IP Convention provisions fundamentally differ in the interpretation of the national treatment principle. The national treatment in the GATT applies *to goods*, requiring equal treatment to national and foreign goods, whereas in IP conventions it applies *to persons*, and requires no less favourable treatment between national and foreign applicants.[19] Consequently, national treatment regards to domestic protection of patents in that nationals of any country of the Union can seek domestic protection in any other country of the Union. Further, both national and foreign

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[15] See Annex 1 for a list of WIPO's administered Treaties.

[16] See Annex 1 for a list of EC legislation IPRs

[17] Paris Convention for the Protection of Industrial Property, 20 March 1883, 828 UNTS 107 as revised in 1979, with 153 contracting parties as on 26 March 1999.

[18] Patent Co-operation Treaty (Washington, 1970), amended in 1979 and modified in 1984, with 100 Contracting Parties as on 16 December 1998.

[19] See Dhanjee & de Chazournes (1990) and Meessen (1987) for a detailed discussion on this issue.

patentees can prevent the importation, domestic production or marketing of goods covered by their patents alleging patent infringement.

As an example of how patents can affect trade flows without violating the national treatment principle, think of a German national holding a British patent. If a third party, for example an English national, tried to import into the UK a good in whose production the invention patented domestically (e.g. in the UK) was used, the German patentee can enforce his English patent to prevent the importation of that good into the British territory. Although there is no discrimination on the basis of nationality of the right holder there is discrimination on the basis of the origin of the goods, which is allowed under Article XX(d) of GATT.

Traditional IP Conventions however were silent in the most-favoured-national treatment (MFN) principle. Consequently, there was the possibility of establishing bilateral or special agreements with trading partners in IPRs creating an additional source of trade distortions. The TRIPs Agreement, however, recognises the applicability of the basic principles of the GATT 1994, including the MFN principle, and of relevant international IP agreements or conventions.

The Paris Convention establishes the three main principles governing the international trade scenario of patented goods[20]: (i) the principle of *territoriality*, (ii) the principle of *independence* and (iii) the principle of *priority*.

The principle of territoriality and the principle of independence are established in the Articles 4(bis) of the Paris Convention.

(i) *The principle of territoriality* implies that a patent in each country is pursuant to the law of that country as regards the establishment, transfer and effect thereof, and that the effect of a patent is only valid within the boundaries of that country. Hence, a patent holder will enjoy only patent protection in those countries where it applied for and obtained a granted patent. In those countries where no patent protection was sought the invention remains in the public domain and is of free use. For instance, a German national that applied for and obtained a patent in Germany, United Kingdom, France and Argentina would enjoy a monopoly in the exploitation of its patents in those four countries that constitute its *exclusive territory*. Third parties, though, are free to exploit the invention object of the patent elsewhere.

(ii) *The principle of independence* implies that patents applied for in various countries shall be independent of patents obtained for the same invention in other countries in terms of establishment, transfer and expiration. Therefore, the nullity, forfeiture, duration and the like of a patent in country A do not affect the existence of a patent in country B. Referring to the above example, let us assume that the French patent is revoked in judicial revision or the Argentinean patent expires before the other equivalent patents. The German national would still enjoy patent protection in the

[20] These principles and the following discussion also apply to the other forms of industrial property protection, mainly trade marks and industrial designs.

remaining countries but the invention would be of free use in France and Argentina since the date of revocation and expiry respectively.

(iii) *The principle of priority* allows an applicant to file external patent applications on the basis of a first patent application and demand recognition in those other countries during one-year time lag (priority year), during which the applicant decides its optimum patenting strategy. Under this priority registration system, if a patent is filed in one member country, nothing which occurs within a twelve-month period that runs from the first filing will affect the right to a patent in other member countries (the patentability requirements will be referred to the priority date which is the date of the first file).

At present there is no exception to the principles of territoriality and independence in the patent field. There is no supranational patent.[21] Therefore, when multinational protection is desired, a separate patent application and granting procedure has to be pursued in each different State leading to independent national patents.

Important developments seeking to facilitate the acquisition of patent protection in multiple countries are the 'European' patents,[22] granted by the EPO[23] and the international patent applications under the PCT.

The EPC or Munich Convention provides a unified granting procedure for awarding patents in States party to the Convention.[24] When filing a 'European' patent application, the applicant must indicate the States in which he wishes to obtain protection, paying a designation fee for each designated state. It does not provide a supranational patent however. Once the 'European' patent is granted the applicant receives a bundle of national patents, one for each of the designated states and hence, protection and jurisdiction of each independent patent will be circumscribed to the national territory. If the 'European' patent is granted the applicant has to validate the 'European' patent in each of the designated states filing the respective translation and payment of the validation fee in accordance to the requirements of each country.

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[21] The only supranational IPR in force is the Community trade mark regulated by the Council Regulation No 40/99/EEC of 20 December 1993 on the Community trade mark, OJ L 11. 14.1.1994, p.1. Other attempts are the amended proposal for a Council Regulation on Community Design of 21 June 1999, COM (1999) 310 final and the proposal for a Council Regulation on the Community patent of 1.8.2000, COM(2000) 412 final.

[22] Note that the term 'European' in the 'European' patent can be misleading, as it does not cover the entire EC territory and it may apply to non-EC countries.

[23] The European Patent Organisation established by the Convention on the Grant of 'European' Patents (EPC) signed in Munich, 5 October 1973, with 20 European contracting parties and expected extension to further 6 Eastern European Countries at present.

[24] As to November 1999 the European Patent Organisation has 20 Member States: the 15 EC Member States plus Turkey, Switzerland, Cyprus, Liechtenstein, and Monaco. Albania, Lithuania, Latvia, the former Yugoslav Republic of Macedonia, Romania and Slovenia expect to become members in due course (Extension states). Patent protection can be extended to the Extension states even though they are not members of the Organisation.

The PCT system provides for a single international application and search and in some cases a single preliminary examination. However it does not provide a unified granting procedure. After these preliminary registration activities it transmits the application to the national offices of the designated states, each of which must then carry out the granting procedure for their territories.

After the priority year and once the invention has been disclosed, wherever patent protection has not been applied for the invention will remain in the public domain. Where patent protection has not been extended, anyone is free to copy, produce and market the invention. The patentee, however, can enforce any of its independent patents in each corresponding independent national court to prevent importation to the protected markets.

The application of these principles, coupled with some strategic and cost considerations, leads to the absence of a free international market of patented goods even after the harmonisation of minimum standards under the TRIPs mandate. Very seldom, if ever, is patent protection enjoyed world-wide. Patenting in each single country of the world would be extremely costly.[25] External (non-domestic) applications involve high additional costs, mainly in terms of extra fees to the foreign patent offices, external patent agent fees, translation costs and potential litigation costs to defend the external patents in the event of infringement.[26] The usual strategy is to apply for patent protection in those countries where the applicant intends either to manufacture or market the invention and where the risk of imitation is higher. The main consequence is international market partitioning and international variety of market structure, which explains how patent rights may be used as a vehicle for cartel arrangements and how patents constitute a non-tariff barrier to trade.

In addition to the general cost of patenting there are other six additional major ways in which individual nation states can influence the geographic coverage of a patent family — set of equivalent patents covering the same invention in different jurisdictions— creating further trade distortion. Three of these ways stem from the high volatility of patents, as many patents are not maintained to their full legal term. Cross-country variations in parallel patent rights' life can occur due cross-country differences in the renewal fees, patent length and patent enforceability.[27] Cross country variations in competition policies and in the stringency of the granting procedure leads to cross-country variations in the strength of patent protection which may also affect the choice of countries when designing a patenting strategy.

[25] See IMPIVA (1998) and EPO (1999b) for a cross-country comparison of the cost of patenting.

[26] Eaton and Kortum (1996, pp. 265-266) find empirically that the cost of patenting in country *n* by inventors in country *i* relative to country *n*'s market size has a negative effect on the decision to patent.

[27] Technological change, the rate of obsolescence of patented inventions may also influence patent rights life but are not a policy variable.

A) The cost of patenting

In addition to procedural fees that affect the initial propensity to patent, renewal fees are due, on a annual basis, to each national office of each state where the patent holder wants to maintain a patent in force. Annual renewal fees and their changing rates over time have wide cross-country variations[28] of influence in the overall patenting strategy of the patent holder. If the patentee stops paying renewal fees in a given country, it loses its right in that country. Cross-country variations in renewal fees may explain how equivalent patents may have different cross-country duration even if the term of protection is harmonised.[29]

B) Patent length

The same logic and consequences as in the case of lack of renewal fee payment applies when a patent exhausts its legal life. Before the TRIPs Agreement imitator countries used to provide for shorter periods of patent protection. The TRIPs Agreement provides that members shall grant patent protection for a *minimum* of 20 years from the filing date. Possible sources of differences in expiration dates of parallel patents across-countries due to differences in patent length after the TRIPs Agreement are: 1) delayed implementation of the TRIPs obligation according to the transitional arrangements by LDCs. Shorter periods of patent protection may last until 2005 or longer if developing countries do not comply with their obligations. 2) Individual states providing for longer periods of patent protection than the minimum of 20 years accorded in the TRIPs.

C) Patent enforceability

The mere existence of a granted patent does not prevent infringement. It is the patentee's decision whether to enforce its patent to prevent infringement or not to prosecute. Often patent infringements are not brought into court either because litigation costs are too high, inefficiencies in the administration of justice or high estimated probability that the patent is found invalid. A granted patent only entails presumption of validity.[30] The usual defence of the patent offender is to challenge the validity of the infringed patent in the first place. If the infringed patent is held invalid, further entry does not constitute infringement. Due to cross-country variations in judicial systems a patent may be challenged and found totally or partially invalid in one jurisdiction and not in others.

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[28] See IMPIVA (1998) and EPO (1999b) on the cost of patenting.

[29] Most studies on the impact of the cost of patenting on the propensity to patent omit renewal fees in their analysis. The statistical study by Sánchez-Padrón et al. (1996) focuses on these fees but is inconclusive on the extent to which renewal fees influence the decision to maintain patents in force. For instance, using statistical patent data Sánchez-Padrón et al. (1996, p. 18) find similar survival proportions for Germany and France despite the wide differences in their renewal fees.

[30] 'To illustrate the importance of Court decisions on patent validity in infringement suits, I point out that of the 294 patents contested in all federal appellate courts between 1966 and 1971, only 89 (about 30 percent) were found valid' (Earl W. Kintner and Hack L. Lahr, 1975, quoted in Choi, 1998, p. 1250).

D) Competition policies

The TRIPs agreement only provides for minimum standards of IP protection that still leaves members considerable leeway in their patent policy, which can be used to erode or enhance the market power conferred to the patent holder. Even if patent protection was enjoyed world-wide, the patent holder could still choose to price discriminate internationally and competition laws would have to be designed to curtail the resulting market power of the patent holder. In particular patent-related options still open to members include their policy on parallel imports, compulsory patent licensing and international patent licensing agreements.

E) The stringency in the evaluation of the patentability requirements

Differences in the thoroughness of the exam assessing the patentability requirements (mainly novelty and inventive step) and the scope of the search to test those requirements and the fact that some patent systems are merely registration system where patents are granted following registration without being examined constitute a further distortion. These differences are likely to create situations in which:

1) Patents are granted in countries with weaker patent systems whereas equivalent patents are refused in countries with stronger patent systems.
2) The same invention is covered by patents that belong to different patentees in different countries (simultaneous innovation or consecutive innovation/imitation). A usual practice in traditionally imitator countries was requiring national novelty rather than universal for a patent to be patentable, permitting imitators to demand patent protection or other forms of protection (petty patents or utility models) in their countries, for inventions patented by the innovator elsewhere.
3) Parallel patents are not entirely equivalent.

F) The patentable subject matter

Section 3.A) above explained that patents protect embodiments of inventive activities and that inventions offensive to public morals can be excluded from patentability. There are wide cross-country variations in public moral standards and in the definition of 'embodiments of inventive activities' which distort the global market as some inventions patented elsewhere may not be patentable in a given market. The patentability of software and biotechnology are particular sensitive issues.

In those countries where a patent expires —shorter patent duration or lack of renewal fee payments— or is revoked —it is challenged and found invalid in that jurisdiction— the protected invention becomes publicly available in that country. Applying the principles of territoriality and independence, parallel or equivalent rights in other countries would remain unaffected. Weaker patent protection may reduce the initial propensity to patent or induce early expiration of patent rights.

In summary, countries retain control over the cost of patenting, enforcement/functioning of judicial system, stringency of the patentability requirements, patentable subject matter (with the limitations discussed in section 3.A)) and competition issues. These are the main patent-related policy instruments to influence the geographical coverage of a patent family and the length of patents granted for their domestic market and, therefore,

the main source of distortion in trade and competition. This holds true even after the entry into force of the TRIPs agreement.

5) Patents as a source of distortions in the EC

Article 28 (ex 30) and 30 (ex 36) of the EC Treaty on the free movement of goods and its limited exceptions replicate Articles XI (1) and XX (d) of GATT. Further, the Paris convention, and in particular the principle of territoriality and independence, applies to the EC. The application of these principles coupled with the absence of a Community patent with unitary character throughout the Community implies that the general discussion of patents as a source of distortion of trade and competition in the previous section also applies to the EC.

Therefore, contrary to the common assumption in the economic literature on the EC, non-tariff barriers to trade remain impeding the completion of the European internal market. For reasons discussed in the previous section, patents, as well as other IPRs, distort trade and competition, segment the European internal market, creates cross-country variations in market structure and thus add complexity to EC intra-industry trade.

Hardly ever patentees enjoy patent protection in the whole EC territory. EC countries are likely to be targeted for protection. However, the average number of designated states —countries were the invention is protected — per 'European' patents *granted* in 1999 was 7.46 out of 19.[31] In this year, 'European' granted patents designated Germany in 97.69 % cases, Great Britain in 92.45%, France in 90.96%, Italy in 71.86%, Netherlands in 52.14%, Spain in 49.74%, Sweden in 42.24%, Belgium in 41.80%, Austria in 36.82%, Denmark in 28.90 % and Portugal, Ireland, Greece, Luxembourg and Finland in less than 22% of the occasions (EPO 1999a, Table 7.4, pp.70-71). In the non-designated countries the invention remains in the public domain.

Cross-country variations in the life of parallel patent rights in the EC do occur (see for example Sanchez-Padron et al. 1996). One of the reasons is the wide EC cross-country differences in the cost of patenting, which also affects the initial propensity to patent. As to renewal fees, Tables 2 and 3 below illustrate the wide cross-country variations in national annual renewal fees for EC countries. Note that the schedules are progressive except in the case of Switzerland, which surprises as the patent value decrease over time and suggests that Governments use patent renewal fees as a means to shorten the length of patents. Cross-country differences in other fees, e.g. translation and validation fees, also exist.[32]

[31] As we mentioned in footnote 24, the European Patent Office can grant 'European' patents for the 15 EC member states and 4 non-EC countries.

[32] See EPO (1999b).

Table 2: National renewal fees for Germany, France and Spain (in euro)*

	Year								
	3rd	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**11th**
GER	51.13	51.13	76.69	115.04	153.39	204.52	255.65	306.78	409.03
FRA	32.01	36.59	51.07	100.62	125.01	149.40	173.79	198.95	224.86
SPA	19.32	24.13	46.13	68.09	89.91	111.94	133.85	155.84	188.81
	Year								
	12th	**13th**	**14th**	**15th**	**16th**	**17th**	**18th**	**19th**	**20th**
GER	536.86	*664.68*	792.50	920.33	1073.71	1227.10	1380.49	1533.88	1687.26
FRA	252.30	282.79	316.33	352.92	392.56	435.24	480.98	529.76	581.59
SPA	221.71	254.53	287.64	320.55	365.39	408.36	452.32	496.20	540.13

Source: EPO (1999, pp. 79-95).
Conversion rates as of 2000.09.08.

Table 3: National renewal fees in the EC (in euro) in 1999*

	COUNTRY							
YEAR	**AUS****	**BEL**	**DEN**	**FIN**	**FRA**	**GER**	**GRE**	**IRE**
5th	101.74	59.49	167.60	126.14	51.07	76.69	56.23	114.28
10th	370.63	148.74	308.38	277.51	198.95	306.78	136.14	220.93
15th	1068.29	282.60	482.68	512.97	352.92	920.33	275.24	335.21
20th	1744.15	471.00	683.79	790.48	581.59	1687.26	476.49	468.53
	COUNTRY							
YEAR	**ITA**	**LUX**	**NET**	**POR**	**SPA**	**SWE**	**U.K**	
5th	46.48	47.10	217.82	52.87	46.13	83.16	82.98	
10th	180.76	118.99	397.06	91.78	155.84	225.71	248.93	
15th	568.10	193.36	589.91	153.63	320.55	362.33	414.89	
20th	568.10	272.68	839.49	245.41	540.13	510.82	663.82	

Source: EPO (1999, pp. 79-95).
* Conversion rates as of 2000.09.08.
** Amount of fees for 'European' patents granted on or after 1 July 1996.

Patent length in all EC states has long been harmonised to 20 years. Nevertheless, distortions due to cross-country differences in expiration dates due to differences in patent length can still occur in the particular case of pharmaceutical patents. Differences in marketing exclusivity authorisation expiration may remain since the Complementary Protection Certificate was approved in the EC following the US, in order to compensate

for delays in the drug approval process but has been left to each Member State to regulate its extension.

Cross-country variations in patent enforceability can also create distortions. In the case of both, independent national patents filed and granted at national patent offices and European patents granted by the EPO once they enter the national phase, the principle of territoriality and independence applies and national courts retain jurisdiction over their territory. Therefore distortions may arise due to cross-country variation in revocation and infringement procedures and as a result of cross-country variations in national patent laws and different interpretations of European patent law by national courts.

Competition policies also differ across member states. Regarding patent-related competition policies, however, there has been some degree of approximation of national competition systems. The case law of the European Court of Justice (ECJ) on parallel imports has progressively restricted EC members control over this policy instrument. EC member states have restricted their policy on patent licensing agreements under Commission Regulation (EC) No 240/96[33] but have wide autonomy over compulsory licensing policy.

Distortions due to differences in the thoroughness of the examination assessing the patentability requirements may still arise when the applicant opts for the national route, although these distortions may be minimal as all EC states are members of the EPC and hence, national substantive patent law has been approximated. When the European route is chosen (a 'European' patent application is filed at EPO), possible distortions with this source are eliminated as the EPO carries out a centralised granting procedure based on uniform patent law.

IPRs therefore, and patents in particular, play a major role in preventing the free movement of goods within the European internal market. As discussed above, patents amount to measures having equivalent effect as quantitative restrictions to trade when they are used to prevent acts of importation only justified to secure compliance with the protection of national patents (Articles 28 (ex 30), 30 (ex 36) and 295 (ex 222) of the EC Treaty). The European Commission and the ECJ, however, have not remained passive. They have interpreted the relevant provisions on the free movement of goods and competition of the Treaty of Rome as limiting the scope of the national IP laws, providing for *Community-wide (EEA-wide) exhaustion* to address the phenomenon of *parallel imports*.

Regarding patents, *Parallel imports* occur when patented goods, which were intended for sale in one national market, are re-exported/exported by a third party without permission of the original authorised seller (normally the patent holder, subsidiary or licensee) from their original destination to another country with *parallel or*

[33] Commission Regulation (EC) No 240/96 of 31 January 1996 on the application of Article 85 (3) of the Treaty to certain categories of technology transfer agreements, *OJ L 031 09.02.1996 p. 2*.

corresponding patent rights—patents covering the same invention in different states—exploiting price differentials.

The principle of exhaustion or 'first sale' doctrine is the policy instrument to regulate the international arbitrage of patent protected goods. This principle, which draws the boundaries of the enforcement of patents, can be defined in different ways depending on the regime of exhaustion chosen. That choice will depend on the weight placed on safeguarding competition at the distribution stage balancing the interests of consumers and producers.

The principle of exhaustion, as developed by the ECJ, sets limits on the patent holders in the exercise of their rights[34] to control the movement of goods that have been placed on the market —first sale— either by themselves or by a third party with their consent. When a first sale takes place the patent is considered to have served its purpose and therefore is exhausted. Hence, the effect of the patent cannot be extended to acts such as use, assignment or lease of the product covered by the patent in question, with the patent holder losing rights to any royalty after the initial sale and to fix prices for retail sales.

The different approaches to the principle of exhaustion differ on the first sale concept applicable. Under EC-wide exhaustion the relevant first sale can take place anywhere in the European internal market. Only if the patented goods are placed on the European internal market by the patent owner or by a third party with his consent —a subsidiary, an affiliated company or a licensee— can the patent no longer be enforced to restrict the territory within the European internal market.[35] This holds true even when the patentee's right is not protected in the source country of parallel imports[36] or in the presence of price controls in the source country unless the patentee had a legal obligation to market the product in the exporting state.[37] However, a patentee can block the importation of identical patented goods first marketed outside the European internal market.[38]

Although the EC-wide (EEA-wide) doctrine of exhaustion try to correct distortions in the internal market created by the lack of a Community patent with unitary character throughout the entire market, it does not eliminate them. Further, it may create other

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[34] The distinction between the *existence* of the right determined by the domestic law of the Member States and the exercise of such right, which has to be consistent with the EC Treaty, was first applied in connection with the free movement of goods in case 78/80 *Deutsche Grammophon v Metro* [1971] ECR 487.

[35] If the marketing takes place following the grant of a compulsory license, the patentee has not consented and therefore parallel imports to a protected market can be curved. See *Pharma BV v. Hoechst AG* [1985] CMLR 775.

[36] Case 187/80 *Merck & Co. v. Stephar BV* [1981] ECR 2063.

[37] Cases C267/95, *Merck & Co. Inc. v. Primecrown* and C268/95 *Beechman Group plc v. Europharm of Worthington, Ltd*. [1997] CMLR 83.

[38] Case 270/80 *Polydor Ltd and RSO Records Inc. V. Harlequin Record Shops and Simons Records Ltd* [1982] 1 E.C.R. 329.

distortions as a result of a number of other activities by the patent holder to impede parallel trade such as restricting supply in the source market, differentiating the product across-countries using different trade marks in different markets for the same product or introducing cross-country variations in presentation and packaging.[39]

6) Towards a patent reform in the EC

In this section, the developments towards a patent reform with impact on the EC are discussed in the following sequence. First, we present some evidence on the need of a patent reform. Secondly, we report a number of cost-saving initiatives by the EPO. And thirdly, we discuss the initiatives by the European Commission: the Green Paper on the Community patent and the patent system in Europe and the draft Regulation on the Community patent.

6.1) Evidence on the need of reform

An influential study although hardly diffused is the representative survey on the utilisation of patent protection in Europe carried out on behalf of the EPO by Roland Berg Forschungs (1995).[40] This study was conducted in two phases: a qualitative study in which facts and trends relating to companies' activity were analysed and a representative survey carried out on a quantitative basis. They conducted screening interviews with 8.837 companies[41], followed by in-depth interviews with 1.006 patent applicants[42] and 11.345 non-applicants[43]. For comparison purposes, 50 applicants and 50 non-applicants were interviewed in both Japan and the USA. The rationale for RBF (1995) study was the fact that applications from within Europe were declining. From this evidence, the EPO induced that the innovative potential within Europe was not being fully tapped and that the patent system available was not being adequately used (Publisher's preface in RBF, 1995). Surprisingly, the rationale of the Patent System and the adequacy of the legal regulation to the economic reality were not questioned.

This study attributed the declining use of the patent system to the great importance of SMEs[44] and found that SMEs are especially skeptical about patent protection for the

[39] For a study on the impediments to parallel trade for the particular case of pharmaceuticals see REMIT Consultants (1991).

[40] For an analysis on the reasons behind the surge of US patenting in the 80s see Kortum and Lerner (1999).

[41] The companies considered to be potential applicants were restricted to production industries covering about 1.8 million companies in the EPO's member states. In the case of the less innovative sectors such as food and luxury food and the textiles, leather and shoe industries, small firms with up to 19 staff were not included in the survey. The number of firms considered to be relevant to the study was therefore 360.000. e.g. 20% of the production industry although only 170.000 companies were considered as potential applicants since a 53% of all companies do not carry out any R&D.

[42] Defined as companies filing at least one patent application over the last five years.

[43] The non-applicants included companies which are engaged in R&D but have not yet filed a patent application. Both patent applicants and non-applicants make up the applicant potential.

[44] Absolute figures show that applicants, and especially potential applicants, are primarily SMEs (9 up to 100 employees).

following reasons: 1) The cost of patents was considered in many cases as a risky and unprofitable investment; 2) patents do not guarantee commercial exploitation; 3) the annual outlay involved in maintaining a patent does not necessarily deter imitators; 4) many SMEs prefer to rely on their own know-how and aggressive marketing, or dispense with innovation altogether.

RBF (1995) also found that, on average, less than half of the inventions are patented in the applicant category and that big companies patent more of their patentable inventions than small companies. The main reasons given for not protecting patentable inventions were cost and the perception that patenting offers no direct commercial advantages, followed by uncertain marketing perspectives, ineffectiveness of patents and the fact that patent applications are published at an early stage so giving early information to competitors. Small firms in particular identify costs, time consumption and ineffectiveness as the main reasons for not protecting patentable inventions.[45]

Concerning fees the main criticism rise in RBF (1995) study was that patent agent fees and translation costs are too high. This report found that translation costs alone, incurred in when applying for foreign parallel patents, accounted for about 50% of the overall granting procedural costs of European patents.[46] They referred to translation costs as one of the main factors influencing the downward trend in European patent applications in comparison with Japan and the US. They also found that 57% of applicants interviewed in EPC countries would welcome a change in the existing provisions on translation. They would prefer translation to be limited to the claims or to be required only in the event of litigation. Moreover the main reason cited for not using the European route more often was no need/national application is sufficient.

RBF (1995) also found that big companies reported greater utilisation of patents than small ones, which also use their patents defensively to gain greater control of the market for a given product. The bigger the company, the more important the patent when it comes to buying or selling licenses. In contrast, licensing plays a more modest role in the case of small companies.[47] They found that licensing is relatively important in the chemicals and pharmaceuticals sector especially, and to some extent in the electrical engineering/data-processing sector.

With regard to the often cited dissemination of information as one of the main advantages of the patent system RBF (1995) found that patent information in the form of patent specifications, EPO or national office patent databases and commercial patent databases are rated lowest as sources of information on technical developments. Applicants and non-applicants alike mention discussion with customers, specialized

[45] Note that RBF (1995) findings have a strong parallelism with Levin et al. (1987) findings for the US.

[46] Note that most recent data reported in table 3 gives translation costs as 39% of the overall costs of an average European patent.

[47] Siegel et al. (1999), however, report that licenses are more important than patents for university technology transfer in the US.

literature and trade magazines, trade fairs and talks with suppliers as their main sources of information on the latest technology.

Although seldom used, RBF (1995) found that patent documentation is not completely unknown to applicants as a source of information. 72% of the applicants interviewed were aware of its existence and the clear response was that the use of patent information is restricted by a lack or shortage of funds or staff. The smaller the firm, the more a lack of resources tends to be cited as an obstacle.

RBF (1995) study concluded that the large group of non-applicants in the EPC have to be convinced of the advantages of patent protection, and that the areas to focus on would be the effectiveness of patents (risk of imitation), patentability of inventions, cost/benefit considerations, length of the procedure and the outlay involved.

This recent study provides additional evidence to question the efficacy of the existing patent system in Europe, especially for certain industries, not only in the task of inducing innovation but also as an instrument of diffusion.

Regarding the high cost of patenting in Europe as a reason of the decline in the use of the existing 'European' patent system we have to look at the differences in the cost of patenting in the main areas of the TRIAD. Table 4 below illustrates these costs as reported in the proposal for a Council Regulation on the Community patent of 1.8.2000, COM(2000) 412 final, p. 11. Note that the figure reported for renewal fees in the EC is only given from the 5th until the 10th year despite most national offices require renewal fees from the 3rd year.

Table 4. Comparison of costs and fees (in euro) payable for obtaining patents in the EC, US and Japan

	Filing and search fees	Examination fees	Grant fees	Renewal fees	Translation costs	Agent's fees	Total
EPC	810+532	1431	715	16790[1]	12600	17000	49900
US	690	---	1210	2730[2]	n/a	5700	10330
Japan	210	1100	850	5840[3]	n/a	8450	16450

[1] 5th to 10th patent year.
[2] 3. 5 years (830) + 7. 5 years (1900)=2730.
[3] 4th to 6th year (1320) + 7th to 9th year (2650) + 10th year (1870)=5840.

According to this table, the current 'European' patent is three to five times higher than that of Japanese and US patents. The data on the cost of patenting in the US and Japan is given for the first 10 years of the patent. No explanation is given on the data reported as the cost of a 'European' patent. In order to be comparable with the US and Japanese data it should be the cost of a 'European' patent in the first 10 years. Further, they seem to be reporting the maximum cost of a 'European' patent designating all EC countries, which is hardly ever the case. Finally, they do not make explicit whether the cost reported incorporate the cost-saving measures implemented by the EPO in the past few years.

Guellec et al. (2000) use a probit model to investigate the determinants of the probability that a patent application at the EPO is granted using data on patent applications between 1985 and 1992. The authors find that applications designating more than 50 % of EPO member countries have a much lower probability to be granted. Further, they find that those applications that designate all EPO member countries have the lower granting rate, whereas those applications designating Germany, France and the United Kingdom altogether had a much higher grant rate. Guellec et al. (2000) also found that the grant rate increases gradually with the number of designated states up to a threshold of 6-7 additional countries and decreases afterward.

Guellec et al. (2000) use these results against the common assumption that the value of any patent is reflected in the number of countries where it is taken. Under the assumption that patents granted are of higher value than patent refused or withdrawn, Guellec et al. (2000) conclude that for many valuable patents, protection in 6-7 of the largest European markets is enough to get Europe wide protection, without incurring the cost of patenting in smaller countries. Therefore, according to this recent evidence, for the Community Patent to be an affordable/desirable option for business it need not exceed the cost of patenting in 6-7 countries of the EC.

Table 5 below presents different data for 'European' patents more consistent with Guellec et al. (2000) findings. It reports different data for the cost of a 'European' patent giving the cost of an average 'European' patent designating 8 states for the first 10 years.

Table 5. Comparison of costs and fees (in euro) payable for obtaining patents in the EC, US and Japan in the first 10 years

	Filing and search fees	Examination fees	Grant fees	Renewal fees	Translation costs	Agent's fees	Total
EPC* (8 MS)	800	2000	1500	8500[1]	11500	5500	29800
US**	690	---	1210	2730	n/a	5700	10330
Japan**	210	1100	850	5840	n/a	8450	16450

* Cost of an average 'European' Patent as at 1.7.99. Source: European Patent Office.
** Source: Proposal for a Council Regulation on the Community patent of 1.8.2000, COM(2000) 412 final, p. 11.
[1] 5th to 10th patent year.

This table shows that the cost of the current 'European' patent, which on average designates 8 MS, is three (rather than 5) times the cost of a US patent and nearly twice (rather than 3 times) the cost of a Japanese patent.

The divergence on the data reported for the cost of a 'European' patent in Tables 4 and 5 stems from a different cost definition, which in any case should be explicit, as a benchmark for the policy debate. That is, whether the benchmark cost should be the cost of a 'European' patent designating all EC countries incorporating or not the recent cost-

saving measures implemented by the EPO, or the actual cost of an average 'European' patent designating 8 EC members.

Finally, cross-country comparisons in the cost of patenting used to be misleading as the different patent offices of the TRIAD use to differ in their approach to *unity of invention*. On the grounds of unity of invention, patent applications are usually required to relate to one invention only, or to a group of inventions so linked as to form a single general inventive concept, but patent office practices used to differ. For instance, it is well known in patent circles that applicants used to have to file 2-3 applications in the Japanese patent office to obtain the same protection provided by one European application. In 1988, however, the EPO, the Japanese Patent Office and the US Patent and Trademark Office concluded an agreement on a view to harmonising unity of invention practices in the three offices (EPO, 1992, Part C, p. 26). The actual implementation of this agreement deserves further exploration.

6.2) EPO initiatives

The RBF (1995) study has been followed by a number of cost saving measures implemented by the EPO, which has targeted procedural fees, including filing, search and validation fees, and has delayed the timing of payment.[48] However, the EPO has no control over translation costs and renewal fees in the designated countries, which are the competence of the member states.

These measures appear to have achieved some of the targeted effects, with a continuous growth in filing before the EPO and the average number of states designated per *application* rising to 14.3 out of 19 in 1998 and 1999, compared with 11.7 in 1997 (EPO 1998, p.17, and 1999a, p. 62). Yet the designation fees are delayed on payment (e.g. applicants of 'European' patents not longer have to pay the designation fees when filing the application). When designation fees are due, designations can be withdrawn reducing the geographical coverage of a patent family. Further, although the EPO reinforces its target of efficiency and increase productivity, the granting procedure average time for patents granted in 1998 was 44.7 months increasing to 46.2 months in 1999 (EPO 1998, p. 19, and 1999a, p. 21). Thus, it is too early to assess the actual impact of these measures on the average number of designated states per *granted* 'European' patents, as the increase in early designation could merely be strategic.

6.3) EC initiatives

6.3.i) The Green Paper

On the EC side, the European Commission published, in 1997, a Green Paper on the Community patent and the patent system in Europe[49] which stated as its three main objectives the followings:

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[48] The last costs saving measures have been introduced by decision of the Administrative Council of the EPO on 10.12.1998 with effect from 1 July 1999. For a general discussion of the fee reduction policy of the EPO go to http://www.european-patent-office.org/news/pre_oj/fees_6_99_e.htm, and EPO annual reports, 1998 and 1999.

[49] *Promoting innovation through patents-Green Paper on the Community patent and the patent system in Europe* presented by the European Commission on 25 June 1997.

1) to give an overview of the situation regarding the protection of innovation by means of the patent system in the EC,
2) to examine whether new action at EC level was needed or existing arrangements needed to be adjusted, and
3) to consider the nature and content of possible new measures.

In the Green Paper the advantages and disadvantages of the European Patent Convention and the Luxembourg Convention on the Community Patent were discussed.[50] The Green Paper pointed out the main advantages and disadvantages of the EPC, which can be summarized in the table below.

Table 6. Advantages and disadvantages of the EPC

ADVANTAGES	DISADVANTAGES
Centralized granting procedure	High cost once the 'European' patent has been granted and enters into the national phase as translation, validation and renewal fees are paid to national rather than a centralized patent office
Cost reduction when the 'European' patent application designates a number of states (economies of scale stemming from the common granting procedure)	Distortions due to revocation and infringement procedures and different interpretation of European patent law by national courts remain as national courts have the jurisdiction over granted 'European' patents
High quality protection rights (the high stringency of the granting procedure implies a higher presumption of validity)	Only 50% of national fees go to EPO to cover granting procedure costs
Approximation of national patent laws regarding patentability, validity and the scope of protection	Patenting strategies covering the European internal market only partially assumed to be due to high costs distort the European internal market

The Green Paper also highlighted that a *Community patent system*, would have the essential feature of granting patents with a *unitary character* that would have equal effect throughout the EC and could be granted, transferred, revoked or expire only in respect of the whole of the EC reducing, therefore, distortion in the European internal market. The main advantages and disadvantages of a Community patent highlighted in the Green Paper can be summarized in Table 7 below.

The Luxembourg Convention mainly failed due to the high translation costs as it required the Community patent to be translated into all EC languages and the judicial system it established by which national judges had competence on the validity of the Community patent with effect for the entire territory of the EC. The highly specialized and complex nature of patent cases made this judicial system inadequate and unable to provide legal certainty.

[50] As explained in the introduction, the Luxembourg Convention on the Community Patent of 1975 and the Agreement relating to Community Patent signed in 1989 have never been ratified by all the Member States and have never entered into force.

Table 7: Advantages and disadvantages of a Community patent as proposed in the Luxembourg Convention

ADVANTAGES	DISADVANTAGES
Efficiency gains in management following the elimination of the national phase	*Greater risk of revocation of the patent with effect in the whole EC*
Cost reduction (savings in designation and professional representative fees) following the elimination of the national phase	High translation costs
Simplified infringement actions as single actions in centralized courts can deal with infringements anywhere in the EC	
Legal certainty through the creation of a central court competent to give decisions on the interpretation and validity of Community patents	

6.3.ii) The draft Regulation

In the light of the Green Paper, and having the Luxembourg Convention failed to be ratified, intergovernmental Conventions are being replaced by full scale EC legislation.

The proposed Council Regulation establishes the unitary character of the Community patent (Article 2 of the draft Regulation), although it would coexist with the national and the 'European' patent systems, and thus, businesses would be free to choose the type of patent protection that best suits their needs. Moreover, a 'European' patent application designating the entire territory of the EC may be converted into a 'European' patent designating one or more EC Member States. That is, in the course of the granting procedure, and on the light of the new evidence contained in the search of prior art report, the applicant can reassess its risk and change patenting strategy. The procedure for the conversion will be subject of negotiations in the context of the EC's accession to the Munich Convention (the draft Regulation, p.18).

Therefore, the mere existence of a Community patent will not eliminate but only reduce distortions on trade and competition as a result of market segmentation through the use of patents. Further, as discussed above, the RBF (1995) study showed that the main reason for not using the European route more often was that it was unnecessary, as national applications were mostly sufficient rather than high costs. This evidence questions the need of further attempts of reforming the existing patent systems based on the national and 'European' patent system. This finding, however, may be sensitive to the fact that the majority of potential applicants in the RBF (1995) study are SMEs. Further, this result may as well be the consequence of the definition of SME used in the RBF (1995) study, which may not be a standard definition across industries.

According to the draft Regulation, the European Patent Office (EPO) will be in charge of examining and granting the Community patents whereas the Regulation would be in charge of governing the Community patent once granted. This shared responsibility

raises a number of complex issues as the Regulation on the Community Patent is a EC instrument and the European Patent Convention (EPC) is not. A number of measures will have to follow: A) the Regulation on the Community patent will have to be adopted. B) The EPC and the status of the Office will have to be assessed. C) The Community as well will have to ratify the EPC. D) Future developments of the Regulation and the Convention will have to be consistent.

Despite the fact that it is an efficient decision to use resources already available rather than duplicating them, this solution raises politically sensitive issues relating to the feasibility, ratification and implementation of all these reforms. The revision of the EPC will require the Contracting States, including some non-EEA countries, to agree to the Convention being amended so as to enable the EPO these new functions.

Some of these changes are already on their way. A Diplomatic Conference to revise the EPC is being held in Munich from the 20 to 29 November 2000.[51] The aim is that the EPO be able to respond flexibly to future challenges, particularly in view of its forthcoming expansion to at least 28 member states and bring into line the EPC with the TRIPs Agreement, the future Community Patent and the provisions of the forthcoming Patent Law Treaty (PLT).

This intergovernmental conference aims to revise the EPC text to enter into force before 1 July 2002. The revised text will relate in particular to: A) Article 35 EPC concerning decision making. B) Articles 6, 16 and 17 EPC and Section I of the Protocol on Centralisation, so as to implement the best procedure. C) Article 52 (2) EPC, which excludes computer programmes from patentability. And D) Part IX of the EPC (Special Agreements) to take into consideration the Community patent —an application for a 'European' patent could designate the EC territory and once granted it would become a Community patent rather than a bundle of national patents, unless the applicant converts the Community patent application into a 'European' patent designating only some of the EC countries.

Compared to the 'European' patent, the draft Regulation introduces changes on the cost of the patent, language arrangements and the judicial system. The high cost of the 'European' patent is mainly due to high translation costs and renewal fees followed by representation fees before the Office. The draft Regulation aims to reduce the first two.

Regarding translation cost the draft Regulation will imply high savings. The EPO has three working languages: English, German and French. Once the 'European' patent is granted, Article 14(7) of the EPC requires its publication in full in the language of the proceedings and the translation of the claims[52] into the other two official languages. Once the 'European' patent enters the national phase in the designated countries, national authorities with the exception of Luxembourg require translation into their official language increasing the costs.

[51] Information on this Diplomatic Conference can be found on the EPO web page: http://www.european-patent-office.org/

[52] The average length of the claims is around a seventh of the whole patent document.

The Luxembourg Convention required the translation of the patent in full into all the official languages of the countries members to the Convention. The draft Regulation, given that compulsory translation into all the official languages of the Community would impose a high burden on the cost of the Community patent, specially with the enlargement of the Union, has not made any further compulsory provision regarding translation of granted patents. Therefore, the Community patent will be published in full in English, French or German, depending on which is the language of the proceedings, and its claims into the other two. English nevertheless is the language most often used in the proceedings before the EPO. Under the draft Regulation, it is optional to the patent holder to produce and file a translation of his patent in another official language of the Community.

These language arrangements are argued to pose problems in the access/dissemination of the information contained in the patent specifications and to balance the exclusion vs. diffusion trade-off towards exclusion. It can be argued nevertheless that these language arrangements are appropriate as patent information in the form of patent specification is rarely consulted (RBF, 1995). Further it may be argued that potential users (e.g. engineers) of patent specifications are perfectly capable to deal with these language arrangements.

Alleged infringers with residence or principal place of business in a EC Member State whose official language is not a language into which the patent has been translated will be not liable for damages for infringement (e.g. will be exempt of paying compensation). The rationale for this exception is to counterbalance the impact the proposed measure to reduce translation costs may have on exclusion. Damages for infringement will only be due from the notification of a translation in the official language of the Member State of the residence or principal place of business of the alleged infringer (Article 44 of the draft Regulation). The impact of this provision on infringement activities, and thus on the strength of patent protection, remains an open question. An alternative solution could have been reversing the burden of proof.

Regarding other fees, the fees charged by the EPO during the granting procedure are laid down in the EPC. Annual renewal fees in respect of Community patents once granted will be determined in a Commission implementing Regulation on fees (Articles 25 and 60 of the draft Regulation) thus eliminating distortions due to cross-country variations in renewal-fees policies.

The proposal provides for the creation of a Community Intellectual Property Court, which is a centralised judicial system specialising in patent matters, comprising chambers of first instance and appeal (Article 30 of the draft Regulation). The need of having a specialised Court on patent matters and the need of fast decisions on the validity and infringement of the Community patent made the Commission drop the alternative of assigning to the Court of First Instance the role of a court of appeal against national court decisions.

The Community Intellectual Property Court will have exclusive jurisdiction on invalidity and infringement proceedings. This solution has been adopted so as the centralised judicial system (chapter IV of the proposal) can provide the necessary legal certainty as regards the validity of the Community patent, and guarantee unity of law and consistent case law. The Community Intellectual Property Court is planned to be established by way of an amendment of the EC Treaty currently under discussion in the Intergovernmental Conference on Institutional Reform: the expected Treaty of Nice (pp. 16-17 of the draft Regulation).

The EPO will apply to the Community patent the case law which it has developed for the 'European' patent in opposition (Article 99 EPC) and appeal procedures (Article 106 EPC), to the extent that the rules in the Regulation and in the Convention are identical. Decisions by the EPO in these procedures will not be subject to appeal before the Community Intellectual Property Court as the opposition and appeal procedure are govern by the EPC, which nevertheless guarantees the independence of the members of the EPO's Boards of Appeal.

Finally, as to patent-related competition policy, the proposal eliminates EC member's discretion over parallel imports (Article 10 of the draft Regulation) and compulsory licensing policies (Article 21 of the draft Regulation) regarding the Community patent.

In summary, the proposal has two main advantages over the Luxembourg Convention. Firstly, it will reduce costs by relaxing translation requirements. Second it will increase legal certainty and improve the functioning of the judicial system by providing for the creation of a central court specialised in patent matters competent on infringement and validity proceedings even in the first instance. The proposal has also two main disadvantages over the Luxembourg Convention. It may reduce the access/dissemination of the information property of the system and it may induce infringement activities as a consequence of exempting the infringer of payment for damages when the patent is not translated into the official language of the Member State of his residence or principal place of business. These two hypotheses will deserve empirical investigation in the future.

7) Concluding remarks

In this paper we have examined a few critical issues of current patent reform in the EC and their implications. After reiterating the main points, we summarise the conclusions and policy recommendations.

Patents constitute non-tariff barriers to trade and segment the international market of patented goods yielding an international variety of market structures even after the harmonisation of international minimum patent standard under the TRIPs agreement. Countries retain discretion over the cost of patenting, the enforcement and functioning of the judicial system, the stringency in the evaluation of the patentability requirements and competition issues. These five variables are precisely the main policy instruments to influence the international scope of patent protection and the length of patents granted for their domestic market and, therefore, the main source of distortion in trade and competition.

We also explained how patents can and do prevent the free movement of goods in the European internal market. True, the doctrine on EC-wide (EEA-wide) exhaustion as extracted from the case law of the European Court of Justice has limited the scope of the national IP laws, thereby aiming to reduce distortions. This complicated doctrine does not however solve the problem as it is subject to caveats. Patent holders have been able to implement a number of measures to impede parallel imports.

At present there is no unitary patent in Europe having equal effect throughout the EC. Only the national and 'European' patent systems are available to innovative firms. After the failure of the Luxembourg Convention, the European Commission continues in its attempts to complete the European internal market and has just proposes a draft Regulation on the Community patent.

At the firm level, the proposed Community patent will save on translation, litigation and management cost and increase profit rents as profits will then be extracted in the 8-9 EC countries where on average patent protection is not usually extended to. On the other hand, the proposed Community patent will reduce the payment of compensation for damages for infringements (when optional translations are not filed) and lose profit rents in all the EC when the patent is found invalid (as opposed to losing profit rents only in part of the territory, today).

The proposed Community patent will increase the market power of the innovator in those 8-9 EC countries where on average patent protection is not usually extended to. Hence, it will raise prices in these non-protected markets and hence penalise imitative activities, as the innovation is no longer in the public domain. This enhanced market power over a wider market will temporary reduce consumer surplus and raise monopoly profits. Of course such redistribution will be justified from a dynamics point of view if it encourages additional innovation. Furthermore, the draft Regulation provides for a counterbalance: in the event of invalid granted patents, the revocation of a Community patent will have a positive effect on consumer surplus as once it is revoked prices should drop in all the EC countries.

The draft Regulation can be argued to decrease the access/dissemination of the information property of the patent system, which calls for government intervention to reinforce the diffusion properties of the system with special focus on SMEs. Also, empirical investigation on the ability of alternative mechanisms such as science parks to increase technology transfer and the dissemination of the technical information contained in patent specifications is needed.

The proposed Community patent compared to the 'European' patent will, by allowing revocation of the patent with effect in the whole Community, increase the risk associated with investment in patentable innovations. Therefore, 'true' innovative firms with higher probability of obtaining a robust patent will choose to apply for a Community patent if the different patent systems coexist whereas less innovative firms with higher risks will use either 'European' or national patents to protect their inventions but not the Community patent.

If the proposed Community patent were to replace existing patent systems it would increase legal certainty and eliminate distortions on trade and competition introduced by national patents. This is because any discretion of EC Member States concerning the use of patent-related policies as a tool for their national industrial policies would be eliminated. Also, it would increase EC intra-industry trade and competition of patented products and contribute to the true completion of the European internal market.

However, the European Commission has proposed the coexistence of the different patent systems with the proposed Community patent, thereby increasing the options available to the firm. This strategy is based on the assumptions that patents are a necessary tool to encourage innovation, that the rate of innovation can be increased and that firms can assess better their risks and their innovative contribution under this options than the EC.

There is great uncertainty about three aspects: first, regarding the socially optimal rate of innovation; second, as to the responsiveness of socially useful innovation to the provisions on revocation, validity and greater economic incentives introduced in the draft Regulation; and third about the impact on the actual rate of innovation if the Community patent replaced the existing patent systems in the EC. Given this uncertainty the European Commission has sought the coexistence of the Community, 'European' and national patent systems so as to guarantee that the current rate of innovation is not reduced but could be increased.

This option of coexistence although an improvement over today, does not eliminate but only reduces distortions introduced by patents and fails to 'complete' the European internal market. However, it may be the only feasible option with the present level of knowledge. Further research needs to be done on the welfare implications of patent policy reforms and on the ability of patents to foster innovation.

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Annex

Main Legislation on IPRs

I) International Conventions and Treaties

WIPO's administered Treaties[53]

In the field of industrial property
Paris Convention for the Protection of Industrial Property (1883)
Madrid Agreement for the Repression of False or Deceptive Indications of Source of Goods (1891)
Nairobi Treaty on the Protection of Olympic Symbol (1981)

Treaties facilitating the acquisition of industrial property protection in several countries

Patents
Patent Co-operation Treaty (PCT) (1970)
Budapest Treaty on the International Recognition of the Deposit of Micro-organisms for the Purpose of Patent Procedure (1977)

Trademarks
Madrid Agreement Concerning the International Registration of Marks (1891)
Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks (1989) **Appellations of origin**
Lisbon Agreement for the Protection of Appellation of Origin and their International Registration (1958)

Industrial designs
Hague Agreement Concerning the International Deposit of industrial Designs (1925)

Treaties establishing international classifications
Strasbourg Agreement Concerning the International Patent Classification (1971)
Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks (1957)
Locarno Agreement Establishing an International Classification for Industrial Designs (1968)
Vienna Agreement Establishing an International Classification of the Figurative Elements of Marks (1973)

Copyrights
The Berne Convention for the Protection of Literary and Artistic Works (1886)
Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations (1961)
Geneva Convention for the Protection of Producers of Phonograms Against Unauthorised Duplication of Their Phonograms (1971)
Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite (1974)

[53] This list is given as to January 1, 1994. To update this list go to http://www.wipo.org

Other Conventions
European Patent Convention (1973)

II) Main EC legislation[54]

Patents

Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions *OJ L 213 30.07.98 p.13*
Protocol on a possible modification of the conditions of entry into force of the Agreement relating to Community patents, *OJ L 401 30.12.89 p.51*
Joint Declaration Agreement relating to Community patents *OJ L 401 30.12.89 p.57*
Agreement relating to Community patents - Done at Luxembourg on 15 December 1989, *OJ L 401 30.12.89 p.1*
Commission Opinion of 26 September 1975 on the draft Convention for the European Patent for the common market, *OJ L 261 09.10.75 p.26*
Council Resolution of 15 December 1975 on the Convention for the European patent for the Common Market*, OJ L 017 26.01.76 p.43*

Trademarks
Council Regulation (EC) No 40/94 of 20 December 1993 on the Community trade mark, *OJ L 011 14.01.94 p.1* as amended by Council Regulation (EC) No 3288/94 of 22 December 1994, *OJ L 349 31.12.94 p.83*
First Council Directive 89/104/EEC of 21 December 1988 to approximate the laws of the Member States relating to trade marks, *OJ L 040 11.02.89, p.1* as amended by Council Decision 92/10/EEC of 19 December 1991, *OJ L 006 11.01.92 p.35*
Commission Communication of 5 November 1998 on the Commission findings concerning the grant under the Taiwan trademark law of priority rights deriving from Community trademark applications (Article 29(5) of Council Regulation (EC) No 40/94 on the Community trademark), *OJ C 351 18.11.98 p.3*

Industrial designs
Directive 98/71/EC of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs *OJ L 289 28.10.98 p.28*

Copyrights
Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases *OJ L 077 27.03.96 p.20*
Council Directive 93/83/EEC of 27 September 1993 on the co-ordination of certain rules concerning copyright and rights related to copyright applicable to satellite broadcasting and cable retransmission, *OJ L 248 06.10.93 p.15*
Council Directive 93/98/EEC of 29 October 1993 harmonising the term of protection of copyright and certain related rights, *OJ L 290 24.11.93 p.9*
Council Directive 92/100/EEC of 19 November 1992 on rental right and lending right and on certain rights related to copyright in the field of intellectual property, *OJ L 346 27.11.92 p.61*
Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, *OJ L 122 17.05.91 p.42*

[54] To update this list see http://europa.eu.int/eur-lex/en/lif/index.html

Council Resolution of 14 May 1992 on increased protection for copyright and neighbouring rights, *OJ C 138 28.05.92 p.1*
Resolution of the representatives of the Governments of the Member States of 24 July 1984 on measures to combat audio-visual pirating *OJ C 204 03.08.84 p.1*

Others
Council Regulation (EC) No 2470/96 of 17 December 1996 providing for an extension of the terms of a Community plant variety right in respect of potatoes, *OJ L 335 24.12.96 p.10*
Regulation (EC) No 1610/96 of the European Parliament and of the Council of 23 July 1996 concerning the creation of a supplementary protection certificate for plant protection products *OJ L 198 08.08.96 p.30*
Commission Regulation (EC) No 1768/95 of 24 July 1995 implementing rules on the agricultural exemption provided for in Article 14 (3) of Council Regulation (EC) No 2100/94 on Community plant variety rights, *OJ L 173 25.07.95 p.14* as amended by Commission Regulation (EC) No 2605/98 of 3 December 1998, *OJ L 328 04.12.98 p.6*
Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights, *OJ L 227 01.09.94 p.1* as amended by Council Regulation (EC) No 2506/95 of 25 October 1995, *OJ L 258 28.10.95 p. 3*
Council Directive 87/54/EEC of 16 December 1986 on the legal protection of topographies of semiconductor products, *OJ L 024 27.01.87, p.36*
Council Decision of 11 November 1996 on the extension of the legal protection of topographies of semiconductor products to persons from the Isle of Man *OJ L 293 16.11.96 p.18*
Council Decision of 24 October 1994 on the extension of the legal protection of topographies of semiconductor products to persons from Canada, *OJ L 284 01.11.94 p.61*
Council Decision of 22 December 1994 on the extension of the legal protection of topographies of semiconductor products to persons from a Member of the World Trade Organisation, *OJ L 349 31.12.94 p.201*
Council Decision of 21 December 1992 on the extension of the legal protection of topographies of semiconductor products to persons from the United States of America and certain territories, *OJ L 011 19.01.93 p.20* as amended by Council Decision of 27 September 1993, *OJ L 246 02.10,93 p. 31*
Commission Regulation (EC) No 1367/95 of 16 June 1995 laying down provisions for the implementation of Council Regulation (EC) No 3295/94 laying down measures to prohibit the release for free circulation, export, re-export or entry for a suspensive procedure of counterfeit and pirated goods, *OJ L 133 17.06.95 p.2* as amended by Commission Regulation (EC) No 2549/1999 of 2 December 1999 amending by Regulation (EC) No 1367/95, *OJ L 308 03.1299 p.16*