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PATENT: IMPORTANCE AND INVOLVED COSTS

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Abstract. *This work presents a brief study of the importance of a patent in a trading world economy and the costs involved since the filing of the application to the end of the patent life. In recent years many developing countries have realized that the correct protection of intellectual properties have brought benefits as the increasing of the negotiating power and the encouragement of private investment in R&D especially in the industrial and scientific fields. Further, accordingly Grossman & Lai (2004) by strengthening the protection of intellectual property, a government provides greater incentives for innovation and thus the benefits that come from having more and better products. Finally, this work shows that the minimum involved cost of a patent after 20 years in Brazil is about €2,930.00 euros for natural persons and €7,336.00 euros for juristic persons for the grant considering two office actions.*

Keywords*: Intellectual property, Patent valuation, Innovation, Engineering Education*

1. INTRODUCTION

Basically, a patent is the right granted by the State to an inventor that excludes others from commercially exploiting the invention for a certain limit of time in return for the disclosure of the invention, so that others may gain the benefit of the invention. Patents, trademarks, and industrial designs are collectively known as Industrial Property. A patent of invention may be granted for an invention whose object to be protected is new, has "inventive step" and industrial application giving to the inventor (or the applicant) exclusive rights to commercially explore the object protected in its invention through 20 years from the filing date at the country that has filed. A patent gives to its holder the rights to hinder competitors, without its consent, to produce, use, sell or import any product equal or similar. On the other hand, a patent of Utility Model, another kind of patent in Brazil and other countries, is granted to practical usage object, or part of it, susceptible of industrial application, presenting new form or disposal, involving "inventive act" that results in a functional improvements in its use or fabrication. The patent of utility model has 15 years of maintenance.

Patents can be used to stimulate economic development in four steps: a) patent information facilitates technology transfer and foreign direct investments; b) patents encourage research and development at public and private research centers and universities; c) patents are new catalysts of new technologies and businesses; and d) businesses accumulate patents and engage in licensing, joint ventures and other revenue-generating transactions based on such assets.

The reasons for patenting inventions can be summarized as follows:

- Exclusive rights - patents provide exclusive rights which usually allow the rightholder to use and exploit the invention for 20 years from the date of filing of the patent application;
- Strong market position - through these exclusive rights, you are able to prevent others from commercially using your patented invention, thereby reducing competition and establishing yourself in the market as the preeminent player;
- Higher returns on investments - having invested a considerable amount of money and time in developing innovative products, the rightholder could, under the umbrella of these exclusive rights, commercialize the invention enabling the rightholder to obtain higher returns on investments;
- Opportunity to license or sell the invention - if you choose not to exploit the patent yourself, you may sell it or license the rights to commercialize it to another enterprise which will be a source of income for the rightholder;
- Increase in negotiating power - if your enterprise is in the process of acquiring the rights to use the patents of another enterprise, through a licensing contract, your patent portfolio will enhance your bargaining power. That is to say, your patents may prove to be of considerable interest to the enterprise with whom you are negotiating and you could enter into a cross-licensing arrangement where, simply put, the patent rights could be exchanged between your enterprise and the other;
- Positive image for your enterprise - business partners, investors and shareholders may perceive patent portfolios as a demonstration of the high level of expertise, specialization and technological capacity within your company. This may prove useful for raising funds, finding business partners and raising your company's market value;
- If not patented by yourself, somebody else might patent them - In most countries (with the exception of the United States), the first person or enterprise to apply for a patent for an invention will have the right to the patent. This may in fact mean that, if you do not patent your inventions or if the rightholder does not patent the inventions of his employees, somebody else - who may have developed the same or an equivalent invention later - may do so and

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legitimately exclude your enterprise from the market, limit its activities to the continuation of prior use, where the patent legislation provides for such exception, or ask the rightholder to pay a licensing fee for using the invention;

- If not patented by yourself, competitors will take advantage of your invention - If the product is successful, many other competitor firms will be tempted to make the same product by using your invention but without having to pay for such use. Larger enterprises may take advantage of scale economies to produce the product more cheaply and compete at a more favorable market price. This may considerably reduce your company's market share for that product. Even small competing enterprises can produce the same product and often sell it at a lower price as they do not have to recoup research and development costs incurred by the rightholder.

During the 1990´s, an increasing number of countries realized examples in the emerging economic powers where policy-makers recognized the role of the IP system as an important element for encouraging private investments in R&D especially in the industrial and scientific fields. However, current knowledge regarding the importance of the patent system in economic development is still limited. Accordingly Maskus (2000), visible and demonstrable evidence of economic payoff attributable to intellectual property (IP) protection (including patent protection) is currently not sufficient widespread.

2. HISTORICAL REVIEW

2.1 The Venetian Law

Industrial Property protection is not something new, starting at 1474 in Venice, Italy. Glassmaking existed in the lagoon of Venice from as early as the 8th century. In following centuries the artisans of Venice began to accumulate some singular skills in glass production. In this connection, the conquest of Constantinople in 1204 by the wayward fourth Crusade was a watershed event, opening to Venice the practices of the glass producers of that great imperial city. In 1291 the glassmakers of the Venetian lagoon had distilled all of that knowledge into unique and proprietary production skills. In that year the government of Venice banned glass furnaces from the central islands of Venice, relegating them to Murano Island, near Venice. From this date the Murano glassmakers have attract strong attention from many parts of Italy and other countries of Europe and as nobody knew their techniques the Murano glassmakers have dominated the glass market disturbing many glass producers from other regions of Europe. Due to this in Venice was created a law that gives the first patent to the Murano glassmakers.

2.2. The International Exhibition of Inventions (1873)

The need for international protection of intellectual property became evident when foreign exhibitors refused to attend the International Exhibition of Inventions in Vienna in 1873 because they were afraid their ideas would be stolen and exploited commercially in other countries.

2.3. The Paris Convention (CUP-1883)

The year of 1883 marked the birth of the Paris Convention for the Protection of Industrial Property, the first major international treaty designed to help the people of one country to obtain protection in other countries for their intellectual creations in the form of industrial property rights, known as: a) inventions (patents); b) trademarks; and c) industrial designs. The Paris Convention entered into force in 1884 with only 14 member States, including Brazil, which set up an International Bureau to carry out administrative tasks, such as organizing meetings of the member States. Independently of the Paris Convention, in 1886, copyright entered the international scenery with the Berne Convention for the Protection of Literary and Artistic Works. As the importance of intellectual property grew, the structure and form of the Organization changed as well. In 1960, BIRPI (International Bureau for Intellectual Property Protection) moved from Berne to Geneva to be closer to the United Nations and other international organizations in that city. Seven years after, following the entry into force of the convention establishing the World Intellectual Property Organization (WIPO) undergoing structural and administrative reforms and acquiring a secretariat answerable to the member States. Today we have 173 contracting countries in CUP, see (WIPO, 2009).

2.4. The WIPO (1970)

The World Intellectual Property Organization (WIPO) is a specialized agency of the United Nations. It is dedicated to developing a balanced and accessible international intellectual property (IP) system, which rewards creativity, stimulates innovation and contributes to economic development while safeguarding the public interest. In the WIPO convention text (Art. 2) we have the purposes of this Convention: a) "Organization" shall mean the World Intellectual Property Organization (WIPO); b) "International Bureau" shall mean the International Bureau of Intellectual Property; c) "Paris Convention" shall mean the Convention for the Protection of Industrial Property signed on March 20th, 1883, including any of its revisions; d) "Berne Convention" shall mean the Convention for the Protection of Literary and

Artistic Works signed on September 9th, 1886, including any of its revisions; e) "Paris Union" shall mean the International Union established by the Paris Convention; f) "Berne Union" shall mean the International Union established by the Berne Convention; g) "Unions" shall mean the Paris Union, the special unions and agreements established in relation with that Union, the Berne Union, and any other international agreement designed to promote the protection of intellectual property whose administration is assumed by the Organization according to Article 4(iii); h) "intellectual property" shall include the rights relating to: literary, artistic and scientific works, performances of performing artists, phonograms, and broadcasts, inventions in all fields of human endeavor, scientific discoveries, industrial designs, trademarks, service marks, and commercial names and designations, protection against unfair competition, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

2.5. PCT (1970)

The Patent Cooperation Treaty (PCT) is an international patent law treaty, concluded in 1970. It provides a unified procedure for filing patent applications to protect inventions in each of its contracting states. A patent application filed under the PCT is called an international application or PCT application. A single filing of an international application is made with a Receiving Office (RO) in one language. After that, a search is performed by an International Searching Authority (ISA), accompanied with a written opinion regarding the patentability of the invention. It is optionally followed by a preliminary examination, performed by an International Preliminary Examining Authority (IPEA). Brazil is the 14th country to be elected (in September, 2008) ISA and IPEA in the world due its great technical IP capacity and with the mission to incentive PCT filings in South America. Brazil is also the 13th country on the world in general kind filings volume, not necessarily PCT. Finally, the examination (if provided by national law) and grant procedures are handled by the relevant national or regional authorities. The PCT does not lead to the grant of an "international patent", which does not exist, but gives an important international filing date with deadline for thirty months from the initial filing (international phase) in some ISA/IPEA country, like Brazil. After this first phase the inventor can send its patent request to many countries to initiate the PCT national phases, with the advantages to fix many mistakes at the first phase. The Washington Diplomatic Conference on the Patent Cooperation Treaty took place from May 25th to June 19th, 1970. The Patent Cooperation Treaty was signed in Washington at the very end of the conference, i.e., on June 19th, 1970. The Treaty entered into force on January 21st, 1978 initially with 18 Contracting States. The first international applications were filed on June 1st, 1978. The Treaty was subsequently amended in 1979, and modified in 1984 and 2001. Today we have 141 PCT contracting countries (WIPO, 2009).

2.6. WTO/GATT/TRIPS (1994)

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) is an international agreement administered by the World Trade Organization (WTO) that sets down minimum standards for many forms of Intellectual Property regulation. It was negotiated at the end of the Uruguay round of the General Agreement on Tariffs and Trade (GATT) in 1994. Specifically, TRIPS contains requirements that nations laws must meet for: copyright rights, including the rights of performers, producers of sound recordings and broadcasting organizations; geographical indications, including appellations of origin; industrial designs; integrated circuit layout-designs; patents; trademarks; rights about new plant varieties; and undisclosed or confidential information. The TRIPS agreement introduced Intellectual Property law into the international trading system for the first time, and remains the most comprehensive international agreement on intellectual property to date. After the Uruguay round, the GATT became the basis for the establishment of the World Trade Organization. Because ratification of TRIPS is a compulsory requirement of a WTO membership, any country seeking to obtain easy access to the numerous international markets opened by the WTO must enact the strict Intellectual Property laws mandated by TRIPS. For this reason, TRIPS is the most important multilateral instrument for the globalization of Intellectual Property laws.

2.7. PLT and SPLT (2000)

The Patent Law Treaty (PLT) is a patent multilateral treaty concluded on June 1st , 2000 in Geneva, Switzerland, by 53 States and one intergovernmental organization, the European Patent Organization (EPO). Its aim is to harmonize formal procedures such as the requirements to obtain a filing date for a patent application, the form and content of a patent application, and representation. The Substantive Patent Law Treaty (SPLT) is a proposed international patent treaty aimed at harmonizing substantive points of patent law. In contrast with the Patent Law Treaty (PLT), signed in 2000 and now in force, which only relates to formalities, the SPLT aims at going far beyond formalities to harmonize substantive requirements such as novelty, inventive step and non-obviousness, industrial applicability and utility, as well as sufficient disclosure, unity of invention, or claim drafting and interpretation. The main aim of these PLT and SPLT is IP cost and bureaucracy reductions.

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2.8. Doha Declaration (2001)

In 2001, developing countries concerned that developed countries were insisting on an overly-narrow reading of TRIPS, initiated a round of talks that resulted in the Doha Declaration: a WTO statement that clarifies the scope of TRIPS; stating for example that TRIPS can and should be interpreted in light of the goal to promote access to medicines for all. Doha Declaration on the TRIPS Agreement and Public Health was adopted by the WTO Ministerial Conference of 2001 in Doha, Qatar, on November 14th, 2001. It reaffirmed flexibility of TRIPS member states in circumventing patent rights for better access to essential medicines. In Paragraph 4 of the Doha Declaration, governments agreed that: "the TRIPS Agreement does not and should not prevent Members from taking measures to protect public health. Accordingly, while reiterating our commitment to the TRIPS Agreement, we affirm that the Agreement can and should be interpreted and implemented in a manner supportive of WTO Members' right to protect public health and, in particular, to promote access to medicines for all". These provisions in the Doha Declaration ensure that governments may issue compulsory licenses on patents for medicines, or take other steps to protect public health.

2.9. Remarks about others main IP treaties and agreements

- Berne Convention for the Protection of Literary and Artistic Works in 1886. Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods (1911);
- Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite (1974);
- Treaty on the International Registration of Audiovisual Works (Film Register Treaty) – 1989;
- Nairobi Treaty on the Protection of the Olympic Symbol (1981);
- Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms (1971);
- International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (1961);
- WIPO Performances and Phonograms Treaty (WPPT) – 1996;
- Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (1980);
- Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks (1989);
- Locarno Agreement Establishing an International Classification for Industrial Designs (1968);
- Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks (1957);
- Strasbourg Agreement Concerning the International Patent Classification (1971).

2.10. History of Brazilian IP

In Brazil the history of Industrial Property had two distinguished parts: the Imperial and the Republican periods. About the Imperial period we have: (1809) Dom João VI created the commerce Royal joint sending national patents about mechanical inventions. (1882) Dom Pedro II plans at the first time a governmental institution for patent filings. (1883) through Dom Pedro II, Brazil enters in the Paris Convention. About the Republican period we have: (19/12/1923) decree number 16,554 where president Artur Bernardes creates the Industrial Property General Directorate (DGPI) to care patents and marks, inside the Commerce, Industry and Agriculture Ministry. (1930) The DGPI is transferred to the Work, Industry and Commerce Ministry. (1933) extinguished the DGPI and is created the National Department of Industrial Property. (27/08/1945) is created the Industrial Property Code. (11/12/1970) is created the National Institute of Industrial Property (INPI), federal institution under the Development, Industry and Exterior Commerce Ministry-MDIC (Law number 5,648); extinguished the DNPI. (21/12/1971) Creation of the Industrial Property New Code. (14/05/1996) Creation of the Industrial Property Law, Law number 9,279/96.

2.10.1. The INPI

The National Institute of Industrial Property (INPI) is a federal institution created in 1970, submissive to the MDIC and has as mission according to the law 9,279/96 (the Industrial Property Law) execute, in national scope, the norms that regulates the industrial property, considering social, economics, juridical and technical functions. It is their function decides about signature, ratification and denunciation over conventions, treaties and agreements about Industrial Property. Today the INPI is passing through a structural reform including equipments (hardware and software) and personal (more patent examiners, mark examiners, etc.) to adapt itself to the patents filings increasing trend.

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3. BIBLIOGRAPHIC REVIEW AND MOTIVATION

In light of the mentioned above, Intellectual Property may be economically considered as an intangible asset, i.e., a kind of economic asset that is not material, in this case, its nature is about knowledge information. An asset is an economic resource that a person, corporation or country can control to use in its future benefit. An (economic) asset can be tangible (physical or fixed), intangible, long-term investments (pension funds and stock) or current assets (cash and inventory). The tangible, physical or fixed assets, also known as PPE (Property, Plant and Equipment), are composed by land, buildings, machinery, tools, etc. Intangible assets are defined as those assets that cannot be seen, touched or physically measured and which are created through time with human mental effort. There are two primary forms of intangibles assets: a) legal intangibles (patents, trademarks, industrial designs, trade secrets and copyrights), and b) competitive intangibles (knowledge activities like corporate know-how, collaboration activities and institutional structural activities). Thus, Intellectual Property is, in economic theory, understood as an asset, but in practice, this does not occur in most of the companies around the world. In the last ten years one can note an increasing trend in companies to consider Intellectual Property as an asset in its accountancy. Nordhaus (1969) was a pioneer economist that makes quantitatively theory, connecting patents in the economics scenario showing that patents running like propulsion engines for the economic development of countries. Basically, in his work is established the nature of the inventive process to apply in his 'model of invention'. This model has used in the economics of patents theory. Nordhaus (1969) also states the early theory of the invention in a growing economy and finally states an optimal lifetime for the patent. The Nordhaus model is used to determine the optimal duration of a patent. However, any country effectively uses patent lifetimes different of 20 years for any kind of invention, in independent form of the R&D involved costs. It is very difficult for the regulators to design the optimal patent lifetime, but possibly not so complicated to manage. Maybe, in the next decades, optimal patent lifetime will be used in practice due its great economical importance.

In the work of Pitkethly (1997) is stated how the Intellectual Property Rights (IPR) has increasing importance in many fields of business. However, the work therein considers that there is a lack of practical methods of valuing them particularly early in their life under conditions of uncertainty about their future prospects. This can lead to sub-optimal decisions making in the course of managing an IP portfolio. The case of patents whose value constantly needs assessing during the application process, on renewal and for licensing, purchase and sale negotiations is considered. Current practice in patent valuations are reviewed as is relevant literature gathered from a number of fields including accounting methods, discounted cash flow (DCF), related decision tree analysis (DTA) methods and econometric methods based on renewal and stock market data. Particular attention is paid to option pricing theory based valuation methods for real assets and frameworks are proposed for its application to the task of valuing patents. It is suggested that one implication of studies of renewal data-based models showing that option values decline with patent life is that conservative filing decisions are usually justified. Option based valuation approaches are proposed by the author as a useful powerful framework in which to consider management of a company's patent portfolio.

In Nelson (2000) is shown that firms in US typically protect the profits due to inventions with a range of mechanisms including patents, secrecy, lead-time advantages and the use of complementary marketing and manufacturing capabilities. Nelson (2000) concludes, however, that patents tend to be emphasized by firms in mostly of manufacturing industries, but secrecy and lead-time tend to be emphasized most heavily. In addition to the prevention of copying, the most prominent motives for patenting include the prevention of rivals from patenting related inventions ('patent blocking'), the use of patents in negotiations and the prevention of suits. Firms appear to use their patents commonly to block the development of substitutive by rivals, and in the later, firms are much more likely to use patents do force rivals into negotiations.

In Langinier & Moschini (2002) is discussed how the patents affect the workings of the economic system and how they affect the allocation of resources to, and the distribution of income arising from, inventive activities. From an economic point of view, patents offer a second-best solution to the market failure arising from the public-good nature of knowledge. The patent system contributes to solving a problem but comes with shortcomings of its own, because it creates market power positions that can adversely affect the economic performance of the system. The authors concluded that the limitations of the patent system suggest that continued efforts are required to improve the workings of it.

In Lévêque (2004) are stated some interesting relationships between intellectual property and economics. Basically the connection between patents and economics is given by the temporary monopoly that causes distortions that affects the amount and the distribution of the surplus generated by the innovation. The monopoly is in a position to set a higher price than if it were in competition. By doing so, it excludes some consumers, who would buy the innovations if it were sold at competition price. This deadweight loss reduces the total surplus created by the innovation, at least during the lifetime of the patent. Lévêque (2004) claims also the need of an optimal patent duration, like Nordhaus (1969), explaining that for an innovation to be produced, the profits generated by the patent must cover R&D costs using the Gallini's model. Gallini's model stated that the deadweight loss increases as competition decreases. In according with Gallini's model (Lévêque, 2004) it is better to have a strong monopoly for a short period than an oligopoly for a longer period with the needless imitation costs it generates.

Grossman & Lai (2004) studied the incentives that governments have to protect Intellectual Property in a trading world economy. Therein, are also studied international patent agreements by deriving the properties of an efficient global regime of patent protection and asking whether harmonization of patent policies is necessary or sufficient for global efficiency.

Cunha (2005) present many important methodologies to measure the intangible assets of a corporation, since 1950 until 2004. This work shows that the value of intangible assets has increasing its importance through the years (1982 to 1999) in comparison with the intangible assets. As intangible assets Cunha (2005) classify as three fold: a) Structural assets; b) relationship assets and human assets. The structural assets are any Intellectual Propriety (author rights, patents, industrial designs, marks, etc.); hardware; software; databases; and any information system. The relationship assets include client force, loyalty, satisfaction and price elasticity. Finally, human assets are knowledge; creativity, leader capacity and any human resources capacities. Many methods to measure the intangible assets are shown in Cunha (2005) doing basically four folds: a) intellectual capital direct method (DIC); b) market capitalization methods (MCM); c) asset rentability methods (ROA); and score-cast methods.

Ultimately, in light of the mentioned above, this work presents a brief study of the importance of a patent in a trading world economy and the costs involved since the filing of the application to the end of the patent life.

4. INVOLVED COSTS

The valuation of intellectual assets is a growth area, with many organizations seeking for tools able to value intellectual property and other intellectual assets. This drive is a response to a number of pressures, including:

- A need to monitor trends of the value of such assets, thereby identifying problems and further assessing whether management initiatives are succeeding in improving their value.
- A need to understand the difference between the value ascribed to an organization as a whole, as often evidenced in their stock market value and the value of their fixed assets.
- A need for data to assist in the licensing, acquisition or disposal of assets, either to group companies or third parties.

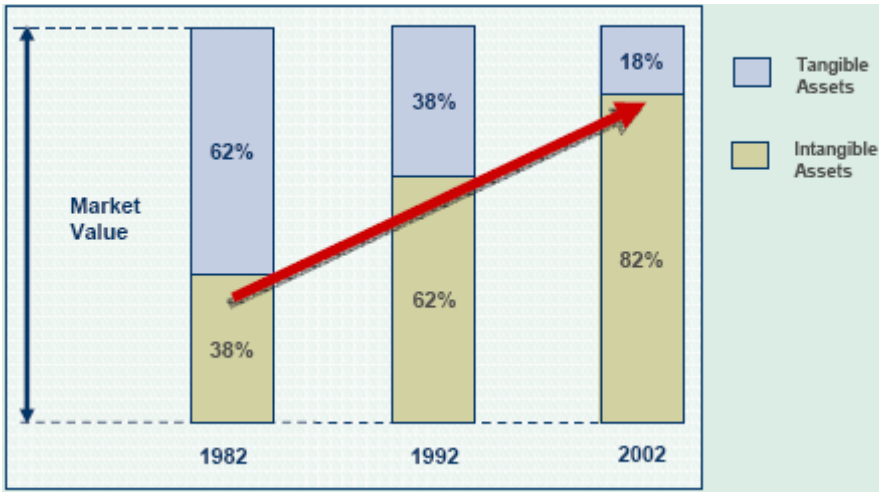

Figure 1 – Average for Standard&Poors500 Companies.

Figure 1 shows the importance of intangible assets along the decades. From Fig.1 is possible to notice the need to include IP, for example patents, into the intangible assets of companies and the commercial importance of the technology protected by them. In 1982, 62% of corporate assets in United States were tangible assets, changing at the beginning of 2002 to 18 %, see also (Nelson, 2000). Today, on average, 40% of the value of a company is not shown in its balance sheet. For that reason Intellectual Property is sometimes referred as a "hidden asset". Paul Romer, economist from Stanford University, has suggested in 1986 that the accumulation of knowledge is the driving force behind economic growth, which may explain, in part, why some countries are richer than others. The Intellectual Property is thus a kind of knowledge accumulated through the time and, in this sense, it is a very important variable to consider on the economic growth of countries. The economic and cultural importance of Intellectual Property is increasing rapidly. The fortunes of many businesses now depend heavily on intellectual-property rights.

Taking this into account, before filing a patent application one must analyze the value of a patent within a company. It is also necessary making continuous decisions after that. First of all, considering if is interesting to file or not a patent application. Secondly, whether to continue with the patent application and which countries will make foreign

applications and finally to keep a granted patent in force. If you or your company decides to file a patent, an application needs to be prepared.

The cost of patenting includes official fees, patent attorney for documents and translations, validations fees and renewal fees. The cost is unique for each patent. It will be considered an average number of claims, and which route of an application will be subjected during the examination by a patent office examiner.

A patent application is perhaps the most complex legal document to be prepared by yourself or by an attorney. The issued patent also has incorporated amendments, if any were made while a patent office examiner was examining the patent application.

A typical patent application includes an average 18 pages; 11 pages of description, 3 pages of claims, 2-3 pages of drawings and one page of abstract. A detailed description and claims must be prepared for the application. This is an extremely difficult task and should be performed by an attorney registered to practice patent law by the INPI. Fees associated can be change according to several aspects including technological fields and the complexity of the invention. The cost of Biotechnology or pharmaceuticals patenting is higher than the cost of a simple mechanical case, essentially due to more extensive patents (more pages). Cases involving electrical circuits, computers and software systems are also more expensive.

However, obtaining a patent in Brazil is not a expensive process when compared to other countries. To start, due to filing/prosecuting expenses of a patent application, it is reasonable to proceed a preliminary patentability search. An attorney might assist you to obtain a searched performed, an application reviewed and an opinion about its patenteability helping you to make a decision, if it is interesting to continue or not filing a patent application. These expenses can be avoided if you prefer to conduct a patent search by you own and rely on your own findings or you can just filing the patent application without conducting such a search. Once the application is filed, it enters a prosecution phase.

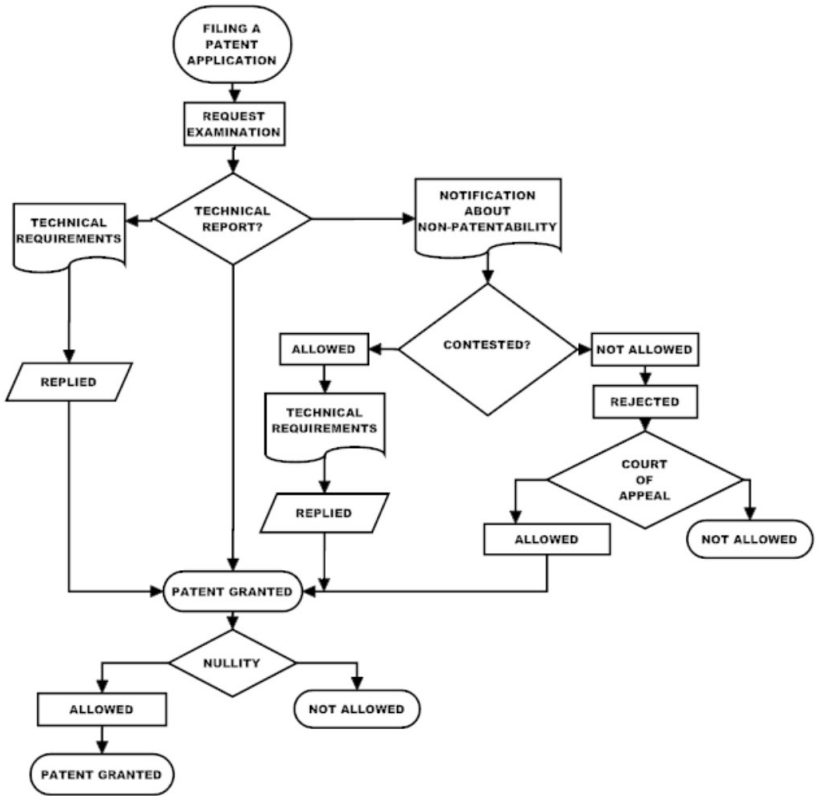

Figure 2 – The path to a granted Patent.

During prosecution, the application may be subjected to a several steps according to the situation that it presents. Each official action issued by the INPI generally results in the need for an amendment to the application to be prepared. Such amendments cost and depend on the complexity of the required amendment. We can consider the flow sheet of Fig. 2 to understand the maximum and the minimum costs that an application can reach at the time of the technical examination and after that to the maintenance of the patent.

Accordingly with Fig. 2, there are some paths to get a granted patent in Brazil:

- **Case 1**. The patent will be granted without requirements. The fees will be paid just only after the application is allowed.

- **Case 2**. Technical requirements might be made if the application is not in according to the rules. The application will be submitted to just one office action to the reformulation of it. After the requirements met the patent may be granted. The applicant will pay two fees, one when the reformulation is filed and other after the application is allowed.

- **Case 3**. This is a more complicated case, but very common one. If a reply is filed, but the latter is not met or its formulation is contested, and, independently of the arguments being filed regarding non-patentability or no adequacy to technical requirements, examination will be continued. Once examination is concluded a decision will be issued, allowing or rejecting the patent application. Depending on the case the applicant will pay more than one fee with respect to the various steps, or say, office actions, that the application can be subjected.

- **Case 4**. After the patent issued an appeal may be filed against decisions provided for in the patent law. In this case the applicant will pay new fees.

- **Case 5**. A patent will be null when granted contrary to the provisions of the law. In this case, more fees will be paid too.

After the patent be granted, one must to pay annual fees. To calculate the total cost of the maintenance fees, the applicant and/or patentee are submitted to the payment of annual fees, as from the beginning of the third year from the date of filing. Advance payment of the annual fees will be regulated by INPI. The payment should be effected within the first 3 (three) months of each annual period, but may still be effected within the following 6 (six) months, independently of notification, by payment of an additional fee.

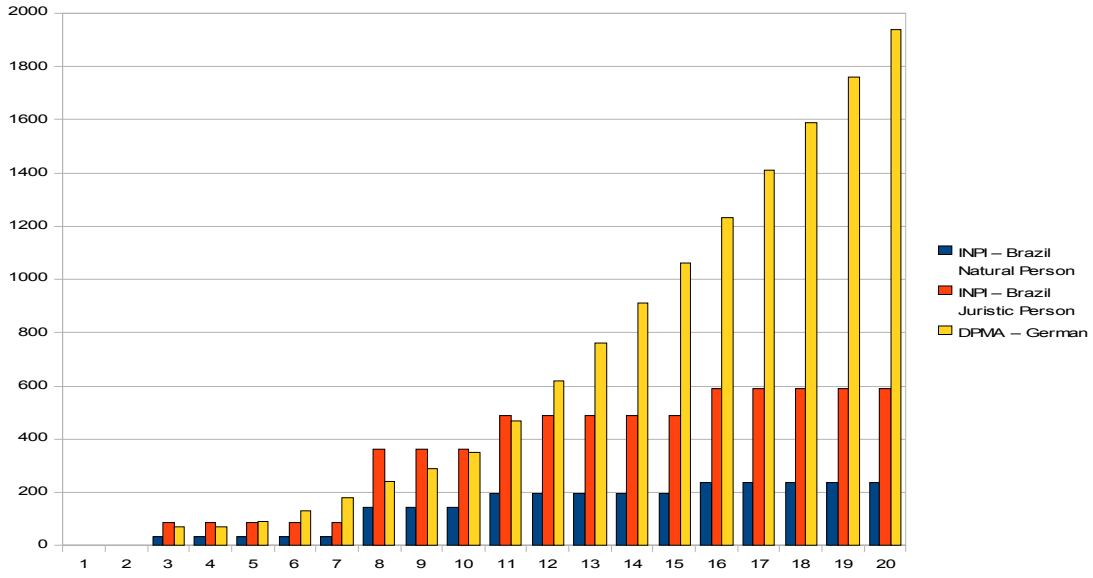

Figure 3 – Euros (€) x Patent Maintenance (Annual Fees)

Figure 3 shows the costs of the annual fees to maintain the patent along of 20 years. In Brazil there are two types of fees; one for natural persons and another for juristic persons. This distinction is made to facilitate isolated inventors, educational or research institutes, cooperatives and small companies, for example, filing applications. The difference between these two types of fees is about 60%. In other countries, like the USA, incentives like that can be also found. It is noticed from the Fig. 3 that the annual fees in Brazil have a value slightly higher than those of the DPMA from German during the earlier years of the patent life. However, from the middle of the patent life, the German annual fees increase every year to a level much higher than those from Brazil, or say, in the last year of the patent life the 20th annual fee in DPMA is € 1,940.00 euros. The difference is about ((€1,940.00 – €591.5)/ €1,940.00)x100 = 69.51%, almost 70% for juristic persons and about ((€1,940.00 – €236.25)/ €1,940)x100 = 87.82%, almost 90% for natural ones. It is important to emphasize that in the first 18 months after the filing of the application, it is kept secret before being published. After that the applicant still has 18 months to request for examination, otherwise the application is shelved. As in Brazil as in German, the applicant starts to pay the annual fee from the beginning of the 3rd year of the patent life, although the patent is granted later.

Table 1 – Average costs of domestic and foreign application procedures (€). R$ 1.00 = € 0.35 euros, U$ 1.00 = € 0.71 euros.

	Drawing up of a patent application by a patent lawyer	**Filing of the application at the national patent office incl. search request**		**Request for examination after prior search**		**Examination procedure with two office actions**		**Payment of the fee for grant**		**Renewal fee for the first 5 years**		**Total costs in the first 3 years**		**Total costs for 20 years**	
	Lawyer's fee	Office fee	Lawyer's fee	Office fee	Lawyer's fee	Lawyer's fee	Office fee	Office fee	Lawyer's fee	Office fee	Lawyer's fee	Office fee	Lawyer' fee	Office fee	Lawyer's fee
DE	2000	205	500	149	130	800		90	130	3rd yr: 59 4th yr: 59 5th yr: 90	80 80 80	503	3650	+/-12000	+/-4800
FR	1700	360	500	-	-	500		86	100	2nd yr:29 3rd yr: 32 4th yr: 37 5th yr: 51	29 29 29 29	827	2900	+/-5500	+/-3400
GB	1500	195	640	105	225	800		-	-	5th yr: 75	82	300	3200	+/-6700	+/-4500
IT	2000	400	450[5]	-	-	-		70[3]	-	1st -3rd:70 4th yr: 37 5th yr: 47	 84 84	470	2450	+/-6200	+/-3900
ES	1000	560	1000	-	-	800		25	170	3rd yr: 19 4th yr: 24 5th yr: 46	60 60 68	604	3050	+/-3400	+/-4200
USA	2500	800	300	-	-	2500		1210	250	3½yr: 940	150	2010	5550	+/-8130	+/-6000
USA [2]		400						605		3½yr: 470		1005		4065	
JP	2400	205	1750	1100	560	2500		850	350	4thyr: 500 5thyr: 500	180 180	2155	7550	+/-8500	+/-11000
EPO[6]	2000	1549	2000	1431	150	1000		715	180	3rd yr: 383 4th yr: 403 5th yr: 434	80 80 80	4078	5400	+/-19400	+/-6800
PCT[9]	2000	2164	2100	1681	150	1000		-	-	**(7)**	-	3845 (2164)[4]	5250 (4100)[4]	depending upon the quantity of states in which protection is finally sought	
BR-JP Present Results	+/-600	70	+/-200	175	+/-175	+/-400	112	70	+/-250	3rdyr:87,5 4thyr:87,5 5thyr:87,5	+/-150 +/-150 +/-150	515	+/-1775	7336	6100
BR-NP Present Results	+/- 600	28	+/- 200	70	+/- 175	+/-400	+/-50	28	+/-250	3rdyr: 35 4thyr: 35 5thyr: 35	+/-150 +/-150 +/-150	+/-205	+/-1775	+/-2930	6100
	inicial costs[8]														

Table 1 shows the average costs of domestic and foreign application procedures. The figures for office fees were supplied by each country's patent office. The lawyer's fees are based on information given by several lawyers from each country. Both sets of figures correspond to patent applications of average scope and level of difficulty.

The former table was furnished in the work of Roland Berger (2004). In the work therein, an estimate was made to compare the costs of a patent in several countries. For this, some considerations are necessary:

For certain applicants, see (2), referred to as "small entities", the US regulation of fees intends a reduction of 50% for most of the office fees. The following applicants are "small entities": a) Non-profit-making organizations, such as schools, universities, organizations for sport, culture, education etc. These organizations' public welfare status must be recognized and they are not permitted to make a profit in favor of private persons; b) Small companies, i.e. firms with fewer than 500 employees during the previous business year, including all temporary employees and casual workers; c) Independent inventors. It is important also to emphasize the following considerations: (3) Repay when patent is granted, (4) With (without) examination, (5) No search request, (6) European Patent with 15 claims (8 countries) without national phase, (7) Renewal fees only in the national phase, (8) Costs arising in the initial phase of the procedure, (9) International Patent Application (PCT): Without national phase.

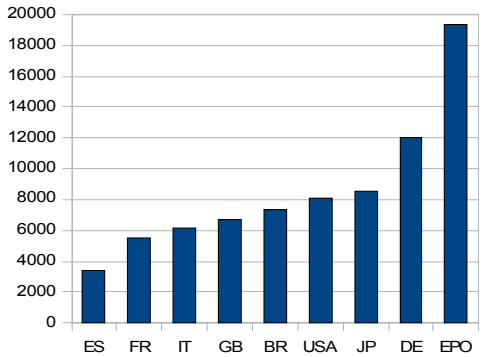

Figure 4 – Total office fees costs for 20 years, € (Euros).

For Brazil are presented two cases; Average costs for natural and juristic persons application procedures. It can be noticed from Tab. 1 that the office fees in Brazil, in a general way, are lower than those office fees from other countries.

For example, the total costs in the first 3 years in Brazil for juristic persons is about € 515.00 euros while in USA the costs rise to € 2,010.00 euros, a difference about 75%. On the other hand, the lawyer's fee can drastically enhance the patent cost. For the study herein, Brazil lawyer's fees were based on the information available in the INTERNET. These costs are only an estimate from the several costs information available.

However, it is possible to conclude from Tab. 1 that the lawyer's fees enhance the costs of a patent around the whole world. Indeed, the lawyer's fees is the parcel that really increases the overall costs of a patent. On the other hand, the office fees could be considered also high, but if it is diluted along the years, its values take a reasonable proportion.

Figure 4 shows the total office fees costs for 20 years. The foreign costs are taken from the table furnished by Roland Berger (2004), while for Brazil are taken actualized values of 2009. Nevertheless, it is shown in Fig. 4 that Brazil patent cost has a reasonable cost when compared with those values of other countries.

5. CONCLUSION

The present work shows that the office fees in Brazil along 20 years is about € 7,336.00 euros for juristic persons and € 2,930.00 euros for natural persons considering two office actions. The costs considering lawyer's fees can be approximately estimated in about € 13,436.00 euros for juristic person and € 9,030.00 euros for natural persons. In a general way, Brazil costs have a reasonable value when compared with other countries. This work also shows the need to include a patent into the intangible assets of companies and the commercial importance of a patent in a trading world economy.

Ultimately, it is expected that the work herein stimulate the filing of patent applications to protect innovative technologies, since the values involved are lower than the benefits that come from the right protection of the Intellectual Property.

6. ACKNOWLEDGEMENTS

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7. REFERENCES

Berger, R., "Study on the cost of patenting carried out", Market Research, EPO, 2004.

Cunha, T., Pinto, M. "O Capital Intelectual e a Valoração da Propriedade Intelectual", Inteli, projeto FIVE – Fomento da Inovação e Valorização Empresarial, Personal Communication, 2005.

Daum, Juergen H., "Enterprise Management, Leadership and Business Control for Value Creation", presentation prepared for the Executive Briefing of the Center for Business performance, Cranfield School of management, 27th January 2004, London, UK.

EPO, "Study on the Cost of Patenting", carried out by Roland Berger, Final Report, prepared for European Patent Office, Munich, August 2004.

Grossman, G. M.; Lai, E. L. -C., "International Protection of Intellectual Property", The American Economic Review, Vol 94, n°5, pp. 1635-1653, 2004.

INPI, Instituto Nacional da Propriedade Industrial. *Lei da Propriedade Industrial – Lei Nº 9279*. Ministério do Desenvolvimento, Indústria e Comércio Exterior. 14/05/1996. (www.inpi.gov.br)

Langinier, C., Moschini, G., "The Economics of Patents", CAB International, 2002.

Lévêque, F., Ménière, Y. "The Economics of Patents and Copyright", The Berkeley Electronic Press. July, 2004.

Maskus, K. E., "Intellectual Property Rights in the Global Economy", Institute for International Economics, Washington, D.C, 2000.

Nelson, R. R., Walsh, J. P. "Protecting their Intellectual Assets: Appropriability conditions and Why US manufacturing firms patent (or not)", NBER working paper series, February, 2000.

Nordhauss, W. D., "Invention, growth and welfare – a theoretical treatment of technological change". MIT press. 1969.

Pitkethly, R. H., "The valuation of Patents: A review of patent valuation methods with consideration of option based methods and the potential for further research", 1997.

WIPO, Internet link: http://www.wipo.int/export/sites/www/pct/en/texts/pdf/pct_paris_wto.pdf
http://home.netcom.com/~patents2/What Does It Cost? Patent.htm

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