

# **PATENT PROTECTION IN EUROPE AND ITS SIGNIFICANCE FOR THE COUNTRIES OF THE EURO-MEDITERRANEAN AREA**

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## **Introduction**

The European Union has to take account of technological progress in sectors with high value added, not only within the borders of the Member States that constitute the Single Market but also in its near-abroad, the Euro-Mediterranean region. Protecting the fruits of innovation, in economic terms, means that companies with specialized know-how which sells branded goods and patented products or processes have a competitive advantage when it comes to maintaining or expanding their market share. Among the essential criteria for the effective protection of innovation in Europe, the most important are ease of obtaining patents, legal certainty, cost-effectiveness and appropriate geographic coverage.

In pharmaceuticals and plant-health products, in biotechnological inventions, in the protection of new plant varieties, as well as in software related inventions, promoting and protecting innovation through patents is an important matter for Europe, as a response to the need for creating a viable and strong economy. Comprising the whole continent and the neighboring regions, Europe needs further steps to overcome its main global competitors, since the existing patent system in Europe is quite complicated as it is: national patents exist alongside European patents; the Community patent system has yet to come into operation. Companies doing business within the European Union still do not have access to a single system of patent protection. Thus, the patent system for protecting innovation in Europe exists along a two-tier route, with national patents surviving alongside European patents. And it is soon expected to turn into a three-tier route, with the Community patents system in progress.

The Union should seek to remove all the political and practical obstacles that remain, preventing as they do the single market from

realizing its full potential. And in its need to create more jobs by increasing the international competitiveness of European companies and to overcome the pressures resulting from the globalisation of the economy, the European Union should strengthen ties in respect to the adoption of the *acquis communautaire* in the area of patent protection not only with the countries of central and eastern Europe but also with those of the south and east of the Mediterranean.

Innovation is fundamental to economic growth, and research and development (R&D) which is at the heart of the growth mechanism of modern market economies, can generate innovation across space. In the increasingly integrated European market, on the level of sub-national regions which are more homogeneous than countries, are better connected within themselves and are important policy units for research and innovation purposes, significant R&D spillovers diffuse within 300 km from the source region<sup>1</sup>.

The total number of patents granted to inventors residing in a region was used in order to measure that region's innovative output. Localized R&D spillovers were found to exist if the productivity of R&D in a region was affected by the amount of R&D resources used in other regions in spatial proximity. New ideas are generated using R&D resources which are a private and excludable input, and existing ideas which are a public input or at least a locally public input into the innovative process. The codified part of a new idea is likely to be available to anyone who can read a patent, and therefore it is a fully public good. Nevertheless, an important part of the knowledge generated with the idea is linked to the experience of the scientists, who share a stock of increasing knowledge through personal contacts and face-to-face interactions. This kind of "local public good" benefits scientists within the region or its neighborhoods. These findings on spillover effects of

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<sup>1</sup> R&D and innovation in 86 European Regions for the period 1977-1995 was studied by Laura Bottazzi and Giovanni Peri, in "Innovation and Spillovers in regions: Evidence from European patent data," 17 October 2002, *European Economic Review* 47 [2003], 687-710.

innovative activity have great significance for regions such as the Mediterranean that has close proximity to highly developed regions of the European Union.

## **Patent Protection in Europe**

Patent protection for European countries can be obtained by filing several national applications at the respective national patent offices or by filing one European Patent Organisation (EPO) patent application at the European Patent Office (EPO), the “Office.” The EPO application designates the European Patent Convention (EPC) member states for which patent protection is requested. The European Patent Convention does not create a uniform protection right, but it provides the applicant with protection in as many of the signatory states as he wishes. While the European Patent Convention is open to accession by any European state, the Administrative Council of the European Patent Organisation may also extend invitation for membership to other countries. (Article 166 of the Convention).

The European Patent Organisation (EPO) is the outcome of the European countries’ collective political determination to establish a uniform patent system in Europe. The EPO is a centralised patent grant system, administered by the European Patent Office on behalf of all contracting states. It is a model of successful cooperation in Europe. It will be beneficial for all sectors of industry and business initiatives to extend the uniform European patent protection to the whole of the Mediterranean region, similar to the recent extension of protection towards the Central and Eastern European countries.

The EPO comprises the Administrative Council, its legislative body, and the European Patent Office, its executive body which grants European patents for the contracting states to the EPC. The Administrative Council, composed of delegates from the contracting states, supervises the activities of the EPO; the task of the Office is to grant European patents. Even though EPO lacks a court with powers to settle patent disputes at European level, it allows for a centralised opposition process which works more

effectively than having competent courts in the Member States handing down contradictory judgements.

Patents issued by the EPO designate the European states in which the applicants wish to patent their inventions. The EPO patents have significant cost advantages for inventions requiring protection in a number of European markets, since EPO patent applications cost roughly three times as much as national applications in most European states. The total cost of a European patent amounts to approximately Euro 29,800. The official patent office fees are a relatively small part of the costs (in this case, Euro 4,300). Professional representation before the EPO amounts to Euro 5,500 on average, while translation into the languages of eight contracting states requires Euro 11,500. Renewal fees for a patent maintained for ten years amount to roughly Euro 8,500<sup>2</sup>.

If patent protection is sought for more than three designated states, the application for a European patent is less expensive than independent applications in several patent jurisdictions. This cost advantage has made the EPO filing path particularly attractive for applicants selling goods and services in multiple European markets. Nevertheless, translations of the specifications have to be filed with the national patent office of each designated country and renewal fees have to be paid for each of those countries. The sum total of the national fees payable for renewal of a European patent constitutes quite a heavy burden for patentees. The additional costs of protection for each designated country prompt businesses to be selective in their choice of countries. Often, requests for protection are concentrated on the larger European States, and this condition disadvantages the smaller ones in terms of both technology transfer and their attractiveness to investors. For the EU, the limitation of protection to only part of the single market reduces the commercial value of the patented good or process.

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<sup>2</sup> See, [http://www3.european-patent-office.org/epo/new/kosten\\_e.pdf](http://www3.european-patent-office.org/epo/new/kosten_e.pdf).

The centralisation of application and examination also allows a centralised legal challenge: under the European Patent Convention (EPC), any third party can use opposition proceeding to challenge the granted patent within nine months after the granting date for all of the designated states, rather than having to pursue legal proceedings in each of the European nations designated in the patent. The EPO opposition process is a more effective means of ensuring “high quality” patents, especially in novel technology areas, than those available in the United States under the re-examination procedure of US Patent and Trademark Office (USPTO)<sup>3</sup>.

EPO patent grants are issued for inventions that are novel, mark an inventive step, are commercially applicable, and are not excluded from patentability for other reasons. Article 52 of EPC stipulates the “other reasons” for refusal of patent grant. After the filing of an EPO application, a search report is made available by the EPO to the applicant. The search report is generated by EPO’s search office in The Hague and then transferred to the examining staff in the Munich office. The search report describes the state of prior art regarded as relevant according to EPO guidelines for the patentability of the invention. Unlike the US system, applicants at the EPO are not required to supply a full list of prior art including references to prior patents and/or non-patent sources<sup>4</sup>.

Applicants can request the examination of their application within six months after the announcement of the publication of the search report in the EP Bulletin. Upon request of the examination, which is a compulsory prerequisite for the patent grant, the process continues until the EPO presents a report as a result of the examination. Otherwise, the patent application is deemed to be

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<sup>3</sup> Stuart J.H. Graham, Bronwyn H. Hall, Dietmar Harhoff and David C. Mowery, “Post-Issue Patent ‘Quality Control’: A Comparative Study of US Patent Re-Examinations and European Patent Opposition,” NBER Working Paper Series, No. 8807, February 2002, JEL No. K 41, L 00, L 20; <http://www.nber.org/papers/w8807>, National Bureau of Economic Research.

<sup>4</sup> Ibid., “Post-Issue Patent ‘Quality Control’....p. 10.

withdrawn. Through the examination period, the patent owner is generally required to make some changes in the original application. Negotiations between the applicant and the EPO generally centre around the scope of the allowable subject matter and the claim(s) which define specifically the area for which exclusive rights are sought. Thus the applicant may be required to reveal some relevant information about the invention prior to the grant of the patent.

If priority is requested, this provides temporary protection in all the EPO member states for the invention related to the said application for the grant of a patent. Eighteen months after the priority date, the patent application is published. The issue of a European patent often takes about 4.2 years from the date of filing the application. When the EPO decides to grant a patent, the patent issues for the designated European states and is translated into the relevant national languages. Any decisions made by the EPO receiving, examining, opposition sections and legal division can be appealed and the appeal has suspensive effect. If the EPO declines to grant a patent, the applicant may file an appeal.

Within nine months after the patent has been granted, any third party can oppose the European patent centrally at the European Patent Office by filing an opposition against the granting decision. Oppositions are lodged against around 6% of the European patents granted every year. In special proceedings involving all the opposing parties, the EPO Opposition Division is called upon to decide whether the contested patent should be maintained, amended or revoked. The outcome of the opposition procedure is binding for all designated states. If opposition is not filed within nine months after the grant, the patent's validity can only be challenged under the legal rules of the respective designated countries.

In an opposition to a European patent, which is filed with the EPO, the opponent has to substantiate his opposition by presenting evidence that the prerequisites for patentability were not fulfilled. Allegations of the opponent might be that the invention lacked novelty and/or an inventive step, or that the disclosure was poor or

insufficient. The Opposition Division of the EPO, which comprises three technically qualified members and one lawyer, determines the outcome.

As a result of the opposition procedure, the patent may be upheld without any amendments, may be amended (a reduction of the “breadth” of the patent by altering the claims), or may be revoked. Once an opposition is filed, the opponent and patentholder are no longer free to settle their case outside of the EPO opposition process. The EPO may even pursue the case on its own even if the opposition is withdrawn or in the event of legal incapacity of the opponent or lack of participation of the heirs. This provision helps to discourage the use of the opposition proceeding by opponents who may seek to force patentholders to licence their patents.

The parties have the right to appeal against the decision of the Opposition Division before an EPO Technical Board of Appeal. The appeal against the outcome of the opposition procedure must be filed within two months after receipt of the decision of the opposition chamber of the EPO. The appeal of either the patentholder(s) or the opponent(s) must be substantiated within an additional two months. The Board of Appeal issues the final verdict on the validity of the contested European patent. The whole challenge procedure at the EPO takes about three years and the total costs of an opposition to an opponent or to the patentholder may range between Euro 15,000 and Euro 25,000 each, including fees for patent attorneys, fees for filing an opposition and an appeal against the outcome of opposition.

### **Three examples of EPO Opposition**

#### **1. Corn plants with improved oil composition**

Oral proceedings are an integral part of the opposition proceedings provided for under the European Patent Convention, which allows anyone to object to a European patent. Oral proceedings at the European Patent Office in opposition proceedings relating to a DuPont patent for corn plants with improved oil composition, started in Munich on 12 February 2003. The contested patent is

European patent No. 744 888, entitled “Corn grains and products with improved oil composition”. The oral proceedings are to decide whether the patent should be maintained, amended or revoked. Opposition has been lodged by the government of Mexico, Misereor (an overseas development agency of the Catholic Church in Germany), and Greenpeace Germany. Granted by the European Patent Office in August 2000, the patent concerned is valid in Italy, France and Spain, three of the 27 countries which make up the Member States of the European Patent Organisation. It relates to an invention in the field of plant biology which describes corn grains produced by cross-pollinating a male parent plant having a particularly high oil content with a female parent plant altered through chemical mutagenesis. The oil content of the grains, at least 55% of which must be oleic acid, is greater than 6%. The patent specification states that the maize plants used in the mutation breeding were developed at Iowa State University and the University of Illinois (USA).

The opponents allege that the patent does not meet the requirements of Article 54 of the European Patent Convention (EPC), which governs the novelty of an invention. According to that article, an invention is considered to be new only if it does not form part of the state of the art. Public discussion has focused on whether maize having the characteristics described in the patent was already known, for example in Mexico. An independent Opposition Division at the EPO is to decide on the case on the basis of the provisions of the EPC.

## 2. Revocation of “umbilical cord blood” patent upheld

On 7 April 2003, a technical board of appeal of the European Patent Office (EPO) has upheld the revocation of the US firm Biocyte’s European patent describing *inter alia* the use of umbilical cord blood. The board ruled that the subject matter of the claims defended by the patent proprietor was not new *vis-à-vis* the state of the art and as such failed to meet the novelty requirement under Article 54 of the European Patent Convention. Patent EP 343217 had previously been revoked in EPO opposition proceedings in



1999. The patent proprietor lodged an appeal against the opposition division's decision.

3. Outcome of oral proceedings relating to Monsanto patent, known as "Soya" patent

The Opposition Division of the European Patent Office (EPO) came to the decision, on 6 May 2003 after a public hearing in opposition proceedings, of limiting the so-called "soya" patent owned by Monsanto (EP 301 749 B1). Its title is "Particle-mediated transformation of soybean plants and lines". In March 1994, the EPO granted Agracetus, subsequently taken over by Monsanto, a patent for twelve of the current 27 member states of the European Patent Organisation. In its original form, the patent describes a process for genetically engineering plants, in particular soybean plants.

The Opposition Division takes the view that the granted patent does not meet the requirement for sufficient disclosure. Under Article 83 of the European Patent Convention (EPC), the description of an invention has to be sufficiently clear and complete for it to be carried out by a person skilled in the art. In its limited form, the patent now relates only to soybean plants, not generally to any kind of plant. The parties can contest the outcome of the hearing in appeal proceedings before one of the EPO's Technical Boards of Appeal. The reasons for the Opposition Division's decision, setting out a full assessment of the facts and arguments, will be published at a later date.

### **Increasing Scope of EPO**

A network of patent information centres comprising the national patent offices of the Member States of the European Patent Convention and all regional patent information centres, called PATLIB, provide information and competent advice for the public. In total, in over 280 such centres in Europe, one can find the addresses of patent information centres belonging to a selected list, provided by the appropriate national patent office. Where possible, the names of contact persons are given. The intention is not only

that members of the public should be able to find their nearest patent information centre but also that the centres themselves will be able to contact their counterparts in different regions or even different countries.

The European Patent Office (EPO) strengthened its presence in Brussels by opening a new office in this capital city of the European Union. The President of the European Patent Office, speaking at the opening event, stated: “Patents seek to protect innovation and to encourage further innovation. The creation of this new bureau is the result of the EPO’s policy of increased cooperation with EU institutions, with the aim of promoting the European patent system in Europe and increasing the role of patents in the internal market”. To demonstrate the common nature of patents in our everyday lives, the EPO points out that the average citizen makes use of some 300 patented objects or inventions (telephones, kitchenware, etc.) every day. The EPO received about 165,000 applications in 2002. Presently, the top three areas of patented inventions are: medical technology and pharmaceuticals; computer related inventions; and, telecommunications.

### **European Community Efforts**

The EU Competitiveness Council has stated that the EPO will have the central role in the grant procedure of the forthcoming Community patent, which will exist in parallel to European patents granted under the EPC and to national patents. The EPC forms part of the *acquis communautaire* and the EPO’s enlargement in 2002 from 20 to 27 countries parallels the forthcoming enlargement of the EU.

With the First Action Plan for Innovation in Europe<sup>5</sup>, the Commission deemed it essential to gain as full a picture as possible of the patent system in Europe. The objective was to assess whether the existing patent system met the needs of users, examine whether

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<sup>5</sup> Presented by the Commission on 20 November 1996 COM (96) 589 final.

new Community measures were necessary and consider what such measures could involve and what form they could take. Strategic discussions began at Community level on innovation and how to protect it and on its effects on employment. The Commission also prepared a Green Paper on the Community Patent and the Patent System in Europe<sup>6</sup>.

The Green Paper tackled the shortcomings resulting from the absence of the Community dimension in the European patent system and the obstacles preventing the Community system from coming into operation. It also looked into the related technical, legal and political questions, such as further harmonization of certain aspects of patent law that could be necessary at Community level; and the impact of the information society and electronic commerce on software-related inventions, involving the use of patent protection. In order to improve the situation that European industry faces with respect to the development of the information society and electronic commerce, the Commission issued a communication entitled “A European initiative in electronic commerce”.<sup>7</sup>

The national patent law governing patentability, validity and the extent of protection, which existed historically in each one of the Member States of the European Community, was harmonized *de facto* as all the Member States acceded to the 1973 Munich Convention on the European Patent<sup>8</sup>. The European Patent system is based on two international agreements, the 1973 European Patent

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<sup>6</sup> Green Paper on Innovation (COM (95) 688 final, 20.12.1995).

<sup>7</sup> COM (97) 157 final 16.4.1997.

<sup>8</sup> The Convention on the Grant of European Patents (EPC) was enacted in Munich on 5 October 1973 and entered into force on 7 October 1977. It is the legal foundation for the establishment of the European Patent Organization (EPO), which is an intergovernmental body, and is independent of the European Union. The full text of the Convention is available at [http://www3.european-patent-office.org/dwld/epc/epc\\_2000.pdf](http://www3.european-patent-office.org/dwld/epc/epc_2000.pdf)).

Convention and the 1975 Luxembourg Convention on the Community Patent, which is an integral part of the later Agreement Relating to Community Patents<sup>9</sup>. The efforts towards creating a single Community patent have culminated in a Draft Regulation in 2000<sup>10</sup>.

The Community Patent is intended to bring together the bundle of protection rights resulting from the grant of a European patent and create a single, unitary and autonomous protection right valid throughout all the Member States of the EU. The objective of the Community patent is the full achievement of the aims of the single market, with special reference to fair competition and the free movement of goods. In accordance with Article 235 of the EC Treaty, the creation of a new Community system of patent protection by means of a Regulation requires unanimity, in turn necessitating a consensus between the Member States on all the technical issues involved.

In the early days, the Community's competence in the field of intellectual property rights was not clearly established. However, the Court of Justice of the European Communities has recognized that the Community is competent to take action in the field of patents if this contributes to the attainment of one of the two major objectives of the Treaty: the free movement of goods and a system ensuring that competition is not distorted<sup>11</sup>.

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<sup>9</sup> Agreement Relating to Community Patents, done at Luxembourg on 15 December 1989 (OJ No. L. 401, 30.12.1989, p.1).

<sup>10</sup> Proposal for a Council Regulation on the Community Patent, COM (2000) 412 final, 2000/0177 (CNS), Commission of the European Communities, Brussels, 1.8.2000.

<sup>11</sup> In Case C-350/92 Spain v Council [1995] ECR I-1985, the Court's judgment of 13 July 1995, paragraph 27; its Opinion 1/94 of 15 November 1994 [1994] ECR I-5267: (request was submitted by the Commission for an opinion on whether or not the Community had exclusive competence to conclude the GATT Agreements).

With respect to future enlargements of the Union, the Draft Regulation once adopted will simplify matters greatly since the Regulation will automatically form part of the *acquis communautaire* and will not have to be amended or renegotiated through the process of accepting new Member States into the Union. The Community patent system, once it goes into operation, will have the essential feature of granting patents with a unitary character that will have equal effect throughout the Community and can be granted, transferred, revoked or allowed to lapse in respect of the whole of the Community. It will also offer greater legal certainty through the creation of a central court competent to hand down decisions on interpretation and validity of Community patents.

There is still the problem of the extremely high translation costs due to the need to have the entire patent specification translated into the languages of all the Member States. The cost of translating the Community patent specification into all Community languages constitutes a major stumbling-block to the success of the Community patent. One solution is to limit the translation requirement to the patent claims only, either at the time the patent was granted or shortly afterwards. This limited translation requirement is extended by means of a reservation, whereby any Member State can declare that, if the patent specification was not published in one of the official languages of that State, the proprietor of the patent can not avail himself in that State of the rights conferred by the patent. Any contracting state also has the right to demand a translation of the patent specification, the proprietor of the patent being free to decide when to file the translation, according to his protection needs.

This solution enables the patentee to decide how urgently he needs protection in a particular Member State and allows him flexibility in choosing the point when he files a translation of the patent specification. The provision draws a distinction between cases where the patentee files the translation of the patent specification within three months of the date of publication of the mention of the grant of the patent, more than three months but less than three years later, or after three years have elapsed. In the first case, the patentee

can avail himself of the rights conferred by the patent as soon as the translation is filed. In the second case, he can do so from the same point in time but, in respect of use of the invention without his consent before the translation is filed, he can avail himself of the rights conferred by the patent only to the extent of claiming reasonable compensation. In the third case, any person who has used or made effective and serious preparations for using the invention before the translation is filed may continue to use it on reasonable terms.

Even when the Community patent is created, bringing a unitary system conferring rights that can be relied on throughout the Community, the European patent will still retain its usefulness. In addition to the possible need for protection in certain countries that are not Member States of the European Community, the European Patent will also enable the firm concerned to designate certain countries and not necessarily all the Member States. There is undoubtedly a need for some flexibility in the patent system in Europe, and this could be achieved by establishing links between the Community Patent and the European Patent.

## **Conclusion**

Patents play an important role in protecting innovation, which is the driving force behind economic growth, creation of jobs and keeping up with global competition. The mission of the EPO is to support innovation, competitiveness and economic growth by granting European patents for inventions. Under the European Patent Convention (EPC), the EPO administers a centralized patent grant system on behalf of all contracting states and is a model of successful co-operation in Europe. The Convention establishes a single procedure for the grant of patents, which once granted, are subject to the national rules of the Contracting States designated in the application. Nevertheless, there has occurred *de facto* harmonization of the provisions of national patent law governing patentability, validity and the extent of protection.

The European patent is giving ample satisfaction both in terms of the calibre of the work carried out by the European Patent Office

and in terms of the value of the protection right which it confers, as well as the EPO opposition procedure which functions effectively. The current 27 member countries of the European Patent Organization should be expanded to include many of the countries in the Euro-Mediterranean region as well.

The current structure of the patent protection system in Europe is such that the European Patent Office is an international organization set up by treaty and is therefore independent of the European Union and any of its institutions. A unitary Community patent needs to be incorporated within the EPO, in order to overcome some of the limitations for the successful operation of the Single Market. The patent system in Europe does not present a unitary picture, with national patents existing alongside European patents and a Community patent system which is yet to come into operation.

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