Intellectual Property Rights, Global Competition and Transfer of Technology: Prospects for a Global System of Innovation Rights based on the Quasi-Contract of Unjust Enrichment

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Index of Abbreviations

AER       All England Law Reports. 1936-
ALR2d     American Law Reports
Annotated, Second Series (U.S.)
BGH       Bundesgerichtshof (Ger.) Federal Supreme Court
BGHZ      Entscheidungen des Bundesgerichtshof in Zivilsachen (Ger.) Reports of the Federal Supreme Court in Civil Cases. 1951-
BNA       Bureau of National Affairs, (USA).
BVerfG    Bundesverfassungsgericht (German Constitutional Court)
Cir. Ct.       Circuit Court
C.P.R.     Canadian Patent Reporter. 1941-
Canada L.J. Canada Law Journal, Montreal
Cardozo Arts & Ent. L. Rev. Cardozo Arts & Entertainment Law Review
Ch.       Law Reports, Chancery (Engl., 1891- ).
Ch.       Chapter
Cir.       Circuit Court of Appels ( federal)
CMLR      Common Market Law Review. 1963-
Colum. L. Rev. Columbia Law Review
copyright Soc’y U.S.A. Copyright Society USA
DBW       Die Betriebswirtschaft
ELR       European Law Review
Eng Rep    English Reports Full Reprint. 1210-1865
et al.    Et alii, and others
e.g.      exempi gratia (Lat.) for example
EIPR      European Intellecual Property Review, Oxford 1978-
F Supp     Federal Supplement (USA) 1932-
F.2d      Federal Reporter, Second Series
Fed. Cir.  Circuit Court of Appels ( federal)
GG        German Constitution (Grund Gesetz)
GATT      General Agreement on Tarifs and Trade
Geo. L.J. Georgetown Law Journal (D.C.), 1919/20-
GRUR Int. Gewerblicher Rechtsschutz und Urheberrecht, Internationaler Teil, Weinheim
GRUR      Gewerblicher Rechtsschutz und Urheberrecht
GYIL      German Yearbook of International Law
H.R. Rep House of Representatives Report (USA)
i.e.  id. est  (Lat.) that is
IIC       International Review of Industrial Property and Copyright Law
ILM       International Legal Materials (periodical)
IPRax     Praxis des Internationlen Privat- und Verfahrensrechts
IPRs      Intellectual Property Rights
J. Copyright Soc’y U.S.A. Journal -Copyright Society of the USA
J. Econ. Issues Journal of Economic Issues, Lincoln, Nev.
J. Legal Stud. Journal of Legal Studies (USA), 1972
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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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<tr>
<td>UNITAR</td>
<td>United Nations Institut for Training and Research</td>
</tr>
<tr>
<td>UNO</td>
<td>United Nations Organization</td>
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<tr>
<td>US</td>
<td>United States Supreme Court Reports. 1970-</td>
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<tr>
<td>UWG</td>
<td>German Unfair Competition Law (Gesetz gegen den untauluten Wettbewerb)</td>
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<tr>
<td>Va. L. Rev.</td>
<td>Virginia Law Review</td>
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<tr>
<td>Vand.J.Transnat’l.L.</td>
<td>Vanderbilt Journal of Transnational Law. 1971-</td>
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<tr>
<td>WIPO</td>
<td>World Intellectual Property Organization</td>
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<tr>
<td>World Comp.</td>
<td>World Competition</td>
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<td>WORLD ECON</td>
<td>The World Economy</td>
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<td>WPR</td>
<td>Webster’s Patent Cases. 1601-1855</td>
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<tr>
<td>WRP</td>
<td>Wettbewerb in Recht und Praxis, Frankfurt</td>
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<tr>
<td>WTO-GATT</td>
<td>World Trade Organization-General Agreement on Tariffs and Trade</td>
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<tr>
<td>WuW</td>
<td>Wirtschaft und Wettbewerb, Düsseldorf, 1951-</td>
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<tr>
<td>ZjapanR</td>
<td>Zeitschrift für Japanisches Recht</td>
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Introduction

The GATT negotiations regarding trade-related aspects of Intellectual Property Rights (TRIPS) show the complexity of the problem of defining a proper institutional framework for technology. The conflicts emerging from the patent system seem to be unavoidable. Patents are commonly regarded as monopoly or property rights which grant the inventor the power to create monopolies excluding other users of technology at will. They constitute a necessary exception to the regime of free competition. Consequently, patents are exclusion rights which seem to be in contradiction to the principles of free competition. As a result, the whole patent system appears to be a confusing institution. This situation is illustrated by the following text taken from a leading text on competition law in the United States:

“Patents usually bring confusion to antitrust discussions. The patent is itself a government grant of monopoly and is therefore an exception to usual antitrust rules. Applications for patents and their interpretation are, moreover, an arcane art practiced by a specialized bar which often considers the patent a right based on natural law rather than a mere government privilege to serve social ends. The non-specialist regards patents as a mystery not knowable to ordinary mortals...” 1.

This situation accentuates the conflict of interests between patent holders and technology users, complicating the negotiation of technology transfer and the definition of a cooperative framework among inventors. The problem is specially aggravated in developing countries, which are net importers of technology. The situation presents a paradox for these countries: in order to promote technology transfer they should grant patent rights to the technology holders, but on the other hand, if they grant patent rights, they confer foreigners the absolute power to control the way in which the technology is transferred. 2 This power, in extreme cases, implies the right of absolutely excluding access of technology to local third parties. This problem is intensified by the fact that Multinational Enterprises

2 Regarding the political problem caused by definition of patents as private property rights see Ullrich, Hanns, Technologieschutz nach TRIPS: Prinzipien und Probleme, 1995 GRUR Int. 623, 624-625.
(MNEs) are the principal holders of patents. Consequently, as the conflict is at the base of the institution, i.e., in its legal definition, the protection of innovators appears to be very unsecure, to the extreme that developing countries have refused to recognize patent rights or to have made them subject to arbitrary limitations. A balance of interests appears to be unrealizable.

Thus, the patent system constitutes a suitable example of the problem of the North-South conflict, which hampers cooperation of industrial and developing countries in order to increase global welfare. This conflict is generated by a lack of solid principles, which, if present, would allow for a harmonization of all interests. Because there is no solid consensus, legal rules tend to change constantly. The situation generates radical changes of policies which increases legal uncertainty and hinders the evolutionary process of developing countries, since this process depends strongly on the investments and technology transfer from industrialized countries. This problem is current in Latin America. For example in Peru in 1991, from 27,000 political decisions, 90% of them were released in the form of Presidential Decrees. The creation of strong protection for international investments and, specifically, intellectual rights appears to be the only way to achieve a stable regime promoting an atmosphere of confidence necessary to motivate the transfer of technology and investments in developing countries.

Within the existing framework, where patent rights are defined as property or monopoly rights, the patent system presents no suitable solution to the disjunctive that exclusion rights may promote innovation but at the same time hinder the diffusion of technology. This disjunctive has been one of the main obstacles in creating a world order to promote technology transfer. Thus, this is one of the main concerns of the Punta del Este Ministerial Declaration on the Uruguay Round, under which the agenda of negotiation included the Intellectual Property Rights:

“In order to reduce the distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade,

3 De Soto, H., Neue Spielregeln für die Entwicklung. Eine liberale Ordnung als Ausweg aus der Armutskrise, NZZ Fernausgabe, No. 96, 26/27 April, 1992, at 43, 43.
Technology constitutes one of the main resources of development, and technology transfer constitutes one of the most efficient mechanisms for increasing economic and social wealth. The main aim of this dissertation is to define the principles which allow for a suitable institutional framework that would not only promote technology creation protection of innovators, but also promote the transfer of technology. Because at first glance the contradictions of the patent institutions seem unavoidable, it appears necessary to increase the scope of analysis, from the mere examination of legal texts to the study of the principles of law and economic background involved, in order to be able to conceive “appropriate new rules and disciplines” which may both clarify the GATT provisions and also offer possibilities of harmonizing the interests in conflict at the basis of patents.

Consequently, it seems pertinent to question the traditional definition of patents as monopoly and property rights, which appear to be the legal foundation for the whole patent institution. These definitions contradict the goals of technology diffusion: however, they seem to be the only possible mechanism to grant inventors a possibility to profit from their work, and thus promote innovation. Notwithstanding, a better solution should be available. The economic analysis of law constitutes an important instrument for this goal. This approach seems unavoidable for the doctrine concerning competition law, since the effects, origin and goals of the rules being studied cannot be ignored. The same principle should be applied to the law intended to promote innovation law.

It order to make a legal analysis of the patent law, it seems convenient to analyze the facts and interests behind this legal institution. This method should provide the means to solve the contradictions at the basement of it. By granting patents, society searches not only to promote inventions but also to give technology users access to technology, for the general welfare. Given property rights on technology, society expects that patent owners, rather than appropriate all the benefits

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6 See Bier, Friedrich-Karl, Territorialität des Markenrechts und internationaler Wirtschaftsverkehr, 1968 GRUR Int. 1, 1.
generated by their technology, should contribute to the diffusion of technology. This situation creates a paradox whereby patents are defined as “monopoly rights which should not create monopolies”, or as “private property which should lead owners to share their inventions” or as “exclusion rights which should not lead to exclude others from the access of technology”. Consequently, the patent institution seems to be reduced to legal concepts that are unable to take into consideration all relevant variables. This is the problem of reductionism of social sciences: it may lead to a level of abstraction and generalization in which its practitioners cannot logically get down to observe the main problems involved in their historical and structural contexts. As a result, the theory and its conceptual framework become unsuitable for providing adequate solutions for these contradictions.

In order to solve this difficulty, it is important to return to an analysis of the problem at a level that takes into consideration the complexity of economic and legal aspects determining the patent institution. This requires a systems paradigm, which seeks to define a suitable level of complexity. This level should be adequate to study the innovation process as a global system composed by the interaction of the different units that are interconnected and are becoming interdependent. Within this framework, a holistic analysis of the problem of the promotion of technological development and its diffusion may give criteria for evaluating the current patent system and the possibilities of making it more efficient.

Thus, a global analysis of the patent institution, including its economic, philosophical and legal background must be done. New theories of international negotiation will also be considered in order to analyze the patent system as an institutional arrangement that should facilitate technology users and creators to exploit all the possibilities of obtaining mutual benefits from the exploitation and development of innovation. This may allow for the definition of a framework that facilitates negotiations between patent holders and technology users, taking into consideration the requirements of the new technologies and the globalization processes that characterize the modern world. Furthermore, the experiences of Asian countries, such as Japan and Korea, which have succeeded in creating an

8 Id. at 14.
efficient system of technology transfer should be integrated in order to find “prospects for defining a global institutional system that simultaneously promotes creation and transfer of technology”. This is precisely the assignment of this dissertation.
I. BASIC INSTITUTIONS FOR TECHNOLOGY PROMOTION AND TECHNOLOGY TRANSFER

A. Importance of Technology Transfer in the Modern World

1. Introduction

A clear perspective of the role of technology is one of the most urgent prerequisites for defining a development strategy. Developing countries traditionally lack such a general view of this role because they tend to be the recipients rather than the producers of technology changes. An understanding of technological changes and their economic consequences is a basic condition for the definition of an effective strategy for development. This strategy should permit a country to benefit from the opportunities created by the technological changes in the new global economy and to define the measures required to overcome the threats created by changes in market conditions for the traditional products of developing countries.

2. Role of Technology for Development

Economic growth is defined as the increase in the production possibilities and welfare of a country. This concept is very complex because it should include all the variables that include not only the actual production level of a country, but also its living standards. Economic growth is a function of the economic structure and the capability of the nation to take advantage of and adapt to the changes of the world. The increase in production itself is not the final goal of economic development. Economic development has as its final goal the improvement of the welfare of a nation. This is not only justified by the ethical value of human progress, but also because in the development of the living standards, including the culture and knowledge of the nation, resides the stability and vigor of an economic system. Furthermore, the improvement of human capital is a fundamental variable for development. Human capital, defined as the capacity of citizens to acquire, produce and use technology, is the basic motor of economic growth.
Traditionally, the production potential of a country has been explained by the amount and quality of labor, capital and territory that a country has. Today technology, conceived as the dynamic element that combines and uses these resources, has become the key element to explain the economic potential of a country. With technology, the efficiency of each resource is multiplied and in fact, many of these resources could be properly replaced by others, increasing the flexibility and economic potential of a country. Because of this, today technology offers the countries that control it the privilege to shape the international distribution of income. The average estimate of the influence of technical progress in growth is 75%.

Technology use additionally may foster the development of the learning abilities of a community and a democratization of its structure, as it increases the percentage of people occupied in intellectual and technical activities. For this reason, technologies tend to improve the working conditions and the level of knowledge of a country. Additionally, they increase the interdependence and specialization of economic units, thereby contributing to improvement of the social climate for collaboration. In this sense, technology itself influences directly welfare and development. This has been recognized by the legislature. The US Congress, for example has declared: “(1) Technology and industrial innovation are central to the economic environmental, and social well-being of citizens of the United States. (2) Technology and industrial innovation offer an improved standard of living, increase public and private sector productivity, creation of new industries and employment opportunities, improved public services and enhanced competitiveness of United States products in world markets”.

Today the technology gap among countries is the main factor in explaining the difference among industrialized countries and between them and developing countries. The problem of underdevelopment can be defined as a relative lack of

11 This gap constitutes a central feature in the new trade and growth theories. See Bell, Margin and Pavitt, Keith, Technological Accumulation and Industrial Growth, Contrast between Developed and Developing Countries, in Achibugi, Daniele and Michie, Jonathan, (eds.), Technology, Globalisation and Economic Performance, Cambridge, 1997, at 83, 83.
technology, not only at the production level, but also at the level of social and political organization of these countries\textsuperscript{12}. The solution to this problem requires the development of capacities to acquire, learn and develop technology. This goal requires the restructuring of the institutional framework to promote technology production and diffusion among enterprises. A change in the working culture, in order to foster the learning and operating capacities of the basic technology unit, namely, each citizen is also necessary\textsuperscript{13}.

3. **Technology and Social Change**

The importance of the interaction between social relations (or socio-institutional context), technology development and use has been stressed. Perez\textsuperscript{14}, for example, explains this interaction as a “techno-economic paradigm”, which incorporates a form of institutional and infrastructure development that enables the dominant embodied technology to be efficiently utilized. New technologies require an appropriate socio-institutional framework that allows its appropriate use. When a society does not succeed in producing the appropriate socio-institutional framework, the diffusion of the new technologies may be obstructed by the social structures of the past. There is an interrelation of social factors, institutional framework and technology development. This explains why machine-based technology (machinofacture) first took root in England and how, in this new era, the industrial centers are moving to the Far East, where the social and institutional conditions facilitate the new labor process and inter-plant and inter-firm relationships\textsuperscript{15}.

4. **Technology and Comparative Advantages**

The economy of developing countries is based on the exportation of those goods that are intensive in labor or natural resources. This situation is connected with the prediction that under international trade, countries will tend to specialize in the production of the goods which intensively require the resources where they have a


\textsuperscript{13} *Bell* and *Pavitt* at 128.

\textsuperscript{14} *Perez*, Carlota, Microelectronics, Long Wages and Structural Change: New Perspectives for Developing Countries, 13 World Development, No. 3 (1985) at 441, 441-63.

comparative advantage. Notwithstanding, in the post-industrial revolution, technology capacities tend to overrule the comparative advantages provided by the geographic position or a particular allocation of resources. Natural resources are replaced by artificial materials that are cheaper and often more efficient. Examples of this are innovations coming out of the laboratories of US, European and Japanese corporations that have a major impact on key economic sectors in the developing nations. Optic fibers, for example, are hair-thin glass wires that are replacing copper wires and cables in telecommunications systems. Genetic engineering has provided a process for transforming high-fructose corn syrup into crystal sugar. This situation affects dramatically the long-term viability of several vital export industries of development countries, such as copper and sugar cane products\textsuperscript{16}.

Additionally, machines replace labor, especially cheap unskilled labor. As a result, the proportion of labor costs in the total costs of production tend to reduce and thereby, the importance of cheap labor providing comparative advantages to developing countries decreases. Other factors, such as the skills of labor to acquire and master new technologies and the development of the institutional framework to facilitate technology acquisition, development and diffusion, tend to count even more in international competitiveness\textsuperscript{17}.

To conclude, differences in technology, rather than differences in resources are becoming the most important determinants of the pattern of comparative advantage, and with it, the differences in welfare between countries\textsuperscript{18}.

5. \textit{Consequences of Effects of Technology Changes in Industrialized Countries}

The increase in productivity of capital and labor due to the development of technology place industrialized countries in a paradox. The rise in the level of productivity of work should in principle create pressure for higher salaries, as the contribution of this factor in the total output increases. However, as labor becomes more expensive and fewer workers are needed to maintain the same level


\textsuperscript{17} See \textit{Bell and Pavitt}, at 128.

\textsuperscript{18} \textit{Krugman, Paul}, Technological Change in International Trade, in \textit{Stoneman, Paul}, Handbook of the Economics of Innovation and Technological Change, Oxford, 1995 at 342, 349.
of output, employers are driven to hire fewer workers. The technological change explains the paradigm of the modern global economy: increasing productivity and unemployment. The tendency towards increasing unemployment produces a situation where the demand side of the economy, composed fundamentally of workers demand, increases more slowly than the supply possibilities, \( i.e., \) the output potential\(^{19} \). Therefore, an increase in the size and buying power of markets constitutes a vital element in securing continuous growth. In order to assure economic growth and stability, the wealth generated by innovation should be distributed among economic actors in order to increase global welfare and consume.

The threat of recession has moved industrialized countries to protect their traditional sectors, like agriculture and textiles, in order to prevent economic depression and unemployment. These sectors are politically very sensitive because they cannot work fully under market conditions without causing a radical reduction in the number of active enterprises and employees. Technology has made the production capacity of a fraction of the active enterprises to be more than enough to satisfy the normal internal demand. Here, economies of scale play an important role. Particularly in the agricultural sector, the situation is intensified by the inelasticity of consumption of agricultural goods. The price of these products has to sink drastically in order to motivate an increase in consumption. Furthermore, the consumption of agricultural goods quickly reaches its limit, as people can only consume a limited amount of food every day. Given these reasons, these sectors are well organized in industrialized countries and pressure is applied to obtain protection so that there is demand for local production.

Prices of the products traditionally exported by developing countries have sunk drastically, thereby deteriorating their terms of trade\(^{20} \). As a result, developing countries’ possibilities to finance their imports with traditional export goods are reduced. The struggle to maintain this system has produced an increase in the supply of traditional goods and, correspondingly, in the competition among developing countries. This situation contributes to the drop in prices of traditional agriculture products, raw materials and other primary products. The participation


\(^{20}\) Todaro at 375-377.
in international trade of new developing countries from tropical areas aggravates the problem.

6. Importance of Technology Acquisition for Developing Countries

The integration of international markets leads to a convergence process, which pressures developing countries to produce for the internal market with the same efficiency and quality as enterprises abroad. This requires developing countries to export products that correspond to the needs of large markets and to diversify their production of export goods in order to penetrate new markets that are not yet saturated. Therefore, the acquisition and mastering of technology constitute the most important priority of developing countries. The importance of innovation in this field has been recognized by the US Congress in the following terms: “Increased industrial and technological innovation would reduce trade deficits, stabilize the dollar, increase productivity gains, increase employment, and stabilize prices.”

Thus, technology transfer is a guideline for development. Technology acquisition and mastering are dynamic concepts that belong to the path of development and require a learning process. Technology acquisition and mastering are essential elements to enable developing countries to use the resources they have with higher efficiency. They also facilitate the acquisition of capital, since a prerequisite for obtaining sound finance is to have the knowledge and concepts necessary to invest financial resources efficiently.

The dynamic aspects of development, specifically its path, has been neglected by traditional economics. Economic models usually do not give a clear definition of the way savings, investment and production interrelate. It is presumed that once the financial resources are available, they will be efficiently invested. Nevertheless, an efficient investment also depends on the capacity of the country to negotiate a transfer of technology. Certainly capital and technology are interdependent factors required for production. However, for countries that lack capital, technology is a key element because it ensures that the scare capital is used efficiently, and that capital acquisition be financed through a productive use of it.

Technology acquisition implies an active process. Technological change requires a continuous internal transformation and a change of attitudes regarding production and organization. As in all learning processes, the acquisition of technology can only be achieved through an active participation of the country that acquires information. It requires the development of communication abilities on both sides: the side that transfers technology and the side that acquires it. This moves a community to improve its abilities to solve its problems through cooperation.

The debt problem of Latin America offers an example of this situation. The enormous amount of capital resources that flowed into Latin America could have increased its level of welfare and productivity. For example, Korea made large investments in technology transfer, mainly in imports of machinery. Spending on imports of machinery was more important than other forms of technology transfer such as direct investments, foreign licensing and technical consultancy all combined\(^\text{22}\). Koreans have learned more from imported capital goods than from other forms of technology transfer\(^\text{23}\). They managed to create an institutional framework which allows local entrepreneurs and workers to dedicate time and efforts to study the acquired machinery in order to increase their technical knowledge. As a result, Korea achieved an expeditious increase in local production abilities. In contrast, Latin America has not given enough importance to the improvement of its own technological skills through technology transfer as a means for increasing local productivity. The enormous loans responsible for the indebtedness of the 70s and 80s were not mainly employed for the acquisition of technology and machinery, which are indispensable for increasing the local production skills and the technological base. Instead, a large part of these resources were used to import consumer goods, build infrastructure and finance social programs\(^\text{24}\). Developing countries did not concentrate their efforts on the improvement of production capacities, which is the only way to secure a continuous development process. In fact, the inflow of capital through

\(^{22}\) In fact the acquisition of technology through imports of machinery was 21 times those of the other mentioned forms of technology transfer combined. See Kim, Linsu, Pros and Cons of International Technology Transfer: A Developing Country’s View, in Agmon, Tamir and Von Glinow, Maria Ann, (eds), Technology Transfer in International Business, Oxford, 1991, at 223, 233.

\(^{23}\) Id. See also Kim, Linsu, Technology Transfer and R&D in Korea: National Policies and the U.S.-Korea Link, 1 Korea’s Economy 1, 1 (April 1985).

indebtedness, rather than promoting development, delineated a false shortcut to increasing welfare without an economic basis, which led to one of the worst economic crises of the area\textsuperscript{25}.

If we agree that Latin American needs to import capital and technology goods from industrialized countries in order to develop, and that this importation should on the long term be financed with exports, we must conclude that Latin America should define a clear strategy for promoting transfer of technology\textsuperscript{26}. Only with up-to-date technology can the area produce up-to-date products for export.

Technology transfer is the only way to confront the problem of obsolescence in traditional production methods and consumer goods within developing countries. At the same time, technology constitutes an instrument for modernizing the social and economic organization of developing countries. The implementation of new technologies normally requires a new organization of production. As a result, a restructure of the institutional framework is also required in order to allow new organization of production. For example, new technologies may allow smaller enterprises having diverse owners to integrate through cooperation contracts into the process of production of capital intensive goods, or in any type of support activities.

Technology advances make it possible for an enterprise to initiate the manufacture of a new product or the use of new equipment in a different place. This gives opportunities to developing countries, without huge investments of capital, to find new products and production methods that allow them to integrate into the world economy. Through a process of internalization of trade, business and technology, the economies of the major industrialized countries have grown in conjunction towards convergence\textsuperscript{27}. Developing countries should strive to participate in the process of globalization and convergence in the level and structure of trade, business and technology, which have characterized the integration of industrial economies.


Thus, in the new economic order, the traditional view center-periphery, is obsolete because the traditional division of labor is obsolete. The production of traditional products of developing countries have increased so much that the markets for these products are saturated. Every region of the world should find and develop technologies that allow them to produce efficiently for global markets. As already mentioned, the development of technology tends to downplay the original distribution of resources. This situation pressures developing countries to acquire modern technology and find new products to export, that is to industrialize. It is up to developing countries to define a way to establish a productive relationship with industrialized countries in order to achieve the common goals: the growth of global markets through the definition of a mutually beneficial strategy of technology transfer.

7. Technology and Development: A Comparative Analysis of Asia and Latin America

The success of the newly industrial Asian countries (Japan, Korea, Taiwan, Singapore) in defining and performing a development strategy has pointed again to the importance of technology for development. These countries have less favorable conditions for development than Latin America and have performed considerably better. For example, Asian countries do not enjoy the abundance of raw materials that Latin America has. Additionally, at the beginning of their industrialization process, Asian countries did not have a significant advantage in labor. Actually, Latin America has the same percentage of graduates in the engineering and technology fields as the rest of the world\textsuperscript{28}, and has the same advantage of abundance of well-trained inexpensive labor that Asian countries do. On the other hand, Asian countries are relatively farther away from the major world markets, North America and the EEC, not only geographically, but in culture, background and language. Consequently, their costs of transactions were considerably higher. However these deficiencies became an advantage as they urge Asian countries to define clear strategies of collaboration with industrialized countries, based on the principle that they should develop communication and negotiation skills that enable them to obtain a stable transfer of technology and capital from these countries.
Asian countries defined a proper strategy of development based on coherent principles, which allowed industrialized countries to find enough incentives to transfer their technology there.\(^\text{29}\)

In contrast to the East Asian Countries, Latin America did not manage to define a suitable negotiation strategy for transfer of technology. Politically it had moved between extremes: it had suffered undered dictators who promote open economy without social sensibility, or socialist revolutions characterized by the expropriation of local and foreigners property. It fail to find strategies to harmonize the interests of capital and labor, as well as the interests of technology owners and potential users.

As a result, while local capital leaves Latin America for industrialized countries\(^\text{30}\), Asia has been an important center of investment attraction. Latin America continues to depend on raw and agricultural products while the East Asian countries have managed to export highly competitive products. The development of Japan’s export relationships to the USA during the past twenty years gives a good example of this situation. Japan’s exports have shifted dramatically away from industries where labor intensity provided a comparative advantage to industries where sophisticated manufacturing skills and technology are of central importance, and where US industry had dominated for many years following World War II\(^\text{31}\).

Technology bargaining and use is the main difference between the development strategies of these areas.\(^\text{32}\) This explains why in 1984 Korea and Singapore, together, with a joint population of 41.4 million exported $62 billion, almost as much as Mexico, Brazil, Venezuela and Chile combined. The global exportation of these countries was $63.5 billion and agricultural products and raw materials still constituted the main exports.\(^\text{33}\)

\(^{28}\) Brown, at 353.

\(^{29}\) These strategies are discussed in Chapter two, Section A(1), and Chapter four, Sections A(1) and A(2).

\(^{30}\) See Todaro, at 418.


\(^{32}\) Id. at 330.

\(^{33}\) Brown, at 354.
Therefore, it is interesting to investigate the legal and institutional instruments developed by these countries to attract and adapt foreign technologies in order to create in a relative short period of time a sound technological base. This is one of the main objectives of the following chapters.

8. Technology Transfer as a Key Element for the Stabilization of the Global Economy

Today, technology constitutes the main motor of development. Inadequacies in the adjustment to the sharp technological changes has contributed to create unbalances in the world, since there is a disequilibrium between the increasing output potentialities created by the technological change and the slower adjustment of the global demand. Therefore the convergence in economic growth is required in order to provide for a balance between offer and demand. The unbalance created by adjustment problems in the North is aggravated by the inability of developing countries in fully profiting from the opportunities opened by the technological progress in the world. This has contributed to the current instability of the world economy, which outbreaks in the finance markets. In addition, the rise of the international competitiveness of the East Asian Countries and relative loss of dynamism of Western industrialized countries, particularly in the US, results in a crisis of the US international competitive position. The staggering US trade deficits of the last several years and the foreign borrowing that has financed them cannot be sustained over the long run\(^34\). On the other side, the US markets constitutes a vital export markets of Europe and East Asian Countries, whose stagnation may bring the global economy in crisis\(^35\). The international monetary system based on the financing of the US trade deficit through the global acceptance of the US dollar as payment means, offers a solution which may provide stability only the middle term, while the disequilibrium in financial markets increases. On the long term, the international monetary system, and the corresponding US indebtedness can only be stabilized with increasing global markets and convergence.


\(^35\) See UNCTAD, The Deflationary Gap at 77-93.
Thus, the growth of industrialized countries is depending on the growth of global markets. This paradox presents one solution: the structures of the world economy should adapt to the changes of technology in such way, that the global markets grow towards global convergence. In order to achieve this goal, industrialized countries must increase their internal demand by, for example, improving the consumption possibilities of workers and small and medium entrepreneurs. In addition, developed countries should promote the growth of the purchasing power of development countries. The demand of developing countries can only by increased by industrialization, so they can be integrated into the world economy with the production and export of new products. Developing countries require the development of their technological basis in order to be able to diversify their production and thereby, to increase their purchasing power. Thus, the most important task of the global economy is to increase world markets, expanding the consumption and welfare of the world’s population. In this task, technology transfer and the global innovation policy constitutes a key element for securing the growth and convergence of the global economy.

B. Problems Hindering the Creation of Markets for Production and Commercialization of Technology

1. General Aspects

Technology is a resource of production. As any resource of production it should be subject to negotiation and commercialization. Nevertheless, because technology is basically knowledge, it has some characteristics that make its commercialization very complicated.

These characteristics hinder technology producers from participating in the profits other users obtain from their inventions. This is what doctrine calls problems of appropriability. The problems of appropriability are caused by specific characteristics of a good which impede its creator from obtaining profit from its use in the market. Under these circumstances there are not enough mechanisms to motivate the market to pay for the benefits it obtains from these goods or services. Appropriability problems are a specific case of “externalities”. Market value of a

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service or a good remains external to the market, because although the market is aware of the value of that service or good, it is not willing to reward it, and thus promote its creation.

As a result, a vicious circle is generated: appropriability problems hinder the commercialization of technology and thus, the creation of technology markets. As the existence of markets facilitate the process of production and commercialization of these goods, the absence of markets increases again the appropriability problems of inventors.

Without the support of an appropriate institutional framework, a technology developer will be interested in keeping his new technological developments secret. Also, he may lack motivation to keep improving his technology, as long as he is unable to appropriate all the benefits that this improvement creates.

2. **Characteristics of Technology that Create Appropriability Problems**

The appropriability problems of inventors are the result of the following characteristics of technology:

a) **Technology Can Be Reproduced Without Limitation**

Technology is knowledge; it is not a material object but it is composed of intellectual ideas. These ideas may be embodied in different ways: crystallized in the machines that use them, in models, industrial designs, or any kind of recording material, for example, written documents, data bases and the human memory. The recording mechanism may not have a high market value in itself, when we considered each record or copy, since from a technology whose development was expensive, an infinite number of very inexpensive copies can be reproduced (a fotocopy is an example). The value is generated by the massive exploitation of the technology in the market, *i.e.*, from the possibility of selling a large number of inexpensive copies in the market.
b) **Technology is a Quintessential Public Good**

Technology, being basically information, is a public good. The characteristics that make technology a public good can be listed as follows:

1).- Technology is a non-rival good. The use of technology by one agent does not preclude its use by another.

2).- Technology is a non-excludable good. Normally the producer of a new technology cannot prevent non-payers from using it.

3).- Technology is a “non destructive good”. The act of consumption of technology, in contrast to ordinary commodities, is not destructive.

These characteristics complicate the sale of technology in a market. It is difficult for the inventor to control the use by others of his technology and to convince those using his technology to pay him for the use of the invention.

The fact that technology embodies the characteristics of a public good allows technology users to consume it as free riders, without paying for it. Thus, both the creation and diffusion of technology are hindered, since it is difficult for a developer to participate in the social profits that his invention brings society. Within these circumstances, an inventor will not have suitable incentives either to invent, or to disclose this invention. For this reason, without a proper institutional framework, markets will normally not provide the right incentives to encourage production of these positive “externalities”.

c) **Through Technology Diffusion the Market Price of Technology Deteriorates**

The price an entrepreneur is ready to pay for certain technology depends on the competitive advantage it gives him over other producers. Consequently, with diffusion of technology, the market power of the first enterprises which implemented it deteriorates. For this reason, those who first implement new

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37 Id. at 92.


39 Id. at 81.

40 Gerosky, at92.
technologies will normally be interested in excluding their competitors from using that new technology.

The problem connected with technology diffusion is accentuated by the fact that technology is basically information that can be recorded and transmitted easily and infinitely. Once technological knowledge is no longer secret it will remain in circulation, no matter how many people use it. As a result, it will tend to be an abundant good. The development of communication techniques has facilitated even more the process of technology recording and transmitting. Furthermore, because technology is a not destructive good, it very difficult to manipulate its price by creating an artificial scarcity. On the other hand, when a technology is wide-spread in a market, its possession might constitute a requisite for survival in that market.

Acquisition cost constitutes an indispensable factor for pricing technology. The competitive advantage provided by a certain technology depends not only on its ability to increase productivity, but also on its scarcity and on the cost of acquiring it. There are normally alternative ways of acquiring technology other than the producer. When an enterprise can acquire the technology more inexpensively from other sources, it will not pay its inventor.

d) Relatively Low Cost of Transmission of Codified Technology Transmission

The low cost of codified information recording and transmitting constitutes one of the largest difficulties in appropriating technology benefits. Anything which raises the transfer and reproduction costs of technology reduces the importance of problems associated with appropriability41.

The acquisition of technology generally occurs through a simple learning process, by understanding how it functions and how to apply it. This could be achieved unilaterally, simply by observing and analyzing the goods or services produced with this technology (reverse engineering), or by receiving a record of this technology. Acquiring the knowledge by reverse engineering implies costs and the risk of failure42, but can be less expensive than paying for it, if the sale or transfer price is too high. Thus, when the technology is not complicated, the possibilities of

41 Id. at 93.
42 Id. at 106-9.
reverse engineering can make the transfer of technology very inexpensive, especially when compared to the increase in productivity and, consequently, to the profit which it may generate.

Another factor which hinders the inventor from obtaining profits from the diffusion of his technology is that technology is a non-destructive good. As a result, it is very difficult to manipulate the price of technology by creating an artificial scarcity. Because of this, the developer of technology tends to keep it secret and to obstruct its diffusion.

Thus, an appropriate institutional framework is required to grant technology developers the possibility of having some control over the price of technology, in order to allow them to obtain a profit from the service of transmitting it.

On the other hand, even though knowledge transfer may be relatively inexpensive, it is rarely without cost. The cost of acquiring new technology normally includes more than the cost of the acquisition of information about the existence of a particular technology and the costs of obtaining a copy of it. Particular costs of technology mastering could partially reduce appropriability problems. There may be certain conditions which hinder the diffusion of technology, allowing those who have invested heavily in Research and Development (R&D) to accrue the benefits of innovation. For example, some technology may require its users to be well informed about other basic technologies; without that knowledge they will be unable to use the new technology. The cost of technology transmission offers the innovator the possibility of obtaining a certain control over the market and thereby, to obtain profits from the sale of certain services related to the transfer of technology. In these cases, technology transfer can be a profitable service, even when there is no protection for the inventor. As technology becomes more complicated, the learning process becomes more important: it is necessary that the acquirer has a basic knowledge to understand it and also that he has the ability to learn and find proper pedagogic ways of assimilating the information. Inventors may obtain profit from the special services required to organize and transfer all the information necessary to master the invention. Moreover, it might be necessary that the transferor adapt the technology to the necessities of the transferee.

43 Id. at 117-118.
44 Id. at 93.
As technology becomes more and more complicated, the costs of understanding and adapting it to the needs of the receiver become increasingly important. Therefore, the service of transferring the information and assisting the acquirer to master technology are becoming a central element of technology transfer contracting. Consequently, technology transfer normally includes not only the authorization of using the protected technology, but also the service of transferring information. And this service itself may become more important than the information itself, when the market price of a particular technology could tend to decrease by technology diffusion. Thus, the definition of an appropriate framework for technology should include not only appropriability problems, but also the existence of opportunities of obtaining profits through technology transfer created by the costs of technology acquisition and master. In addition, the institutional framework should take into consideration the existence of market failures in the production and commercialization of technology in order to determine the level of protection and incentives given to inventors.

3. Market Failures in Production and Commercialization of Technology

Appropriability problems generate market failures in the production and commercialization of technology. Market failures are circumstances in which certain aspects of a good make it difficult for a market to take account of the benefits or disadvantages it produces, thus the market will not make a proper evaluation of it. Consequently market failures hinder the consolidation and development of markets.

One of these aspects is that technology is knowledge that may be very expensive to develop but very inexpensive to reproduce. The problems generated by this characteristic are aggravated by the way in which technology is produced. Technology’s costs of production includes the risk of failure in one’s inventive

45 In fact business firms on average spend at least three times more on developing activities (i.e. designing, building and testing prototypes and pilot plants), than on research activities (i.e. developing, testing and refining scientific laws and models). See Patel, Pari, and Pavitt, Keith, Patterns of Technological Activity: Their Measurement and Interpretation, in Stoneman, Paul (ed.), Handbook of the Economics of Innovation and Technological Change, Blackwell Publishers Ltd. Oxford, 1995, 17.
effort; and the risk of an invention not being economically exploitable\textsuperscript{46}. Due to such risks, continued inventive activity depends on the expectations of recouping the necessary start-up cost as well as on earning a substantial profit to compensate for inherent risks\textsuperscript{47}. However, once a technology is an abundant good, its market price tends to be zero, even though its contribution to productivity may be enormous\textsuperscript{48}.

Market failures change from sector to sector, depending also on the technological capacities of the acquirers. The most important market failures are described in the following sections.

\textit{a) Market Uncertainties}

There are two types of uncertainties that increase the cost of technology production and cause market failure. The first is related to the risk of realizing profitable results from inventive efforts. In fact, even if something new is discovered, only one out of ten inventions proves to be economically exploitable\textsuperscript{49}. This relates to the problem of how to use technology to produce goods which succeed in the market. The second problem relates to the commercialization of technology, how to appropriate the benefits from a successful innovation. That is, there can be little relation between the commercial success of the new products or processes that a new technology makes possible and the benefits developers can appropriate from it. Once the inventor reveals his results, competitors may reproduce them as much as they like, taking away the potential profits from the original inventor. This situation undermines incentives for research and development (R&D) of technology and affects all the ways a researcher could have to finance his activity.


\textsuperscript{48} \textit{Foray}, Knowledge Distribution, pat80-81.

\textsuperscript{49} See \textit{MacLaughlin, Richards & Kenny}, pat 100-01.
For this reason R&D is especially promoted in activities where researchers can retain their results as secret and in which competitors do not have enough technological capacities to engage in reverse engineering to copy the technology. A complementary way to cope with these uncertainties is to create a cooperative association of enterprises that allows them to share cost and benefits of technology production.

Uncertainty is also a problem in the commercialization of technology\textsuperscript{50}. The creator of a technology confronts the dilemma that once the technology is created, the possibilities of commercializing it in order to obtain a profit are hampered by the appropriability problems of technology. Appropriability problems are complicated by the way technology should be negotiated. Sellers need to disclose certain information about the technology in order to allow potential acquirers to assess its value properly. This negotiation phase implies a high risk for the seller and does not guarantee an income, as the potential buyer will generally not pay for this information. Therefore, sellers of an innovation are unlikely to obtain the full value that the buyers may give to the innovation. For this reason, technology developers generally do not assess the opportunities to produce technology for commercializing it. Instead, they tend to reserve that technology for their own use.

\textit{b) Economies of Scale in Production and Consumption of Technology}

In contrast to the market failures related to uncertainty, there are other market failures that influence enterprises to find other ways of cooperation as alternatives to the market in order to exchange technology. Thus, the creation of cooperation agreements is chosen as a mechanism of technology transfer restricted to some participants.

The market failures that motivate enterprises to collaborate are related to the economies of scales both in production and utilization of technology\textsuperscript{51}. Economies of scale, or returns to scale are present when greater efficiency is obtained as the firm moves from small -to large-scale operations. A proportional increase in all resources increase the output by a greater proportion.

\textsuperscript{50} See Stoneman, at 6.

\textsuperscript{51} Gerosky, pat 92-93.
R&D programs often involve substantial fixed set-up costs and display economies of scale arising from an extensive division of highly specialized labor. In addition, as technology consumption is non-destructive, the same investment in technology can be used for any amount of output. In this case, the cost of information per unit of output declines as the scale of production rises.

Economies of scale give large enterprises and cartels special advantages not only in the production but also in the commercialization of technology. They contribute to make technology transfer profitable through networks and technology markets. Therefore, the size of the market plays a very important role in the creation and development of technology markets, as it increases the possibilities to take advantage of the economies of scale. For this reason, every attempt to integrate technology markets will strongly benefit the development and diffusion of technology through commercialization.

Technology also presents economies of scope across a wide range of uses. Greater efficiency is obtained as firms or R&D unit moves from small to larger wide range of different applications of a determined technology. Knowledge can be used to generate more knowledge. The broader a firm’s technological base is, the more likely it is to do basic research, since the research path could move to several directions, generating more valuable results.

4. Practical Solutions to Appropriability Problem

Innovators can reduce their appropriability problems by implementing the following policies at the management level.

a) Maintaining Secrecy of Innovation and Integration of R&D with Production

Appropriability problems let innovators to keep their inventions secret. Consequently, rather than innovators selling their inventions to other firms, they have been inclined to hinder the diffusion of technology to competitors. As a result, R&D activities have tended to be financed not through commercialization of technology but through the integration of R&D with its direct exploitation for

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production of new commodities. Therefore, technology tends to remain under-exploited, in relation to the social optimum processes of using that knowledge to manufacture new products.

Maintaining the information in secret presents at least the advantage of motivating other firms to create their own R&D departments, which increases the global technical capacities, but implies higher social costs because firms are forced to duplicate technology. Because imitation requires time and involves costs, developers may also obtain benefits even when the technology is subject to discovery by reverse engineering. R&D normally offers its developer lead time in industry and learning curve advantages for the acquisition and development of new technologies. Additionally, the developer of technology can obtain advantages from the foreknowledge of innovations. For example, he can obtain benefits from releasing, speculating or realizing new information. The imitation time will allow him to take advantages of being the first developer through sales or marketing efforts. Therefore, a suitable institutional framework should motivate firms to share their knowledge instead of keeping it secret.

b) Increasing Scope of Firm and Cooperation Among Enterprises

Patent protection itself have scored quite poorly as an device for taking profit of the invention. Large enterprises are more readily able to exploit alternative means of reaping the benefits of R&D such as reliance on product differentiation, advertising and effective sales forces. This firms have traditionally preferred to appropriate the benefits on investment in R&D excluding competitors and taking profit of the advantages created by being the inventor, i.e., being the first to use the invention (lead time), having better abilities to use the invention (learning curves); and the advantages generated by their economy scales (sales and service efforts. In this case, patent protection may play an important rule as an instrument for creating and preserving effective barriers to direct competition in commodity and resource markets worldwide.

On the other side, patent protection is essential for the creation of technology markets. Licensing constitutes an alternative instrument for profiting from

53 Gerosky, at 93.
innovation and increasing firms technology capacities\textsuperscript{55}. A strong patent protection is particularly essential for smaller firms in the initiation of innovation, which may need to collaborate with larger, established firms to bring the development to fruition or penetrate a market successfully\textsuperscript{56}. It is also essential for firms trying to profiting from innovation through exchanging it (cross-licensing) or selling it through assignment or licensing agreements.

Economies of scale in the production of technology have motivated enterprises to collaborate in order to acquire and develop technology. Examples of this collaboration are the formation of cooperative R&D joint ventures\textsuperscript{57}, or merging into a simple enterprise. This allows benefits from cost sharing, risk pooling, exploiting economics of scale in R&D, elimination of excessive duplication of R&D projects and pooling of complementary skills\textsuperscript{58}. In the same way, the economies of scale in technology consumption motivate collaboration among enterprises to acquire and jointly use technology. Thus, it gives advantages to large multinational enterprises over small enterprises.

This concentration process has been criticized on the basis that it introduces one market failure to correct another\textsuperscript{59}: it may increase the market power of enterprises because the association reduces competition and could lead to cooperative pricing. Further, the lack of competition in the product market jointly with the cooperation in R&D could move enterprises to make smaller investments in R&D\textsuperscript{60}. In extreme situations, this practice may lead to the creation of monopolies in both the market in which R&D occurs and in the output market in which the new technology is applied.

Enterprises could also try to gain a grip on a monopoly through vertical integration, affecting the availability of assets which may be used in conjunction with the new technology (complementary assets). The control over these assets could create competitive advantages in producing or marketing new production processes. This

\textsuperscript{55} See Buckley, Going for Growth, Realizing the Value of Technology, London, 1998, 87-89.
\textsuperscript{56} Rothnie, at 109, quoting Sherer and Ross, Industrial Market Structure and Economic Performance, pat 629-630.
\textsuperscript{57} See Zusumura, K., Cooperative and Non-Cooperative R&D in an Oligopoly with Spillovers, 82 Am.Econ.Rev. 1307, 1307-1320 (1992).
\textsuperscript{58} Gerosky at 95.
\textsuperscript{59} Id. at 95-96.
\textsuperscript{60} Id. at 93.
could provide an important additional source of profit for inventors. Furthermore, the desire to control complementary assets motivates agreements between suppliers of complementary assets and innovators in order to develop a monopoly selling position for their products. These agreements may inflate transaction costs, as both parties, suppliers and users, are locked into a bilateral monopoly.\footnote{See \textit{Williamson, O.}, Transaction Cost Economics, in \textit{Schamensee, R. and Willing, R.} (eds.), Handbook of Industrial Organization, Amsterdam, 1989 at 135, 135.}

On the other hand, vertical integration allows suppliers of complementary assets to reduce uncertainty about specifications of the products and the risk that they bear in developing them. R&D cooperation at the horizontal and vertical levels constitutes an important mechanism to promote technology transfer and diffusion, as it allows firms to profit from economies of scale and to find ways to obtain mutual benefits from the joint creation and diffusion of technology. Moreover, R&D cooperation favors the development of a relationship of trust between participants.\footnote{Barba Navarette, G., et al. (eds.), Creation and Transfer of Knowledge, Institutions and Incentives, Heidelberg, 1988, 5.} These aspects will be analyzed in the fourth chapter.

The importance of technology transfer is increasing. Collaboration agreements among firms have enable them to proliferate their technology and create multitechnology-based products.\footnote{Buckley, at 87.} As a result, customers are becoming more demanding, and pressure on organization to show a faster and very positive return on investment in technology is increasing.\footnote{\textit{Id.}} Thus, the competition advantages generated by technological cooperation among firms are pressuring enterprises to enter in R&D collaboration agreements. Firms are no longer able to survive on its own R&D resources.\footnote{\textit{Id.}}

To conclude, an appropriate institutional framework is required to solve the appropriability problem of inventors and foster collaboration among enterprises. This institutional framework however, should prevent enterprises from creating monopolies. The institutional framework should be suitable to simultaneously promote R&D technology diffusion. Therefore, an institutional framework is necessary to promote R&D cooperation agreements. This institutional framework,
however, should prevent cooperation R&D agreements from leading to a monopolistic exploitation of the markets. An institutional framework capable to simultaneously promote creation and diffusion of technology is therefore required.

C. General Overview of Legal Framework for Intellectual Property Rights

1. Justification of Intervention Through Legal Instruments

The problems of appropriability hinder the production and diffusion of technology, moving investment in R&D to sub-optimal levels. This constitutes a serious obstacle for the growth of production capacity and increase in general welfare. Market failures hamper the market mechanism from moving the level of technology production and diffusion to its optimal level. For these reasons, innovation presents a typical problem of externalities. The theory of externalities offers an appropriate framework for explaining why institutional intervention is absolutely necessary to promote innovation. The theory of externalities refers to conditions which, though influencing in a positive or negative way the economic activities of other units, benefits or costs are freely received or transmitted without receiving or paying a compensation. Because the producer of the externality does not receive any benefit from the positive influence he may generate on the system, he will not have any motivation to maintain or increase the production or the externality. In the same way, in the case they present negative effects to society (negative externalities), he may have no motivation to avoid or reduce the production of these externalities. As a result, welfare could be increased when externalities are introduced into the accounting of the participants in a way in which the benefits or costs caused by the externality are imputed to its the producer.

Inventions can be regarded as externalities in the economic system. The legal system may solve appropriability problems by granting the inventor a right over his invention. It may also provide solution to market failures by providing inventors and users of technology with an appropriate framework that favors negotiation of technology and controls monopolistic abuses.

65 Id.
Different legal institutions have been used to define the right granted to inventors. The traditional one grants a property right on the invention. In this case the legal system defines the invention as an intellectual good and gives the inventor the property right. An alternative framework could be the use of the theory of quasi-contracts. In this case the legal order considers that the user of technology has been unjustly enriched when he acts as a free-rider and does not remunerate the inventor.\(^6\)

The legal instruments of protection are absolutely necessary for allowing innovators to solve their appropriability problems. These legal instruments combine with market failure in commercialization and production of technology to define the level of protection of inventors. An appropriate regime of protection is vital to assure that the private rate of R&D investments return remains attractive, specially in the cases that the social profit is high. The median social rate of return of R&D tends to be much higher than in other activities. Some studies have found that this return in primary metals, machine tools, electronics, chemicals and household cleaners was 56% in 1977\(^7\). The average of the social rate of return of investments in R&D of the 1,000 largest US manufacturing firms was found as rising from 0.51 in 1967 to 0.62 in 1972\(^8\).

2. Legal Instruments Based on Property Rights

a) Property Rights

Property rights in technology were created as a result of private pressure coming from inventors and the interest of states to promote technological development. The natural impossibility for the inventor to commercialize his invention, and financing his expenditures and obtaining a reward for his effort moved inventors to turn to the legal system for a solution. This is the case of the first modern patent system, which was created in 1443, when Galileo Galilei demanded that the


Republic of Venice recognize his inventions as his property\textsuperscript{69}. The most practical solution for the appropriability problem of inventors was the application by analogy of the laws relating to the protection of private property.

The concept of “private property” was suitable for creating an “immaterial good” from technology that could be commercialized, “intellectual property rights”. The recognition of “property analogy” faculties over an intellectual idea transformed technology into a marketable good. As an object of property, technology should be defined in terms of a good that has minimal characteristics for trade: identifiable, valuable and autonomous. Intellectual rights give the owner of technology the power to prohibit its use legally and to define a payment for its use. This has been a suitable way to influence the market to internalize externalities of the invention.

By enforcing “intellectual rights”, the legal system tried to use by analogy the institutions created for material goods, taking the advantages of extending a well-known legal institution to another field. It presented the advantage of giving the inventor very strong protection because the property right is the strongest right that a person could have in an object\textsuperscript{70}. In addition, private property is one of the basic institutions of a market economy. This makes it easy to define and protect.

Patent rights are the principal property rights granted for an invention, by application at the Patent Office after making sure that all the requirements of patentability established by law are accomplished. Chapter three will make an extended analysis of this legal concept.

\textit{b) Basic Problems of Private Property Regime of Technology.}

Private property was designed as an institution to assure the exclusive exploitation of a unique material good that could not be used simultaneously by others without disturbing the owner. The right of property is designed primarily to defend personal interests in an object and exclude the rest of society from its enjoyment. It is designed to protect the relationship between an individual and a unique good, a material good. Ownership is defined more or less in the German Civil Code (\textit{Bürgerliches Gesetzbuch}) as follows: the owner of an asset is entitled to deal with

\textsuperscript{69} Hubmann, Gewerblicher Rechtsschutz, Munich, 1987, at 17.

\textsuperscript{70} See Rogel Vide, Carlos, Estudios sobre Propiedad Intelectual, Barcelona, 1995, 14-15.
it in any lawful way and to exclude others from using the asset\textsuperscript{71}. This situation is reflected in the fact that “intellectual property” (geistiges Eigentum) was originally considered contradictory to German law because in that system only corporeal goods could be objects of property. Later, the dogmatic position changed to recognize immaterial rights as objects of legal protection\textsuperscript{72}. In Germany today, intellectual property rights are seen as protecting and accomplishing patrimonial interests, and because of that falling under the constitution protection of property\textsuperscript{73}.

The use of private property to protect innovators presents important practical inconveniences: it tends to hinder the diffusion of technology and create monopolies.

\textit{(1) Negative Effects of Property Rights on Diffusion of Technology}

The definition of property includes in principle an unrestrained disposability over technology goods. As an exclusive and absolute (unconditional) right of possession and use, intellectual rights provide protection for the inventor by granting him the right to prohibit others from using his invention and to decide whether or not and under which conditions, he will grant permission to use it. The use of “intellectual rights” brought the inconvenience of defining absolute rights that restrict the community’s access to progress, even in cases when this restriction does not necessarily provide benefit to the rightholder. This is the case in regard to German intellectual property rights, which are seen as protecting and accomplishing patrimonial interests, and therefore, falling under the constitutional protection of property, specifically Art. 14 of the Constitution (Grundgesetz)\textsuperscript{74}.

Property has been defined in the following terms: “The right of property is that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe. It consist in the free use, enjoyment, and disposal of all a person’s

\textsuperscript{71} Bürgerliches Gesetzbuch (BGB) § 903, as amended.


\textsuperscript{73} Hubmann at 60. See Also the decision of the Bundesverfassungsgericht (Bverf G) in 1974 GRUR 142, 144.
acquisitions, without any control or diminution save only by the laws of the
land."\footnote{Hubmann, at 60.} Exceptions to this absolute power are considered an expropriation. The absolute protection of property rights can only be limited by law, and only in the cases when it is necessary to protect other relevant public interest.\footnote{Black’s Law Dictionary, St. Paul, Minn., 1968 at 1382. The dictionary makes reference to Bl. Comm. 138, 2 Bl. Comm. 2, 15, Great northern Ry. Co. v. Washington Elec. Co., 197 Wash. 627, 86 P. 2d 208, 217. See also § 903 BGB, Art. 14 GG, and Del Arco Torres, Miguel Angel, Pons Gonzáles, Manuel, 2 Diccionario de Derecho Civil, Pamplona, 1984.} The absolute character of property rights can be considered regarding the scope of individuals that are obliged by the right, or regarding the content of the right. In regard to the scope of individuals affected, property rights are considered absolute private rights in the sense that all individuals are affected and obliged to observe it \textit{(erga omnes)}\footnote{See Art. 14 GG. See also Hubmann, pat 60-61.}. For the purposes of this work, the term “absolute right” will refer to the content of the right. In this case, the right unconditionally protects the interest of the individual, without regarding, \textit{as a general norm}, the need to harmonize the interest of others.\footnote{See Lasarte Alvares, Carlos, 1Principios de Derecho Civil, Parte General y Derecho de la Persona, Madrid, 1994, 148-149.} In principle, property rightholders can exclude others at will. Limitations of this principle can only be created by law in order to protect a relevant public interest. This definition corresponds to the dissenting opinion of Mr. Justice Douglas\footnote{The term ‘absolute’ is defined in Black’s Law Dictionary, 1990, at 9, as: “Free from conditions, limitations or qualifications, not dependent, or modified or affected by circumstances; that is, without any condition or restrictive provisions”. Regarding ‘absolute property’, the mentioned dictionary at 1217 states: “it may mean that the property is to be held free from any limitation or condition or free from any control or disposition on the part of others”.}, which complains about the radical departure from the original theory of patents. The original theory considered patents as privileges conditioned by a public purpose and, therefore, the exclusive right of the inventor as is regarded a means to that end. On the contrary, the current position treats the “exclusive” right of the inventor as something akin to an “absolute”

\footnote{See the dissenting opinion of Mr. Justice Douglas in Special Equipment Co. v. Coe, 324 U.S. 370, 65 S.Ct. 471, 89 L. Ed. 1006, (1945). Justice Douglas sustained the thesis that the court had early recognized that it was a mistake to conceive a patent as but another form of private property, that patents are instead privileges conditioned by a public purpose, the promotion of Progress of Science and useful Arts, and that the exclusive right of an inventor is but the means to that end. See the case Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405, 423-24, (1908), which marked a radical departure from that theory.}
right, which subordinated the public purpose of the grant to the self-interest of the patentee.\footnote{80}

The disposition to regard the exclusion right of patentees as absolute or unconditional is reinforced by the inclination to transfer the philosophical fundamentals of private property to patent rights. Private property is considered one of the manifestations of a free society. It protects two vital interests which interrelate: the first is liberty, in the sense that the individual may move at will and make his own decisions without being disturbed by society. In this case, the right of protection legitimates and protects the possession an individual has over determined goods. This is intended to protect private initiative and responsibility. The second is the cause of the acquisition of property: every one has the right to be rewarded for his efforts and enjoy with certain exclusiveness the fruits of his labor, his creation.\footnote{81} These two elements give the right of property a dimension of a fundamental right associated with the freedom of constructing one’s own space. As a result, every restriction of private property tends to be considered a restriction of liberty and as an expropriation.

"Intellectual property rights" give their holder the legal possibility to restrict technology diffusion. The concept of property itself has traditionally been centered on the right the owner has to prevent others from benefiting from the knowledge he contributed to create. Property rights were originally not designed as an instrument to assure a proper reward for the owner (which is the main intention of patent rights), but to protect the interest of the owner in reserving the object of property for himself in an exclusive manner.

On the contrary, the creation of intellectual property rights was not intended only to protect technology developers, social benefits were expected from this measure. The costs to society of granting a property right to inventors is supposed to be inferior to the benefits society receives through the promotion of inventiveness.\footnote{82}

\footnote{80 See also Dreyfuss, Rochelle Cooper and Kwall, Roberta Rosenthal, Intellectual Property Cases and Materials on Trademark, Copyright, and Patent Law, Westbury, N.Y., 1998, 767, quoting Mr. Justice Douglas.}


\footnote{82 See Demsetz, Toward a Theory of Property Rights, 57Am.Econ.Rev. 3247, 3247-3250 (1967).}
In order to reduce the social costs of property rights over inventions, these rights are granted with certain restrictions. The most important limitation is the duration of a patent. Patent rights are recognized only for a limited time which is considered must be sufficient for ensuring the developer of a reasonable profit for his creation. The limitation in duration implies that once the right extinguishes, technology becomes patrimony of society. In addition, patent law establishes several conditions and restrictions for granting a property right. For example, patents are granted only to inventions that represent important technological progress. As a result, not every invention obtains protection. The restrictions on patent rights are introduced to put a limit on the negative effects of the absolute rights they concede.

(2) Property Rights over Technology Promotes Monopolies

Monopolies are a natural consequence of the absolute faculties the patent owner has to restrict technology diffusion at his will. The traditional concept of private property leads to the principle that only the owner has the right to exploit and use the object of his property, especially to place conditions on the commercialization of his property freely and exclusively. Private property rights over technology give the owners the right to exclude others from the access of protected technology in order to exploit the market on a monopolistic basis.

Private property rights are no longer so absolute. Art. 14 of the German Constitution for example, states that property should accomplish a social function, that owners are obliged to consider the social function of property\textsuperscript{83}. Private rights have been increasingly limited, to harmonize them with relevant social interests\textsuperscript{84}. In the case of Intellectual Property Rights, the social aspects may be interpreted as


\textsuperscript{84} See \textit{Diez-Picasso}, Luis and \textit{Guillon} Anonio, 3 Sistema de Derecho Civil (Derecho de Cosas), Madrid, 1977, at 121. They maintain that the modern conceptions of property in Spain no longer define property as an absolute right, but as a right inherently limited by social goals. These limits are not always completely defined, however, they can be inferred using the principles of good faith and the general prohibition of the abuse of rights. See also \textit{Bodewig}, Theo, On the the Misuse of Intellectual Property Rights, in \textit{Albach}, Horst, \textit{et al.}, (eds), Intellectual Property Rights and Global Competition, at 231, 232- 233. He maintained: “while enacting rights, legislators do not and cannot define them precisely enough to enable the actors in the market and their legal advisors to make a safe prediction as to what will be deemed a lawful exploitation of one’s rights and what will be deemed a misuse. The courts, in common law countries as well as in civil law countries, have to fill in these gaps, to fine-tune the crude legislative definitions according to the actual legal, economic and technological circumstances.”
the the social interest in promoting the market economy, free competition and the diffusion of technology in order to foster growth. More and more emphasis is put on the need to harmonize the interests of promoting research and technology development, and give the community access to the use of this technology. Nevertheless, restrictions on private property are always considered an exception to the general principle that owners have an absolute disposal over their property. Restrictions on private property are only granted if there is a very important social interest affected. Private interests are insufficient for placing a limitation on property. Property is granted to individuals, not to serve directly a social interest, but in order to allow the satisfaction of private interests. The attribute of been directly submitted to the interests of general welfare is not a characteristic of private property.

Furthermore, the right to create monopolies has been considered an important characteristic of intellectual property. It has been said that “the essence of all industrial and intellectual property rights is to give the owner the right to prevent competition”. Property rights are designed to create a legal monopoly. Monopolies are regarded as a legitimate mechanism for improving the owner’s possibilities that his investments in technology development are profitable. This position has been justified with the argument that monopolies are a necessary cost to assure the existence of competition at the level of innovation production. As a result, more importance is given to economic competition at the level of innovation production than at the level of commercialization. Efforts to mitigate the contradiction between the promotion of innovation and the protection of competition brought the introduction of anti-monopolistic legislation and principles like the compulsory license.

Anti-monopolistic legislation today is the dominant instrument for controlling monopolistic power of intellectual property. Efforts to consolidate an internal

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85 Palandt, at 1073.
88 See Lehman, Michael, Eigentum, geistiges Eigentum, gewerbliche Schutzrechte, 1983 GRUR Int. 356, 361 and Bußmann, Patentrecht und Marktwirtschaft, 1977 GRUR 1977 121, 121.
market in the European Community to promote higher levels of efficiency through competition have constituted an impetus for the creation of competition protection laws in the field. This influence has been reinforced by the increasing speed of technological changes which shorten the life duration of technology. In these cases, technology holders may prefer to have strong monopolistic power during the short lifetime of the protected technology. On the other hand, a shorter life time of technology may promote technology transfer, in cases where the markets are relatively large in relation to the production potential of innovators. Because of the short life time of technology, owners may not have enough time and capital to increase production at a level to reach full exploitation of their protected markets. Consequently, enterprises may search for additional profit by commercializing their technology.

Because of the existence of market failures in technology markets, institutions that promote not only the development of technology but also its commercialization are necessary. In order to harmonize the promotion of technology creation and diffusion, it is necessary to secure that technology developers can achieve profit not only by the exploitation of the patent under monopolistic conditions, but by its commercialization. It is questionable that this can be achieved only by the anti-monopolistic restrictions of intellectual property rights. If patents are still defined as property rights or monopolies, in principle, they allow for monopolistic use. As a result, the contradiction between this definition and the anti-monopolistic measures remain, so these measures would confer remedies only to extreme monopoly cases.

Therefore, the concession of intellectual property rights over technology does not solve all the problems caused by market failures in technology markets. The rights might also hinder the creation of those markets as they could promote the consolidation of monopolies. For this reason it may be concluded that the mere concession of property rights over technology is not a sufficient condition for the creation of efficient technology markets. Complementary institutions are needed to provide a proper framework.

89 See Weizäcker C.C., Rechte und Verhältnisse in der modernen Wirtschaftslehre, Kyklos Bd. 34, 1981, 345-355.
3. Technology as “Common Heritage of Mankind”

In opposition to the theory that innovators should have a property right over their inventions is the theory that inventions, as with any kind of knowledge, should be the “common heritage of mankind” and because of that should not be subject to property rights, but should remain free. Technology is considered common to all countries in the world and is accessible to all mankind. This thesis has been maintained by some academics in developed countries and in several developing countries. This argument has been used by developing countries in order to claim access to technology, though it is owned and withheld by the industrialized nations. It is presented as a response to the negative effects of private property and to the interest of developing countries to acquire at the lowest possible cost the technology developed in industrialized countries. This position constitutes a pressure for the introduction of mechanisms to restrict abuse of intellectual rights, like the limit of duration of patent rights. The theory of the “common heritage of mankind” explains why, after the expiration of the patent, and in the cases that the invention is not patentable, the invented technology remains of free disposal to individuals. It also responds to the conscience that access to technology is a decisive factor for developing countries in their efforts to reach economic, cultural and technological independence.

From the point of view of justice, both theses, that innovators should obtain certain right over their invention and that technology should remain free are valid. The development of technology requires investment of financial and intellectual resources. Development of technology is a product of the effort of the inventor and the group that supported him. An institutional framework is necessary to ensure the developer of technology that his contribution will be recognized and rewarded. This framework corresponds not only to criteria for justice, but is also a necessary mechanism for promoting the development of technology and its

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91 This argument was used for example at the beginning of the GATT negotiations by some developing countries. See Heath, Christopher. Bedeutet TRIPS wirklich eine Schlechterstellung von Entwicklungsländern?, 1996 GRUR Int. 1169, 1171.


93 Auer, at 33.

transference. On the other hand, there are reasons for protecting the interest of the community for access to knowledge. All new development of knowledge is founded on the knowledge previously accumulated by mankind. The main resource used by the inventor is knowledge accumulated by mankind with enormous effort during centuries and this resource is freely used by inventors. It is in the interest of mankind that knowledge, including technology, should be spread and used as widely as possible, to increase development and welfare. There are social interests in promoting the diffusion of technology. In principle, no person or organization should have the right to hinder the development of others at will, especially when this does not imply making that person or organization poorer.

4. **Legal Instruments Based on Rights in Torts and Equity**

Alternatively to property rights, other legal institutions have been used to protect the interest related to intellectual goods. Torts are defined as a private or civil wrong or injury, including action for bad faith breach of contract, for which the court will provide remedy in the form of an action for damages\(^95\). More generally, torts are defined a violation of a duty imposed by general law or otherwise upon all persons participating in the relation with one another which is involved in a given transaction\(^96\). An example of this is the use of the rules of unfair competition to protect trademarks or know-how. This rule provides an alternative treatment for the problem of appropriability and market failures that technology and other analogous intellectual goods present. This section will analyze the general forms of protection of technology and related rights based on rights in tort and equity. The general institution which frame torts and equity is the quasi-contract. Quasi-contracts are implied-in-law contracts (as a legal fiction), which differ from implied-in-fact contracts (voluntary agreements inferred from the parties’ conduct)\(^97\). They are defined as an obligation that law creates in absence of agreement and that are invoked by courts where there is unjust enrichment\(^98\). The

\(^{95}\) Black’s Law Dictionary, 1990, at 1489.


\(^{97}\) Black’s Law Dictionary, 1990, at 1245.

\(^{98}\) *Id.* See also *Andrews v. O’Grady*, 44 Misc.2d 28, 252 N.Y.S.2d 814, 817.
function of a quasi-contract is to recognize an obligation in law where in fact the parties made no promise, and it is not based on apparent intention of the parties.  

a) **Protection of Trademarks Against Unfair Competition**

Trademarks are intellectual goods that have analogous characteristics to inventions. As a result, they have the same problems of appropriability and market failures as inventions.

Trademarks are basically information signals that show consumers the origin of a product and its producer. This information allows them to make inferences about the characteristics of products which are probably due to the special situation and characteristics of the producer. Trademarks individualize a product and let the producer appropriate and develop a reputation. The specific characteristics of trademarks can, by themselves, produce positive reactions in consumers. Trademarks are created by intellectual work directed to designing them and are developed through a specific marketing strategy. The reaction of the market to a trademark is formed by a learning process. Experience moves consumers to associate certain qualities with a trademark. In this respect, trademarks are intellectual creations and subject to intellectual property regulations.

The use of the legal construction “unfair competition” to protect intellectual goods began with trademarks and developed in a parallel way with proprietary forms of protection. The protection of trademarks has evolved by focusing more on their basic function as a marketing and distribution instrument than on their being an object of property of the creator. The basic protected interest is the fairness of the information given to consumers about the origin of a product. Because of that, the legal framework to protect trademarks is based more on the principle of fair competition among enterprises than on intellectual property rights. The use of a trademark that identifies the products of another enterprise constitutes unfair competition.

Unfair competition is localized in the general concept of torts, which correspond to the concept of quasi-contracts of Roman Law. French jurisprudence has

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recognized that action against unfair competition is based on the legal principle that “every act of man that causes another person damage, obliges him, because of the fault that caused it, to a reparation” and “every one is responsible for the damages caused not only by his fault, but also by his negligence or imprudence” (Articles 1382 and 1383 of the French Civil Code).

In the same respect, common law tribunals have fashioned rights in torts and equity to grant protection from acts that represent unfair competition. These rights are applied fundamentally to trademarks and know-how.

Notwithstanding, unfair competition is originally regulated by general principles of law, specific legislation has been developed to adjust its application to intellectual goods. An example of this is the Paris Convention for the Protection of Industrial Property of 1883. Article 10 of the Convention, revised by the Article 3.3 of the Lisbon Agreement for the Protection of Appellations of Origin, states that the member states are obliged to guarantee effective protection against unfair competition, including acts that create confusion about the origin, fabricator, or a mistake about the nature, fabrication method or characteristics of a product.

Trademark regulation is a good example of the importance of alternative protection instruments in the field of intellectual goods, particularly quasi-contracts. Here the functional aspects of the institutions are stressed.

b) Protection of Secret “Know-how”

A developer of technology can protect it in two main ways: keeping it secret in order to prevent it from falling within the public domain, or obtaining the recognition of intellectual rights in it. In the latter case he has to reveal it to the competent office in order to become a patent holder.

The majority of the technological knowledge of enterprises is protected by keeping it secret and not by patents\(^{101}\). There are many reasons not to choose patents to protect technology, frequently because all the problems of appropriability cannot be fully solved by intellectual property rights. In order to obtain a patent,

\(^{100}\) See Vanzetti, Funktion und Rechtsnatur der Marken, 1965 GRUR Int. 128, 128-142 (1. Part) and 185-201, (2. Part).

enterprises must disclose their technology. This creates opportunities for competitors to use the technology and infringe on the patent right, obliging the owner to incur legal costs in defending its right. Other problems come from the patentability restrictions. There is a risk that the invention or a part of it does not present enough elements to gain legal recognition as a patent. Consequently, enterprises may be motivated to keep part of the information a secret. Therefore know-how includes in many cases complementary information that is necessary in order to effectively utilize the patented technology. This is why the focus of technology transfer negotiation generally places special importance on the protection of secret. Because of the extended use of secrets to protect technology, intellectual property rights (patents) are considered an exceptional regime, particularly in French legislation\textsuperscript{102}.

Know-how was defined by the WIPO Model Law for Developing Countries on Inventions in Section 201 as “technical information, data or knowledge resulting from experience or skills which are applicable in practice, particularly in industries”\textsuperscript{103}. This knowledge includes not only knowledge for industrial purposes but also knowledge that applies to marketing, commercialization, conservation of products, management, etc. Most of this knowledge does not constitute a patentable invention.

The protection of know-how is partially based on the recognition that this knowledge is usually generated by the investment of resources, and crystallizes the enterprise’s efforts to improve its efficiency. Know-how is valued as a resource developed by an enterprise, which increases its competitiveness. The legal order recognizes the valid interest of know-how creators to appropriate the economic value of this information by exploiting it in secret, or obtaining a profit when they decide to share their knowledge. Although know-how has the same qualities as inventions, it was not considered an object of intellectual property but as knowledge which belongs to patrimony of an enterprise as long as it has not entered the public domain.

Know-how protection has been developed by jurisprudence using general principles of law. Like trademark protection, know-how protection emerged

within the realm of unfair competition. It is considered confidential information and restrictions are placed on its unauthorized communication. The main objective of know-how regulations is to protect this information from being unloyally disclosed by workers and third parties who have had contact with its possessor. English courts have developed the “springboard doctrine” to prevent the unauthorized incorporation of confidential information in innovations. A person who has obtained information in confidence is not allowed to use it as a “springboard” for activities detrimental to the person who made the confidential communication. That person is obliged to pay damages for the privilege in case he wishes to make use of confidential information.\footnote{Seager v. Copydex Ltd (1967) 1 WLR 923, 931, per Lord Denning MR, quoted by Blakeney, at 14.}

Some common-law systems imply a contractual term obliging employees to keep this kind of information secret. This is information normally including plant and machine designs, production methods and customers lists. Most technology transfer agreements will expressly define such material as confidential and establish the obligation of the acquirer to keep it secret. In order to prevent third parties from wrongfully acquiring and using this kind of trade secrets, courts have drawn up rights in torts and equity\footnote{Blakeney, at 13.}, by taking into consideration a) the extent of disclosure permissible in regard to employees and third persons, b) the difficulty with which the information could be properly acquired or duplicated by others, c) the extent of measures taken to guard its secrecy, d) the amount of effort or money expended in developing the information and e) the value of the information to business and competitors\footnote{For instance, Restatement of the Law of Agency (2d. ed), Chapter 13, section 395.}\footnote{Gaudin, at 13. He makes reference, among others, to the sentence of the Seine Commercial Court, 29 July 1943, Soc. Timken.}.

French courts have also protected know-how by the general principles of unfair competition. French jurisprudence has declared unfair competition the unauthorized appropriation of knowledge onerously acquired by another firm with the intention of benefiting gratuitously\footnote{Blakeney, Michael, Legal Aspects of the Transfer of Technology to Developing Countries, Oxford, 1989, 13-14.}.
The WIPO Model Law for Developing Countries on Inventions provides that the know-how must be identified in a contract by indicating the objective to be attained by the use of it. The obligation of confidentiality on both parties with respect to the confidential aspects of the know-how is regulated in Section 203. Unauthorized communication or use by third parties can be prevented by the courts. Additionally, damages and ancillary relief are provided to the contract parties in Section 204.

5. Elements for Analysis of the Institutional Framework of Technology

There has been controversy about the need to protect inventions through patent rights. A solution of this controversy should take the following two basic aspects into consideration: First, a proper definition of the right granted over technology to solve the appropriability problem of innovators; and second, a suitable regime for the promotion of technology transfer and control of monopolistic abuses.

a) Possibilities of Using Quasi-contracts to Redefine Patent Rights

The application of private property institutions to protect inventions has been justified by the same principles used in their protection of material goods, i.e., private property. Private property, as an economic institution, accomplishes the function of assigning a private owner the social responsibility for the administration of a good, giving him the opportunity of deciding how to use it in a way that maximizes not only the short-term benefits, but also the long-term capacity of that good to render a service. The economic justification of property has been explained in the following way: when a good is in the public domain, totally free, it is expected that the individuals will optimize only its short-term benefits. There are two reasons for this: First, individuals cannot be sure that their efforts for maintaining that good in the long term will be fruitful. They do not have control over the activities of others. Second, they do not have any guarantee that they will be able to appropriate the future benefits of their present sacrifice of postponing consumption of that good. In this respect, they will tend to maximize
the current exploitation of the good and not care about maintaining its future capacities\textsuperscript{108}.

However, there are fundamental differences between intellectual and material goods which make the application of these arguments to intellectual property rights dubious. This discussion will be developed in Chapter Three. Nevertheless, there is certainly a need to administer the use of technology in order to assure that users contribute to financing the developmental costs not only of the actual innovation, but also of future research. This administration should be left to private parties to promote the freedom of enterprise. Intellectual rights, and in general, a system that internalizes the benefits of technology by obliging users to pay for its use is absolutely necessary to promote innovation and technology transfer. There is copious evidence that shows the wave of major inventions in Europe only began after a system of patents was established to protect intellectual property rights\textsuperscript{109}. Granting intellectual rights to inventors is fully justified, but the content of these rights should be defined in a clear way to ensure the fulfillment of the goals that justified the creation of this institution. On the other hand, it is questionable that private property institutions are the only or best alternative to allow a private party to administer the use of an invention to obtain profit.

There are many problems in negotiating and defining an adequate institutional framework for technology at the national and international level. For example, developing countries have tendency to refuse international recognition of intellectual property rights. These problems are aggravated by the lack of markets for technology transfer. This situation creates a vicious circle: there is no institutional framework for technology markets, because the technology markets are not developed, and vice-versa, the absence of a proper institutional framework hinders the development of technology markets.

Chapter Four proposes an alternative solution to reframe the institutions used to promote innovation. Intellectual property rights can be considered instruments to guarantee inventors a participation in the benefits society accrues from their

\textsuperscript{108} De Soto, The Other Path, at 178. He mentions the example of a vast reserve of fish that in absence of private property will be exhausted by fishers, because fishers will not voluntarily limit their catch unless they can be sure that any fish they do not catch will not be caught by others, so that in the long run they will be able to benefit from their earlier sacrifice.

inventions. These benefits should create sufficient incentives for increased investment in innovation\(^\text{110}\). We will explore the possibilities for changing the basis of the system from ‘property oriented protection of intellectual rights’ to ‘profit oriented protection’. In particular, ‘quasi-contractual oriented’ protection of inventions is proposed. The definition of this framework can be made by applying through analogy the development of trademarks and know-how protection. These two legal institutions evolved by applying general principles of equity law such as unjust enrichment and unfair competition. These principles help ensure the interest that users of technology pay inventors a fair price. This framework can solve the appropriability problem and take advantage of the externalities in the production and diffusion of technology in order to promote the creation of technology markets.

\(b\) Importance of Defining a Proper Framework for Technology Transfer

The institutional framework for technology should not be limited to defining special rights for inventors. In order to promote technology negotiation and transfer, together with the definition of special rights for inventors, the institutional framework should also define suitable enforcement rules for technology contracting. The confidence created by enforceable contracts is a vital requirement for the specialization and interdependence of economic units, which is absolutely necessary for the creation of the complex industrial and trade system on which the modern high level of welfare is based. Only with a framework that promotes confidence are people prepared to take risks and make long term investments\(^\text{111}\).

Both the enforcement of contracts and the definition of efficient contractual instruments are necessary to reduce the transaction costs in a way that leads to an increased volume of trade, specialization of labor and the definition of more sophisticated transactions in the innovation sector. However, this requirement is not sufficient for promoting technology markets. Because of the existence of market failures, a smooth functioning institutional framework is a vital condition for the development of these markets. Thus, the system should also be suitable for promoting a win/win bargaining framework, which is essential for the creation and

\(^{110}\) Id. at 178.

Networking promotes the creation of markets since the best way of reducing risks and transaction costs is through the creation of inter-organizational networking relationships. The institutional framework for technology should promote the development of technology markets. This will not only facilitate the negotiation of technology, but also increase the opportunities to finance and commercialize innovation and, thus, the access of new participants to productive activities, particularly in developing countries.

The following chapters analyze the institutional framework of technology. The main objective of these chapters is to determine the causes that have impeded the development of technology markets and to propose adjustments to the international framework of technology. The recent Uruguay Round of the GATT negotiations discussed the need to increase the protection of inventors' rights around the world. A stronger protection of technology rights can only benefit developing countries when accompanied by a proper institutional framework which promotes the negotiation and transfer of technology under market conditions, i.e., at a quantity level and at costs which assure sustainable development for all participants. In order to achieve this goal, the problems of technology negotiation and transfer at the national and international level will be analyzed, not only by considering the legal framework but also the economic context.

6. General Overview of the International Institutional Framework of Technology

a) Territorial Principle and Need for International Framework of Protection

Concerning material objects, the validity of property usually is determined by the law of the place where the object is located (lex rei sitae). In the case of movable property, the content of property changes as the goods move across frontiers, since it will be determined by the law of place into which the goods are

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113 See Ebers, Mark, Explaining Inter-Organizational Network Formation, in Ebers, Mark (ed.), The Formation of Inter-Organizational Networks, Oxford, 1997, at 3, 6-7.
transferred. However, countries agree to recognize property rights which were legitimately granted abroad, and are admissible in the new legal order.

Intellectual Property, as any intangible asset, presents the problem that the situation of the object of property in a determined place cannot be proved, because it does not have a spacial dimension. It is characterized by its ubiquity. However, intellectual property rights have traditionally been defined as legal positions warranted by the state.

Thus, regarding intellectual property rights, the criteria used to determine the applicable law is not the legal order where the right was originally created, or registered, as it is the case for registered property. International private law problems are generally solved applying “the principle of the state that grants the right (lex loci protectionis)”.

There is recourse to the law of the place where the protection is claimed. The solution generally proposed by the Private International Law for Intellectual Property Rights is similar to that originally set up for torts. In the case of torts, *lex fori* may not be the applicable law. The applicable law could be the law of the country where the impairment is produced, *i.e.*, the *lex loci delicti*. This principle corresponds to the principle of territoriality defined by the *lex loci protectionis*, which is generally applied for intellectual property rights. Both, *lex

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115 *Id.* at 153.

116 *Id.* at 153.


118 *Auer* at 64. See *Ullrich*, Technologieschutz nach TRIPS, 624-625.

119 This thesis was maintained, among other, by *Barin*. See *Ulmer*, Die Immaterialgüterrechte, 8-9.

120 This is the case of ships and airplaines, where property rights are determined by the law of the flag. See *Guzman Latorre*, Diego at 508-509.

121 *Ulmer*, Die Immaterialgüterrechte, 10-13.

122 See for example arts. 5.2, 10bis 1, 14 and 18 of the Berne Convention. See also *Carrascosa Gonzáles*, Javier, La Propiedad Intelectual en el Derecho Internacional Privado Español, Granada 1994, 68-70.

123 That is the law of the forum, or court where the suit is brought or remedy sought in an integral part.

124 Paradoxically, the application of this principle instead of the principle of *lex fori* was originally for the cases where the tort was committed, in a country where national law attaches no liability to the defendant’s act. See *Morse*, C.G.J., 2 Torts in Private International Law, Amsterdam, 1978, 6-7, referring to Wächter. *Lex loci delicti commossi* or “place of the wrong”; is defined by the Black’s Law Dictionary, 1990, at 911, “the state where the last event necessary to make an actor liable for an alleged tort takes place. According to German case law, the place of the wrong is every actuation place, or every place where the actor should had performed in case of omissions, and every place where the correspondent damage is caused. See *Kunz*, at 143.
loci protectionis and lex loci delicti give priority to the law of the place where the damage is caused and the protection is granted. An early example of the US doctrine of lex loci delicti appears in the 1918 New York Court of Appeals case Lucks v. Standard Oil Co. of New York. The Court ruled that lex loci delicti was the sole determinant of tort liability subject only to the public policy of the forum. This decision followed the general trend of the European Continent.

The territoriality principle of patent rights permits each country to define an industrial policy referring to the recognition and protection of national and foreign inventions. Through a national patent policy, each country defines the circumstances under which local enterprises will not have free access to technology developed abroad. The principle of territoriality allows the same treatment to be given to nationals and foreigners in each national territory, with respect to the protection of intellectual property. It also prevents law shopping.

On the other hand, the existence and content of intellectual rights are circumscribed by the boundaries of each country. This complicates the international trade of technology, because the content and legal regime of the rights conceded (intellectual property rights) change when crossing national frontiers. This problem is important in cases where there are huge differences among the national levels of protection. In extreme cases an invention protected in one country may not enjoy protection in another. Innovators must deal with a high level of uncertainty about the degree and requirements of protection of their inventions in the countries where they could be transferred. The numerous variations in each national regime of intellectual rights raise the costs of technology negotiation and commercialization, especially in cases where the expected volume of transactions in each country is low. In an extreme form, the territoriality principle accentuates the separation of national markets, which increases the

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125 Id. at 13.
127 See Carrascosa González, at 69.
128 Hubmann, at 67.
129 Ullrich, Technologie, at 639-40.
130 See Heath, Christopher, Parallel Imports and International Trade, 5 IIC 623 (1997), at 627, who mentioned the case law Merck & Co. Inc. v. Stephar, case 187/80 3 CMLR 463, also in 13 IIC 70 (1982). This case refers to parallel imports from one country where no patent protection is granted to pharmaceutical inventions (Portugal and Spain), to another where this protection is granted. This problem is analyzed on Chapter 5.
transaction costs of technology transfer. Transaction costs may be too high in order to motivate technology owners to commercialize their intellectual property rights and know-how. This situation is particularly palpable in developing countries in which, although individual markets are too small, together they can constitute a viable market. For this reason, the definition of international standards for technology protection which simplify the process of defining of the legal content of intellectual rights constitutes an important requirement for the development of markets for technology, particularly in developing countries.

As analyzed on Chapter 4, the TRIPS Agreement seeks to solve the problems created by the territoriality principle, defining minimum standards of protection as well as rules to prevent intellectual property rights being used as instruments for distort international competition. There is therefore a need to reconsider the traditional principle of territoriality above described.

b) Protection of Intellectual Rights Through International Conventions

There are many efforts to simplify and harmonize intellectual property protection. Industrial property unions have been created for this purpose. They provide facilities for the single registration of an industrial property right under unified industrial property classification systems. For developing countries, industrial property unions also facilitate the participation of the expertise of industrial countries in the establishment of the necessary legal infrastructure for the industrial property system. Furthermore, they can facilitate the dissemination of information pertaining to the functioning and administration of those systems. The main objective of industrial property unions has been the protection of the industrial property itself. They have been created mainly to promote reciprocal recognition of industrial property rights in order to assure their foreign protection. However, the problems generated by the definition of intellectual rights as private property are not solved. The promotion of the commercialization and transfer of technology is considered more an indirect consequence rather than a direct goal of these

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131 This problem will be analyzed in Chapter 5.

132 See Ullrich, Technologieschutz nach TRIPS, at 641.
agreements\(1^{\text{33}}\). This situation constitutes one of the reasons why the international markets for technology have not developed. The causes of this problem will be analyzed in the following chapters.

\((1)\) *The Paris Convention*

Since 1883, with the Paris Convention for Protection of Industrial Property, a number of international agreements have been negotiated in order to harmonize and regularize the principle of reciprocity in the field of industrial property. The Paris Convention including its revisions, constitutes the principal international framework for the protection of industrial property. It involves four principal topics: substantive rules of law guaranteeing the “right of national treatment”, the establishment of a right of priority, rules relating to specific topics of industrial property law and the establishment of an administrative framework for the implementation of the convention\(1^{\text{34}}\).

This regime did not create a union in which intellectual property rights are automatically recognized by all members so that technology goods can circulate without changing their legal value in the union. Each technology good has to be registered in each country in order to have legal recognition there. The content of intellectual rights is defined by each legal system under the minimum standards defined by the Union. The mutual recognition of rights is facilitated by a system of priorities. Once a patent is registered in one member state, the applicant has a right of priority of 12 months to apply in the other Member States\(1^{\text{35}}\). As a result, inventors are protected from the loss of novelty by any exploitation of the patent during the priority period in any other member country\(1^{\text{36}}\).

Besides the recognition of the territoriality principle, the most important principle of the Paris Convention is the right of national treatment conceded to foreigners. Article 2 provides that foreigners shall have the same industrial property protection as nationals, including the same legal remedies against any infringement of their

\(1^{\text{33}}\) See Ballreich, Technologietransfer als Völkerrechtsproblem, 23 GYIL 329 (1981), at350: “Technologietransfer ist kein unmittelbarer Konventionszweck.”.

\(1^{\text{34}}\) Blakeney, at 15.

\(1^{\text{35}}\) Article 4(C)(1) of the Paris Convention.

\(1^{\text{36}}\) Blakeney, at 16. He criticizes this period for being too long, specially under the actual facilities of communication.
rights. Any discrimination between nationals and foreigners regarding intellectual property rights is prohibited. Moreover, as the convention obliges member states to grant foreigners some minimal rights, it exerts some pressure to adjust their legislation to these minimal standards to avoid discrimination against nationals.\(^{137}\)

This principle has been criticized as unfair to the countries that have lower level of technological and economic development because it confers on the more developed members unlimited rights to the detriment of the others.\(^{138}\) There are proposals that state that the national treatment principle should be waived in order to help developing countries promote indigenous inventiveness and innovation through discrimination against foreigners in favor of their nationals.\(^{139}\) These kinds of contradictions have hindered the definition of an international institutional framework that facilitates the recognition and commercialization of technology. The definition of a general framework that allows all participants to profit from the system seems to be the best option.

\(\text{(2) General Overview of International Regime for Technology Transfer:}\)

An option for simplifying patent procedures was presented by the Patent Cooperation Treaty (PCT)\(^{140}\), which was established at a diplomatic conference at Washington in 1970.\(^{141}\) This treaty provides three basic procedures to facilitate the global protection of inventions: First, the creation of a single application for patent registration; second, an international search by a designated search authority of the application; and third, the transmission by WIPO of the application and a search report to all relevant patent offices.\(^{142}\) This system provides developing countries with search facilities and information about choices in the selection of appropriate

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\(^{137}\) Auer at 62.


\(^{140}\) See Hubmann at 73.

\(^{141}\) The group of experts established in 1970 proposed its own dissolution and the establishment of a Committee on the Transfer of Technology by the UNCTAD board. See Fikentscher, The Draft International Code, at 12.

\(^{142}\) Patent Cooperation Treaty, Articles 19 to 22.
technology imports. However, this treaty is not much utilized by developing countries, which perceive it as being cumbersome in its operation\textsuperscript{143}.

Technology transfer constitutes a key element in development, consequently a priority for developing countries should be the definition of suitable strategy that leads to the creation of an international institutional framework which promotes the transfer of technology to their economies. However, developing countries have not given enough importance to this priority. The current system, based on the territoriality principle, does not create optimal conditions for the free circulation of intellectual goods, because the global protection and value of these goods is always dependent on the specific protection that these goods will have in each country in which they can be traded. The territorial circumscription of intellectual rights is not effective in the creation of a global protection of intellectual rights. Thus, global protection is necessary to reduce the risks and transaction costs related to the commercialization of intellectual goods.

In general, the international system has concentrated on strengthening the recognition of intellectual property rights, rather than on promoting the diffusion of technology. As a result, the problem of the dichotomy between protection and diffusion of technology has not been properly solved by the international legal system. Recognition of intellectual property rights is important as an instrument in promoting technological development and compensation to inventors, but this should not be the only goal of the system. The friction between developing and industrialized countries in this area is aggravated by the definition of patents as property rights or monopolies and the lack of institutions promoting technology diffusion.

There have been sporadic efforts in promoting international technology diffusion. These are, however, nothing but partial and unsystematic solutions to a very complex problem. An example is Article 5 of the Paris Convention, which provides for the compulsory licensing of industrial property. This article gives member states the right to order compulsory acquisition of a patent or its compulsory licensing to another enterprise, in order to prevent abuses such as excessive prices, unconscionable terms and restrictive terms in patent licenses. This attempts have failed to prove fruitful. These failures can be explained by the lack of success in

\textsuperscript{143} Blakeney at 17.
defining an integral framework which promotes collaborative solutions, *i.e.*, which motivates participants to trade and share mutual profits.

Besides this, some United Nations organizations have the task of promoting technology transfer to developing countries. The United Nations Conference on Trade and Development (UNCTAD) is one such organization. One activity of UNCTAD has been the negotiation of codes on the elimination of restrictive business practices and on the transfer of technology. Since 1970 UNCTAD has been in charge of formulating and negotiating a Code of Conduct on the Transfer of Technology. The development of this Code was the result of demands of developing countries in the UN Assembly of 1974, which followed the decision to work on the establishment of a “New International Order”. The Code was intended to regulate restrictive business practices. However, these efforts have not yet fructified.

Rather activities of international organizations are concentrated on providing developing countries with assistance programs for the administration of their industrial property services. The World Intellectual Property Organization offers search reports to institutions in developing countries and training courses for administrative officials. The United Nations Industrial Development Organization has programs to strengthen the negotiating capacities of developing countries, such as publication of technology licensing guides and other manuals on these topics. Additionally, UNIDO administers the Technical Information Exchange System, which provides developing countries with data about the terms and conditions of licensing, know-how and technical assistance agreements. The Economic and Social Council of the United Nations has been currently negotiating a code of conduct governing the operations of transnational corporations in developing countries, which however has not been approved. A similar state has been encountered by the Draft International Antitrust Code at the WTO level. There is still a long way to go in order to expand the focus of the

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144 *Id.* at 6.
146 This Council is specialized on questions related to MNEs. See *Fikentscher*, The Draft International Code, at 18.
147 See *Fikentscher*, Wettbewerbsrecht im TRIPS, at 531.
148 *Id.* at 532.
technology problem from the mere recognition of property rights as a prerequisite for forming technology markets to the main problem, which is the creation of technology markets. Both goals, the control of the anticompetitive effects of patents in order to promote technology diffusion, and the protection of innovators in order to promote R&D, are considered separate problems and not as integrated parts of systemic unity\textsuperscript{149}. Only an institutional framework that considers the problem of technology promotion and diffusion in a systemic way can guarantee a stable international order for the promotion of technology development and diffusion. The unity of this system should be reached by an appropriate definition of the content and legal nature of the patent right which would allow it to conciliate all the interests involved.

The next chapter will analyze the general context in which technology transfer occurs. Emphasis is placed on the bargaining problems behind the current institutional framework of technology protection and on the way the Uruguay Round negotiations at the GATT introduced changes in the general institutional framework for technology transfer.

D. Summary and General Conclusions

1. Role of Technology for Development

Technology is the most important resource of production and the key to the progress of mankind\textsuperscript{150}. Thus, technology acquisition and mastery constitute a vital priority for developing countries. The traditional division of work between industrialized and developing countries is no longer sustainable. Traditional export products of developing countries are being substituted by new high technology products which could also be produced in industrialized countries. In order to remain competitive in the world's new economic order, developing countries need to change their technological base to produce a new range of products. This

\textsuperscript{149} Id.

\textsuperscript{150} See Fikentscher, The Draft International Code, at 39.
requires a change in the institutional framework for international trade, particularly in the institutional framework related to technology protection and transfer.

2. Technology Transfer as Negotiation Problem

Technology use has changed the culture and working methods in industrialized countries. The parameters whereby technology is created and commercialized should be understood by developing countries in order to define a clear negotiation strategy regarding technology transfer.

Since technology transfer necessarily implies a negotiation problem, developing countries should concentrate on developing their capacities in international negotiation. Appropriate bargaining is the catalyzing factor that allows the parties involved to reach solutions that correspond to an optimum pareto, that means, a situation where none of the parties could obtain additional gains without the situation of the others deteriorating. Optimum pareto is a situation where all the possibilities of mutual beneficial trade are exhausted. The development path of developing countries is directly related to their development of negotiation skills.

3. Problems Hindering Creation of Markets for Production and Commercialization of Technology

There are certain characteristics of technology which hinder the creation of markets for its production and commercialization. These appropriability problems cause market failures. The features of technology that entail appropriability problems are:

a) Technology can be reproduced and transferred without limitation.

b) Technology is quintessential public good, owing to the following factors: 1.- The use of technology by one agent does not preclude its use by another. 2.- Normally the producer of a new technology cannot prevent non-payers from using it. 3.- The act of consumption of technology, in contrast to ordinary commodities, is not destructive.

c) Technology diffusion deteriorates the market price of technology.

d) Relatively low cost of technology transmission.
In addition, the production and commercialization of technology present the following market failures:

a) Market uncertainties regarding success in the developing and commercialization of an invention.

b) Economies of scale in production and consumption of technology.

In order to confront the problems of appropriability, enterprises usually follow these strategies:

a) Maintaining secrecy of innovation and integration of R&D with production.

b) Increasing the scope of the firm and cooperation among enterprises.

Consequently, in order to promote technology creation and diffusion, a legal framework that provides a solution to the appropriability problem of technology is absolutely necessary.


The legal system has provided the institution of intellectual property rights in order to give technology the quality of an object of property and therefore an object of trade. This protection has traditionally been accomplished through the concession of property or monopoly rights (exclusion rights) over the patented technology. However, this protection entails the paradox that while it promotes the creation of technology, it hampers the diffusion of technology. In principle, the holders of property rights could oppose the diffusion of technology at their will. This may happen particularly when they do not manage to establish a profitable system for the commercialization of their technology, or when they prefer to keep it for themselves and exploit its market on a monopolistic basis. Because of the negative effects in technology diffusion and the abuses of technology owners exploiting their inventions on a monopolistic basis, many developing countries have refused to recognize intellectual property rights and maintain the thesis that technology should be a common heritage of mankind.

The international institutional framework for technology transfer is not very developed and it centers on technology protection, i.e., on intellectual property rights. This situation is inconsistent with the importance of technology transfer for
development. Since the institutional framework has concentrated on the protection of technology as private property, it has not solved the basic problems of international technology transfer: the need to harmonize rights of owners and users, and to control monopolistic abuses. Technology requires the recognition of intellectual rights at an international level in order to be able to circulate internationally. This recognition has been achieved at a national level, which implies that the object of international trade, intellectual property rights, will change their content when transferred to other countries. This uncertainty increases the costs of international technology transfer.

The international institutional framework should provide solutions to integrate technology markets in order to reduce the costs of transactions of technology transfer and facilitate commercialization of technology. Intellectual rights constitute a prerequisite in solving the appropriability problem of technology. They are a necessary but not sufficient condition for technology transfer. Other market failures, such as the existence of economies of scale and high transaction costs and uncertainties in the production, commercialization and consumption of technology, hamper the development of technology markets. As a result, without an appropriate institutional framework intellectual property rights protection may lead to monopolies, which, instead of promoting the diffusion of technology, hinder it.

Technology transfer requires a very efficient institutional framework which allows technology owners to find profitable ways to commercialize it. This institutional framework should present efficient solutions to the appropriability problems of technology and to market failures. It should facilitate the establishment of cooperative relationship among enterprises in order to exploit technology jointly and reduce the risk and costs of transactions. It should also include norms of antitrust law to control abuses of enterprises in market power positions.
II. INTERNATIONAL TECHNOLOGY TRANSFER AND PROMOTION AS A BARGAINING PROBLEM

A. Elements of Technology Transfer Negotiation

1. Introduction

Chapter one reviewed the basic problems of the current institutional framework of technology. General aspects of the problem generated by the definition of property rights in technology were mentioned. In this chapter the problem of technology protection and diffusion will be defined and analyzed as a bargaining or negotiation problem. The main goal is determining the basic problems that have hampered the definition of an institutional framework for technology transfer at an international level.

Chapter one also introduced the position of developing countries regarding the reciprocal recognition of intellectual rights provided by the Paris Convention.

Developing countries have questioned whether intellectual property rights bring them a positive balance\textsuperscript{151}. Nationals of developing countries generally produce very few technological discoveries that could be valuable at an international level. In the case of a valuable discovery, they always have the option to register their patents directly in industrialized countries. Additionally, the recognition of intellectual rights originating in developed countries implies renouncing their free use\textsuperscript{152}.

Because this system centers on the warranty of intellectual rights rather than in the creation of a commercialization system of technology, developing countries have criticized this system for responding mainly to the interests and needs of developed countries and have traditionally considered that the costs-benefits relation of this system is negative for them\textsuperscript{153}. They have perceived the system as contributing to the perpetuation of the technology imbalance between North and South, and the


\textsuperscript{152} See Fikentscher, the Draft International Code, at 6.

\textsuperscript{153} See Penrose, E.T at 233, and Oddi at 877.
industrialized countries’ exploitation of developing countries. This situation has also been interpreted as an element of economic colonialism. The critique goes to the extreme of comparing this system with a colonialist chain. As a result, many developing countries have refused to recognize intellectual property rights, or have restricted them through conditions that make their protection difficult.

Since technology today is the main source of development, it is clear that the achievement of technology transfer constitutes one of the key elements of development. This gives a vital importance to the bargaining of technology transfer. The newly developed countries of Asia are a clear example of this situation. These countries managed to acquire large technology transfers and large investments, which allowed them to industrialize in a relatively short period of time, while Latin America and Africa have relative low development rates.

This situation may be explained by the following example: Brazil spends $17 billion each year paying the interest on its national debt and $3 million in royalties for foreign technology, while Japan has no foreign debt but pays about $2 billion each year in royalties for foreign technology.

Mutual beneficial technology transfer is dependent on the bargaining capacities of its parties. A good example of this is given by the bargaining strategies used by Korea: “When the Japanese refused to license peroxide technology to Korea in fear of losing its market in the country (Korea imported 100 percent of its peroxide from Japan), Koreans turned to the US, who was willing to license the technology to enter the new market. When large semiconductor firms in Japan and the US were reluctant to transfer semiconductor technologies to Korea, Korean firms were able to negotiate one dozen licensing agreements with small semiconductor firms in the US between 1983 and 1985. These small firms were

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154 See Pacón at 330.
155 See Oddi at 877. He affirms that "Developing countries, many only in this century, have been freed from the political chains of colonialism; nonetheless, in many instances, economic chains of colonialism still remain. The international patent system is one of the links in these chains ".
159 Dr. Karl Jorda of the Franklin Pierce Law Center, cited by Brown at 352.
willing to sell the technology for a quick infusion of cash during the business slump in semiconductors. When the Japanese refused to license video cassette recorder (VCR) technology to Korea, Korean enterprises employed reverse engineering of Japanese products, augmented by technical consultancy provided by foreign engineers recruited on a short-term basis by the Korean firms.¹⁶⁰

In order to analyze any bargaining process it is necessary to understand the context in which it takes place and the main attitudes of the parties involved. The first section of this chapter explores the possibilities for technology owners and developing countries of obtaining mutual profit by technology transfer. It shows that there is a scope of mutual gain for both sides, which leads to the prediction that both parties will negotiate. Our main concern is to determine how technology negotiation can allow both parties to exploit all opportunities available, i.e., that the outcome constitutes a *pareto optimum* equilibrium, whereby all the possibilities of mutual beneficial trade are exploited and no party can obtain benefits without creating sacrifices for the other party.

It is typical that negotiation processes do not reach a *pareto optimum*. Normally, parties cannot see all the negotiation opportunities and have prejudices about the position and needs of the other party, thereby not measuring correctly their true position and opportunities.¹⁶¹ Negotiation is a dynamic process where each party learns about the attitudes of the other and about its own possibilities. The strategy of each party will conform to the dynamics of negotiation, creating a system in which the reactions of each party are partially due to the perceived attitude of the other side. The exploitation of all the opportunities of trade depends on how the parties are able to determine exactly their alternatives and costs, and conceive of the best possibilities of mutual gains. It also depends on how each party is able to convince the other about the objective frontiers of negotiation, and the costs and benefits of the presented alternatives, so that a final solution corresponding to the actual available potential is found.

This chapter will focus on the dynamic elements of negotiation, the interest of the parties, the context of negotiations that they confront, their bargaining strategy and the solution they reach. The chapter will conclude with recommendations on

¹⁶⁰ See Kim, Linsu, Pros and Cons of International Technology Transfer, at 232-233.
how to focus on the bargaining problem of technology transfer in order to optimize the gains for all parties involved.

2. Technology Transfer as a Collaboration Relationship

a) Traditional Perspective of Negotiation

Since developing countries are net importers of technology and developed countries net exporters of technology, at first sight, the conflict of interests between both sides appears to be the general conflict of interests between the buyer and seller of a good. In general, technology transfer takes place between two enterprises. The supplier is usually a multinational corporation that is able to expand its activities to foreign markets, normally having only commercial interests in the transfer of technology. Its typical interests are to sell its product in a new market (export), increase its production facilities in new environments, take advantage of favorable economic conditions (cheaper labor, etc.), or just profit the possession of knowledge and technology that could be sold or licensed. On the other hand, the main interest of the enterprise that acquires technology is to exploit this technology. Thereby technology acquisitions improve an enterprise’s advantages over competitors as they increase its productivity, or give it the capacity to offer new products. Technology transfer represents a negotiation between enterprises sharing mutual main goals, namely to increase their actual or potential profits. Technology transfer definitely brings benefits to recipient and supplier countries.

The traditional perspective of negotiation will argue that technology suppliers are interested in obtaining maximum profit (highest price) at minimum costs, while technology buyers are interested in obtaining the maximum amount of technology paying the minimum price. This traditional perspective regards the problem of technology transfer as a one-shoot bargain problem: each party tries to exploit the


162 The net return from technology transfer by developed countries has been positive overall in terms of trade, employment and consumer benefits in developed countries. See Kim, Linsu, Pros and Cons of International Technology Transfer, at 235, who quoted Organization of Economic Cooperation and Development (OECD), North/South Technology Transfer: The Adjustment Ahead, Paris, 1981.
other to the maximum, using all tools available to increase its short-term profit without caring if the other part is satisfied with the transaction.

Markets provide a solution to this conflict of interest. One of the advantages of the market transactions is that no party can permanently take advantage of the other’s lack of information. Markets will make it difficult for parties to obtain a rent or a benefit additional to what the party will be disposed to pay when having full information. The knowledge that the market will score the relevant information in order to adjust its reaction in the next negotiation will urge the parties to try to achieve long-term stable relationships based on the evaluation of the transaction in an objective way. In this case, parties will tend to take into account the general situation of the market and not the partial ignorance of one party about the relative scarcity or the advantages of each product. This situation will be normal when a technology market develops.

**b) Technology Transfer Requires a Collaborative Relationship**

Dominant management literature states that informal sharing of information among enterprises reduces firms capabilities to profit from their R & D. It has considered that profits can be only protected when the important information is keep in the firm excluding competitors\(^\text{163}\). This position explains why transfer of technology has not bee very popular among firms. Thus, the fact that parties are not aware of the possibilities of mutually beneficial exchange of information has hindered the development of an institutional framework facilitating technology transfer.

Technology transfer usually requires a certain duration and stability. It normally integrates a sequence of commercial deals which usually embrace some of the transactions and procedures required to get a plant into industrial production\(^\text{164}\). These activities have traditionally encompass: identification of technological needs with the objectives of economic and social development, acquisition of information about alternative sources of technology, evaluation and selection of the most appropriate technology; evaluation in terms of suitability, cost and conditions of the components of technology packages; the negotiating of the best terms and conditions.


\(^{164}\) Blakeney at 3.
conditions, the adaptation and absorption of imported technology; and the optimal exploitation and utilization of the imported technology within all sectors of the recipient economy.\(^{165}\)

The collaborative nature of technology transfer contracts can be better understood if we analyze their content. Technology transfer implies more than the negotiation and performance of the grant or assignment of knowledge incorporated in an intellectual property right. It also includes the transfer of unprotected technical knowledge (know-how) in the form of documents or services. Only a part of the technology can be easily transferred through the intangible process in which any body of knowledge is diffused, for example, by studying the text of the registered patent, or by reading documents in which the know-how is explained, or by analyzing the product created with the technology (reverse engineering). Normally, technology use requires mastering a know-how that cannot be easily imitated or acquired without the collaboration of the enterprise that mastered it.

Know-how also includes assistance in the commissioning of an industrial plant; the sale or lease of machinery or the provision of services in relation to the sale or lease of machinery, as well as the provision of services to assist in the recruitment and training of staff and the institution of managerial and accounting procedures. Additionally, it can embrace services in relation to the marketing and distribution of the plant’s products.\(^{166}\)

Therefore, technology transfer can only be successfully achieved under a stable collaborative framework. A confidential relationship is required, particularly since the protection of know-how is achieved by keeping it secret. In addition, during the negotiation, parties require the definition of objective criteria of fairness in order to consolidate a stable relationship. In the time, the sequential and stable nature of these contracts enable parties to collect all the necessary information to check the accuracy of the information they received at the first negotiations.

Thus, the ultimate success of the licensing venture depends on the success of the licensee. This success depends on the ability of both parties to establish and

\(^{165}\) See WIPO, Licensing Guide For Developing Countries, 1977, 17.

\(^{166}\) Blakeney at 3.
nurture a productive relationship developed over time\textsuperscript{167} for mutual benefit\textsuperscript{168}. These elements lead to the conclusion that technology transfer should be considered a relationship rather than an act\textsuperscript{169}. When both parties frame the negotiation problems of technology transfer as a one-shot deal, obtaining concessions that will later be considered abusive by the other, the relationship of trust could deteriorate, in detriment to both parties. Therefore, each party should be concerned with the perception of the negotiation that the other side has and to try to ensure that the general context of negotiation is objectively valued as just. If the licensee, for example, perceives the payment as too high, then there is a strong incentive to find ways of avoiding it\textsuperscript{170}. Thus, the interest of both sides should be to focus on obtaining the maximal long-term gains from the technology negotiation, in terms so that the function “long-term income minus long-term costs of all transactions involved”, be maximized.

Technology transfer requires a collaboration culture, whereby parties are willing to exchange information. Transfer of information is mainly based on the expectation that given relevant information to competitors will improve their willing to cooperate and sharing the important information they have\textsuperscript{171}. As a result, both parties increase their know-how and the whole system improves its efficiency on a mutual beneficial basis. Thus a sense fairness, whereby parties do not seek to enrich without given something in return constitutes a central aspect of technology transfer. Technology transfer is favored by a system that propitiates sharing information and simultaneously succeeds in developing a culture and a institutional framework preventing unjust enrichment.


\textsuperscript{168} See Weidersheim-Paul, F., Licensing as a Long Run Relation. Working Paper 1981/2. Centre for International Business Studies, University of Uppsala, Sweden (1982/2), 20. This study confirmed that the reason for success or failure of Swedish firms licensing to foreign companies depends little on the licensing object itself but rather on the patience of the parties in building a long-term mutual beneficial relationship.


\textsuperscript{171} See Schrader, Stephan and Stattler, Henrik, Zwischenbetriebliche Kooperation: Informaler Informationsaustausch in den USA und Deutschland, 53 DBW 589, 603 (1993). The willingness to share relevant information is higher in the US than in Germany. \textit{Id.}
The price of each transfer is not the only relevant variable for both sides. For the acquirer, more important is the profit resulting from his increased competitiveness and the reduction, by an adequate assessment, in the production and marketing risks that the introduction of a new product or process technology implies. The quality of the transfer of technology and the ability of the transferee to learn will determine the costs for both sides of the transfer. Since the degree of collaboration among the parties determines the level of the mutual gains, technology transfer can be described as an exercise in relationship management\(^{172}\).

The same effects produced by a stable collaboration between parties can be created by defining a suitable institutional framework promoting the development of technology markets. This institutional framework facilitates firm’s engaging in licensing, since participants may presume that the institutional framework guarantees good faith and provides of suitable rules to harmonize their interests.

Thus, there is a relation between the economic success of an enterprise and the disposition of its employees to informally exchange important information\(^{173}\). Therefore, in addition to the payment for the transferred technology there are other sources of mutual gain for the provider of technology which can constitute a solid basis for profit recovery. For example, it may be possible to look for complementary means of generating income from relationships such as cross-licensing or associated exports\(^{174}\). This situation stresses the fact that the technology transfer implies more than simply selling a technology, it is choosing a partner for a mutual beneficial relationship.

The development of technology markets allows firms to increase their profit possibilities\(^{175}\). Thus, the existence of a suitable institutional framework facilitating negotiation of technology, and the development of a culture of mutual beneficial exchange of information may allow the development of technology markets. This institutional framework allows firms to assume that participants are framing the transfer of technology as a collaborative relationship. This makes firms willing to sell of license their protected information and enter in mutual beneficial exchange of information.

\(^{172}\) See Welch, L. S., The International Marketing of Technology, at 375.

\(^{173}\) See Schrader and Stattler at 604.

\(^{174}\) See Welch, L. S., The International Marketing of Technology, at 373.
In conclusion, since the efficiency of transfer of technology is depending on the ability of participants to create a collaborative framework, a legal framework capable to harmonize the interests of participants is absolutely necessary to promote this transfer. Prevention of unjust enrichment while promoting sharing of information are key elements of the institutional framework for transfer of technology.

c) **Collaboration Possibilities at International Level**

At the international level the situation is similar to that presented at the level of the negotiation among enterprises. Furthermore, there are global considerations which increase the reasons for interest in technology transfer to developing countries. Industrialized countries are also interested in the development of markets in the Third World. This maximizes the amount of possible stable transactions with developing countries, increasing the opportunities for exports and investments in mutually beneficial conditions. Today, the export-import trade is concentrated among industrialized countries and the performance of the major market economies has been seriously impaired by problems of global demand\(^{176}\). The export potentials of these countries are dependent on the development of markets in developing countries. The consolidation of new markets of technology and related services brings new export opportunities for enterprises in industrialized countries and also possibilities of increasing investments abroad.

Developing countries are interested in increasing their production potential. In order to solve their trade balance deficit, they require increases in the national component of goods consumed in their markets and increases in their export potential. This requires technology transfer. Such a transfer takes place in the form of direct investment or collaboration agreements between local and foreign industries. In order to assure a stable transfer of technology, developing countries should be willing to negotiate the largest transfer of technology and finance resources in terms that are mutually beneficial for both sides, and increase the global benefits obtained from the whole amount of transactions. They should find a way to negotiate a patent framework that enables innovators to profit from

\(^{175}\) *Id.* at 87-89. See also *Buckley* at 87-89.

\(^{176}\) *UNCTAD*, The Deflationary Gap and Adjustment in the North, at 92-93.
technology transfer and simultaneously controls the negative effects of monopolies and market power situations of Multinational Enterprises.

3. **Obstacles for Defining a Collaborative Framework for Technology Transfer**

a) **Role of Multinational Enterprises in Technology Transfer**

Multinational enterprises (MNEs) have played a very important role in technology transfer, because of their ability to perform international transactions\(^{177}\). They also account for a substantial proportion of industrial employment and exports to developing countries\(^{178}\). Most of the technology transfer is done through private transactions, particularly with the participation of MNEs. For this reason, it is very important for developing countries to understand how MNEs operate, in order to define suitable bargaining strategies which improve technology transfer, employment and national development.

The early activities of MNEs explain partially why developing countries adopted a defensive strategy against them. Notwithstanding, governments of developing countries normally negotiate with these firms having little information and understanding of their operation. An example of this is India’s negotiations with IBM and Coca Cola. India wanted all foreign firms to conform with the new legislation requiring at least 50 per cent local equity participation in the Indian subsidiaries of foreign firms and access by the Indian partner to the technology used by that subsidiary. This situation resulted in Coca Cola and IBM discontinuing operations in India. India overestimated the strength of its negotiating position (because India accounted for a very small share of their worldwide sales). Additionally, India did not take into account the way these companies have developed and their worldwide functioning. It was public knowledge that Coca Cola has a non-patented formula for the concentrate that made the company famous and, thus, they were not going to risk exposing their know-how to the public domain. Similarly, IBM has always insisted on retaining full ownership of its foreign subsidiaries. This has been an important policy for the company’s

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corporate identity and its internal value system since it was founded by Thomas J. Watson 179.

The comprehension of the way in which these enterprises make their strategic decisions and the understanding of their actual development can help developing countries in reframing their strategy. It can give clues about how to define terms of negotiation that improve the transfer of technology and other resources to their economies.

(1) Theory of Industrial Organization and Ways to Transfer Technology

Traditionally, the activities of MNEs concerning technology transfer were performed through direct investments in developing countries, therefore maintaining control over transmitted technology. This situation evolved when the changing economic and social conditions in the world forced them to develop other forms of technology transfer, including new forms of investment 180 such as license, know-how and management as well as joint venture contracts, whereby intellectual property rights are usually involved. The causes of these phenomena will be explained in this section. In the next two sections the evolution of the MNEs activities will be analyzed.

Since MNEs are the principal source of technology transfer, it is important to understand how they motivate their decisions for technology transfer. Technology transfer is carried out in three main ways: First, through the export of products that incorporate this technology, such as commodities or machinery; second, through direct investment and joint ventures with local producers; and third, through contracts of technology commercialization. Developing countries are interested in technology transfer as it furthers their production frontier. For developing countries, commercialization of technology and joint ventures and direct investments are the most interesting forms of technology transfer, and they have the most vivid impact on economic development, as they directly increase the production capacities of the country. However, technology commercialization and joint ventures have the advantage that rather than creating competition between

179 Id. at 10-11.
180 See Oman, Charles, New Forms of International Investment in Developing Countries, Paris, 1984, 17.
MNEs and local firms, a competition which may induce the bankruptcy of local firms, it allows locals to establish cooperative relationships with more advanced enterprises in order to improve their technological capacities. Both undertakings benefit. Local firms increase their technical capacity and competitiveness, thus their income. Foreign firms benefit from the increased income of local firms, obtaining a participation as joint venture partner or receiving payments for their technological services.

The theory of industrial organization explains the existence and functioning of MNEs. It analyzes the factors that influence these enterprises to commercialize or keep their technology. MNEs exist because they have intangible capital in the form of trademarks, patents, general marketing skills and other organizational abilities\(^{181}\). They can exploit this know-how and technology by exporting, licensing or producing locally. Their decisions are usually based on profit maximization, not only on a short-term basis, but also when there is enough economic and political stability, on a more long-term basis.

In the domestic market, large enterprises have been more readily able to exploit alternative means of reaping the benefits of R&D such as reliance on product differentiation, advertising and effective sales forces\(^{182}\). Since profit coming from technology transfer have been traditionally overlooked, this firms have preferred to appropriate the benefits on investment in R&D excluding competitors and taking profit of the advantages created by being the inventor, i.e., being the first to use the invention (lead time), having better abilities to use the invention (learning curves); and the advantages generated by their economy scales (including sales and service efforts)\(^{183}\). Patent protection itself scored quite poorly as an device for taking profit of the invention\(^{184}\). In foreign markets, MNEs have some inherent disadvantages compared to local producers, as they must bear costs of operating in an unfamiliar and possibly hostile environment, and their costs of organizing foreign activities are higher. Thus, in order to survive, MNEs must create and


\(^{184}\) Id.
preserve effective barriers to direct competition in commodity and resource markets worldwide. They can only survive abroad if their production or marketing edge cannot be purchased or duplicated by local competitors. It is a This inherent disadvantage as opposed to local firms usually causes MNEs to commercialize their knowledge in the form of license, etc., but only when the institutional framework allows them to use technology as a tradable product. This applies particularly to specific product or process technologies. Consequently, patent protection is necessary to motivate MNEs to commercialize their technology in the case that export or direct investments were not the best option. However, a very strong protection of technology, which hinders competitors from having access to technology, motivates MNEs to exploit the foreign market through exports or direct investments rather than through technology transfer to competitors. A strong patent protection is essential however, for smaller firms in the initiation of innovation, which may need to collaborate with larger, established firms to bring the development to fruition or penetrate a market successfully. An adequate framework should find a middle way of protection, taking into account the market power of the enterprises, in order to promote technology transfer.

The lack of appropriate protection for certain forms of knowledge is another factor which causes MNEs to decide against commercializing their technology. In many cases this intangible capital takes the form of organizational skills that are inseparable from the firm itself. This is the case for know-how about new-product development and adaptation, quality control, advertising, distribution, after-sales service and, in general, the ability to read changing market desires and translate them into salable products. Thus, market imperfection often leads to corporate attempts to exert control directly, via the establishment of foreign affiliates. Multinationals will do this only if the benefit of circumventing market imperfections outweighs the administrative and other costs of central control. For this reason, in many cases technology will not even be transferred by export or direct investment. For this reason, it is important that the institutional framework

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185 Shapiro, Alan C. Multinational Financial Management, Boston, 1992, 412-413.
186 Id. at 412
188 Shapiro at 412
provide practical solutions to protect this know-how in order to enable MNEs to unbundle these services and sell them apart from the firm. Certain protection is available through know-how protection.

Other reasons that encourage MNEs to maintain control over the technology through affiliates are the institutional difficulties involved in coordinating economic activities via arm’s length transactions in the market place. In order to avoid difficulties in different stages of the production of a particular commodity, MNEs will use vertical integration (direct investment across industries that relate to different stages of production). In the same way, MNEs will go to horizontal integration through direct investment in order to utilize an advantage such as know-how or technology and avoid the contractual difficulties of dealing with unrelated parties. An example of these complications is the inability to price know-how or to write, monitor and enforce use-restrictions governing technology transfer arrangements\textsuperscript{189}. For this reason the institutional framework has a great influence in determining whether a multinational will be better off controlling the use of its technology directly, rather than selling or licensing it.

Thus, in order to promote technology transfer, it is absolutely necessary to develop an appropriate international institutional framework that takes into consideration the economic background of technology production and commercialization. This institutional framework should create the conditions for the reduction of the transaction and performance costs (including risk) for both sides and for the improvement of the available information about suppliers and demanders. The increase in volume of possible deals can reduce the price of each transaction and promote the worldwide use of technology transfer services. In addition, it should define appropriate rules to protect competition\textsuperscript{190}.

(2) Traditional Bargaining Scenario - Market Power of MNEs

(a) General Aspects

The ways MNEs originated can explain partially the difficulties that developing countries encountered while defining a win/win bargaining strategy with MNEs.

\textsuperscript{189} Id. at 413.

\textsuperscript{190} See Fikentscher, Wettbewerbsrecht im TRIPS, at 532-533.
Underdevelopment is a relative concept, developing countries are underdeveloped in relation to industrialized countries. This situation means by definition that enterprises and markets in developing countries are easily controlled and depend on financial and technical resources from industrialized countries. Consequently, MNEs can relatively easily exert market power in these countries. This power emerges from the possession of higher technology, finance resources and organizational capacities. This market power also emerges from the possibility of MNEs to integrate a number of separate, but complementary activities when buying and selling inputs and outputs in imperfect markets.

MNEs have the important ability to manipulate transfer prices as well as output levels of production and local selling prices, which enables them to avoid even the most severe controls. This problem is aggravated by the imperfect markets of developing countries, which facilitate enterprises from industrialized countries to exert their monopolistic power. For developing countries, this situation implies the danger that local producers could easily be driven out of the market and, in general, that the markets could be manipulated by anticompetitive tactics of these enterprises.

Additionally, depending on how enterprises frame the risk and the evolution of their activities in foreign countries, they could seek other goals that differ from the pure maximization of surplus. Generally, activities in foreign countries are complementary or accessory to the activities in industrialized countries. This situation explains why MNEs may choose to use their market power to assure other global objectives not related to the economic performance in production, like risk reduction, growth, protection from future competition, etc. For this reason, the transfer of technology and its adaptation to the production conditions of developing countries do not always tend to be consistent with the developmental goals of these countries.

191 Concerning MNEs ability to manipulate transfer prices between their subsidiaries see Tugendhat, Christopher, The Multinationals, London, 1971, 137-149.

192 MNEs may manipulate prices with the hope of forcing the rival to close down its operation in the country concerned. Id. at 139-140.

In the beginning of the 19th century, MNEs became more complex and efficient as they developed very complicated technology and organizational frameworks. This increased the technological gap with developing countries and their market power. In general, the evolution of MNEs has been characterized by the exploitation of monopolistic or oligopolistic market structures. The overseas affiliates have, as a main interest, the protection of the parent system’s market position, precluding rivals firms from entering in the market and spoiling the market for indigenous competitors. The activities of MNEs during this period gave rise to several critiques. They rarely exported technology capacities and their intervention was negative for the development of local technological capabilities. In addition, the transferred technology usually led to sub-optimum market structures in the host country. Dunning refers to this situation as follows: “There does seem to be evidence that part of the “potential” surplus profits of MNEs was spent on not transferring the kind of amount of technology which would have occurred had the affiliates been self-contained profit centers; and certainly, although this became more apparent in later years, by not engaging in secondary processing activities and (by the fact of their presence) disallowing other indigenous firms to do so.”

The participation of foreign firms in the capital-intensive primary product sectors at first, and later in the manufacturing sectors, allowed them to have control over these sectors. The power of these undertakings increased in the period between World War I and World War II because of the rationalization of enterprises and the formation of international cartels. The firms expanded mainly through vertical integration, in which they encouraged the replacement of spot or contractual transactions by hierarchical control, mainly to guarantee the flow of some raw materials. Furthermore, these firms gained control over distribution channels and over the development of managerial and organizational innovations.

During the post-war years, there was a massive rise in international trade and production in the industrialized world, which promoted a further expansion of MNEs. MNEs increased their power as they could profit from the increasing imperfect markets of technology. A series of international oligopolies were

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194 *Dunning* at 86.
195 *Id.* at 89.
196 *Id.* at 87.
197 *See* Cantwell, John, Technological Innovation and Multinational Corporations, Oxford, 1989, 1.
created, characterized by their rivalry and their efforts to retain their global position\textsuperscript{198}. They found more interest in internalizing the use of technology rather than selling its rights to other firms. Technology was transferred mainly to one-hundred percent owned subsidiaries in order to protect their technological position against market failure and as a competitive strategy\textsuperscript{199}.

At the end of the 50 and 60s, technology became a more important resource of economic efficiency. As a result, there was an increasing concern about the internalization of the technology producing firms. This concern not only included the ability of MNEs to obtain monopoly rent from their asset power but also to control both the amount and type of technology transferred, as well as the conditions attached to it. In Europe it was feared that the emerging US MNEs would only transfer some kinds of production and managerial technology, which could make this region a manufacturing satellite of the US\textsuperscript{200}.

\textit{(b) Comparison of Different Strategies to Control the Market Power of MNEs}

The awareness of the power of MNEs influenced governments to define policies in order to control their activities. The European countries applied principally anti-monopolistic legislation to control abuses of the MNEs’ monopolistic position and promoted the creation of a great common market whereby the power of MNEs would dissolve. These countries managed to find a solution that achieves both objectives: to increase the competition among enterprises while at the same time increasing the general business opportunities for multinational enterprises. On the other hand, developing countries usually framed the problem in terms of North-South conflict, valorizing negatively any kind of foreign capital and control over the economy. This situation was aggravated by the fact that many of these countries had just gained independence from colonialism. They adhered to nationalistic positions rather than building collaborative relationships. As a result they failed to reach both objectives: the business opportunities decreased and the few MNEs that remained increased their market power because of lack of competition.

\textsuperscript{198} Id.
\textsuperscript{199} Dunning at 87-92.
\textsuperscript{200} See Dunning at 92 and Cantwell at 1.
Worth mentioning, the bargaining strategy of East Asian governments was to improve government-business relationships. Governments sought to advance the process of private sector capital accumulation as a whole and to induce dynamic private investment activity, the local commercialization of foreign technologies and the commitment of enterprises to expand market share. For example, the Japanese government, through the Ministry of International Trade and Industry (MITI), was constantly searching for ways to ensure that its societal objectives were achieved through the actions of the private sector, pursuing, as freely as possible, its own goals. The general strategy of these countries was to stress the degree of convergence of government and business goals, ignoring the conflicts of interest that arose from time to time and developing specific institutional mechanisms for policy formulation and deployment of particular tools of policy implementation. Moreover, typical for the Japanese bargaining strategy was formulation of government policy in partnership with large business, through study groups, research and consulting groups that hear and incorporate the views of academics, industry officials, consumers and other interested parties. Special conditions, such as the small number of large corporations, facilitated industrial consensus, while subcontracting relationships with smaller enterprises provided a means to create a climate of coordination. Subcontracting relationships between large and small enterprises were widespread, creating a network, whereby, for example, small firms provided parts for larger firms. In this way, the contradictions between large and small firms were solved through cooperative association. This leads to the conclusion that the most important factor of success of the Far East policy was its ability to create an institutional framework to improve the bargaining abilities of the parties and to reach a pareto optimum. As a result, an industrial network was consolidated, where technology could flow.

The departure point of the government and the general atmosphere of bargaining with clear principles of consensus and technical capacity gave Japan an important bargaining power when confronted with foreign suppliers. Foreign suppliers were

\[202\] UNCTAD, The Visible Hand and the Industrialization of East Asia, at 53.
\[203\] Id. at 54.
\[204\] Id. at 56.
\[205\] Id. at 55.
aware of the profit opportunities in that market and the existence of a clear bargaining structure in Japan. They were forced to bargain and to reach a consensus of the importance of obtaining a *pareto optimum* in their negotiations. Foreign suppliers were encouraged to enter into licensing agreements with local firms, and royalties represented the only way they could profit from the Japanese market\(^{206}\). The definition of a clear policy of negotiating technology imports, based on a precise evaluation of the bargaining power of the parties and the existence of clear bargaining principles due to the established institutional framework significantly reduced the costs and enhanced the effectiveness of the absorption of foreign technologies in the Far East countries\(^{207}\).

Japan, for example, profited from the existence of a pre-war technology base and promoted a rapid increase in R&D expenditures that enabled domestic firms to evaluate, adapt and improve imported technology. In addition, they created an appropriate institutional framework to manage a global innovation policy. The pre-war technology base also allowed Japan to pressure for technology transfer through restrictions of trade and direct investment until trade liberalization in the 1960s and 1970s\(^{208}\). The existence of such a policy, combined with an appropriate intellectual property protection framework, made it attractive for foreign undertakings to do business in the country by licensing their technology. This made it possible for Japan to improve its technological capacities exclusively through importation of technology, since the only way for foreign firm to exploit their technological superiority was by selling their technology, even though they may have preferred to export their products or start their own production in Japan.\(^{209}\) Thus, the strategy of Japan was centered in willingness to make payments to technology importation. These payments were in the amount of 64 billion yen in 1988 and were the largest among major countries. However its percentage of the GNP, 0.17%, was similar to the major European economies, even though it was larger than the USA (0.04%)\(^{210}\). Japan’s policy of restricting foreign investments to promote licensing was only feasible under the specific circumstances of the

\(^{206}\) *Id.* at 60.


\(^{209}\) *Id.*
Japan economy and innovation system\textsuperscript{211}. Developing countries are more dependent on foreign capital and have a lower technology base, whereby direct investments may play an important role for their growth. The most important lesson from this model is Japan’s ability to establish a mix of policies which enables them to define a win/win negotiation framework.

In contrast to Japan, developing countries failed to measure the costs of assuming a non-cooperative position with MNEs. They realized that they required access to foreign capitals, technology and export markets in order to achieve a sustainable development. However, they undervalued the contribution of the MNEs to world trade, based on their provision, management and marketing skills\textsuperscript{212}. They believed that the transfer of these resources could be de-internalized and that they could obtain them on the open market, buying them through non-equity foreign involvement, or reproducing them through indigenous capacity\textsuperscript{213}. Instead of developing a win/win negotiation frame with MNEs, as the European Union and the newly developing countries of Asia did, they created a hostile atmosphere toward MNEs.

Developing countries did not confront the fact that during the 50s and 60s, the international market for capital and technology was extremely imperfect and dominated by the MNEs. Also, they did not pay enough attention to those special conditions required for initiating and operating enterprises that could join capital, technology and management abilities with correct decision making about which technology and products are adequate for further development. In this sense, developing countries fought the monopolistic power of MNEs with the false presumption of classical economics: that by “spontaneous generation”, the market and entrepreneurial initiative of local firms will supply all the elements needed to substitute for the transfer of technology and capital performed by MNEs. They did not give enough importance to the fact that they still needed to learn how to find where technology could be obtained, how to buy it at the right price and how to

\textsuperscript{210} Id. at 86-87.
\textsuperscript{211} Id.
\textsuperscript{212} Dunning at 95.
\textsuperscript{213} Id. 94.
organize technology with other factor inputs and how to adapt it to local needs.\textsuperscript{214} And all this required precisely the development of the skills needed to negotiate with MNEs.

As for the MNEs, they did not manage to assimilate the political changes in developing countries in order to propose and negotiate operations in terms that could assure stability and low risk based on a win/win position. MNEs probably overestimated the benefits of 100\% ownership of their affiliates, giving too much importance to the possible loss of control that joint ventures and licensing could bring. This is why other more collaborative form of operation such as joint ventures usually did not materialize\textsuperscript{215}.

(3) New Scenario: Consolidation of International Markets of Products and Emergence of Technology Markets

(a) General Aspects

Since 1965 there is decisive development of international markets of both, commodities and also technology. This development is specifically caused by the explosion of new industrialized countries in Asia. As a result, western developed countries are aware that no nation can maintain technological leadership through stringent controls of technology outflows\textsuperscript{216}. Moreover, since the supply side of alternative sources of technology is increasing, firms may have to transfer their technology. In order to maximize their returns from their technologies, these enterprises require expansion of sales and extension of the economic life of their technologies and products\textsuperscript{217}. This new paradigm has reduced the asset power of MNEs and improved the bargaining capabilities of host governments vis-à-vis MNEs. As a result, commercialization of technology expanded in many sectors involving mature technologies, where product innovation is limited. Additionally, commercialization of technology was present not only as technical assistance agreements, but also as management contracts, turnkey operations, etc. This


\textsuperscript{215} \textit{Dunning} at 95.

\textsuperscript{216} \textit{Kim}, Linsu, Pros and Cons of International Technology Transfer, at 235.

\textsuperscript{217} \textit{Id.} at 235, see also 232-233.
contractual flow of technology is replacing foreign direct investment as the main transferring vehicle of technology. In this sense, MNEs are now promoting increased cooperative association among other enterprises in order to commercialize technology\textsuperscript{218}.

Dunning\textsuperscript{219} explains this phenomenon with the following reasons, which interrelate with each other to create a new schema of international trade.

(1) The asset power of the MNEs has been reduced rapidly since 1965 because of the clear trend towards the perfection of the international markets. This tendency is consolidating, not only due to the growing competition between MNEs but also because of the reduction of transaction costs for the transfer and/or the creation of many kinds of knowledge. There is also a tendency to standardize products and technology of production, which makes price competition more important.

(2) The structure of international markets is changing as the new industrial leaders emerge. Europe and Asia have consolidated their position as technology and industrial centers, which are competing with US MNEs on a global market. Japanese and South East Asian MNEs are generating their own advantages and specializing in technological areas. While Japan specializes in robot technology, USA has advanced in micro chip, biotechnology and information technology. This situation motivates the commercialization of technology among enterprises from different technological centers.

(3) Some costs of transaction and creation of many kinds of knowledge have been reduced. This applies especially to the technology introduced in the 50s and 60s. There is a standardization not only of products but also of technology of production which facilitates the acquisition and commercialization of technology. Furthermore, the sources of commercial information and knowledge are widening. The capacity to generate technology on one’s own or to use the technology available on markets has increased dramatically. This phenomenon has involved not only the industrialized countries, but also some developing countries, especially the larger developing countries of Latin American and the rapidly industrializing Far East countries.

\textsuperscript{218} Oman, Charles at 17.
\textsuperscript{219} Dunning at 96-102.
(4) The concentration among MNEs has increased, as they have diversified their particular product-supply to the market. MNEs have increased their transaction cost economy by widening the range of products, processes and associated activities. This has been done by innovation, takeovers or mergers; additionally, by changing their structures to gain versatility. This is caused by the continued innovation of MNEs to create new products or processes and by their policy to diversify in order to take advantage of their economies in transaction-costs.

Thus, the new schema of international trade is characterized by technologies proliferation, products becoming multitechnology-based, increasing pressure on organization to show a faster and very positive return and the increase on competition. This constitutes an important pressure to create cooperative linkages connected with transfer of technology, because enterprises can not rely any more on its own R&D ressources and are obligated to outsourcing technology.220

The restructuring of MNEs in order to diversify was performed in several ways. They have gone into backward or forward process diversification or presented vertical diversification between parent and subsidiaries, reallocating activities. For example, they have concentrated some activities, such as research and development, in industrialized countries and transferred export processing activities in less developed countries.

Other ways to achieve this goal is rationalization of the existing diversification. Following this strategy, MNEs develop a division of labor among affiliates, either of intermediate or final products, and then create trade among them. In this way, affiliates are treated as part of an integrated production and marketing strategy so that each plant is assigned specific functions that are not duplicated elsewhere. In this case the interests of a branch are subordinated to the whole.

These changes in the MNEs structure have made it less important to MNEs to maintain control over specific technologies, since their power is not based any longer on the control over these technologies. MNEs have created new discretionary power for manufacturing, based not on the command over a single technological asset, but on the possession of resources which are complementary or synergistic to each other. This allows MNEs to have complete control indirectly over the transferred technology. As a result, many MNEs realized that
“relinquishing some degree of control over certain types of technology transfer
does not necessarily reduce their capacity to obtain full economic rent on that
technology”221. This situation improves the conditions for the commercialization of
technology.

In general, the improvement of markets for many kinds of technology and the
reduction of control over technology as an instrument for maintaining market
power has played a definitive role in the lowering of the adverse effects of MNE
behavior in respect of technology transfer222. This leads Dunning to foresee
conditions for the gradual dissemination of an increasing proportion of the world’s
technological stock, with a fall in the discretionary power of any institution to
exert monopolistic rents from its own part of that stock. The growth of the newly
industrializing countries (NICs) improves even more the conditions for
commercialization of technology and increases the hope for the least advanced
developing countries to increasingly obtain from MNEs the technology they need
223.

On the other hand, this diversification of MNEs has increased the distributional
consequences of their activities. Their ability to coordinate separated but related
activities could allow MNEs to assume a useful arbitrage function. This arbitrage
could contribute to a more efficient resource allocation than could otherwise have
been made and to reduce the costs of transferring technology across national
boundaries224. However, this transaction power could be used to further defensive
oligopolist behavior or to promote organizational interests at the expense of one of
its affiliates, which implies that the net benefit accruing to particular host countries
may be minimal225.

Nevertheless, this integrated structure of the MNEs increases the dependency of
the parent system on each affiliate. This contributes to increasing the bargaining

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221 *Id.* at 101.
222 *Id.*
223 *Id.* at 104.
224 See *Caves, Richard E., Investment and Location Policies of Multinational Companies*, in
Schweizerische Zeitschrift für Volkswirtschaft und Statistik 3 (1980) at 321, 321-38. See also
*Williamson, Oliver E., The Modern Corporation, Origins, Evolution, Attributes, 19 Journal of
225 *Dunning* at 99.
power of the host government, since MNEs became more vulnerable to actions taken by host governments.

(b) COMPARISON OF THE DIFFERENT STRATEGIES TO CONTROL THE MARKET POWER OF MNEs

This new scenario stresses the need of developing countries to define a clear bargaining strategy to exploit the new opportunities to develop technology markets and to reduce the adverse effects of the new structures of MNEs. The transaction power of MNEs makes it important for developing countries to define a strategic behavior regarding MNEs, which allows them to assure that the activities of the MNEs bring them a fair benefit. Therefore, both parties must realize that social costs and benefits are not the same as private costs and benefits and be aware of the mutual costs and benefits in order to find an institutional framework that harmonizes their interests.

Most developing countries have maintained a position of nationalization and expropriation of MNEs affiliates, particularly in the natural resource sectors, as an instrument for stopping what they perceived as an abuse of the position of MNEs. This situation increased the costs of operating for MNEs because of the risks of expropriation and other equivalent measures. It also politicizes the investment and operation decisions, which are dependent on the relationships of the MNEs with the government and on the momentary political position of the actual party in power. This hampered the transfer of financial and technological resources to these countries, with losses for both sides.

Today, most developed countries have changed their former policy and tend to control instead the asset power of MNEs and search for benefit from their transference of technology and capitals. This goal can only be achieved within a cooperative context, through a new international framework. This framework is necessary in order to foster conditions for competition between enterprises, integration of markets, such as the European integration, and to provide instruments to control the monopolistic activities of MNEs. This is a more efficient way to induce MNEs to stop abuses, because it ensures a context of mutual gains, whereby the risk is reduced by the clarity and fairness of the operation rules.
The new conditions in which these enterprises operate require the definition of new controlling instruments, especially tax policies and intergovernmental measures. Additionally, an international institutional framework is required to foster the development of technology markets. This development can only be achieved by reducing the risk and transaction costs of technology transfer and in general, by defining clear rules that facilitate international cooperative relationships among enterprises.

In conclusion, the development, rapid diffusion and mastery of technology constitute the basic elements in the acquisition of comparative advantages and competitiveness in international markets. Consequently, developing countries should struggle for the creation of an international framework that promotes the transfer of technology under market-based conditions. This institutional framework should allow MNEs to obtain profit from the commercialization of their technology, but should not grant them too much power that would enable them to consolidate a monopolistic exploitation of the market. This is a suitable way to harmonize the interest of developing countries in controlling the market power of MNEs while simultaneously obtaining the transfer of technology and finance resources they need for development. The challenge for the future is the expansion of institutional and bargaining capacities in order to create a market of technology, that enables the international flow of technological resources in terms that benefit all parties involved.

b) *North-South Conflict and Concentration on Redistribution Mechanisms by Developing Countries*

Although the need to create a collaborative institutional framework constitutes a priority for developing countries, this task has been very difficult to achieve. The general context of the negotiation of this institutional framework has been characterized by continuous stress and conflict between industrialized and developing countries.

The term “North-South conflict” took on great relevance in the world during the first decades that followed World War II, when, paradoxically, the greatest

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increased rates in international production and world trade occurred. The power of multinational corporations consolidated in the world and the differences between the rates of development in Northern and Southern countries became enormous. The main reason for this difference is the increasing technology gap between these two regions of the world and the continuous dependence of developing countries on the traditional export of agricultural goods and raw material to industrialized countries. The activities of multinational corporations, which replaced the incipient industries in developing countries, strengthened the dependence of developing countries. These countries feared that their dependence would increase in the future. For this reason they struggled to assume direct control over the international trade and flow of investments in order to move things to the other direction.

Developing countries denounced the abuses of industrialized countries during the colonial period and the unfair trade conditions characterized by a constant deterioration of the terms of trade. They attributed their poverty, unemployment and dependence mainly to the abuses of industrialized countries and multinational enterprises. These problems and the corresponden solutions were defined in the economic policies suggested by Raul Prebisch in the 1950s, who suggested rapid development of the manufacturing industry by direct governmental intervention in the economy, so as to seek protection for import-competing manufacturing. This lead many developing countries to discourage direct foreign investments and to avoid integration into the world economy. The world-view of this economy policy emphasized the economic and political vulnerability of developing countries in the face of more affluent and powerful developed countries, which where regarded as responsible for the external international system that was unfavorable for development.

The declaration of Cocoyoc in Mexico is an example of this position. It attributes the causes of Latin America’s technological, economic and social backwardness not only to its outdated social structures, but also to the existing international

229 Id.
institutions and conventions\textsuperscript{230}. This position is intensified by the clear awareness of the great difference in wealth between developing and industrialized countries.

This brought about the developing of new ideals about the need for a new international economic order and criticism against the unresponsiveness of the multilateral system to the social problems in developing countries and, in general, to the abuse of the dominant position committed by colonial countries and their enterprises\textsuperscript{231}. In 1949-50, two-thirds of the world population possessed only 15\% of the world income\textsuperscript{232}. At the international level, the new independent countries pressured during the 60s for the establishment of new UN organizations such as UNCTAD and UNIDO, and took control over international organizations in which the number of votes and not the economic power of the member countries counted. Framing the problem of underdevelopment from the “North-South conflict” perspective, caused the dialogue between industrialized and developing countries to deteriorate, creating an atmosphere of defiance between these two blocks.

At the political level, the period was characterized by the struggle for independence of former European colonies and the flourishing of the communist ideal in many countries. The problem of the North-South conflict was aggravated by the emergence of the East-West Conflict, because the Soviet Union tried to expand its zone of influence promoting communist revolutions in developing countries. By this time, the communist ideals were struggling for assertion in developing countries, bringing into question the principles of private property and market economy in which industrialized countries progressed. Governments were urged to directly intervene in productive activities and started to confiscate and nationalize enterprises.

The risk of a communist revolution politicized the North-South conflict even more. Consequently, developing countries neglected the need to fortify the private sector and expand production capacities, and tried to secure stable social conditions through redistribution policies and international aid. The social and


\textsuperscript{231} Fikentscher, The Draft International Code, at 7-8.

\textsuperscript{232} Mangalo at 350.
political instability of developing countries deteriorated their bargaining abilities because there was no general consensus about the way in which the economy should develop, and the swing between right and left parties implied radical changes in the property and market institutions. There was no paradigm that could define a clear way to harmonize economic progress and social justice. Instead of looking for a system that could coordinate the achievement of these two goals, developing countries assumed radical positions.

As a result, Latin American began to use the legal system to redistribute wealth even at the expense of deteriorating the conditions for production. These countries followed a strategy based upon the idea of the nation-state and its interventionist possibilities. There was a tendency for using legislation to reconcile different particular interests, favoring expropriation or confiscation measures from some sectors in order to redirect resources to sectors that had political influence. Political decisions affecting productive sectors considered more the short-term effects of the measures and their political impact in the next election period than their impact on long-term developing strategies.

This situation caused developing countries to view the problem of underdevelopment fundamentally as a distribution problem and to disregard the importance of improving their technology capacities and, in general, their economic efficiency. Contrary to the Asian Tigers, they did little to encourage market discipline and fiscal discipline of the government and neglected the developed of local competitiveness to integrate into the world economy. The concept of “uneearned income” as the income obtained from the state not as payment for a productive contribution but as a result of some perhaps temporary privilege, describes the way in which Latin America and other developing countries confronted the their problems, which originated from lack of technology and adverse economic conditions during this period. Additionally, developing countries did not pay enough attention to the fact that their problems also originated from the concentration of wealth within their own territories and

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233 See Fikentscher, The Draft International Code, at 27.

234 See Winham at 125-126.


236 For a detailed explanation of this phenomenon see De Soto, The Other Path, The Invisible Revolution in the Third World, New York, 1990,189 ff.
the social and cultural factors that created and perpetuated this situation. Therefore, the solution of the North-South conflict also requires changes in the poor-rich conflict in the south\textsuperscript{237}.

As a result, developing countries neglected confrontation of their main problem, that is, how to define a viable path for the development of their production frontier and to move their productive activities to other industries that could be more profitable and competitive in a changing world. They noticed that foreign direct investments lead to foreign dependency, since direct investments do not usually transfer investment capability (capability to set up or expand new production systems) or innovation capability (capability to innovate new products and processes), particularly when the parent company undertakes direct investment to exploit the local market\textsuperscript{238}. However, they disregarded the possibility of direct foreign investments, and in some cases restricted it. They overlooked that direct foreign investment definitely does transfer production capacity (capacity to operate and maintain a production system)\textsuperscript{239}. They also neglected the fact that in order to improve gains from technology transfer, it is absolutely necessary that these countries ameliorate their own bargaining abilities not only at the international level, but also at the national level. The experiences of other countries, like the newly industrialized countries (NICs) in Asia, demonstrate that the lack of local absorptive capacity to assimilate, adapt and improve imported technologies, and not technology transfer, is what had lead to dependency on foreign suppliers\textsuperscript{240}.

The general atmosphere of conflict and the concentration on redistribution mechanisms as the main instrument for giving temporary relief to their current problems created a negative framework in Latin America for defining terms of mutual collaboration at the internal and international level. This situation moved these countries away from seeking \textit{pareto optimum} bargain conditions, on a

\textsuperscript{237} Fikentscher states that, concerning the North-South Conflict, the separating line should not be drawn between developing countries on one side and industrialized countries on the other. Rather the line should be drawn between the poor of the south and the proponents of antitrust of the north on the one side, and the established industry and trade in the north plus the few rich in the south on the other. Thus, the problem is not merely distributional one, but how to create an antitrust-controlled market economy, between rich and poor everywhere. See Fikentscher, The Draft International Code, at 27.

\textsuperscript{238} Kim, Linsu, Pros and Cons of International Technology Transfer at 236. See also Ernst, Dieter, Automation, Employment and the Third World - The Case of the Electronics Industry, The Hague: Institute of Social Studies (IDPAD), 1984.

\textsuperscript{239} Kim, Linsu, Pros and Cons of International Technology Transfer, at 236.

\textsuperscript{240} Id.
win/win basis. The solution to this problem requires awareness conscience that the internal and external negotiation problems of developing countries are interrelated, and constitute a system that requires a global and integrative approach. In order to improve the capacities of developing countries to negotiate transfer of technology, they should define a negotiation strategy that motivates not only international but also national enterprises to harmonize their goals with the national interest. A win/win negotiation framework can enable the parties to find profitable activities which are also suitable for enhancing the social and economic development of these countries. In order to improve their capacities to assimilate, adapt and improve imported technologies, developing countries should promote their technical development at all levels, including the marginal sectors. This requires a local win/win approach, which allows all participating sectors of capital and labor to benefit from the increasing technological capacities of the country. The promotion of indigenous technology efforts at all levels is an important requirement to improve technology absorption and bargaining. The distributional approach alone, which has normally been implemented with a framework of conflict, is unsuitable for solving this paradigm.

c) Recent Changes Toward Solution of the North-South Conflict: Integration of Developing Countries in Global Markets

In the mid-1980s, developing countries began to challenge their development model and their traditional North-South conflict perspective. This can be explained by four factors. First, there was the demonstrable effect of the economic performance of the newly industrializing countries in Asia, seeking to integrate into world markets, modernize their public institutions and promote a competition market economy and foreign investments. Second, there was the economic crisis of developing countries, which collapsed the model of developing countries based on populist policies and public intervention by governmental bureaucracy, that was characterized by government budget deficit and increasing foreign commercial debt. Third, the collapse of communism as a development model and political force in world politics occurred, providing political legitimacy.
to the concept of the market at the expense of the concept of government interventionism. And fourth, there was the pressure from international financial institutions, particularly the IMF and the World Bank. The world recession of 1981, followed by the debt crisis of developing countries increased the dependence of these countries on foreign aid. Consequently, the international financial institutions directed by the USA acquired power to pressure developing countries to enforce market structures through their capacity to impose conditions for the receipt of capital transfers. These changes in domestic economic policy towards integration in a global market system, based on the development on competition abilities, led to new trade policy objectives, which were more consistent with the GATT multilateral negotiations. Developing countries were forced, but also convinced, that the only way to overcome their economic crisis was through developing an international framework that allows them to gain access to foreign markets and to develop their technological capacities through foreign direct investment and technology transfer.

As a result, at the end of the 1980s they began to change their position regarding intellectual property, and also started to consider intellectual property rights as instruments to promote foreign investments and the transfer of technology to their countries. Developing countries began to respond to the challenge of abandoning the allocation of resources by governmental authority, and replacing it with the creation of a free market economy based on international trade, which is capable of adjusting to the needs of the changing economy.

This change should be accomplished not only at the local level, but also in the way the international system is conducted.

d) Need to Develop Technology Markets

The creation of markets constitutes a vital element for technological progress. Market conditions and market promoting institutions are the result of an
institutional framework that maximizes the transfer of information necessary for automatically adjusting transactions to the needs of all parties involved. The rationality of markets enables parties to adjust their behavior to cooperative actuation and to accept the reality of existing economic conditions. Markets allow the development of supply and demand, as they motivate transactions that imply mutual gain. Hence technology transfer should focus on the development of an institutional framework that enables the creation of such markets.

Transfer of technology usually requires the performance of a systematic and complex package of services. This package has not been supported by a well-organized institutional and economic market, in part, because of its newness. Normally, trade was performed in material goods. Consequently, the existing institutions were created to respond to the needs of this kind of transactions. Markets of services are relatively new and require the development of their own institutional framework. Technology markets have an even greater need for such an institutional framework. The uncertainty generated by appropriability problems and externalities is so important that the existence of technology as a tradable good is dependent on the presence of an appropriate legal system. In addition, technology transfer, as every learning process, requires deep cooperation between the parties involved. An adequate legal framework is required for creating solutions to these problems, so that parties will be motivated to cooperate. Technology markets can only exist when the appropriability problems of technology are solved and the transaction costs are so reduced that an enterprise will prefer to commercialize its technology instead of excluding others or keeping it a secret. Without a suitable institutional framework, transaction costs and risks are too high for the parties and, thus, the development of a technology market remains hampered.

The decision to transfer technology is a commercial decision. Enterprises may have the main goal of increasing profit in the short or medium term, or the achievement of other goals related to its economic performance, for instance, maintaining competitiveness, introducing into new markets or creating strategic alliances with other suppliers in order to gain access to certain information. Due to underdevelopment of technology markets, technology unlike other economic
goods is normally not produced directly for supply\textsuperscript{249}. As a result, it is difficult for enterprises to produce technology directly for sale to others. Technology is generally produced by the Research and Development (R&D) departments of enterprises that required it. Therefore, the most common way to transfer technology is through the supply of goods or of a plant and machinery, rather than through the direct commercialization of technology. This situation is generated not only by the lack of an appropriate framework for technology transfer. This problem is concomitant with the present negotiation culture, thereby creating a vicious circle. The innovation system based on the protection of intellectual property rights is not concentrated on motivating enterprises to commercialize their technology. It focuses on the protection of rightholders by excluding the users of technology. As a result, the system had favored use of intellectual property rights for the consolidation of monopolies. As a result, not all technology is available for sale, some technology is available only through direct investment.

Another important variable affecting the decision to commercialize technology is the size of the market. Technology production and commercialization involve high starting costs, but offers great possibilities of profit, because of the existence of important economies of scale. For this reason, the size of the market constitutes an important factor for making it profitable for an enterprise to commercialize its technology. The smallness of technology markets in developing countries and the high transactions costs that they present, due to insufficient institutional framework conditions, limited the profit-making opportunities of technology transfer in these countries. The smallness of technology markets in developing countries is one of the main difficulties in technology transfer. This situation is aggravated by the deficiencies in their legal framework, which generates high costs of appropriability of technology. Consequently, expensive legal and technical studies are normally necessary in order to design a suitable product that can be commercialized. As a result, rather than adapting technology for the particular needs of developing countries, corporations will offer the same technology they are commercializing in developed countries, or possibly, outmoded technology which they can no longer sell in developed countries\textsuperscript{250}. A proper institutional

\textsuperscript{249} Blakeney at 4.

\textsuperscript{250} Chudson, W.A. The International Transfer of Technology to Developing Countries, New York, UNITAR, 1981, Chapter 2.
framework is needed to integrate these markets and create business opportunities that allow firms to specialize and concentrate their commercial efforts on offering suitable products and services in developing countries.

The existing limitation of technology markets and institutional framework reduces the bargaining power of the recipient countries. This bargaining power is usually inferior to that of the transferor because of the disparity in financial resources between the parties and because of the necessity for the technology acquirer to offer sufficiently favorable terms to overcome any perceived investment risks attributable to dealings in developing countries\textsuperscript{251}. The integration of markets and the definition of an appropriate institutional framework in developing countries may improve the bargaining power for technology transfer of local enterprises. It will motivate more firms to enter into this market, thereby reducing the monopolistic power of the few existing MNEs through increasing competitiveness.

e) Problems Originated by the Current Legal Framework

Even though there are important forces that motivate parties to a fair transfer of technology, it seems that parties have problems in taking advantages of them not only at a the national, but also at the international level. The basic contradiction of interests between developing and industrialized countries takes place when intellectual property rights are used to affirm market power positions. A strong protection of technology through property rights accentuates this problem.

The current institutional framework is not well developed to promote commercialization of technology and consolidation of technology markets. The private property framework tends to invite MNEs to use intellectual property rights to consolidate monopolistic positions rather than to commercialize technology and to promote technology markets. The discussion about intellectual rights enforcement has been centered on the need to concede private property rights or patent monopoly rights rather than on the need to define proper institutions to conciliate interests. The creation of technology markets also requires protection of developing countries against the power of enterprises and

\textsuperscript{251} Blakeney at 4. Also Article 2(viii) of the Convention Establishing the World Intellectual Property Organization.
countries of the industrialized world\textsuperscript{252}. However, it has been impossible to find consensus for the definition of general antitrust rules at the international level, even under the WTO\textsuperscript{253}. This has accentuated the problem of the North-South conflict and explains why parties at the national and international level have difficulties to discern the potentials of technology commercialization clearly. The current legal framework does not seems to offer suitable solutions for these problems.

B. Multilateral Negotiation of Intellectual Property Rights and Technology Transfer at GATT

1. General Context of Negotiation

As industrialized countries base their exports on goods with a high component of technology\textsuperscript{254}, they traditionally seek protection of intellectual property rights primarily as a guarantee for their current competitiveness\textsuperscript{255}. In order to maintain this competitiveness, they require not only continuous development of new technologies, but also opportunities to globally use them in an organized legal system\textsuperscript{256}. As a result, the current international framework for technology protection focuses on the interest of protecting intellectual property as an instrument for securing the current competitiveness of industrialized countries. This stresses the contradiction of interest in regard to developing and industrialized countries.

On the other hand, industrialized countries have failed to confront the fact that they need markets to sell their production, and this can only be achieved with the development of foreign markets, particularly in developing countries. The development of foreign markets, particularly in the third world, requires

\textsuperscript{252} See Fikentscher, The Draft International Code, at 27.

\textsuperscript{253} See Fikentscher, Wettbewerbsrecht im TRIPS, at 531-532.

\textsuperscript{254} In 1986 intellectual property was a component present in 27\% of U.S. trade. See also Gadbow, R. Michael, Intellectual Property and International Trade: Merger or Marriage of Convenience? 22 Vanderbilt Journal of Transnational Law 223 (1989), 232.

\textsuperscript{255} Schmidt-Diemitz, Geistiges Eigentum und entwicklungspolitischer Technologietransfer, 1988 GRUR Int. 287, 291.

transference of technology to developing countries. Consequently, both industrialized and developing countries should have interest in finding ways to promote a mutual beneficiary transfer of technology. The GATT negotiations are a clear example of this problem. They were an important effort to create an institutional framework which solves the actual contradictions between technology promotion and technology diffusion in a collaborative context.

2. Introduction of Intellectual Property Rights in GATT

a) US Proposals

Although technology transfer constitutes a vital interest for developing and developed countries, the topic was not negotiated in a systematic and integral way at the multilateral level. Before the introduction of this topic at the GATT negotiations, the World Intellectual Property Organization was normally the UN organ responsible for the multinational negotiations on intellectual property rights. It assumed the role of promoting the development of intellectual rights, but in the UNO context, in which developing countries enjoy a majority, and the dialogue has been influenced by the North-South conflict.

Although the creation of an international institutional framework for technology transfer constitutes a priority for developing countries, the recent developments in this field result from pressure by the US. The US was urged to initiate a new discussion about technology protection, motivated by its problems of trade balance and the increase in technology piracy in some Asian and Latin American countries. Its main interest was to combat the unauthorized reproduction of intellectual property arguing that this unauthorized reproduction distorted the trade system\(^\text{257}\). US industrial sector pressured through a strong lobby for more international protection of intellectual goods\(^\text{258}\). It presented several studies showing that trade of counterfeit goods reduces the export opportunities of US industry, causing enormous loss in exports and an aggravation of the trade deficit of the USA\(^\text{259}\).

\(^{257}\) Winham at 111-112.
\(^{258}\) Id. at 123.
\(^{259}\) For a detailed summary of these studies, see also Emmert, Intellectual Property in the Uruguay Round-Negotiating Strategies of the Western Industrialized Countries at 1319-1328.
Because the trade deficit increased in the late 80s\textsuperscript{260}, the US government was urged to undertake an active role in promoting exports. The US Congress responded by passing legislation empowering the Executive to take unilateral sanctions against countries that failed to provide intellectual property protection to US manufacturers\textsuperscript{261}. As a result, the USA pressured GATT members to discuss the matter at the Uruguay Round, taking it away from WIPO.

Because of the predominance of developing countries WIPO’s decisions, the USA did not regard it as an opportune forum for discussing the problems of technology protection and transfer. This position is justified by the argument that in WIPO group interests of the developing countries dominates, since they are importers of technology, as opposed to developed countries. This leads to blocks in negotiations, if not even to a deterioration of the protection of intellectual property rights\textsuperscript{262}. The US believed that under the existing political context of the North-South conflict, there was no possibility for agreement among the great number of member states of the Paris Union\textsuperscript{263}. In addition, the USA referred to the need to establish dispute mechanisms and sanctions to discipline countries that were not recognizing and protecting intellectual rights. Because sanctions normally constitute restrictions in international trade, there were enough justification to introduce a discussion over intellectual property rights in the GATT\textsuperscript{264}.

On the other hand, developing countries did not regard this situation as an opportunity to discuss improvement of the institutional framework for transfer of technology since they were aware that the main interest of the US and, in general, of industrialized countries in enforcing intellectual rights resided in their need to stop the existent large-scale pirating of patented products. For the industrialized countries, the main goal of the protection of intellectual property rights was to

\textsuperscript{260} Faupel, Rainer, GATT und geistiges Eigentum. Ein Zwischenbericht zu Beginn der entscheidenden Verhandlungsrunde, 1990 GRUR Int. 255, 255.

\textsuperscript{261} Winham, at 123.


\textsuperscript{264} Winham at 255.
hinder “unfair” competition from new industrialized countries in international markets, particularly, the counterfeit goods\textsuperscript{265}.

Intellectual property rights were introduced in GATT discussions with the term “Trade Related Intellectual Property Aspects” (TRIPS). The introduction of such rights at GATT level was controversial. The US announced that it would bar selected imports from Brazil due to that country’s unwillingness to prevent the “piracy” of intellectual property of US companies by Brazilian manufactures\textsuperscript{266}. This created antagonism between US and developing countries. Brazil, supported by numerous developing countries, protested before the GATT Trade Negotiations Committee. The announcement of the US was seen as a violation of the GATT and the standstill obligation on new trade restrictions included in the Punta del Este Declaration\textsuperscript{267}.

\textit{b) General Principles of GATT’s Forum}

The GATT was, in the end, a proper forum to discuss the establishment of a new framework for technology protection. It offered the USA the necessary mechanisms for pressuring GATT trade partners to adjust their intellectual rights legislation towards US standards, and, at the same time, offered conditions for an integral discussion about the required international institutional framework to foster the commercialization of technology. In general, it presented an opportunity to write completely a new treaty covering all aspects of intellectual rights protection. Furthermore, GATT offered an opportunity to include other aspects related to trade, which are not specifically related to intellectual property protection, but are important for creating a suitable system of technology transfer\textsuperscript{268}. Meanwhile, at WIPO, the contradiction of interests between developing and industrialized countries had practically paralyzed negotiations\textsuperscript{269}.


\textsuperscript{266} Winham at 112.

\textsuperscript{267} Id.

\textsuperscript{268} See Emmert at 1345.

\textsuperscript{269} Faupel at 256.
Moving the discussion of intellectual property rights from WIPO to GATT brought what negotiation theory called “Creating and Claiming Value”\textsuperscript{270}. The GATT framework offered conditions for a global analysis of the problem of technology transfer and for increasing the commitment and disposability of parties to implement the agreements. Consequently, it offers better conditions for bargaining towards an \textit{pareto optimum} solution.

At GATT, parties had the same vision about the benefits of mutually opening their markets and participating in free trade. The main principle of the GATT forum is to reach decisions through the creation of a consensus among the participants rather than imposing agreements by force\textsuperscript{271}. The commitment of the bigger economies in reaching an agreement is also high. In this case, the more export oriented an economy is, the more interested it will be in fortifying the GATT system, which implies that the bigger industrial countries will be compelled to find an agreement. Another important principle of GATT is that the result of the agreement should improve the situation of all parties in a win/win framework, which is necessary to warrant that the agreement will be respected. Therefore, trade-offs are necessary to complete the negotiations. The existence of a large number of participants assurer that the trade-offs might be sufficiently attractive to ensure success\textsuperscript{272}. The principles of consensus and single undertaking assure that a consent of all countries in all issues is required to reach multilateral agreement\textsuperscript{273}. As a result, developed countries could not be indifferent to developing country demands and still expect to conclude an agreement\textsuperscript{274}. All parties participate in the agreement voluntarily, as long as they benefit from it.

Furthermore, only at the GATT the problem could be negotiated at a global level, where the multiple interests of the parties might integrate. In this case, parties could find trade off between their different interests when the costs of the sacrifice are more than overruled by the concessions obtained by the others. The negotiation principle of GATT foster a \textit{pareto optimum} solution because the parties will negotiate globally all their trade off, in terms that “together, all


\textsuperscript{271} Winham at 123.

\textsuperscript{272} Id. at 116 and 122.

\textsuperscript{273} Id. at 122.

\textsuperscript{274} Id.
outcomes are mutually dependent and jointly, they must bring a total outcome at the end of the Round”. This might bring all participants a balance of benefits. Because every topic is related to the success or failure of the negotiations, the participants will try to find constructive solutions for everyone. In addition, GATT presented a time pressure for influencing participants to maintain an active position\textsuperscript{275}.

These characteristics of GATT’s forum are important for interpreting the final text of the TRIPS Agreement.

3. \textit{North-South Conflict Framing at TRIPS Negotiations}

The way the GATT negotiations developed can illustrate the difficulty of technology negotiations within the current framework. Parties were not clear about the positive or negative effects in developing countries of a stronger intellectual property rights protection. The discussion was centered mainly on the proprietary protection of technology, not on the need to define a global system that allows mutual gains\textsuperscript{276}.

\begin{itemize}
\item \textit{a) TRIPS as Promoting the Market Power of Industrialized Countries}
\end{itemize}

Although the main interest of industrialized countries to pressure developing countries into developing higher standards of protection for intellectual property rights, was motivated mainly by their own economic interests\textsuperscript{277}, their justification was the maxim that without protection there is no innovation and transfer of capital and technology\textsuperscript{278}. TRIPS was framed not as an instrument for promoting technology transfer, but primarily as an instrument for benefiting industrialized countries, particularly the USA, at the disadvantage of developing countries. The most industrialized countries joined the USA trying to take advantage of the opportunity to consolidate worldwide protection of intellectual rights, even though they did not agree with the anti-WIPO position of the USA.

\textsuperscript{275} Faupel at 256.

\textsuperscript{276} See Fikentscher, Wettbewerbsrecht im TRIPS, at 532.

\textsuperscript{277} Emmert at 1335-37.

\textsuperscript{278} See Faupel at 260, and Emmert at 1335-36.
From the beginning, the US took a strong bargaining position. It pressured for the recognition of TRIPS, notwithstanding the negative effects for developing countries. Furthermore, the USA wanted for a total revision of the WIPO system. This extreme position had the advantage of increasing the US scope of negotiation, because all the trade-offs from this extreme position would be regarded as gains by developing countries and even the European countries. Because of the GATT framework, the US knew there was no risk that negotiation would be interrupted. Parties knew that at the end of the negotiations consensus should dominate in all decisions. All were interested in improving international trade and had a strong interest in maintaining the actual access to international markets, particularly, their advantages in the US market. Since a rupture of negotiation would be considered a loss by all parties, it was difficult for parties to interrupt negotiations as protest against US pressures. Parties knew that there were no alternatives to a negotiated agreement; this guaranties that the point would be negotiated seriously.

However, this position enforced the traditional view of developing countries that the main goal of strengthening intellectual property rights was the conservation and increase in the market power position of MNEs. This influenced developing country’s adoption of a defensive strategy and moved parties away from searching for possibility of defining a mutual beneficial framework for transfer of technology. Developing countries unwilling to sing off in TRIPS brought negotiations to a standstill. As a result, negotiations concluded in 1991 with the major trading had been unable to yield settlement.

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280 For a discussion for the importance of alternatives to negotiated agreement, see Sebenius, James, Negotiation Analysis: A Characterization and Review, in 38 Management Sciences 18, 27 (1992).

281 Faupel at 257.

282 Winham at 114.
b) **Defensive Strategy of Developing Countries**

(1) **General Background**

Continuous changes in the world’s economy, especially due to the progress of science and technology force countries and enterprises to adapt continuously to new requirements in order to remain competitive and to take advantage of new opportunities; otherwise products and production methods become obsolete. Nevertheless, some developing countries lack a perspective of how to confront these problems. As a result, they tend not to assume an active role, but a reactive position in regard to their problems. They blame the failures and problems on the industrialized countries, rather than looking for ways how to control and take advantage of the existing conditions. Developing countries are forced to confront the rise of new production systems dominated by multinational enterprises. Additionally, they must realize the fact that the terms of trade of their traditional products are decreasing as technology makes their traditional export products relatively abundant and increases the opportunities to substitute them with other products which could be produced in industrialized countries. In order to survive, developing countries need to adjust their structures to the new requirements of modern technology and to learn how to negotiate with new economic forces in order to reach win/win agreements.

Instead of accepting this situation, many developing countries avoided facing their need for change and blamed their bad economic situation on industrialized countries and their production structures. They were correct that their need to change comes from changes in production and organization technologies in industrialized countries. But this position of censure diluted their energy to adapt and hindered their necessary economic transformation\(^{283}\). This situation is aggravated by the abuse of many enterprises in developing countries, which used to take advantage of their market power to guarantee a monopoly rent from their activities.

\(^{283}\)This situation is analogous to the defense mechanisms that hinder humanbeings in confronting and adapting to changing circumstances, keeping them in a vicious circle that takes them away from reality. See *Lauster*, Peter. Lassen sie sich nichts gefallen. Die Kunst, sich durchzusetzen, Dusseldorf, 1995. 51-65.
(2) **Rejection of Developing Countries to Introduce TRIPS to GATT Negotiations**

The defensive position of developing countries moved them to actively oppose the negotiation of TRIPS\textsuperscript{284}. At the beginning of negotiations, it was clear that developing countries were ready to recognize the need to stop counterfeit trade, but were not ready to renounce the preferential system they had enjoyed, which allowed them not to recognize intellectual property rights. They also opposed the drafting of mandatory minimum standards for intellectual property\textsuperscript{285}. Developing countries focused their attention on the gains they would obtain by not recognizing intellectual property rights and not being obliged to pay royalties to technology owners. In general, developing countries entered negotiations expecting an unfavorable outcome and holding on to national economic objectives that were incompatible with the GATT multilateral trade negotiations\textsuperscript{286}. They regarded the introduction of intellectual rights as an instrument for strengthening the market power of MNEs. They argued that intellectual property rights were not a traditional topic of GATT and should not be included in the negotiations\textsuperscript{287}. This position can be justified by the existing tendency in industrialized countries to overlook the importance of defining an institutional framework which favors access to technology\textsuperscript{288}.

Developing countries did not realize that minimum standards of protection could also bring them direct benefits. They did not contemplate the whole situation, and focused primarily on the market power that intellectual property rights generate. They feared that comprehensive protection of intellectual property rights would increase the gap between North and South, and raise their cost of access to the latest technologies\textsuperscript{289}. In addition, developing countries felt that the GATT was

\begin{itemize}
\item \textsuperscript{284} Winham at 123.
\item \textsuperscript{285} Emmert at 1353.
\item \textsuperscript{286} Winham at 116-117.
\item \textsuperscript{287} Id. at 123.
\item \textsuperscript{288} For example, Fikentscher states that: “Making everyone the holder of subjective rights and duties and creating markets under the Rule of Law is much more important than “access” to technology”. Fikentscher, The Draft International Code, at 37. However, the first condition should not exclude the second, since, as is going to be analyzed in Chapter 4, the definition of a proper institutional framework requires not only granting innovators protection rights and defining a framework to control evident abuses, but also the definition of suitable protection rights which promote technology diffusion instead of inviting a monopolistic exploitation of the technology.
\item \textsuperscript{289} Pacón, Ana María, What will TRIPS do for Developing Countries, in Beier, Friedrich-Karl and Schricker, Gerhard (eds.), From GATT to TRIPS, The Agreement on Trade-Related Aspects of Intellectual Property Rights, 18 IIC Studies, Weinheim, 1996 at 329, 330.
\end{itemize}
not the most appropriate forum to define rules regarding intellectual property rights because it did not offer the same conditions as WIPO to defend their interests.\footnote{Id. at 330-331.}

The most important opposition came from India and Brazil.\footnote{Id. at 333.} These countries were specially sensitive in this area because they had the largest pirating industries in the world and very low levels of intellectual property right protection, particularly for foreigners.\footnote{Emmert at 1353.}

At the beginning of negotiations, India refused to negotiate on trademarks. India argued that foreign trademarks have the tendency to promote production and consumption of non-essential and luxury goods in poor countries and that foreign enterprises bring disadvantages that hamper the development of small and medium-sized industries.\footnote{See Pacón at 346.} With this position, India questioned the whole system of trademarks which are important to identify the producer and control unfair competition. This position was not congruent with their economic development. If they allow local firms to copy and use trademarks of others, they cannot integrate into the world economy, because they cannot expect foreign enterprises to transfer their technology there. The problem of luxury consumption and the need of local firms to adapt to the requirements of the change of demand in India should be solved with other mechanisms. Focusing only on probable negative effects of the integration into international markets and refusing to discuss the issue of intellectual property hindered the search for solutions. Furthermore, the probable negative effects of trademarks in India cannot justify local enterprises simply appropriating the intellectual goods of foreign enterprises. This position would promote a system of defiance and ‘legitimate’ illicit appropriation of intellectual goods in those countries.

India and Brazil maintained the thesis that intellectual property rights have no relationship to international trade, because the goal of the introduction of them at GATT was not the liberalization of trade but the restriction of competition. They argued that the intellectual property rights system is basically monopolistic and restrictive,\footnote{Id. at 349.} characterized by competition restrictive practices of the holders of
intellectual property rights. Because of the need to define suitable policies to
counter the existing contradictions between promotion of innovation and diffusion
of knowledge, these countries claimed that each nation should be sovereign to
decide under which terms “the protection of the monopolistic rights is adequately
balanced by the socio-economic and technological needs of the country.”

Since the contradictions of the proprietary protection framework constitutes a
global problem, it was logical to bring the matter for negotiation in order to find
ways to conduct mutually beneficial international trade and investments, creating
an international order that promotes security and clarity.

The defensive strategy of developing countries is totally different from the one of
the Asian Tigers which managed within the existing international conditions to
create a sound process of development. They succeeded in moving parties to
negotiate. The soft patent system developed by Japan is an example of the
institutional framework that enabled these countries to promote mutually beneficial
technology transfer with industrialized countries. This system will be analyzed in
the third and fourth chapters.

c) Final Imposition of TRIPS Negotiation by the USA

In the end, the intellectual property rights were introduced at GATT level because
of the powerful bargaining position of the USA. The US applied pressured by
making the introduction of TRIPS into GATT an essential condition for continuing
all GATT negotiations and reaching a viable agreement with the USA. They
managed to convince GATT members that it was absolutely necessary to include
in the negotiations topics that might present an important impact on the trade
balance of the US. The bargaining strategy of the USA was based on taking
advantage of its importance as an international market and on its political decision
structure.

The US influenced the participants to frame the bargaining problem in such a way
as to dissipate the protectionism of the US Congress, by including in the
negotiations aspects which interested only industrialized countries. The possibility
that Congress would otherwise not approve the GATT negotiations forced the

\[295\] Faupel at 260.
parties to frame the problem as a risk of losing the current benefits of free trade, particularly with the US. This situation, joined with the general agreement about the importance of preserving and strengthen the GATT system led to the introduction of TRIPS into the negotiations\textsuperscript{296}. The deterrent threats of the US created an incentive for developing countries to finally conclude the TRIPS Agreement, which was a principal negotiation objective of the US\textsuperscript{297}. However, this topic, as well as the trade of service, also was significant for developing countries because of the economic opportunities brought about by the recent developments of international trade and the need of developing countries to complete the international institutional framework for technology transfer.

As a result, the definition of an institutional framework for mutually beneficial technology transfer was not the original purpose of the introduction of TRIPS at the beginning of GATT negotiations.

d) Decision of Developing Countries to Restrict Content of TRIPS

Due to the unyielding position of the US, developing countries realized that they could not avoid the negotiation of TRIPS. In addition, the latter countries accepted negotiation and trade with developed countries once they recognized that the liberalization of international trade proposed by the GATT negotiation was absolutely necessary for development. However, they avoided finding a constructive solution to minimize the costs that this trade implies, in ways that both sides could win. Then, their strategy was to limit the scope of discussion about intellectual property rights to the trade aspects and to preserve as much as possible the existing international framework of intellectual property rights. For this reason the issue was finally introduced at GATT as “Trade Related Aspects of Intellectual Property Rights (TRIPS)” and the base of the negotiation was the existing work of GATT regarding counterfeit trade.

Developing countries tried to include WIPO into the negotiations, or at least, to ensure that the GATT negotiations should not prejudice the negotiations already undertaken at WIPO\textsuperscript{298}. Here the position of developing countries was supported

\textsuperscript{296} Id. at 256.

\textsuperscript{297} Winham at 123.

\textsuperscript{298} Id. at 257.
by some industrialized countries like the European Community members, which also maintained the thesis that the negotiations should be based on the existing conventions, particularly the ones established by WIPO.

Furthermore, developing countries struggled to maintain the general principles of GATT already negotiated in the Tokyo Round, in particular, the one that urges developed countries to recognize the special situation of developing countries and their special needs in trade, finance and development and to give them a differential and more favorable treatment.

By the end of the negotiations, the win/win bargain principle, which characterized the GATT negotiations, allowed parties to reach an agreement. The parties concurred with “the observation that all implementation of negotiations should assure an overall balance of benefits” 299. Developing countries engaged in a process that militated toward agreement in finding the balance of proposals or the results of negotiations as generating an acceptable outcome 300. Developing countries felt benefit by the agreements on agriculture, textiles and clothing, and safeguards, and probably services, as they improved market access opportunities, and disadvantaged by agreements on intellectual property and antidumping, and probable losers on subsidies 301.

Thus, the main negotiation problem were not completely solved. This problem is the developing countries framing of the international protection of intellectual property rights as negative to their interests, and their disregard for the opportunities to “create value” in the negotiation by defining conditions whereby both parties could gain from a new institutional order of technology protection and transfer. Whereas industrialized countries wanted to give TRIPS the widest interpretation, including adequate norms in all areas of intellectual property rights, developing countries tried to restrict the topic to the fight against counterfeit trade by trademarks and ultimately to intellectual property rights violations. In the end, developing countries suggested the need to include aspects related to the barriers of competence that intellectual property rights cause. Furthermore, they claimed that developing countries should be allowed to establish special terms and standards of protection according to their specific political and development goals.

299 Id.
300 Winham at 117-120.
They maintained the thesis that the discussion of these issues should be made at the WIPO level. This suggestion was more a defensive measure in case that Intellectual Property Rights were included than a commitment to improve the general institutional framework of technology transfer.\footnote{Id. at 117.}

\(e\) \textit{North-South Conflict as Basic Paradigm in TRIPS Negotiations}

\(1\) \textit{Description of the Conflict}

The stark and defensive position taken by the USA and developing countries regarding the negotiation of TRIPS shows that even today, the North-South conflict framework plays an important role, hindering countries to appropriate all the opportunities for mutual gains coming from international collaboration.\footnote{Faupel at 257.} Both sides, at this issue, defended interests that appear contradictory because of their “fixed-pie” assumptions. They attempted to defend static positions or privileges rather than looking for opportunities for mutual gains. Industrialized countries wanted to strengthen their international competitiveness based on technology; since counterfeiting, joint with the intensified international competition, technological innovation as well as aggressive marketing meant that pioneering countries of South East Asia were jeopardizing the dominant economic position held by European and US enterprises.\footnote{See Kunz-Hallstein at 266.} Furthermore, exports of industrialized countries present a high and increasing intellectual property content, therefore, counterfeiting was affecting their trade balance negatively, specially in USA.\footnote{Pacón at 331.} As a result, in the short run, industrialized countries could gain automatically by enforcement of protection of intellectual property rights because the majority of technology knowledge is developed in these countries.\footnote{See Katenmeier, Robert and Beier, David, International Trade and Intellectual Property: Promise, Risks, and Reality, 22 Vand.J.Transnat’l L. 28, 286-287 (1989).} This problem was in direct conflict with developing countries and newly industrialized countries, which

\footnotetext[301]{Id. at 117.} \footnotetext[302]{Faupel at 257.} \footnotetext[303]{See Kunz-Hallstein at 266.} \footnotetext[304]{Pacón at 331.} \footnotetext[305]{See Katenmeier, Robert and Beier, David, International Trade and Intellectual Property: Promise, Risks, and Reality, 22 Vand.J.Transnat’l L. 28, 286-287 (1989).} \footnotetext[306]{From the patents granted in 1973, for example, 84\% came from 5 countries: USA, Germany, France, Switzerland and England. Today Japan is after the USA the second producer of internationally patented inventions. See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1172.}
were managing to receive a transfer of technology in a unilateral way without the permission of the inventors\(^\text{307}\).

The recognition of intellectual property rights by developing countries would have triple effect. First, it would increase the costs of the technology they actually possess, as long as they should pay license rights for technology that before was free\(^\text{308}\). Second, it may increase the market power of MNEs, increasing the risks of using patents to exclude local firms. Third, it opens new opportunities for capital and technology transfer and local innovation, as it reduces the risk of misappropriation. Regarding the promotion of technology diffusion and creation, the final effect depends on the balance of the positive effects of patents on the promotion of local innovation and technology transfer with the negative effects caused by the restriction of the use of patented technology that foreign and national holders may impose\(^\text{309}\). The final results are dependent on the way all these interests are harmonized. The TRIPS Agreement grants developing countries enough possibilities to adjust their national patent system to their particular interest. Therefore, the final results are dependent on the ability of the countries to profit from of the principles defined by TRIPS\(^\text{310}\), \textit{i.e.}, on their ability to adjust their patent system to their particular needs, as Japan did\(^\text{311}\).

Consequently, the core of the conflict is based on the role the market and the institutional framework should play in the development of technology markets. While industrialized countries argued that just with the recognition of intellectual property rights market forces should generate automatically investment and technology transfer; developing countries replied that this will only increase the market power of MNEs. Industrialized countries tried to sell the idea that the economic forces, when free, will lead automatically to free markets and equilibrium. The industrialized countries’ position is contradicted by the fact that the driving force behind the increasing international division of labor are

\(^{307}\) See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1171-72.

\(^{308}\) Winham at 118.

\(^{309}\) Id.

\(^{310}\) See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1176-77.

\(^{311}\) Id. at 1178.
multinational corporations rather than the market and that MNEs act in conditions of market power rather than perfect competitions.

The existence of efficient market mechanisms that could automatically achieve efficient allocations of resources was questioned. This stresses the importance of a distinction between factor markets from institutional markets. Factor markets contain the economic conditions. Institutional markets contain the legal framework of the host country and are very sensitive to policy changes. They define how the economic forces can interact creating conditions which lower or higher levels of economic performance. The appreciation of appropriate institutional markets is a key element in the success of the newly industrialized countries. They opened, for example, a constructive way which allowed Japan to discipline firms through market mechanisms and consensus. These aspects constitute the main difference with the policy regimes pursued by Latin America. Therefore, the introduction of TRIPS in GATT was also meaningful for developing countries.

It is a paradox that the position of developing countries was also based on false positions. They believed that governments could define and manage an efficiently economic development process disregarding a collaborative relationship with technology and capital owners, which are concentrated in industrialized countries. Governments cannot have a permanent and absolute control over the economy. They need to promote the creation of market mechanisms; which, when functioning properly, are a powerful instrument for moving the economy to automatically adjust according to the changes in economic forces. Developing countries have ignored the importance of clearly defined cooperative institutional frameworks for technology transfer and generally, for a sustainable development.

Developing countries should have been the most interested party in finding a suitable institutional framework for technology transfer. In principle, they should have presented a stronger interest for the global modification of what they framed as a basically monopolistic and restrictive system which increases the power of

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MNEs\textsuperscript{315}. Instead, developing countries assumed a defensive position seeking a rent by refusing to recognize intellectual rights. This position hampers the development of their technology markets and obstructs the general transfer of technology and finance resources, which is vital for their global development.

The “proprietary” definition of intellectual rights accentuated this contradiction; both developing and developed countries were framing the problem of intellectual rights not as a problem to define fair mechanism to reward innovators for their transfer of technology, but a problem of granting or not granting monopoly rights to MNEs, which own most of the technology\textsuperscript{316}. Industrialized countries tried to force developing countries to recognize private property rights over technology rather than to open a discussion about how to find a fair solution for the problem of counterfeiting. A proprietary framework was proposed primarily in order to allow MNEs to stop competition connected with counterfeit trade\textsuperscript{317}, reducing in that way the trade opportunities of developing countries.

(2) Negative Effects of the North-South Scheme in Reaching an Agreement

This discussion is an example of the problems of “cognitive effects and processes” which usually brings negotiations to sub-optimal outcomes. These cognitive misers\textsuperscript{318} come from the way individuals construct reality, order and relevance information and develop cognitive interpretation of the context. The North-South conflict has been the basic paradigm of negotiation between developing and industrialized countries and between technology owners and users. According to this paradigm, industrialized countries feel that their technology superiority justifies obtaining a rent from their trade negotiations with developing countries. They should exploit all the opportunities that their market power position gives them and justify the situation as a result of the free play of economic forces. They invoked the free play of “market forces” to justify the use of their market power, when really, they can obtain a “rent” in developing countries just because of the lack of developed markets there. It is precisely because of the non-existence of

\textsuperscript{315} Faupel, at 257. See also Fikentscher, Wettbewerbsrecht im TRIPS, at 532-33.

\textsuperscript{316} About the problems of the concept of patents as monopoly rights see Fikentscher, Wettbewerbsrecht im TRIPS, at 532-33 and Ullrich, Technologieschutz nach TRIPS, at 624-25 and Chapter 3.

\textsuperscript{317} See Kastenmeier and Beier at 286-87.
perfect markets that they can exert this market power as monopolist or oligopolist actors. From the negotiation process of GATT it was clear that industrialized countries originally tended to defend the market power position created through a strong intellectual property rights protection.

The North-South conflict framework constitutes a vicious circle that moves both sides to concentrate on their contradictory positions. Industrialized countries stressed their power position to impose their points of view and defend their immediate interest, while the strategy of developing countries focus on their ability to refuse to cooperate in order to become prerogatives from the stronger. The dynamic of such a process moves both sides to react to the strategy of the other, which increases the strength of their original position. This vicious circle can only be avoided with bargaining abilities, which move both sides to concentrate on the opportunities to obtain mutual gains in order to enable them to define a stable win/win cooperation system. This is why the newly industrialized countries of Asia succeed in managing the process of international trade and investments in terms which allow them to progress by taking advantages of international markets. They understood that the only way to achieve development is to open up to the international flow of finance and technology resources within an institutional framework that promotes the development of internal markets and the international competition of their enterprises. The success of these Asian countries is based on their very proactive bargaining abilities.

The North-South conflict scheme moves parties to focus on their contradictory position, because it leads to a fixed-pie assumption. Under fixed-pie assumptions both parties believe that their interests are directly opposite and that they cannot make transactions that increase mutual gains. Instead, a win/win scheme moves to reframe the problem, looking for solutions whereby both sides win. Because of the North-South framework, developing countries often underestimate the possibilities of motivating industrialized countries to define an international order for intellectual property rights which could solve the contradiction between diffusion and promotion of technology. Within this framework, industrialized countries fail to recognize the problems caused by the market power of holders of

318 See Pruitt and Carnavale, Chap. 6.
319 Id. at 85
property rights, which make changes in the institutional order of intellectual property rights necessary in order to promote the creation of technology markets.

The North-South conflict also leads to creation of illusory conflicts, causing disputes over issues in which the parties want the same result, but fail to realize it. During GATT negotiations, both parties agreed that transfer of technology constitutes a primarily need for developing countries and that intellectual property rights protection constitutes a basic element necessary to achieve this goal. They were also aware of the need for an intense negotiation to review the intellectual property systems in order to reduce its monopolistic effects. But developing countries were not disposed to discuss this problem in global terms because they did not wanted to change the discussion forum (WIPO) and distrusted industrialized countries. For this reason they tried to restrict the negotiations to amendments of the existing system rather than bringing to the discussion alternatives to promote the creation of mutually beneficiary technology markets.

At the same time, the USA centered the discussion on the need to strengthen the standards of protection of intellectual property rights, without offering alternatives to motivate technology trade and control the market power of rights holders. There was an illusory conflict between the parties, because they saw a contradiction where it did not necessarily exist: in fact higher standards of protection are a necessary condition for the promotion of technology transfer, but it is not a sufficient condition. The real contradiction was not the need to recognize intellectual rights as both parties supposed, but the refusal of both parties to attempt to negotiate a complete institutional framework, which could promote technology transfer and simultaneously impede abuses of intellectual property rights.

The hard position of the USA and India strengthened their bargain pressure and but contributed to creation of a climate of contradiction and conflict which made it more difficult to search for a creative outcome. As a result, there is a lack of clear policies to promote the integration of more suppliers in the market and to reduce transaction costs, and the insecurity of trade and creation of technology markets is

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320 For the analyse of “illusory conflict” theory, see Pruitt and Carnavale at 86.
321 Regarding the development of negotiations in order to define an international system to restrict anticompetitive uses of intellectual property rights see Fikentscher, Wettbewerbsrecht im TRIPS, at 259-532.
hampered. As long as developing countries frame trading with industrialized countries as a necessary evil that they should support but cannot control, there will be an atmosphere of contradiction. Transfer of technology will generally have bigger transaction costs when international traders have the feeling that they are not welcome and that at any moment the government might change policies making them incur higher costs. The definition of a fair institutional framework for international trade is in the interest of both sides.

(3) Negotiation of Compulsory Licenses

The negotiation of compulsory licenses provides an example of how the North-South conflict perspective was treated at the GATT negotiations. Compulsory licensing is an important instrument for controlling abuses of intellectual property rights. This institution allows, under certain conditions, the use of patent without the authorization of the rightholder. Developing countries have regarded compulsory licenses as an important antitrust remedy to prevent patent holders from abusing of their rights, and thus hindering society from participating in the benefits generated by the exploitation of that technology. Despite the concern of developing countries about the increase in business restrictive practices of MNEs after the reinforcement of intellectual property rights, industrialized countries originally agreed to restrain compulsory licensing.

Developing countries have stressed the importance of compulsory licensing because of the lack of antitrust proceedings and remedies in the former international framework of intellectual property rights protection. Countries like India suggested that each country should have the sovereign right to use it in order to allow society to use a patent “on a commercial scale and to the fullest extent”. But India presented an extreme position. It claimed a right to grant compulsory licenses automatically in every area that the government considered critical, without administrative or judicial control. They considered that every patent, from the start, should be loaded with the “license of right”. As a result, the problem

322 See Faupel, at 261
323 Concerning the problems at the international level for the settlement of anticompetitive protection for technology users, see Fikentscher, Wettbewerbsrecht im TRIPS, at 532.
324 See Faupel, at 261.
added to the North-South conflict, because the proposition did not take into consideration the interest of patent holders.

Industrialized countries did not move negotiations to an open discussion about alternative ways to create instruments for controlling the abuse of monopolistic positions of rightholders and to promote the commercialization of technology. These countries additionally had problems in finding a common formula for the regulation of compulsory licenses, particularly in the area of “public interest” and the governments’ use of patents to achieve public goals. There was only agreement on the need for a legal review of the decision to grant compulsory licenses.

The discussion of compulsory licenses required a deeper analysis. The practical value of compulsory licenses is questionable. Although compulsory licenses are incorporated in the legislation of many developed and developing countries, they have virtually never been used either by developed or by developing countries. There are practical difficulties in applying compulsory licenses when the patent is not being used. In addition, voluntary cooperation of a patentee is almost necessary for an effective utilization patents. However, as discussed in Chapter fourth, compulsory licenses are an important element of an institutional framework promoting transfer of technology. Since cooperation among parties is an important condition for technology transfer, the main problem of technology transfer is finding ways to build up constructive cooperation relationships among the parties involved.

(4) Conclusion

During the Uruguay Round negotiations, both parties failed to reach an pareto optimum agreement. They did not center the discussion on an integral review of the international framework for the transfer of technology and investments. This framework is vital to allow technology and capital more effectively and rapidly to move into developing countries, increasing the occupation and production level of these countries. Here it is important to remember that technology is the production

325 Id.
326 Blakeney at 95-96.
factor that increases the productivity and competitiveness of an economy more rapidly and effectively. Thus, it constitutes the most important factor for development.

From the evolution of negotiations at the GATT level, we can conclude that the North-South conflict framework still plays an important role in international negotiations. It was difficult, even at the GATT level, to move negotiations in terms of a win/win position. At the beginning some parties, particularly the USA and India, presented radical positions. This strategy increased the scope of their negotiations, but, on the other hand, moved the discussion away from the search for a suitable international framework for technology transfer. It led to self-defense positions and to “fix-pie” assumptions. For this reason the parties restricted the discussion of the issue to a definition of which of the standards in the already existent institutional framework negotiated at WIPO level would be incorporated at GATT and to a negotiation of the dispute mechanism and retaliation measures against countries that do not reach the minimum intellectual property protection. Evertheless, while in the end the TRIPS Agreement incorporates principles that at first sight seem contradictory, it constitutes an important instrument for the creation of a framework that solves all these contradictions.

4. Content of the TRIPS Agreement

a) General Outcomes

At the end of the GATT negotiations, parties found consensus in an “Agreement on Trade-Related Aspects of Intellectual Property Rights”. This agreement was included in Annex IC of the final act embodying the results of the Uruguay Round of 15 April 1994. The agreement sets out general provisions and basic principles and harmonizes the substantive rules on intellectual property rights. It establishes minimum universal standards on patents, copyrights, trademarks, industrial designs, geographical indications, integrated circuits and undisclosed information. The agreement goes beyond the national treatment principle of the Paris Convention to include the “most-favored-nation” treatment, whereby any

328 *Id.* Paragraphs 49-53.
advantage a member grants to the nationals of any other country must be immediately and unconditionally extended to the nationals of all other members.\footnote{329 See Pacón at 335-337.}

The TRIPS Agreement integrates the positions of both sides: it builds on the main existing international conventions and specifies a number of higher and additional standards of protection. On the other hand, it defines basic principles related to the special interests and objectives of the developing countries. Article 8(2) of the TRIPS Agreement acknowledges that certain licensing practices restrain competition, have adverse effects on trade and may also impede the transfer of technology.\footnote{330 Id. at 348-50.}

The Agreement states that the protection and enforcement of intellectual property rights should lead to the promotion of technological innovation and to the transfer and dissemination of technology.\footnote{331 Art. 7 of the TRIPS Agreement.}

Furthermore, the agreement authorizes developing countries to adopt measures to protect public health and nutrition and to promote public interest in sectors of vital importance to their socioeconomic and technological development and to prevent the abuse of intellectual property rights or practices which unreasonably restrain trade or adversely affect the international transfer of technology.\footnote{332 See Art. 8 of the TRIPS Agreement. See also UNCTAD, The Outcome of the Uruguay Round: an Initial Assessment, at 188.}

As a result, the Uruguay Round presents enough elements and principles to allow the development a global system for the transfer of technology, in terms that assure mutual benefits to all parties. Even where TRIPS formulate obligations to introduce certain rights, such formulation should not represent an argument against direct applicability. That TRIPS excludes direct applicability cannot be inferred from the freedom to choose the appropriate method of implementation granted to each state by its Art 1(1).\footnote{333 Drexl, Joseph, The TRIPS Agreement and the EC: What Comes Next After Joint Competence?, in Beier, Friedrich-Karl and Schricker, Gerhard (eds.), From GATT to TRIPS, The Agreement on Trade-Related Aspects of Intellectual Property Rights, 18 IIC Studies, Weinheim, 1996 at 18, 49.}

Direct application of TRIPS is also in accordance with the fact that TRIPS, similar to the Paris and Berne Conventions, is designed to create rights of private citizens. This principle applies in the EU.\footnote{334 Drexl at 48. Contrary, Ullrich who states that from the Preamble of TRIPS, the Agreement does not intented to define minimal executable private rights, but to guarantee suitable protection. The Agreement does not define the necessary exemptions and factual elements necessary for their implementation. Ullrich rejects the direct applicability of the other GATT rules. See Ullrich, Technologieschutz nach TRIPS, at 637-38.
as long as the obligations are sufficiently clear and unconditional in the sense of the ECJ’s case law. In general terms, the TRIPS Agreement should be interpreted in relation to the Paris Convention. Article 2 of the TRIPS Agreement states that Member States shall comply with Arts 1 through 12 and also 19 of the Paris Convention (1967). The goal of the TRIPS Agreement is not only to strengthen the Paris Union, but to move GATT member countries to incorporate in their national legislation the private rights defined in that Convention. The TRIPS Agreement defines general principles and specific norms which complement the Paris Convention. These norms and principles are used to warrant that the protection of Intellectual Property Right be a suitable instrument for promoting the creation and international commercialization of goods incorporating technology.

In this sense, the effects of the Agreement should not be reduced to a direct application at the national level. The TRIPS Agreement seeks to regulate the protection of IPRs defined in the Paris Union. It also complements IPRs with principles and rules which restrict their content in order to assure that they should not lead to distortions in international competition. Therefore, the TRIPS Agreement is to be applied principally at the international level, when considering the protection of agents trading in globally integrated markets.

The revision and development of institutions like compulsory license (Article 31 of the Agreement) create better cooperative solutions against patent abuse. In general, the TRIPS Agreement recognizes a global consensus for the need to find forms to promote investigation and innovation in ways in which the innovators could obtain a fair profit for their work as society benefits from the increase in technology. For example, the authorization of compulsory licenses should be granted on individual merits of the case, when previous negotiation efforts have

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335 Drexl at 49.
336 See Ullrich, Technologieschutz nach TRIPS, at 636-637.
337 Id. at 639-640. Ullrich rules out the direct application of the treaty at the national level inasmuch as the treaty seeks to define an international public law trade area. The TRIPS Agreement is intended to protect private agents against trade barriers and unfair competition, which may be generated not within a national market, but precisely at the international trade order, because the differences in the level of protection vary in each national territory. However, the direct application at the national level should not necessary exclude the creation of an international order; both levels should be considered complementary units of an international system harmonizing all interests that appear to be in conflict. The territorial as well as the extraterritorial effects of IPRs protection should be considered together.

338 Compulsory licensing of trademarks is not allowed according to Article 21.
not been successful. The patent holder should be paid an adequate remuneration, taking into account the economic value of the license\textsuperscript{339}.

Section 8 of the Agreement (Article 40) provides for the first time an internationally binding instrument that includes rules on restrictive practices in licensing contracts. It allows countries to adopt measures to control anti-competitive practices as well as abusive practices in contractual licenses\textsuperscript{340}. Also it authorizes countries to adopt measures to regulate abusive practices according to the adverse effect on competition in the relevant market (competition test). The agreement implicitly recognizes the need to improve the institutional framework for the transfer of technology, but leaves each country to achieve this task\textsuperscript{341}. However, the Agreement does not incorporate enough specific norms to expressly deduce a general international legal regime for the protection of competition\textsuperscript{342}. The terms “abuse of intellectual property rights” and “adverse effects on competition in the relevant market” are to be understood as a “rule of reason” along the lines of the competition approach\textsuperscript{343}. In order to define positive specification of the contents of national antitrust law regarding patent rights, it is useful to reconsider the legal nature of these rights. This may allow for an institutional framework where the principles defined in the TRIPS Agreement could be functionally integrated. This is the commitment of the next chapters.

Integration of technology markets is an important condition which facilitates the concentration of demand and supply of technology and thereby increasing efficiency of the market. Since the TRIPS Agreement left each country to define its own institutional framework, the creation of an integral institutional framework for technology transfer may be hampered or delayed. If each country is to define a particular solution without taking into account the need to define global standards, the integration of technology markets will be difficult\textsuperscript{344}. Therefore it may be concluded that the Uruguay Round set the basic principles for the definition of a framework for technology transfer, but did not present a final solution. Multilateral

\textsuperscript{339} UNCTAD, The Outcome of the Uruguay Round: an Initial Assessment, at 190.
\textsuperscript{340} Article 40 (1).
\textsuperscript{341} Japan gives an example of how to implement an institutional framework to stop abuses in licensing contracts using competition law. See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1179-1180.
\textsuperscript{342} See Fikentscher, Wettbewerbsrecht im TRIPS, at 532.
\textsuperscript{343} Pacón at 349.
negotiation like GATT offered optimal conditions for negotiating an institutional framework that overcomes the North-South conflict scheme and defines business opportunities to technology transfer so that exporters and importers of technology can find mutual benefits. The availability of these opportunities was not fully exploited by the negotiating parties. Nevertheless the agreement established very solid principles for a further development of a suitable institutional framework for technology transfer, which enables developing countries to adjust their system to protect their interests.\footnote{See \textit{Ullrich}, Technologieschutz nach TRIPS, at 637-40.}

Finally, a settlement of dispute mechanisms was established jointly with an organ that monitors the operation of the Agreement and compliance with the obligations thereunder. The Council for Trade-Related Aspects of Intellectual Property Rights\footnote{Article 68 of the Agreement.} will constitute a permanent forum for the discussion of the technology transfer problems, which could increase the mutual understanding and collaboration between developing and industrialized countries.

Developing countries also obtained a transitional period to comply with the provisions of the Agreement\footnote{Articles 66, 65 and 66 of the Agreement.}.

\textit{b) Effects of TRIPS Outcome in Developing Countries}

In general, it can be concluded that the TRIPS outcome presents enough positive elements, which promote mutually beneficial investment and transfer of technology to developing countries\footnote{See \textit{Heath}, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1176-81.}. The establishment of minimum protection standards will promote the transfer of technology and investments, since both are increasingly dependent on the legal protection these countries can provide\footnote{Mansfield, Edward., Intellectual Property Protection, Foreign Direct Investment and Technology Transfer, International Finance Corporation, Discussion Paper No. 79, The World Bank, Washington D.C., 1994, at 20.}. The majority of technology transfer is made through private enterprises and the property protection system has an important effect on decisions of multinational corporations to invest in a particular country\footnote{\textit{Id.} at 5.}. Furthermore, the existence of protection motivates the would-be borrowers of technology to acquire technology...
contractually, because there will be no free riders that could have the same benefits without incurring in the costs of borrowing\textsuperscript{351}. This will contribute to the creation of appropriate business practices and a culture for the negotiation and execution of technology transfer contracts. In general, the agreement creates better conditions for the development of technology transfer markets.

It is also expected that the protection of intellectual property rights will create better conditions for the improvement of the technological capabilities in developing countries. Local innovators will find better conditions for the protection and commercialization of their inventions. An increase in the generation of new innovation due to a greater disclosure of protection and the generation of further improvements and new inventions based on those that have been disclosed is expected\textsuperscript{352}.

Nevertheless this legal protection is only a necessary but not a sufficient condition for technology transfer, given the importance of other factors affecting investment and the transfer and diffusion of technology, not only in developing countries\textsuperscript{353}, but as a whole in the world.

Developing countries should not expect that benefits from the current institutional framework to come automatically. First, because the current intellectual property right system is not developed enough to control the use of patents to achieve anticompetitive objectives\textsuperscript{354}. There is always the danger that stronger protection may be used by foreign intellectual property holders, especially in developing countries, to preserve import rights. Furthermore, the institutional framework is not developed to enough motivate MNEs to commercialize technology. In general, the institutional framework is still insufficient for consolidating efficient technology markets. Time is necessary to move the marketing culture towards technology trade in the world. Moreover, stronger protection will also enhance the bargaining power of technology owners and allow them to charge higher prices\textsuperscript{355}. This will also reduce the potential number of imitators and therefore the potential number of


\textsuperscript{352} UNCTAD, The Outcome of the Uruguay Round, at 198.

\textsuperscript{353} See Kumar, Umesh, Benefits of the Industrial Property System and the African Developing Countries, 16 World Competition Law and Economics Review 71, 71-90 (No. 3, 1993).

\textsuperscript{354} See Fikentscher, Wettbewerbsrecht im TRIPS, at 532.

\textsuperscript{355} See Emmert at 1359-1362.
competing suppliers of protected technology. This phenomenon will principally affect newly industrialized countries that cannot imitate so easily through reverse engineering and other means. This may dampen the technological innovation in these countries.

Introducing higher intellectual property protection standards could lead at first to an overall price increase for imported technology in many countries. As a result, many countries are likely to incur in a net loss, since costs for the use of technology may increase in the short run. The beneficial effects of transfer and diffusion of technology are expected to come more slowly, as technology markets develop. In the long term, a net benefit for developing countries is expected, as long as the new institutional framework for technology transfer based on TRIPS contributes to an increase in the technology transfer in developing countries. The creation of technology markets will enable developing countries to get better information and prices of technology alternatives and make the efforts to adapt technology to their specific needs profitable, since this technology could be commercialized in a larger market.

Furthermore, it is expected that the increased level of protection will protect potential innovators in developing countries from infringement by competitors in their own and other countries. This will promote a generation of new technology suppliers and thereby stimulate competition among MNEs, improving other developing countries’ access to technology. Since the beneficial effect requires more time to operate, the costs for developing countries will weigh more heavily in the short run than in the long run. For these reasons, the adjusting burden of the introduction of TRIPS at GATT level will be higher to developing countries, as they tend to be net importers of technology. Therefore the transitional periods granted to developing countries are very important in order to provide a positive balance for these countries.

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356 UNCTAD, The Outcome of the Uruguay Round, at 197.
358 UNCTAD, The Outcome of the Uruguay Round, at 198.
In order to enable a full appropriation of the opportunities that the TRIPS negotiation offers and to reduce its short term negative effects, the development of a global institutional framework should continue. The short term disadvantages of TRIPS could be reduced by the development of an institutional framework of technology transfer. Furthermore, consensus about the terms of the new institutions of antitrust regulations regarding technology appropriation should be built up in order to control the market power of MNEs. This is expected to be the next important discussion theme at GATT/WTO\textsuperscript{360}.

C. Summary and General Conclusions

1. Elements of Technology Transfer Negotiation

The conflict of interests between acquirer and seller of technology is, in general, the same conflict of interests between buyer and seller. A deal is made when both parties obtain gains from the transaction. In this case, both parties would continue performing transactions as long as they keep obtaining a profit. As a result, developing countries should be interested in maximizing the amount of mutually beneficial transactions in order to acquire and master the technology of industrialized countries. This is why the correct bargaining strategy for technology transfer is to focus on the mutually beneficial gains that the parties can obtain from negotiation.

Technology bargaining constitutes the most important element in development. Technology transfer, as any other transfer of knowledge and skills, requires a mutual cooperative framework in order to succeed. For this reason, technology transfer can be described as an exercise in relationship management.

The transfer of technology also contemplates a systematic and complex package of services. This situation, joined with the market failure of technology markets, stresses the importance of a suitable institutional framework which favors a bargaining atmosphere based on win/win positions.

\textsuperscript{360} Fikentscher, Wettbewerbsrecht im TRIPS, at 532.
2. **Obstacles to Defining a Collaborative Framework for Technology Transfer**

The North-South conflict still has some influence on the bargaining framework between industrialized and developing countries. This hinders the definition of an institutional framework which favors the development of cooperative relationships for technology transfer in developing countries. This situation was aggravated by the political problems of some developing countries. Some governments created a negative atmosphere for investment as they questioned the whole private property system and promoted social reforms based on the expropriation and confiscation measures against foreign and national capital. The problem of poverty was to be solved not within a cooperative framework between enterprises and workers, but in the context of class conflict of Marxism. As a result, developing countries seemed not to recognize that developing a sound industrial sector is the basis of higher levels of welfare in the future and that this can only be achieved through bargaining with local and foreign entrepreneurs. In contrast, industrial policy in successful East Asian countries has been implemented predominantly through the actions of private firms seeking profits in a market friendly context.

Since MNEs constitute the most important vehicle for technology transfer and, in general, for industrialization in developing countries, it is vital for these countries to understand how these enterprises are organized and function. The definition of an appropriate negotiation strategy with MNEs constitutes a very important element, which favor the success of technology transfer. Developing countries, in contrast to the East Asian countries, have failed to define an appropriate bargaining strategy with these enterprises. The theory of Industrial Organizations illustrates how MNEs take decisions about transfer of technology. These enterprises will only transfer technology when the institutional framework allows them to obtain a reasonable profit by commercializing their technology. If such conditions are not available, they rather exploit their technology in monopolistic bases, selling final products.

Defining ways to reach mutually beneficial agreements constitutes the basic condition for a persistent flow of technology and investments in developing countries. Given the background of colonialism, the traditional bargaining scenario that developing countries confronted with MNEs was negative. MNEs surged in
the world using their market power in order to manipulate markets of developing countries. They did not contribute to the industrial development of developing countries. Their goals were mainly to ensure markets and to manufacture in industrialized countries. This decision was reinforced by the high political risks of investing in developing countries, the lack of an appropriate institutional framework that facilitates transactions and the traditional colonialist view.

Recent changes in the world economy, due to technological, management and organizational developments have changed the bargaining scenario of developing countries. MNEs no longer base their power on their control over specific technologies, but on the exploitation of the organizational abilities and the possession of resources that are complementary or synergistic to each other and to their technology. Furthermore, competition among MNEs has increased. There is a tendency toward the perfection of international markets of products and the emergence of technology markets. This new scenario offers better conditions for bargaining mutual beneficial relationships with MNEs and in general, for the definition of joint ventures and collaboration agreements between enterprises of developing and industrialized countries. Conversely, these changes have not already been properly perceived by developing countries.

Instead of defining strategies to create mutually beneficial relations, developing countries still frame the problem of dealing with industrialized countries and MNEs in terms of a North-South conflict. This situation hinders the definition of the required institutions for technology transfer. In contrast, Japan and the East Asian countries managed to create an institutional framework that allows them to move negotiations with industrialized countries and MNEs to win/win positions, based on creating consent.

However, developing countries are changing their policy to address the recent changes in the world, towards a more cooperative bargaining framework. But they have not appreciated the urgency of defining an appropriate institutional framework for the consolidation of technology markets.

361 UNCTAD; The Invisible Hand, at 51.
3. **Multilateral Negotiation of Intellectual Property Rights and Technology Transfer at GATT**

The North-South conflict scheme hindered the Uruguay Round from entering into a deep discussion of the institutional framework required to promote international trade in technology. Industrialized countries emphasized their need to increase intellectual property rights protection as an instrument for stopping piracy and strengthening the control of technology by owners, particularly MNEs, in developing countries. Developing countries moved to a defensive position, arguing that intellectual property rights will strengthen the market power of MNEs and hamper their access to technology. This strategy increased the scope of negotiations of both parties, but also, moved the discussion away from the search for a suitable international framework for technology transfer. It led to self-defense positions and to “fix-pie” assumptions. At the beginning of negotiations, developing countries tried to avoid the discussion of intellectual property rights at GATT and later, to reduce the scope of discussion about intellectual property rights. For this reason the parties restricted the discussion to a definition of the standards of the already existent institutional framework negotiated at WIPO that would be incorporated at GATT and to a negotiation of the dispute mechanisms and retaliation measures toward countries that do not reach the minimum intellectual property protection. In the end, developing countries argued for the recognition of basic principles of equity, and obtained the recognition of fundamental principles which allow the definition of a suitable framework for technology transfer.

Intellectual property rights protection is the basis of any system of technology transfer. They are a necessary but not a sufficient condition for technology transfer. The North-South conflict scheme moved parties to center the discussion on intellectual rights protection, rather than on the creation of a system of technology transfer based on an adequate intellectual rights protection. Thus, the problem was not the recognition of intellectual property rights, but the definition of a global and systematic institutional framework to assure that intellectual property rights will be properly used and commercialized in the world. At the end of negotiations, developing countries did not fully exploit the opportunity of moving the multilateral discussion at GATT to define an appropriate institutional
framework to promote technology diffusion and transfer. It was difficult for both parties to frame the problem as the definition of a mutual beneficial institutional framework that allows both parties to benefit from the business opportunities of technology transfer.

The TRIPS Agreement incorporates principles which, although at first sight seem contradictory, constitute an important base for the development a framework that solves all these contradictions. The final TRIPS Agreement provided a basic institutional framework which recognizes the importance of intellectual property rights and the need to complete the international institutional framework to facilitate technology transfer. Article 7 reads: “the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare and to the balance of rights and obligations”.

However TRIPS does not define how article 7 and 40 may be applied and how the contradictions of the patent system should be solved. As long as this institutional framework is not developed, developing countries will not obtain all the benefits that represent the consolidation of global markets for technology. On the other hand, they will confront higher costs for technology transfer.

The creation of an institutional framework to consolidate technology markets is a key aspect for developing countries as they require the transfer in mutual beneficial terms of technology and finance resources from industrialized countries. In order to achieve these goals, developing countries should change their bargaining strategies. They should move from the defensive position of the “North-South conflict” scheme, to a more collaborative framework based on the search for a system that identifies and harmonizes the interests of technology owners, including MNEs and technology demanders.

It is up to developing countries to take advantage of the possibilities opened up by the TRIPS Agreement in order to promote transfer of technology, not only on the international level but also within their territories. In order to achieve this goal, developing countries should not only adjust their national patent system to their
needs\textsuperscript{362} within a win/win framework, but also play an active role in the definition of a global system capable of simultaneously promoting the creation and diffusion of technology. The following chapters explore the possibilities of defining such an institutional framework.

\textsuperscript{362} See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1176-77.
III. LEGAL ANALYSIS OF THE PATENT RIGHTS REGIME AS INSTRUMENT FOR PROMOTING INNOVATION

A. Introduction

The patent system is the base of any system of technology transfer. It addresses the problem of the inventor obtaining a reasonable participation in the benefits society receives from his invention. The establishment of a patent system is one of the basic conditions for the commercialization of technology. Nevertheless this institution presents many contradictions. This institution has not succeeded in defining proper instruments which harmonize the interests of technology innovators, users and society, as ordered by Article 7 of the TRIPS Agreement. The international negotiation of Intellectual Property Rights at GATT is a clear example of this problem. The definition of a protection in terms of private property or monopoly rights appeared to be the only solution to the appropriability problem of inventors, a solution that was not satisfactory to all parties. However, parties were compelled to accept it because better alternative were not available. The final version of the TRIPS Agreements presents an interesting compromise, which can summarized as follows: “monopoly or private property rights should be granted to inventors, but they should not be used to create monopolies”. In the end it states that an institutional solution for the conflict between promotion and diffusion of technology should be found, but it does not define it expressly.

This chapter analyzes the patent system as a legal institution. The first part analyzes the evolution of patent rights in order to find the causes that motivated the use of the private property and monopoly institutions to protect inventors. It explains why property rights are generally presented as the only possible solution to protect technology, or at least as the best possible institute to promote technology creation and diffusion. The second part of this chapter makes a legal dogmatic analysis of this institution and its variants in order to determine if intellectual property actually corresponds to the best of the legal tradition of the Western countries. A legal framework that harmonizes all the interests involved will be proposed in the fourth chapter.

There are reasons that explain why the patent system was originally defined as a monopoly granted as a privilege to the patentee. Patents emerged in a time when
monopoly privileges and censorship were the norm to order society\textsuperscript{363}. Furthermore, at that time markets were incipient and there was almost no cooperation links among manufacturers. Because of the lack of opportunities to obtain profit by commercializing technology, inventors had no better option than keeping their technology secret and exploiting it under monopoly basis. The idea of massive selling in a huge market, which motivates enterprises to cooperate to expand their production potential was not to be implemented until a few decades ago. Monopolies were the best alternative available to exploit inventions. This is why the patent institution emerged and developed as a system of privileges or monopolies.

Patent rights achieved their most elaborate form through their definition as property rights. The figure of property allowed patent rights a more a coherent legal framework which also avoided the term “monopoly”. This was politically convenient, because monopolies were negatively valued by the French Revolution, which contested the monarchy and the privilege systems that sustained it. As a result, patent rights were considered property rights, thus absolute fundamental rights and the social interests that originated the system were displaced to occupy an indirect and secondary role.

The contradiction between the promotion of technology creation and the diffusion of technology appeared in the traditional western patent system to be ineluctable. This chapter analyzes the legal framework for patents. This framework appears to be a complicated collection of very formalistic and arbitrary rules intended to reconcile opposite interests. The most important doctrines about the legal nature of patents are considered. The intention of the chapter is to demonstrate that a general and solid theoretical elaboration that could define general principles of law have been missing.

Globalization of markets and the recent TRIPS Agreement create the need to defined legal institutions that could be applied in all legal systems. These legal institutions should be based on solid general principles of law in order to consolidate a stable global framework. This chapter discusses the basic legal instruments necessary to define a suitable framework for patents.

Chapter four explores the economic reasons for a reconsideration of the system. The importance of the “global competitiveness” of an economy also stresses the need to diffuse the use of technologies at the national level. On the other hand, the globalization of the economy and the increasing interdependence between enterprises have increased the need to control the abuse of market power and the creation of monopolies. Furthermore, the globalization of the economy has increased the opportunities to exploit technologies in other ways than creating monopolies. In order to penetrate other markets and optimize the global exploitation of a specific patent, many enterprises are influenced to find ways to establish permanent cooperation links with other enterprises.

The change of the economic panorama is reinforced by the growth of electronic traffic on digital research networks. The creation of technology is shifting from individual work towards cooperative research organization. The routine exploitation of existing technologies constitutes a very important source to give economic value of technologies through improvement and discovery of new applications. Particularly in the field of new technologies, the adding small elements of novelty or novel arrangements of new elements of design can create revolutionary changes. These changes produce very important increases in the economic value of these technologies.

All these factors forecast a crisis of the traditional view of the intellectual property regime. The current regime is based on the protection of absolute novelty. It tends to conceive the exclusion right of patents more as an absolute or unconditional right to exclude others from the use of patented technology than as an instrument for allowing the patentee to participate in the economic value of its invention and coordinate the social exploitation of it. The traditional conception hinders the definition of a system of incentive schemes necessary to define a framework that facilitates the collaboration between creators of new technologies and their users and developers. As a result, there are reasons to reexamine the patent system in order to make it more flexible and efficient. Therefore, this chapter is not only an analysis of how the patent institution works. It attempts to find the causes that moved this system to the contradictions of the proprietary protection of innovation. Its main goal is to settle a base which allows for the

\[364\] Foray, Knowledge Distribution, at 77-115.
redefinition of patent rights in order solve the conflict between protection and diffusion of technology.

Patent Rights have originally been designed to serve a very specific economic goal, the promotion of the industrial development of a country. In order to achieve this goal, three main activities should be promoted simultaneously: the creation of new technologies, the disclosure of these technologies to the public (public access) and the effective use of the technology to provide the society with better production resources. This functions are very close interrelated. The future development of technology depends on the availability of the information of the actual technology and on the future opportunities to profit from investments in the development of that technology.\footnote{The introductory part of chapter four refers to the economic analysis of these aspects.}

The definition of a patent system should contemplate these three functions. These three functions may be in harmony or in contradiction to each other, depending on the economic and institutional conditions which are integrated into a patent system. The principal contradiction is the interest of the innovator in obtaining maximal profit for their invention, which influence him to use its right to exclude others from the use of his technology in order to create a monopoly. This interest is in conflict with the public interest that is precisely behind the protection system for innovators: that inventions spread in society, so that the general welfare increases and new applications and improvements of that technology could be generated by other users.

After analyzing the legal aspects of the patent institution, possibilities of a reform are explored. Special attention will be given to the “soft protection patent system” of Japan. This system will be analyzed in order to evaluate the importance of alternative institutions in the definition of an effective patent system. Our final goal is to investigate the evolution of the patent system and to analyze the suitability of this instrument for the promotion of technology development.

a) First Modern Patent System: The System of Privileges of Venice

The first patent showing all the features of a modern patent for invention was enacted in Venice in 1443. The Republic of Venice created a system of privileges to promote inventions. The Venetian Patent Act of 1474 is the crowning of the evolution of the patent system in that Republic. The principal goal of the system was defined in the preamble of this statute. The preamble declared that the statutes should motivate that people “would use their minds and would discover and make things, which would be of no little utility to our State”. Innovativeness would be promoted “if it were provided that others may not make nor take unto themselves, to increase their own honor, the works and artifices that may have seen so discovered.”

This patent system was defined in the following terms: “It is enacted by the authority of the present Council that whoever will make in this city any new and ingenuous artifice, not made previously in our State, will be obliged to register it at the Office of our prove-editors of the Commune. It shall be forbidden to anyone else in any our land and place to make any other artifice to the image and similarity of that one without consent and license of the author during the term of ten years...”

The promotion of the social interest was a fundamental interest in this Patent Act. The consideration of social interests constitutes the fundamental reason for creating the patent rights. Also, this social interest constitutes the principal limitation of this right. The protection of this social interest is presented in several provisions of this law. First, it required the inventor to disclose the invention and to exploit it by making the protected artifice in the city. Furthermore, it gave discrentional power to the city to use any patented invention on the condition that only the inventor should be allowed to operate it and to recall patent grants in those cases in which the inventions were not exploited. The patent system was

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367 Id. at 6-7.

borne and centered on the interest of the State to obtain benefits from the protection conceded to inventors.


The modern patent system, paradoxically, was grounded in the idea of promoting technology transfer more than to stimulate local inventive activity. The modern patent system is inspired by the patent statute introduced in the sixteenth century by Elizabeth I of England. While the Venetian system granted patents to “the first and true inventor” in the Republic, the English law also permitted patent grants to those who introduce foreign inventions\(^\text{369}\). The patent system responded to the interest of the British Crown to move the country out of the position of relative underdevelopment in trade and manufacture. Its main objective was to promote the inflow of more advanced continental technology to the country. Because of that, a patent was considered a package of rights and duties that fulfill a deal done between the patentee and the Crown.

The patentee was obliged to transfer the technology to the country by the usual way of the time, using it in a new manufacture. In this way, the invention was made available to the limited-skilled craftsmen. Due to the “contractual” nature of the patent, its validity was depending on the fulfillment of the transfer of technology. Among the clauses typically resorted by the Crown was the voidness of the patent in the case of non-working, the requirement to take on and instruct English apprentices and also the obligation of providing an adequate supply to the market in terms of quality and prices\(^\text{370}\). The introduction of new industries and the undertaking to work the grant constituted the essential consideration in the early monopoly system of patents\(^\text{371}\). In this way, a deal between the Crown and the patentee ensued, whereby the dynamic and functional aspect of the patent system was the principal aspect to be considered in the creation and definition of the content of patent rights. The adequacy of the rights to the economic reality and the achievement of public goals was the fundamental criteria for interpreting patent

369 Id. at 8.
371 Anderfelt at 7.
rights. Consequently, patent rights were not absolute rights, but the result of a deal between a private party and the State, under terms that seek to conciliate their interests in mutually beneficial ways. Nevertheless, further attempts to create a legal theoretical framework for the patent institution were hampered by difficulties in outlining this dynamic aspect. There has been a tendency to define a patent right as a simple monopoly right or a private right, disregarding the functional aspects of the patent system. Nevertheless, in comparison with the European Continental tradition, the common law legal system keeps this dynamic perspective by omitting the attempt to provide a unitary legal theory of this right.

c) Statute of Monopolies of 1623 and its Evolution Definition of the Basic Elements of the Modern Patent System

Because monopoly privileges were granted by the Crown for various reasons, including pure favoritism, popular reaction to this use of royal prerogatives moved parliament to promulgate the Statute of Monopolies of 1623. This statute abolished the royal prerogative to grant monopoly privileges and excepted only privileges granted for a term of fourteen years for “the sole working or making of any manner of new manufacture”. In this way, the Statue of Monopolies stressed that the undertaking to work the grant constituted the essential consideration in conceding a patent monopoly. Moreover, section VI of the Statute, in its final paragraph, orders patent grants to be used in such manner as not to be “mischievous to the State by raising prices of commodities at home or hurt of trade”.

The basic elements of the modern patent system were developed in England as a result of the adaptation of the Statute of Monopolies to the actual needs of the incipient industries. New rules regarding the rights and duties of the patentee evolved according to the needs of transfer of technology of the British economic system and the need to reward local inventiveness.

Later, as the number of patents increased and the manufacturing sector grew, the disclosure and explanation of inventions became the most important aspect of

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372 See Hubmann at 15.

technology transfers. As a result, the system evolved from stressing the duty of the patentee to use the invention and manufacture, to emphasize the requirement of disclosing the invention though the specification. In 1711, for the first time, a patent’s validity was made contingent upon the subsequent enrollment of a specification\(^\text{375}\). In 1778 for the first time, a decision (Liardet v. Johnson) enunciated the standard which should be met by specifications. The main goal was to ensure that others could duplicate protected inventions so that the public could appropriate it fully after the term in which the patent protection ended\(^\text{376}\). This decision defined the “person in the profession having skill in the subject” as the addressee of the specification. Additionally, it required that the specification should be so clear by itself, so that it enables the addressee to reproduce patented inventions without any new invention or addition being necessary\(^\text{377}\).

Given that a technology transfer was a fundamental condition for patent granting, the common law legal system required the disclosure of inventions in good faith. This implies the obligation of the patentee to disclose the invention to the best of his knowledge (best method requirement) and the prohibition of misleading the public by omitting important details or adding superfluous information on to his description\(^\text{378}\). This principle became a statutory requirement in 1932. It prevailed in the United Kingdom until the harmonization of the English law with the European law through the Patent Act of 1977\(^\text{379}\).

In conclusion, the modern patent system emerges as an instrument for promoting technology development by motivating foreign inventors to transfer their knowledge. Therefore, the patent system emerged as a “trade-off system”. The principal goal of the system was reduced to provide inventors with an instrument enabling them to obtain a fair profit from his work. The main objective was to give them incentives to transfer the technology through manufacturing and later through disclosure. The concession of monopolies rights was not a goal by itself. Under the mercantilist perspective of England, the system created rights in favor of

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\(^{374}\) Anderfelt at 7.  
\(^{375}\) Nasmith's patent, 1st April 1711, printed series, No. 387, at 1, which required the specification to be enrolled within 6 months of the patent grant, quoted by Strobel at 190.  
\(^{376}\) Strobel at 190.  
\(^{378}\) Strobel at 191.  
\(^{379}\) Patents and Designs Act 1949, 12, 13 and 14 Geo. 6, Ch. 62. s. 32(1)(h), quoted by Strobel at 192.
inventors, allowing them to exploit inventions within restricted monopolistic conditions so that they obtain a significant reward for the disclosure of their inventions for a certain period of time.

d) Origin of the Concept of Intellectual Property Rights

The concept of intellectual property rights had already appeared in the French Copyright Statute of 1545. This evolution responded to the need to recognize an “inherent right” of authors, in order to protect them from publishers. The concept of intellectual property rights emerged as a reaction to the system that granted copyrights to the publishers, leaving the authors without a suitable protection for their works. Certain particularities of copyrights favored the definition of this figure as intellectual property. In addition, the use of private property to protect literary works corresponded to political interests. The interest in recognizing an “inherent right” of authors was fundamental for the promotion of freedom of opinion, in a time where it was necessary to protect individuals against the economic and political power of privileged groups. Another use of the concept of intellectual property is to be found in French edict of 1787, which protected as private property designs of silk and gold brocade for a period between 6-15 years. The goal of this edict was to encourage talented artists, facilitating them to profit from their designs by prohibiting the imitation of the protected design.

Copyrights and patents present some particular characteristics that distinguish the nature and scope of the private and public interests with provide for their legal recognition. These differences facilitated the inclusion of copyrights in the general framework of private property. However, some special characteristics of inventions and patent rights contradict the assimilation of these rights into the framework of private property. These differences will be analyzed in the second part of this chapter. From an historic perspective, the differences between patents and copyrights can explain why the US system avoided using the concept of private property in its Patent Act, keeping the definition of patent as “exclusive rights”.

380 Anderfelt at 11.
381 See Hubmann at 17.
e) Development of the US Patent System: Return to the Monopoly Theory of Patents

The US patent system emerged from the English patent law. Patent-like protection existed in the American colonies as early as 1641, when each colony began to issue patent grants.\(^{382}\) The main goal of this legislation was to stimulate domestic industry.\(^{383}\) The requirements to disclose designs or processes appeared for the first time in the legislation of Pennsylvania. This statute was the first to supply financial remedies to the infringed, under the condition that the patented idea was used within 3 months of the issuance, otherwise, the protection was forfeited. The principal reason for granting patents was the same as in England: to promote “the expediency of giving effectual encouragement, as well as the introduction of new and useful inventions from abroad, as to the exertions of skill and genius in producing them at home”. These were the reasons motivating George Washington to support the idea of a Patent Act in the USA, which culminated in the first Patent Act of April 10, 1790.\(^{384}\)

One particularity of the early patent legislation of the United States is its preoccupation with the recognition of some “inherent rights” of authors and inventors. The early US patent system integrated the tradition of “inherent rights” developed in France for copyrights into the patent law, as it is demonstrated by the dominant situation of the patent legislation law at the end of the 18th century in the United States. The framing of patent rights as “inherent rights” could be derived from the fact that frequently, the protection of copyrights and patents was included in the same law, which often did not make a distinction between the two concepts.\(^{385}\) As a result, with the definition of patents as “monopolies”, coexisted the idea that inventors had an “inherent right” over their inventions. By 1780, ten of the thirteen states had adopted copyright laws which provided that authors were to be granted for their intellectual works, “protection in virtue of a natural right”.\(^{386}\) This provision could also be interpreted as recognizing the inventor’s right as a natural right. Nevertheless, this legislation presented a tendency to

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\(^{384}\) Id. at 28. See also Sears, Roebuck & Co. v. Stiffel Co, 376 U.S. 225, 11 L.Ed. 2d 661, 665 (1964).

\(^{385}\) Neumeyer at 242.

\(^{386}\) Id. at 11.
mention the rationale and goals of the patent system, *i.e.*, to stress the importance of the social interest as a foundation of patent rights. The legislation of North Carolina of 1785 is an example of the tendency to integrate into one system the protection of copyright and patents and additionally, of the tendency to always mention the social justification of the system. In the paragraph related to the goals of the law, the following reasons to grant protection are mentioned: the need to provide reward to encourage people to bring to practice useful knowledge, the fact that the security of the possession of the literary work encourages the genius of man and promotes useful discoveries, as well as the general expansion of production and commerce.\textsuperscript{387} Similarly, in the discussion of the project of the constitutional text between 1787 and 1788, the fact that in Great Britain the copyright of the authors was recognized as part of the Common Law was taken in consideration. For this reason, the right of the useful inventions apparently should have also been recognized for the inventor as customary right. This position is reinforced by the fact that the benefit of the community in both cases corresponds fully to the promotion of the individual.\textsuperscript{388}

Thus, the confusion between patent and copyrights was not due to a conviction of the legal and economic equivalence of these two types of rights. The main reason for this confusion was the relative lack of development of the patent in relation to the copyright system. Copyright legislation was more developed as a result of the requirements of the publishing industry, especially, the need to redefine the rights of authors and publishers. The situation was different with industrial inventions, whose development and use have traditionally been reduced to a smaller circle of manufacturers. This explains the broad tendency at that time to confuse the institutions of patent rights with copyright and to use the private property institution as basic criteria for analyzing them. It also explains the extension of the conception of copyrights as “inherent rights” to patents.

The US Constitution of 1787/89 recognized an exclusive right to inventors. The 8th clause Article 1 of the US Constitution states: “The Congress shall have Power... to promote the Progress of Science and useful Arts, by securing for

\textsuperscript{387} Neumeyer at 242.

\textsuperscript{388} Neumeyer at 244, who refers to the text of the commentary of the constitutional paragraphs related to intellectual property rendered by Madison.
limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”.

Contrary to the former tradition of extending the inherent character of copyrights to patents, the US Constitution as well as the Patent Act of April 10, 1790 did not expressly recognize the theory of patent rights as “inherent rights”. The 8th clause to Article 1 of the US Constitution does not fit the bargaining or contract theory or the inherent right theories. Following a bargaining or contract theory, it states the premise that patents are granted to encourage to produce new inventions as they allow inventors to obtain some reward as an incentive\textsuperscript{389}, or following the natural rights theory as it recognizes the rights of authors and inventors as based on natural law.\textsuperscript{390} Following the natural rights theory, it can be interpreted that since the Constitution mentions the “rights” of authors and inventors and states, it presumes their existence. Because of the use of the term “securing” (as opposed to “granting”) in Article 1 of the US Constitution, it may be interpreted that the Constitution does not create inventors rights but recognize this rights as inherent\textsuperscript{391}.

This fact may correspond to the pragmatism of the US Constitution which allows its institutions to adjust to the actual requirements. The complexity of the object of protection itself, as well as the contradictions on the process of creation and diffusion of inventions, have made the definition of concise and clear legal instruments difficult. Seemingly, the US Constitution chose the figure of monopoly instead of property rights to delineate the patent institution. In its pragmatism, the Constitution recognizes the fundamental differences between the copyright and the patent protection. The realization of the negative effects in welfare and development of monopoly abusing prevented the definition of patents as “inherent rights”. The awareness of the social cost of the patent monopoly and of its conflicts with other social goals moved some constituents to even question the social convenience of the recognition of patent rights. Because of that, there was a need to clearly define the justification of the grant of that privilege.

\textsuperscript{390} Id.
In a letter written in 1787, Jefferson questioned the creation of a patent system because of his skepticism about the welfare effects of this system. His position was that “the intervention of the government in the inventiveness activities could present a value, but in the praxis it is so inseparable from abuse, that is preferable not to intromit”\textsuperscript{392}. This preoccupation is reflected in paragraph 10 of the proposal of the Patent Law of 1790, which states the right of the highest court to decide the adequacy of the amount of units offered to the market, or the price of the patentee product, as well as the possibility of granting compulsory licenses in the case of abuse. This clause was not included in the final bill\textsuperscript{393}. The clear conscience of the problems of the abuse of patent rights and simultaneously the conscience of the need to give effective promotion to important inventions, led to another practical solution: to restrict the grant of patent only to very important inventions and to define strong requirements for patentability.

This allows us to infer that the bargaining aspect of patents constitutes their basis of the first US Patent Law. An example of this is the proof of novelty. This should be done only by persons of no lower range than the Minister of International Affairs, War or Justice. They should also prove if inventions were “sufficiently useful and important” to receive protection. Because the patent right is only recognized for very important inventions, one can conclude that in the US patent system the “inherent right” of inventors is relegated to a position of secondary importance. The US system defines patents as “monopolies” or privileges, granted only to important discoveries. As a result, patent rights should be defined neither as mere “inherent rights”, nor as mere “privileges”. Patents are granted only if their social importance is proven according to what an important Minister considers “sufficiently useful and important”.

The contract and the natural rights theories do not resolve the legal nature of patent rights. Furthermore some theoretical constructions confuse the contractual and inherent theories with the natural rights theories. For example, the natural rights theory has been constructed with the consideration that inventions are the product or work result of mental labor of inventors, and, because of that, creators of technology have a property right over their creation and are not obligated to


\textsuperscript{393} Id. at 244.
disclose anything. Consequently, “in order to obtain such disclosure - and thus allow for other, later, inventors to build upon the earlier creation - the government assures an exclusive right to profit from the invention”\textsuperscript{394}. However, in the end, this theory is a variant of the bargaining theory, since it may be inferred from the US Constitution, quoted above, that the exclusion right of inventors is not an inherent right, only their right not to disclose. The right of exclusion is granted on bargaining basis to motivate inventors to disclose, \textit{i.e.}, is not intended to protect them but to allow society to profit from the disclosure. In the end, the advancement of the useful arts and sciences is the real goal of the constitution\textsuperscript{395}.

Thus, the problem of the legal nature of patents is not solved. The contradiction between the natural rights theory and the bargaining theory can be summarized in the following terms:

“Both of these theories, of course, are partially incomplete. The bargain theory denies any absolute right of the inventor to his productivity - he must accept the government bargain or have no protection at all. Likewise, the natural rights theory is inconsistent with the idea of a limited monopoly since, if the inventor has complete rights to the invention, it is not clear how the government can declare the invention public property after the patent expires”\textsuperscript{396}. The search for a proper dogmatic construction for patent rights still constitutes a challenge.

The modern patent system can be summarized in the following terms: First, society will grant intellectual property to inventors as long as they disclose the content of their invention to the Patent Office, in terms that society can record their achievements. The bare fact of having invented is not enough to concede these rights. Disclosure is the fundamental consideration for granting a patent right. Second, only important inventions will receive protection. Consequently, the aspects of equity related to the recognition of the inventive effort by itself is relegated to a position of secondary importance. The rights granted upon the object of disclosure are given mainly as a reward for the disclosure. For the

\textsuperscript{394} Miller and Davis at 15.

\textsuperscript{395} Miller and Davis use this argument to justify the natural rights theory in contrast to the bargaining theory. Notwithstanding, from this argument it can be inferred that the natural right of patents is not the exclusion right but the right not to disclose, and therefore the constitution authorizes the creation of an exclusion right in order to motivate inventors to disclose. \textit{Id.}

\textsuperscript{396} Id.
concession of this reward, the important social effects of the system, *i.e.*, the encouragement of further inventions is taken into consideration.

The harmonization of the private and social interest will be achieved by the patentability requirements and by limiting the duration of the patent privilege. A patent right are defined as a right of “exclusion” in terms that the patentee is given the right to exclude others from exploiting commercially his invention, in order to give him the power to organize the exploitation of that good in the terms he considers more profitable, during a limited period of time. The right to exclude others, in order to exploit the invention under monopolistic conditions has been considered the most important aspect of the patent.

**f) From Mere Monopoly Privileges to Inherent Right of Inventors**

The patent system was created centered on the idea of promoting the transfer of technology rather than on protecting the rights on inventors. The mere fact of intellectual creation did not entitle inventors to protection by the State, rather, the right of the inventor was merely the result of the patent protection that was granted in the interest of society. Patents were not regarded as “inherent rights” that inventors could claim. The patent grant remained as a privilege bestowed upon the inventor by the public power. But the perception of patents as mere monopolies presented some disadvantages: Monopolies and privileges were perceived as contradictory to the new republican ideals of freedom and liberty of trade. Additionally, it was recognized that monopolies hampered the diffusion of technological advances and the creation of new enterprises. In order to resolve this conflict, the common law legal system allowed the tradition to consider patents principally as monopolies that should be regulated and controlled, but that were absolutely necessary to admit in order to promote technological development. Because of that, the mere fact of creation was not considered sufficient for legitimizing the concession of patents. Consequently, the functional element of the promotion of technology creation and transfer remained the principal justification of the patent rights.

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397 Anderfelt at 9.
398 Id. at 8.
However, alike copyrights, the patent institution cannot be reduced to a simple privilege arbitrarily given by the public authority. Equity also claims the recognition of an “inherent right” of inventors. Because of this, some authors have proposed the possibility that the Statute of Monopolies recognized patents as “inherent rights” of the inventors. This thesis has as principal support the fact that all requests for patent protection were granted. Additionally, it has been considered that the regulation of patents in the Statute of Monopolies as an exception to the principle of general prohibition of monopolies and privilege may have been regarded as a recognition of the inventor’s right to claim protection.

The perception of patents as simple monopolies was not enough to define this legal institution. There is also a need to consider that some “inherent rights” must correspond to the authors and inventors just for the mere act of having developed a new technology or a new piece of art. As a result, the US Constitution of 1789 contains a copyright and patent clause, which enacted these rights together. The “Federalist” contains a comment on this clause stating: “The Copyright of authors has been solemnly adjudged in Great Britain to be a right of Common Law. The right to useful inventions seems with equal reason to belong to the inventors. The public good fully coincides in both cases with the claims of individuals...”.

The concept of intellectual property comprises a theoretical development and adaptation of the patent and copyright law of England in France. The introduction of patents in France coincides with the development of the revolutionary ideas advocating the abolishment of privileges and the creation of a free-state based on private property and free markets. The redefinition of patent rights as private property had two main objectives. The first and more important one is to try to solve the negative definition of patents as monopolies, in a time when there was a strong movement against the restriction of liberty caused by privileges and...

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399 Copyright is also found in the privileges granted to publishers. These privileges were also based on a mercantilist concept of monopoly to reward enterprise and encourage investment, however, philosophers such as Locke, Hegel and Rousseau, put forward the case for the author’s right based on natural law. Stewart, S.M., International Copyright and Neighbouring Rights, London, 1983, 26.

400 Troller, 1 Immaterialgüterrecht, Basel, 1959, 21.

401 Anderfelt at 9.

monopolies. Second, it offered a response to the need to recognize an “inherent right” in favor of the inventor or creator, in a time when the division of labor and the recognition of individual rights constituted the basis of a new social organization. A central instrument of this social and economic transformation was precisely private property. Private property appeared as a key concept to reorganize society around the facts of economic efficiency and recognition of private initiative, liberty and free negotiation in a market.

The French patent law originated from a petition made by inventors to the Trade Chamber of Normandy in August 1790\textsuperscript{403}. They proposed the establishment in France of a regime of protection similar to the Statute of Monopolies of England. This petition presented a great challenge to the French Revolution. This petition responded principally to the public interest of promoting technology creation and diffusion, but also to the ideals of protection of the Rights of Man pursued by the revolution, as well as the most basic notions of justice claimed for the recognition of certain rights to inventors as natural law. A certain sense of providing justice for inventors was involved. Inventors should obtain a reward for their efforts and they should have a real possibility of exploiting their inventions. However, the right of exclusivity, conceived as a right to create a monopoly, appeared to be the only feasible way to grant this protection. On the other hand, the creation of monopolies represented a contradiction for a revolution that reacted drastically against all kind of privileges, monopolies and institutions that were an obstacle to the liberty of trade. In 1791 the “Decree Referred to Authors of Useful Ideas” was promulgated. This Decree resolved the ideological contradiction between the French Revolution and the granting of an exclusive right which generated the creation of monopolies. The Decree emphasised the need to recognize the rights of inventors and defined these rights not as privileges or monopolies, but as property rights\textsuperscript{404}.

In its preamble, the Decree considers the non-recognition of the property of the author over its discovery as an attack on the Rights of Man\textsuperscript{405}. It declares intellectual property to be “the most personal, most legitimate and most sacred of

\textsuperscript{403} Neumeyer at 249.

\textsuperscript{404} Hubmann at 17.

\textsuperscript{405} Baylos Corroza, H., Tratado de Derecho Industrial, Madrid, 1993, 392.
all properties. This declaration was based on the following argument: “If there is for a man any genuine property it is thought... and the tree which grows on a field does not so incontrovertibly belong to the owner of the field as the idea which springs from a man’s mind belongs to its author. Invention, the source of the arts, is also the source of property: it is primary property while all other property is merely conventional.” In this way, the French Revolution found a quick theoretical solution for the ideological problem of the authorization of a patent monopoly, putting emphasis on the sacred value of the property right of the inventor. The proposer of this law, Bouffler, recognized two sources of inventors property: the first is the natural right of property, the second is constituted with the help of society (concession de la société). The inventor claims society that it guarantees his property through a contract or “un pacte raisonnable”, in which he compensates society for his protection disclosing the invention. Giving this protection the state looks to obtain profit, and according to Bouffler, it has nothing to lose. Replacing the word “monopoly” with “private property” Bouffler concealed the existence of a contradiction between the monopoly power of patents and the liberty of trade and manufacture. In the end, the right of property and its right of exclusion presented the similar negative effects as the former definition of monopoly rights over invention. In this way, the theory of private property was artificially extended to an institution that originally responded to other finalities and presented other economic problems. The problem of monopoly was covered and sanctified by the most important institution of the free market, private property. Thus, the factual contradiction created by the existence of monopolies was not solved.

A close look at Boufflers’ proposal of law, which originated the French Decree of 1791, makes this contradiction evident. It declares the “sacred value of patent” as private property and at the same time justifies the need for passing the law with reasons of economy policy. There was an urgency to promote the technological development of France because of the backwardness of the French industry, the

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408 Neumeyer at 250.
409 Id.
410 Id. at 249.
English penetration of the French economy and the desire to ameliorate the situation of the French industrial worker. As a result, the declared “sacred right of property” over patents presented so many contradictions. The most sacred of the properties was subject to the most arbitrary limitations. It was considered in accordance with natural law that the inventor enjoys his invention for a limited period of time, whereupon the invention should be put at the free disposal of the public. The Decree of 1791 requires the patentee to exploit his invention and states that an inventor having a French patent would lose it the moment he took out a foreign patent for the same invention. Additionally, the Decree introduces the “importation-patent” granted to persons different from the original inventor, specifically, the “importer” of foreign inventions. It is clear that the French patent law responded more to the need to promote the technological development of this country than to the mere recognition of “inherent rights” for inventors. Specifically, its introduction to France responded to the need to confront the background of the more advanced development in England, and not to protect property as a human right.

This situation questions the sincerity of Boufflers’ natural property theory and affirms the thesis that the application of the property theory to patents responded more to the need to avoid the use of terms like privileges and monopolies, in order to prevent any opposition to the patent bill. In particular, Machlup maintains the thesis that Bouffler deliberately substituted the term “privilege” by “property” because he knew “that there was no hope of saving the institution of patent privileges except under an acceptable theory.” In the end, the use of private property was not consistent, since the theoretical inherent character which distinguishes the right of property was not attributed to patents. Patents were recognized only through a contract. The concession of patents were considered a contract between the inventor and society, because patents were granted to motivate inventors to disclose their inventions to the republic. In that case, it was

411 Id.
412 Hubmann at 18.
413 Anderfelt at 15.
414 Neumeyer at 251.
416 Machlup and Penrose at 35.
considered that, in accordance to natural law, the inventor enjoys his invention for a period of time, after which, the invention should be free for disposition to the public. The right of property was not suitable for describing patent rights, which present a more complex structure than the mere recognition of an inherent right of property.

Although the definition of patents as private property by the French Act of 1791 may be the result of a political strategy favoring the introduction of the British system of patents to France, the selection of the construct of private property to substitute the construct of monopoly also responded to the need to give philosophical and theoretical sustenance to the patent system. The concept of private property not only provided a solution to the deficiencies of the conception of patents as mere monopolies, but also provided the advantage that the private property construct offered a well developed framework to interpret the nature, content and extension of these rights.

The main objective of the theory of private property was to give elegance and ideological coherence to the patent system. However, as will be discussed in the next section, the use of private property to justify patent rights aggravated one of the most important problems of the patent system, which is the tendency to reduce this institution to static concepts and solve the inconsistencies with formalistic or legalistic constructions. This theoretical construction has hampered the definition of an institutional framework that harmonizes all the interests involved and establishes a tendency to give the patent right the same qualifications of “inherent” and “fundamental right” that private property has. Within this framework, the mere fact of legitimately acquiring or having produced a material good constitutes a property right, which grants its holder the right to exclude others from the use of the invention (subject only to the limitations established by law to protect relevant public interest). Consequently, the recognition of the property right by the state is more “declarative” than “constitutive”. The use of private property leads the patent system to overlook the economic function and economic reality of patents. The use of this theory increases the monopoly power of large corporations which

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417 See Hubmann at 17-18.
receive the bulk of modern patents, and reduces the government faculties to bargain sharply enough on behalf of its citizens.\footnote{Miller and Davis at 16.}

The property rights theory of patents does not harmonize with the original economic goals of the patent system. This theory is not suitable for describing the complex structure of patents, and for harmonizing all the interests involved. These contradictions may explain why the diffusion of the concept of patents as private property has not closed the theoretical discussion about the nature of patent rights.

Actually, the discussion is still centered on the definition of patents as monopolies or as private property. Each theory focuses the foundation of patents in a different way. The theory of monopolies is centered on the idea that patent protection is extended in the interest of society. The theory of private property is centered on the idea that such protection is granted by society in recognition of a pre-existing “natural right” of the inventor.\footnote{Anderfelt at 12.} This discussion is relevant today and constitutes a basic factor in defining any system of technology promotion and transfer.

\textit{h) Extension of the Philosophical Background of Private Property to Patents and Consolidation of the Intellectual Property Rights Definition}

As a result of the consolidation of the theory of property as a legal framework to define patent rights, the philosophical background of the theory of property constitutes a basic source to apply and interpret the nature and content of patent rights.\footnote{See Rogel Vide at 14-16.} For this reason, notwithstanding patents are not always expressly recognized as property rights by law, the content of patent rights has been defined as a right of property by the doctrine and jurisprudence in almost all legal systems. Jurisprudence and doctrine tend to solve the interpretation problems related to patents applying by analogy the strong legal and philosophical concepts of private property, which are already developed and generally accepted by society. The philosophical base of property matches perfectly with some of the social interests that justify the patent monopoly. The US case law is a good example of this. Although this system chose not to define the legal nature of patents by law, the strong philosophical background of private property as the base of the free society is sometimes extended to patent rights. Private property provides a solution to the
problem of recognizing an “inherent right” of the inventor. It justifies the prevalence of the patent monopoly and facilitates the concession of a free space to the inventor to exercise his initiative to organize the way the technology should be exploited. Furthermore, it grants a convenient framework to the public administration of the patent system, minimizing the interference of public authority in the definition of the content of this right.

The philosophical bases of property rights of the US system are based primarily on John Locke’s “labor theory.” Locke’s labor justification of property is based on two theories. The first corresponds to the practical need to grant an incentive to reward individuals in order to encourage the creation of goods, services and ideas that benefit society. The second regards the moral need to reward labor by recognition, and that recognition is a property interest. Locke acknowledged for every individual a right of property on each object which is result of his personal efforts. This natural right should be recognized automatically.

Locke’s justification of property as an incentive to promote the division of work was reinforced by the philosophy of Georg Hegel. Hegel centered the justification of property on the right of self actualization of each individual in a free society. According to this perspective, property is perceived as an essential instrument for protecting “the individual’s initial attempts to take command of the world.” Property gives an individual certain control over the world and offers the conditions for the expression of an inalienable will. In this sense, the property element is precisely the internally controlled aspect of a tangible object. The application of these philosophical arguments to patents stresses the need to provide protection to inventors so they could enjoy the liberty to decide the way they organize themselves to exploit their inventions. Consequently, private property protects and encourages the interest of inventors to take command of the way their invention is exploited by society. Private property is considered a natural give to promote private initiative, including the exploitation of new technologies. This thesis was used in Germany to grant an exclusion right to inventors during the

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422 Huhmann at 17.

423 See Decision of the Düsseldorff District Court of September 7, 1949, Case No. 4 Q 31/49 in 1950 GRUR 42.

424 Hugles at 333.
World War II, when the patent office was closed. An example of this is the following decision of the Court of Mainz (LG Mainz)\textsuperscript{425}: “A person has in the technical creation of his spirit, on the basis of no other formal fact than the technical creation (creation of a technical newness of an inventive step), his embodiment or the record and its disclosure, attached original rights over these immaterial goods (Immaterialgüterrechte). These rights are related to the existence and dignity of the human personality, and his right to freely develop. They are, together with the right of tangible property, and alike this similar right, of imperative character, innate and natural belonging to the man”.

Locke’s and Hegel’s definition of private property are complementary in the sense that they define an instrument not only to achieve the practical interest of promoting a harmonious and fair distribution of labor that enables economic progress, but also, that assures the individual a vital space to exert his liberty and initiative. This has been a fundamental principle to allow society to move away from the authoritarian system of kings and rulers who used their power to create and maintain privileges. Private property is the foundation of a political system based on the free initiative of citizens and the objective and rational functioning of the markets.

This philosophical base of private property has been used as an important source to interpret the Article 1 of US Constitution which constitutes the foundation of the US patent system. Article 1 sec. 8 cl. 8 of the US Constitution states: “The Congress shall have Power... to promote the Progress of Science and useful Arts, by securing for limited times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”. This constitutional principle was first developed under the Patent Law of 1790, which conceded inventors the sole and exclusive right over their inventions. However, in 1793 a new patent law recognized inventors an exclusive property right, probable influenced by the French Act of 1791\textsuperscript{426}.

In the case \textit{Mazer v. Stein}\textsuperscript{427}, the US case law interpreted Article 1, sec. 8. cl. 8 of the Constitution in the following terms: “The economic philosophy behind the

\textsuperscript{425} Decision of the Mainz District Court of September 6, 1949, Case No. P. Q. 2/49 in 1950 GRUR 44, 44-45.

\textsuperscript{426} Hubmann at 19.

\textsuperscript{427} Mazer v. Stein, 347 U.S. 201 (1954).
clause (Article I sec. 8. cl. 8) empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors... Sacrificial days devoted to such creative activities deserve reward commensurate with the services rendered”. Framing patents right under Locke´s philosophical background leads many authors to the conclusion that the use of the term “securing” (as opposed to “granting”) in Article 1 of the US Constitution reflects the transcendent dimension of property interests in the US patent system.\(^{428}\)

The interpretation of the word “securing” as defining property interest in patents led the system to lose its dynamic perspective as an instrument of industrial policy. The “static” concept of property declared by Judge Stewart became the center of patent rights. Judge Stewart considered that the right of property was so fundamental to the US system, that “property interests... are not created by the Constitution, but recognized by it. Property is rather created and their dimensions are defined by the existing rules that stem from an independent source”\(^{429}\). The use of the philosophical foundation of property leads to the interpretation that intellectual property rights are not created by law, but are just recognized and regulated by law. That is, their existence is irrevocable\(^{430}\). If property rights are independent of law, the constitution and the law should limit to recognize these rights and interpret them in order to define the dimensions of property interests\(^{431}\).

On the other hand, the need to restrict the negative effects of patents has led to the imposition of many limitations to this right which are incoherent with the philosophic foundation of private property. As a result, patent rights present a very obscure legal framework characterized by mixing legal principles that are contradictory.

The extension of the philosophical base of private property to patents may explain one of the most important particularities of the US. patent system: A patent should be granted to the first inventor (first-to-invent doctrine)\(^{432}\). That means that the


\(^{429}\)Board of Regents v. Roth, 408 U.S. 564, 577 (1972).

\(^{430}\)Errico at 23.

\(^{431}\)See Board of Regents v. Roth, 408 U.S. 564, 577 (1972).

\(^{432}\)Hubmann at 19.
first to create an invention has priority to file the patent. The normal rule of the other patent systems of the world is to concede a patent to the first to file the invention. The doctrine of the first-to-invent is more coherent with the perception that the patent right is not created by law, but assured by law, and that this right belongs to the first creator, whether he has tried to obtain the patent first or not. This situation presented an important problem for the international patent harmonization.

In conclusion, the US legal system has not developed a theoretical definition of the legal nature of the patent right. It has solved this problem by simultaneously accepting both theories, the theory of property and the theory of monopolies. Patents are philosophically sustained as private property but only after being granted by the Administration. The negative effects of patents as monopolies should be accepted because they are generated as the recognition of an “inherent right” to the inventor. Furthermore, it is assumed that patents promote the technological development of the country. The integration of both doctrines, monopoly and private property, moves the US system to grant a strong protection to inventors and to consider every limitation of these rights as a necessary but negative intrusion in the private sphere. The same tendency is obvious in the majority of the European Countries and in general, the countries that follow the tradition to consider patents monopoly and private property rights. This trend is consistent which the economic effects of the patent institution: the economic effect of a private property right of an invention is, in principle, the authorization for the constitution of a monopoly in the exploitation of that technology.

C. Analysis of the Current Theoretical Framework of Patent Rights

This section is devoted to the analysis of patent rights as legal institutions. Its main objective is to settle a framework which allows a suitable definition of the legal nature of patents. It deepens the debate about the advantages and disadvantages of extending the figure of property rights and monopoly rights to patent rights, seeking to find a basis to evaluate each theory and propose a suitable institutional framework. Intellectual property rights evolve as an extension of the institution.

433 Contra Miller and Davis at 17.
of private property to copyrights. The coherence and convenience of extending the framework created for copyright to patent rights is questioned.

1. **Dichotomy between Right of the Inventor and Patent Right.**

   a) **Definition of the Right of the Inventor**

   The right of the inventor is the inherent component of the patent right, and thus, an essential element to define the legal nature of patent rights. The discussion of the legal nature of this right was especially relevant in Germany at the end of the World War II, because at that time the patent office was closed. This fact left inventors without protection. As a result, inventors appealed to the tribunals of justice to obtain a patent equivalent protection based on the general principles of law. Relying on general principles of law, some German tribunals granted patent equivalent protection to inventors, i.e., the right to exclude thirds parties from the imitation of invented ideas. Specifically, inventors rights were sometimes defined as equivalent to property rights, justified by the same philosophical foundation of property rights. An example of this is a court decision in Mainz (LG Mainz), involving an invention whose patent protection was applied for but finally not granted because the patent office was closed during the war: “A person has in the technical creation of his spirit, on the basis of no other formal fact than the technical creation (creation of a technical newness of an inventive step), his embodiment or the record and its disclosure, attached original rights over these immaterial goods (Immaterialgüterrechte). These rights are related to the existence and dignity of the human personality, and his right to freely develop. They are, together with the right of tangible property, and alike this similar right, of imperative character, innate and natural belonging to the man”. This court concluded that the right of inventor has seldomly been used because of the existence of formal patent protection, which evolved from monopolies to privileges to the modern patent system. However, the right of inventors are protected by the Arts. 1, 2, 14 and 19 of the GG and are of direct application based on general principles of law as long as there is no specific legislation which

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434 See Schroeter, Kurt, Die Sittenwidrigkeit bei der Benutzung fremder Arbeit und Gedanken im Wettbewerb, 1949 GRUR 228, 228.
delimits it. A similar position was maintained by the RG in a earlier decision in 1913, in which it declared that in the case that an inventor has a patentable invention, his patrimony can be negatively affected when his right of inventor is infringed, since there is no doubt that in such a case that right of inventor is available before the granting of the patent.

b) Differences between the Right of the Author and the Right of the Inventor

The right to be recognized as an inventor (inventor’s right) is not included in the patent right, but recognized by general principles of law which is born with the inventive activity and includes the results discovered by the inventor. Because of that it goes beyond the expiration of the patent right. Once the invention is completed, the right of the inventor includes the right to claim a patent right. The inventor has the right to the invention, which permits him to claim a patent according to § 6.1 of the Paris Convention.

In Germany the protection of the relationship between the inventor and his invention has been recognized as a right of personality, protected by § 823 BGB (sue for damages) and § 104 BGB (action of injunction). Additionally, German patent law used to expressly recognize the right of the inventor to protect his fame. For example, §§37, 63 and § 124 PatG81 acknowledges the inventor’s right to be mentioned in the publication of the patent, and a right to have a recognition as inventor (fame).

The right of the inventor includes the right to decide how to exploit his invention commercially. This right includes the power to decide whether he wants to continue developing his invention, disclose it, patent it or maintain it secret. According to German law the inventor has the right to exploit the invention giving

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435 Decision of the LG Maninz (Mainz District Court) of September 6, 1949, Case No. P. Q. 2/49 in 1950 GRUR 44, 44-45.
436 Id. at 45.
437 See 83 RGZ 37 (July 3, 1913) “Klappstuhl”.
438 See Schulte, Rainer, Patentgesetz mit Europäischem Patentübereinkommen, Cologne, 1994, 142-143
440 Hubmann at 112-113 and Schulte at 143.
441 See Benkard, George, Persönlichkeitsrecht und Erfindungsschutz, 1950 GRUR 481, 488. See also 52 RGZ 227, 231 (October 3, 1902); Hubmann at 113 and Schulte at 143.
licenses and protecting it as a secret or know how against illegal espionage or
disclosure by persons who obtain the information in confidence. In any case,
contrary to copyrights, with the publication of the public exploitation of the
invention, the private technical idea which constitutes the invention looses his
individual character and becomes an objective idea of public domain.\(^{442}\)

Thus, the inventor’s right is similarly constructed as the inherent right of property,
\textit{i.e.}, the right to dispose at will his invention. An alternative approach to explain
the “inherent character” of this right, based on the quasi-contract of unjust
enrichment, will be proposed in chapter four.

c) \textit{Protection of Inventors Rights through Competition Law in Germany}

Considerations related to public order and loyal competition have also moved
courts to use general principles of law to recognize the special right of inventors,
particularly § 1 UWG. This Article grants protection against constituent actuations
which are against good moral and therefore, configuring unfair competition. This
law has been applied not only in constituent facts or actuation which induce deceit
about the origin of a performance (danger of confusion). The enrichment of parties
that boundlessly take advantage of the work results of competitors also has been
included in the constituent facts of § 1 UWG\(^{443}\). Thus, this article has been applied
to protect from imitation not only non technical but also technical factual
objects\(^{444}\).

Following this reasoning, courts considered imitators taking profit from the
defenseless situation of inventors, which for example, occurs during in the period
when the producer is applying for a patent protection, to be contrary to loyal
competition and morality\(^{445}\). A similar position was taken in the late 1940s when
the special legislation referring to patent rights was suspended. The suspension of

\(^{442}\) During the World War II the German Office was closed and no patents were granted. At that time it
was discussed in Germany whether the inventor’s right could include an exclusion right as an
extension of the personality right. German case law conceded protection only against illegal
imitation. See Hamburg Court of Appeals in 1950 GRUR 481, \textit{Benkard} at 488 and \textit{Hubmann} at 114.
In some exceptional cases an exclusion right as element of the personality right protected at § 823
BGB was recognized. See LG Mainz in 1950 GRUR 44; \textit{Benkard} at 481-90; and \textit{Hubmann} at 114.

\(^{443}\) \textit{Schroeter} at 230.

\(^{444}\) \textit{Id.} See also UWG (Act Against Unfair Competition) §1, (para.) 443 at 559-560.

\(^{445}\) See decision of March 16, 1940, Case No. 138/39 in 1940 GRUR 489, 491 (”\textit{Filterpresse}”).
patent legislation was considered an exceptional situation in the legal culture of the land. This motivated a change in the German jurisprudence concerning §1 UWG and 826 BGG. This jurisprudence considered the imitation of inventions, taking profit of the defenseless situation of inventors imitation caused by the suspension of the patent legislation to be contrary to morality, in cases where these inventions present the requirements for patent or industrial design protection.

This attempt to base inventors rights on competition law did not prosper, and was reject by further case law. Competition law, as it has been traditionally conceived, is unsuitable for inventors rights. Its goals have not been the protection of the performance and results of the work of creators, or the right an inventor has over his invention. Protection through competition law is granted under different circumstances than the “technical and functional aspects” which characterized patent protection. The goal of competition law is not the protection of the work result of inventors, but the protection from particular abusive actuation of imitators, taking into consideration particular subjective circumstances: the abuse of competitors position of competitors, and this protection is granted by an action for injunction, to order the refrain of competition and the payment of damages. In such a case, it should be proved that the defendant, when causing the damages, acted with full knowledge or with a significant negligence. In addition, it should be proved that the act of imitating generates unfair competition. Examples of situations that may generate unfair competition are: 1.- The confusion of the origin of the products 2.- The appropriation of immaterial resources created by competitors, when an unjust spare of costs is generated, which granted a prevalence in the economic performance and competitiveness. 3.- The competitor, knowing full well that the imitated invention contains all the characteristics of a patentable invention, as well as the knowledge that the inventor is in the process of applying for protection, takes advantage of particular transitory

446 Schroeter at 228.
447 Id. at 236. See the decision of the KG of May 12, 1948, Case No. 6 U 896. 47 in 1948 GRUR 207, which precisely changed the jurisprudence referring to §§1 UWG and 826 BGB. Cf. decision of March 16, 1940, Case No. 138/39 in 1940 GRUR 489, 491 (“Filterpresse”).
449 Schroeter at 229 and Reimer at 99-100.
450 Reimer at 344.
451 Schroeter at 236.
circumstances which hinder the inventor from obtaining the protection granted by law.\textsuperscript{452}

To conclude, within a competition law framework, the right of the inventor is not sufficient for giving him protection from the imitation of competitors. In order to claim an illegal imitation a case of unfair competition should be demonstrated. This requires proof that the imitator knows who invented the technology and the relationship between the way in which he uses the technology and the invention.\textsuperscript{453}

Furthermore, the mere interest to protect the invention from imitation is not protected by UWG § 1 and § 286 BGB as unfair competition. This protection would only be granted when an exceptional invention is imitated and there is danger of confusion between the device that the imitator put in circulation and that of the original invention, because the imitator has not attempted to find a way to impede this danger of confusion.\textsuperscript{454} Additionally, the first inventor cannot impede another inventor from working on the same technological problem and arriving to a similar or equivalent invention.\textsuperscript{455} Consequently, the sole act of invention does not grant an personal right on the sense of § 823, 1 BGB to exclude third parties; it does not grant an exclusive right. In order to obtain a exclusion right, the invention should be protected with a patent.\textsuperscript{456} As a result, within the traditional framework, there is a clear distinction between the goals of intellectual property rights and competition law. In Chapter four, an alternative approach is presented, which provides a general framework for both, competition and intellectual property rights.

The private property approach, framing the inventors right as an absolute right to exclude, joint with important differences in the legal and economic interests involved in the object of protection of patents impede the right of inventors from being considered equivalent to the right of authors and in general to the right of property. This differences may explain the different treatment given by case law and legislation to the exclusion rights of inventors (patents) and the exclusion right conceded to authors (copyrights).

\textsuperscript{452} OLG Hamburg, decision of November 3, 1949, Case No. U 186/49, in 1950 GRUR 82, 86.
\textsuperscript{453} See Benkard at 488.
\textsuperscript{454} See OLG Hamburg, decision of November 3, 1949, Case No. U 186/49, in 1950 GRUR 82.
\textsuperscript{455} Id.
\textsuperscript{456} Hubmann at 114. See also Reimer at 99.
2. **Theoretical Justification for Using Private Property in Copyrights**

a) **General Aspects of Copyright Protection**

The concept of intellectual property rights was originally created as a framework to describe and regulate copyrights. This theoretical evolution is coherent with the goals of the copyright system and with the traditional function of the private property institution.\(^{457}\) Copyrights present some particular characteristics that led to their recognition as “inherent rights”. These characteristics can provide an explanation for the early extension of the property right institution to copyrights. Inventions and artistic works claimed to be protected in order to warrant its creator the possibility of benefiting from the fruit of his work and to protect their moral rights.

There are enough similarities between the object of protection of a copyright and the object of protection of private property, and its correspondent way of protection. Unlike patents, protection under copyright laws is not linked to registration at the Copyright Office.\(^{458}\) Any work which is original, *i.e.*, was neither in the public domain, nor copied from another, and represents a modicum of intellectual activity is eligible for copyright protection.\(^{459}\) The right is born with the creation of the work.\(^{460}\) In addition, the creation of an identical work, if it is done independently, is also protected, and constituted a valide defense against a claim of copyright infringement.\(^{461}\) As a result, creators need no fear the existence of pre-existing rights which would threaten their copyright.\(^{462}\) Thus, protection of authors is also more generous, in the sense that it is granted for the duration of the life of the creator and the subsequent fifty years.\(^{463}\) In addition, the requirement of the existence of an intellectual work result is not so strength as in patents, where novelty and an inventive step is required. The requirement of originality means in

\(^{457}\) See *Rogel Vide* at 14-15.
\(^{459}\) See *Audretsch* at 43.
\(^{461}\) *Audretsch* at 43.
\(^{462}\) *Stewart*, S.M. at 51.
\(^{463}\) *Id.* at 42. In Germany the protection is according to §§ 7,8 UrhG (Copyright Act) extended to the subsequent seventy years. See *Ilzhöfer* at 116.
may cases no more than that the creator can truthfully say - “This is all my own work”\textsuperscript{464}.

There are other relevant interests of the author that justified the consideration of copyrights as “inherent rights”. These characteristics are linked to the object of protection of copyrights.

The object of protection of subjective rights is the part of the external reality to which the right refers\textsuperscript{465}, it limits the kind of external entities that are protected by the right. In principle, object of a private property right is every material thing that is subject to trade (merchandise) and also all the immaterial things that present the same characteristics of merchandise, for example, rights\textsuperscript{466}. The equivalence between the object of a copyright and the object of a private property is allowed by the way the object of a copyright is defined.

Similar to the case of private property, the work of the creator, both as an expression of his personality and as materialization of his particular skills, constitutes the justification of the protection granted by the copyright. However, not all the elements including the work results of creators are protected. The protected work consisted in choosing the elements which are to be inserted in a composition and the definition of the arrangement or the order in which these elements are presented. Because of the possibilities of finding other expressions of these ideas, simple work and dedication can create alternative ways to materialize those ideas. Although the ideas and techniques used by creators (original or taken from the media) constitute the rough material for the final expression of their work, only the final expression or the creation is protected, not the technique or the ideas used to obtain that result\textsuperscript{467}. Therefore, object of protection of copyrights is precisely the final shape and presentation form of a literary or artistic work\textsuperscript{468}. Consequently, the use of a technique remains free to others, and because of that, not the technique used, but the final shape and presentation constitutes the principal source of the market value of a literary or artistic work.

\textsuperscript{464} See Stewart, S.M. at 51.
\textsuperscript{465} Baylos Corroza, H. at 451.
\textsuperscript{466} See Cribbet, John, Principles of the Law of Property, Brooklyn, 1962, 4-5.
\textsuperscript{467} For example, Section 102(b) of the US 1976 Act precludes copyright protection for “any idea, procedure, process, system, method of operation, concept, principle, or discovery”. See Dreyfuss and Kwall at 290.
\textsuperscript{468} Ilzhöfer at 118.
The object of a copyright is not the whole creation, but the expression of the ideas it contains\textsuperscript{469}. It excludes the protection of the original ideas included in the artistic or literally work. This exclusion is also justified by the fact that the protection of the innovative idea would hinder completely the liberty of expression of the other members of the community, who would be legally inhibited to express their ideas about the protected innovative idea to the public. This principle has produced a corollary maxim that even expression is not protected in those instances where there is only one or so few ways of expression an idea that protection of the expression would effectively accord protection to the idea itself\textsuperscript{470}. Furthermore, because an artistic or literal work will normally include a wide range of ideas that are combined and integrated, it is very difficult to establish when an idea is copied or taken from a determinate work of another author. The negative effects of protecting the original ideas on the liberty of expression and development of art and culture are so evident, that they have hampered the definition of copyrights over ideas. These considerations may explain why the trend of the US Supreme Court has been to consider the promotion of arts and sciences as the primary purpose of the monopoly granted to copyright owners, with financial rewards to creators as a secondary concern\textsuperscript{471}.

\textit{b) Analysis of the Characteristics of Copyrights that Justify the Use of Private Property}

The extension of the institution of private rights to copyrights is facilitated by the similarities that the object of a copyright has with a material commodity. Because the objectives or interests protected by property rights and copyrights present many similarities, the translation of the private property institution to copyrights constitutes a coherent solution to the problem of defining the legal nature and regime of copyrights. Copyrights protect not only the interest of the author to commercially exploit his work, but also the intellectual and personal relationship the author has with his creation\textsuperscript{472}.

\textsuperscript{469} Id. at 259. See also \textit{Mazer v. Stein}, 347 U.S. 201, 217 (1954).
\textsuperscript{470} Id.
\textsuperscript{471} Id. at 232-33. See also H.R. Rep. No. 2222, 60\textsuperscript{th} Cong., 2d Sss. 7 (1909).
\textsuperscript{472} Ilköf at 128. See also \textit{Stewart}, S.M. at 58-59.
The main similarities between copyrights and private property can be outlined by the following characteristics:

(1) **Intrinsic Value of Artistic and Literal Work**

A literary or artistic work has intrinsic value, it normally constitutes a final product ready to be enjoyed. The object of the copyright can easily be defined as a commodity. Contrary to patents, protection of intellectual property is provided by the copyrights laws when an original work of authorship is “fixed in any tangible medium of expression”\(^{473}\). The characteristic of corporeal merchandise can easily be assigned to it, since there is a direct relation between the expression of the idea and its materialization. Copyrights protect only the expression of an idea, not the idea itself. The expression of an idea can also be defined as the way this idea can be objectively materialized in order to conform a commodity. In conclusion, the objects of protection of copyrights are precisely the way an idea can be objectively expressed and materialized. This object can be considered a finished and complete product, the concretizing of an intellectual effort to define the characteristics of presentation of a material object. Like any other commodity, this object requires only to be materialized to be useful and valuable for the public. This situation is easy to identify by observing the normal entities that are objects of a copyright. As a result, the central aspect of copyrights is the right of the author to the public reproduction of the non-corporal form of his creation\(^{474}\).

A confusion between the intellectual good (expression of an idea) and its materialization is frequent in copyrights, when the author materializes his composition as unique pieces (case of paintings, sculptures, etc.). In this case, the object of protection of a copyright, the creation, is by itself protected by a property right. Each painting by Picasso or each sculpture by Leonardo D’ Vinci has a value, not because of its usefulness, but principally because of its original characteristics. It has value by itself and was originally created without any intention to reproduce it. The creation and its corporal substance constitute a vital unit which is recognized and protected.

\(^{473}\) *Audretsch* at 42. See also *Ilzhöfer* at 114.

\(^{474}\) *Ilzhöfer* at 132.
The situation of literary works is similar. The author has already defined all the elements that compose the work and are relevant for defining it (i.e., the text), the creation is concluded and constitutes a final product. In this sense, the first materialization of a work of art or literature already constitutes an object of private property, a commodity. This is special important in Anglo-Saxon jurisdiction, where the work has to be fixed in writing or in any other material form to qualify for a copyright, e.i., the work do not acquire protection until it is reduced to material form\(^{475}\). The fixation of the work is today no so crucial in Germany and other continental European countries\(^{476}\).

Although authors always claimed they readers to pay them for enjoing their creations\(^{477}\), copyrights were born because of new technical opportunities to make a business out of reproducing literary works and graphic designs in mechanical ways, for example, by printing\(^{478}\). The possibility of inexpensively and massively reproducing the work of the artist, which constitutes the main determinant of the value of the copy, brought the necessity to regulate the appropriation of this kind of works for commercial purposes. Thus, copyrights originated to regulate the relation between creators and the intermediaries (publishers) who were prepared to make the initial investment to render their work to the public\(^{479}\).

This similarities between the object of property rights and copyrights are evident. Since the cost of reproduction of literary works became very small (printing cost of each book), the content of the composition (the text of the book) constitutes the principal source of value for that commodity (the book). Profit comes from reproducing and selling the work to the public. Since publishing is only duplicating already completed works, the relationship between the creative effort of the author and each copy of his work is direct and evident.

Consequently, the expression of the work of art by itself presents a natural predisposition for being considered an object of a property right. The strong identification of a copy with the original work and the fact that the principal source

\(^{475}\) Stewart, S.M. at 52.

\(^{476}\) In Germany the presentation of the work in a corporal form is not necessary; only that it has been expressed in a tangible form. This specially pertains to pieces of music, see Ilzhöfer at 114.

\(^{477}\) See Stewart, S.M. at 14.

\(^{478}\) Id. at 15-16.

\(^{479}\) Id. at 16.
of value of each copy is that it reproduces the shape or arrangement made by the author, makes it easy to consider copyrights as an extension of the original right of property that the author had over the initial materialization of his creation. This fact makes it easy to translate the philosophical justification of property to copyrights. If we consider that work is the source of property (philosophical justification), we can argue that the work of the artist (the expression of an idea) is incorporated in its copy. There is a evident and direct relationship between the value of each copy and the work results of the creator. We can maintain that the reproducer has used the work of the author to make the copy because his work is easy to identify in the copy and the work of the author remains being the principal source of value of each copy. Thus, in 1690 Locke had demanded a copyright for authors which he justified by the time and effort expended in the writing of the work which should be rewarded like any other work.\(^{480}\)

To summarize, the intrinsic value of the object of a copyright facilitates the translation of the institution of private property to copyrights. The object of a copyright is directly equitable with the shape of a commodity. Property rights adjust to the protection of the object of copyrights because of the equability of this object to a final product or commodity. In addition, the source of property, the work of the artist, is definitely and directly incorporated in the copy. This work of the artist (the composition or expression of an idea that is incorporated in the merchandise) constitutes the principal source of value. Commodities are merchandise or final products ready to be offered in the market, like a book or a reproduction of a work of art. In the case of copyrights, they are valorized by the market principally because of its being a copy of a valuable expression of an idea. Different is the situation of patents, which are valued not because of the way the technical idea is expressed, but because of the utility rendered by the device that uses that idea.

\(^{2}\) **Existence of Moral Rights**

In addition to the intrinsic value of the object of protection of copyrights, there is another source that leads to the recognition of the inherent value of these rights,

\(^{480}\) See Stewart, S.M. at 22.
which patents do not share: the existence of moral rights\textsuperscript{481}. Relating to inventions, this interest is protected by general principles of law and constitutes a presumption of legitimacy for claiming the patent\textsuperscript{482}. Authors normally have a personal and direct interest in their creation, independent of its patrimonial or market value. The object of a copyright generally constitutes an expression of the personality of the author and because of that, the author should have an inherent right to exert certain control over the way his creation should be reproduced and distributed to the public\textsuperscript{483}. For this reason copyrights protect the moral identification of the author with his creation, recognizing the importance of the social valuation of his expression of his ideas and of the personality of the author. It has been considered that the social valuation of the artistic work influences the fame, prestige and, in general, the social appreciation of the author. Furthermore, there is a connection between freedom of expression and moral rights: the author also has the right to control the way his opinions and ideas are expressed and distributed to the public\textsuperscript{484}. The recognition of the link between the personality of the author and each reproduction of this artistic or literary work justifies granting copyrights the status of “inherent rights”.

The existence of moral rights in artistic works constitutes one of the principal differences between inventor and creator rights. The interest in protecting the personality and its values had motivated the need to grant the expressions of this personality with the most absolute protection: the right of property. Protection of moral rights comes from the general idea that confuses the expression of an individual with the individual itself. The validity of this idea depends on cultural factors. In an extreme case, cultural value justifies the position of members of

\textsuperscript{481} Ilzhöfer at 128. Although the concept plagiarium was already known in Roman Law related to kidnapping (lex Fabia), and Martial applied this expression to those who stole his verses, author’s right were not protected by Roman Law. Moral rights (Droit moral) originated in French law, see Stewart, S.M. at 14 and 59.

\textsuperscript{482} The right to be recognized as the inventor (inventor’s right) is not included in the patent right, but recognized by general principles of law. This right is born when the invention is in existence and completed. Because of that this right extends beyond the expiration of the patent right. See Schulte, at 142-143. Additionally §§37, 63 and 124 PatG81 (1981 Patent Act) recognizes the inventor’s right to be mentioned in the publication of the patent, and a right to have a recognition as the inventor (fame). Hubmann at 112-113.

\textsuperscript{483} See Stewart, S.M. at 59.

\textsuperscript{484} This situation was evident by the ratification of the First Amendment of the US Constitution. The legacy of control over the written word dominated the history of copyright law in the United States until the First Amendment of the Constitution in 1791, which was motivated by the need for authorial protection for the freedom of expression. Errico at 21.
some African cultures refusing to be photographed, with the idea that each picture takes a part of their soul. The protection of the expression of the personality and its close relationship to the cultural values introduces a very important group of interests that have justified the concession of the most absolute protection to them.\footnote{485}{Id. at 400-401.}

Since copyrights are recognized as inherent right, it was easy to equate them as a right of property over each particular way a literary or an artistic idea is expressed. The inclusion of copyrights in the framework of private property led to the further development of Intellectual Property Rights. Private property offered a suitable institution to configure the inherent right that the author should have over his creation. Private property appeared as a right based on natural law and not in feudal privileges. Moreover, the use of the property theory presented practical solutions to the problems of defining the content of this right and the ways it could be the subject of negotiation.

\textit{(3) Coincidence between Social and Private Interests in Copyrights}

Another fact that justifies granting copyrights the status of “inherent rights” is the significant level of consistency between the social and private interests involved in granting an absolute right over the expression of an artistic idea. The private and social function of property rights is comparable with that of copyrights.

There is a fundamental affinity in the private function of property and copyrights: they are recognized as inherent rights that protect the relationship an individual has with a determinate object. This relationship is considered not only because of its patrimonial effect (patrimonial value of the object), but also because of the intrinsic value this relation has for the individual (regards to private property, it relates to the expression of the liberty to decide over the object, in regards to copyrights, the right to decide over the way his ideas are reproduced and given to the public).

In addition, both rights are designed to facilitate the commercialization and diffusion of the object they protect. Property constitutes a basic institution to make objects suitable for being negotiated in a market, allowing the law of supply and
demand, rather than the arbitrary power of a privilege group, to determine the terms of the contract\textsuperscript{486}. The same principle applies to copyrights.

As opposed to patents, copyrights give no exclusive right to the art disclosed but protect only the expression of the idea, not the idea itself\textsuperscript{487}, consequently, copyright protection is available to a work that, while not novel in conception or ideological content, is original\textsuperscript{488}. A creation is considered original if it is the first of its kind in the author’s mind. It is important that a second author had no knowledge of the first version, thereby eliminating the possibility of copying\textsuperscript{489}. In contrast, novelty is required to grant a patent, which implies that the invention is the first of its kind; once patented, no other inventor could get protection for his work, notwithstanding he could prove that he did not copy it.

Granting an absolute right over creations similar to property rights does not normally contradict other public interests. The prohibition to copy without the authorization of the copyright owner did not necessarily constitute an obstacle to the diffusion of art and culture. The technique and the ideas crystallized in every masterpiece were disposable to another creator and no copyright would be damaged when the expressions of the ideas created with that technique present enough distinctions to identify each from the other. The limitation of the protection to the expression of the idea and not to the idea itself normally assures competition between different works related to the same idea, which dissuades authors to use their exclusion right to create monopolies. Furthermore, the normal interest of authors is the release of their work so that the general public can enjoy them. Authors may accrue an important profit from the royalties they received from each book sold. Consequently, copyrights promote simultaneously the creation and diffusion of arts. Thus, the protection of intellectual property through copyrights have been considered as providing a key legal framework governing relations in a market based economy\textsuperscript{490}. This explains the US Congress extending

\begin{itemize}
\item \textsuperscript{486} Baylos Corroza at 389.
\item \textsuperscript{487} Mazer v. Stein, 347 U.S. 201 (1954).
\item \textsuperscript{489} Errico at 52.
\end{itemize}
copyright protection to computer software in 1980, on the grounds that they constitute literary works\(^{491}\).

To summarize, the assimilation of copyright to private property does not present contradictions of interest between society and the author. In both cases, right of property over material goods and right of property over literary works harmonize in similar ways social and private interest. First, because the creative idea, the information, is not object of property. Consequently, every one can recreate and present to the public a most perfect expression of that idea without violating copyright, as long that this recreation can be differentiated from the protected work. The valuable ideas can be recreated and expressed in other forms. Furthermore, for academic and scientific goals, the reproduction is authorized. Therefore, the exclusion right of copyrights has an intrinsic limitation. The possibilities of creating new works by using the ideas expressed in a copyrightable work are not limited by this right. Copyright protects only from unauthorized duplications of the concrete expression of an idea. Second, more importantly, there is a normal coincidence between the interest of society of diffusion of the work and the interest of author to obtain profit for acceptance of the market of his work. The concession of an absolute exclusion right over the expression of an idea does not present the problem of creating factual monopolies, neither of the idea expressed by the work, nor from a specific expression of that idea. Copyrights do not grant a monopoly right over an idea, other authors could recreate this idea with their own creativity. Consequently, the normal interest of the author is the diffusion of his work, so that the wide public can enjoy it. His gain is normally a small royalty from everyone who purchases a copy of his creation. The profit is thereby increased as the market increases. Creation and diffusion of arts are simultaneously promoted by copyright.

c) Advantages of Applying Private Property to Consolidate and Develop the Legal Regime of Copyrights and Patents

The concept of intellectual property rights constituted a very suitable framework for copyrights. The absolute right copyrights grant is normally in harmony with the social interests, so that it can be considered a general rule, and the limitation of

\(^{491}\) See Audretsch at 44.
that right in order to pursue public interest are rare exceptions. Because of the agreement of interests between the creator and society, copyrights do not present the limitation that patent rights have. Copyrights are normally recognized for the duration of the life of the creator and the subsequent fifty years\textsuperscript{492}.

In addition to the philosophical convenience of defining copyright as a private property, there were important practical advantages. The property framework not only provided proper protection to authors but offered clear rules to regulate the relationships between the work, the author and the enterprise that would reproduce the work to sell it in the market. Private property is a very developed institution that offers a clear and elaborate framework for the protection of commodities and the regulation of their exploitation, as a resource of production or as merchandise to be commercialized\textsuperscript{493}. Property rights present an archetypal characteristic as they define a concrete and essential conceptual nucleus\textsuperscript{494}. The right of property defines the widest protection for the appropriation of a commodity. The definition of the content of this right is done by default: The right includes all the possibilities of use, with the exceptions established by law. This definition offers the highest legal security because all possibilities of appropriation and use are accepted by principle. As a result, the right of property is perceived by individuals to be identical with the object of protection.

In addition, the conceptual development of the property rights institution and all the contractual forms of transmission of it provided strong instruments to solve the common problems related to the use and transmission of intellectual property rights\textsuperscript{495}. Private property not only offered clear solutions, but also enough flexibility to allow the establishment of exceptions regarding social interest. The conceptualization of copyrights and patents as private right was the most simple way to assimilate them to a right with all the attributes of merchandise. These attributes are: individuality, possibility of economic valuation and legal appropriability\textsuperscript{496}. Consequently, the object of protection of intellectual property rights presents these attributes. The first is individuality, which is the consequence

\textsuperscript{493} Rogel Vidal at 16-17.
\textsuperscript{494} Baylos Corroza at 387.
\textsuperscript{495} Id. at. 387-88.
\textsuperscript{496} Id. at. 385.
of the novelty of the claim or the originality of the artistic work. The second is the possibility of economic valuation, which constitutes an intrinsic characteristic of any artistic or literary work or any useful inventions. The third is legal appropriability, which comes from the possibility of excluding others from the commercial use of patent rights, or the prohibition to reproduce, in the case of copyrights. Within this framework, the definition of intellectual property rights using the basic figure of property constituted a very convenient strategy to define copyrights. The figure of private property accomplished a very important role in the recognition and protection of copyright 497.

This situation may explain why the definition of patent rights as property was generally accepted as the best way to regulate this right. Defining patents as private property constituted a very useful measure to promote and regulate the incipient patent institution. Private property offered practical solutions to the problem of defining the nature and content of intellectual rights and the configuration of them as commodities subject to legal negotiation 498. This situation was reinforced by the ideological convenience of translating the private property framework to patents.

The patent system changed from defining patents as a privilege granted by the crown to private rights recognized as an “inherent right” of the inventor. The philosophical and economic value and function of private property in the free capitalistic society was also attributed to patent rights. This perspective was consistent with the social interest in giving markets a vital role in regulating the economy.

Because the functioning of markets is based on the exchange of property by free traders, giving patents the formal attributes of merchandise provides the basic condition for the creation of technology markets. The definition of patents as private property was supported not only by the ideological convenience of changing the definition of patents from privileges granted by the crown to private rights recognized by the state, but also by the fact that the conceptualization and administration of this right as property offered important advantages from the point-of-view of legal practice.

498 Baylos Corroza at 387.
The definition of patents as private property offered an elegant solution to the problem of accepting the use of patents to create monopolies. At its least, it had an important influence to mitigate the negative valuation of the monopolistic use of patents\textsuperscript{499}. Although this influence could help the consolidation of this right in most legal systems, it has impeded the development of this institution in order to improve its efficiency in attaining the economic goals that originated it.

Aside from the mentioned advantages, the theory of property do not offer a suitable explanation to the legal nature of intellectual property rights. Le Chapelier, who in 1791 maintained that the work, as a result of the mental activity of its author, it is the most sacred, more personal and indisputable of all properties\textsuperscript{500}. However, he aggregated that this is a property right whose nature is totally different from the other properties\textsuperscript{501}. The term \textit{sui generis property}, commonly used to describe these rights does not provide an explanation of the legal nature of intellectual property rights\textsuperscript{502}. This term constitutes a mechanism to avoid confronting the problem of finding a suitable conception of the legal nature of this kind of rights. It only designates a \textit{sui generis} relationship between the rightholder and the correspondent rights which is recognized and protected by law\textsuperscript{503}. In this sense property rights indicate just a narrower signification of the term \textit{right}, understood as an interest or title in an object, a just and legal claim which protects a determinate interest in such an object\textsuperscript{504}.

\textsuperscript{499} Id. at 392.

\textsuperscript{500} See Ulmer, Eugen, Rechtsvergleichung und Grundlagenforschung im Urheberrecht und gewerblichen Rechtsschutz, 1968 GRUR Int. 1, 5.


\textsuperscript{502} Cf. Roeber, who states that this quasi-property offered a fruitful way for the use of the property institution in order to explain the legal nature of these \textit{sui-generis} property rights. See also Bylos Corroza at 395-396.

\textsuperscript{503} See Albaladejo at 197, who maintains that, in reality, intellectual property rights are rights or titles in immaterial goods.

\textsuperscript{504} The term \textit{Right} is defined in common law, according to Black’s Law Dictionary, 1990 at 1324, as “capacity residing in one man of controlling, with the assent and assistance of the state, the actions of others”, and in a narrower meaning “an interest or title in an object of property; a just and legal claim to hold, use, or enjoy it, or to convey or donate it, as he may please”. Notice how the word \textit{property} is used to define in general terms just a relationship between a right and holder of the right. The first definition leads to the monopoly theory of patent rights and the second to the traditional property definition of patents.
The theory of “Immaterialgüterrecht”

The theory of *Immaterialgüterrecht* of Kohler constitutes an effort to define a general theory of intellectual goods alternative to property rights. He interpreted these rights as a legal power that an individual has over an immaterial good (Immaterialgüterrecht). This right constitutes a relationship between an individual and an immaterial good which differs from the traditional property right as it should be adapted to the specific characteristics of immaterial goods. This adaptation proposes the definition of two types of rights referring to immaterial goods. First, the right over the immaterial good (Immaterialgüterrecht) whose content should be defined as the right to economic exploitation of the intellectual creation and second, an individual right (Individualrecht), which is not an element of the nucleus of the right over an immaterial good, but an extension of the right of the personality. This theory emphasizes that intellectual creations are subject to be conceptualized as an autonomous “object” of a right (Iedalgut), separated from the material instrument in which it can be expressed and incorporated (Ausdrucksmitteln). This particularity allows the construction of absolute rights over intellectual goods. The theory of “Immaterialgüterrecht” understood as the definitory content of this right the right to exclude third parties from the enjoyment of this good in all aspects not excepted by law. This construction allows the recognition of the existence of other absolute rights different from the right of property. In the end, it constitutes only a theoretical framework that adjusts the use of property rights to immaterial goods. This “Immaterialgüterrecht” is defined as an absolute right over a *quid externus*, a particular immaterial object. This right is intended to protect the particular interests of the rightholder granting him a right to exclude. Therefore, its practical effects are equivalent to the right of property.

Kohler as well as Troller justified the protection of the interests over a specific immaterial right as the basis of content of this right, which is precisely the exclusion of the others from the commercial exploitation of the immaterial creation.

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505 Baylos Corroza at 409-411.
506 Id. at 410.
507 Id. See also Isay, Hermann, Patentgesetz, Berlin, 1932, 36.
508 Baylos Corroza at 414-15.
509 Id. at 415.
(Verbotsrecht), there are no practical differences to the right of property. The right of exclusion constitutes the principal effect of the right of property because the right of property does not incorporate in a direct way the faculties of enjoyment but, instead, the legal protection of these faculties.\footnote{See Troller, I Immaterialgüterrecht, Basilea, 1959, 68 ff. and Baylos Corroza at 416-417.}

In conclusion, the “Immaterialgüterrechte” and the theory property rights are fundamentally equivalent.\footnote{Baylos Corroza at 410.} Both theories concede an absolute exclusion right related to a determinate object of protection. The theory of property regulates the factual relationship between an individual and a material good. It is based on the presumption that the individual has a direct relationship with that good, either in a personal way, or through his agent. The right is designed to protect this relationship against external disturbances. The theory of “Immaterialgüterrechte” succeeds in defying its object and offers a theory of the conceptualization of immaterial goods. But alike the property rights theory, it is still centered on a relationship between an individual and a “special object”. In this sense, the definition of this right as \textit{sui generis} did not bring to a new solution of its legal nature.\footnote{Id. at 410.}

Although there are some theoretical inconsistencies, in the practice, the theory of Immaterialgüterrecht offers an adequate framework to regulate copyrights. This is because of the important points of coincidence between the object of protection by copyrights and property rights. Moreover, the theoretical differences between the exclusion right of copyright and property rights do not generate important differences in their practical effects. The monopolistic effects of the exclusion right are limited, because in both cases, the object of protection of these rights can be equated with commodities created to be offered under competition in a market. And in both cases, the kind of protection granted presents congruity with the characteristics of the object of that right\footnote{Id. at 413.} and with the private and social interests involved.

To conclude, the “Immaterialgüterrecht” theory is an elegant theoretical framework that seeks to adapt property rights to immaterial goods. However, it presents the same basic inconsistencies the theory of private property has, \textit{i.e.}, it

\footnote{Id. at 410.}
does not clear up the legal nature of these rights. The exclusion right is considered
the basic content of the rights over immaterial goods. This exclusion right is
comparable with the one defined by property rights in material goods. This theory
presents another variant, like the theory “Geistesgut-Wettbewerbsrecht” of Elster,
who focuses on this right as a patrimonial right protecting interests related to the
competition advantages coming from the protected ideas. This theory
corresponds to a doctrinal trend in Germany to threat intellectual property rights,
including patent law, under competition law.

3. Theoretical Problems of the Assimilation of Patent Rights to Private Property

The application of property rights to immaterial goods results from the intent to
solve a new problem with a traditional concept. This situation implies the risk that
the analogy between both institutions is not perfect. Consequently, the result
obtained may differ substantially from the result wanted. Technological
developments facilitate more and more the separation of the idea and its corporal
expression in order to reproduce it cheaply. A particular human voice can be
reproduced without the singer, a portrait can be easily and cheaply reproduced
without a skilled painter. This situation increases the difference between material
and immaterial goods. New problems require the creation of legal concepts
suitable for harmonizing the interests involved. The following sections analyze the
extension of the property rights framework to patent rights.

a) Philosophical Justification of Patent Rights as Property and its Implications

Jurisprudence and doctrine have tended to extend the philosophical foundation of
property rights to patents in order to explain its content and legal nature.

The proprietary justification of patents given by the French Patent Act of 1791
was based on the protection of the work and effort of the individuals creating
objects of property. There is a common characteristic of material goods and
intellectual goods; both are created by the work and effort of individuals. The

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514 See Isay, Patentgesetz, at 36 quoting the book of Elster Gewerblicher Rechtsschutz of 1921.
515 Baylos Corroza at 399-400.
516 Id. at 389.
philosophical foundation of private property is the need to recognize the right of individuals to appropriate the fruits of their work and to use them to create enterprises. In general, property recognizes and guarantees individuals a free space in which the private initiative could move at will. These goals are also shared by the rights granted to authors and inventors. The lack of a philosophical foundation for the traditional privilege of patent rights contributes to the translation of the philosophical foundation of private property to patent rights. However, some basic elements of property rights, derived from the particular characteristics of corporeal goods, make this institution unsuitable for providing a solution to the appropriability problems of innovators, without harming the legitimate interests of other innovators and the users of that technology. The philosophical background constructed for property rights cannot be applied mutatis-mutandis to inventors rights.

The extension of the philosophical background of private property to patent rights has been justified with the three conditions suggested by Locke to recognize private property. The first of these conditions refers to the value of work, the fact that an individual’s own labor was expended. Labor implies an “unpleasant” sacrifice that should be rewarded. Inventors should have the right to enjoy a monopolistic position in the exploitation of their invention as a reward for their “unpleasant” sacrifice. Complementary to this aspect is the consideration that labor creates value that should be recognized. In copyrights, the central idea is the need to give a fair payment for the artistic work. In patent rights it has been interpreted that this condition is the reason why the US patent law requires the advancement over the prior art of the invention in order to grant a patent. However the goal of promotion innovation is central for patent law.

The second condition requires that new property does not remove anything or deny others access to the common pool of resources from which it was produced. This condition implies that the only protectable part of an invention is that which differs from the technology that is in public domain, i.e., from the prior art.

517 Ulmer, Rechtsvergleichung, at 6.
518 Errico at 16.
519 Ulmer, Rechtsvergleichung, at 6.
520 Errico at 17.
The third condition is that property should not be granted at the cost of breaching the non-waste requirement. This requirement states that the justification of granting protection depends on the creator of the work sharing his idea or product with society. This principle justifies that the use of the technology was required in order to grant patent protection, as the original patent statute of Pennsylvania did. It is said that the modern US system preserves this condition when, in order to grant protection, requires the inventor to summit to the Patent Office a disclosure of the invention.\(^{521}\)

At first glance, the translation of the philosophical foundation of property to patents seems to be a very convenient and practical solution. Nevertheless, due to the absolute character of property, the original goal of patents as an instrument for promoting industrialization has lost its importance as a criteria for interpreting the content of patent rights. The extension of the philosophical foundation of property rights to patents has taken away its original dynamic character. Property rights are granted taking into consideration primarily the private interest of the owner, without conditioning this protection on the achievement of specific social goals or specific equivalent private interests, like those of the improvers of the protected technology.\(^{522}\) As a result, in the interpretation and regulation of patents, the achievement of the economic goals of promotion of innovation, which originated this institute becomes second in importance. This was the case with the US system. Nevertheless, the US law did not expressly define patents as private property, the translation of the philosophical justification of private property to patents justifies the frequent consideration of patents as private property rights by jurisprudence. Once granted, patents are considered an “inherent right” to exclude other users, like private property.

The way property is conceived and functions is illustrated by the following definition: “That is property to which the following label can be attached. To the world: Keep off unless you have my permission, which I may grant or withhold. Signed: Private citizen, Endorsed: The State.”\(^{523}\) Since property rights are absolute rights of exclusion, whose value is intrinsic and “inherent”, the assessment

\(^{521}\) Id. at 18.

\(^{522}\) See Albaladejo, Manuel, 3 Derecho de los Bienes, Vol. 1, Barcelona, 1974, 195.

of patents as property rights bring about the lost of the patents’ primary role as an instrument of industrial promotion. Public authorities should no longer control the content of these rights and adjust them to industrial policy objectives and patent offices should constraint to control the fulfillment of legal requirements. This situation facilitates the administration of this institution and equates it with the principle of division of powers: the control of this institution becomes a matter of legal administration by the corresponding judicial authority of the country, excluding it from an eventual arbitrary interference of public interests such as industrial policies. This situation has the advantage of increasing the legal security of rightholders. Consequently, the patent system has centered on the protection of property rights. A tribunal’s main responsibility is to protect inventors against violations of patent property.

Therefore, the accomplishment of the public interests of promotion of innovation is presumed and no longer controlled. The realization of its original economic goal began to be considered a necessary and automatic consequence of maintaining the intellectual property right as a strong incentive to inventiveness. That patents contribute to the promotion of inventions, and consequently to welfare, became a self-evident-truth, which did no longer require being proven. This presumption that patents automatically contributes to social welfare reinforced even more the proprietary character of the patent right institution and the consideration of the exclusion right as an absolute or unconditional right. Because of that, the economic fundaments of patents have been relegated to a position of secondary importance. The exclusive right was recognized as an instrument for protecting the proprietary interests of inventors over their technology and for ensuring them the best conditions for obtaining a profit, so that innovation is encouraged. Patent rights were no longer dependent on their success or their achievement of the goals of industrialization.

The proprietary definition of patents is not congruous with the relative or instrumental aspects of patents. Patent rights are also relative rights because their justification is also based not only on the protection of the private interest of inventors, but on the public interest of promoting inventions and industrialization. This social interest is directly affected by the way the rightholder exercises his right of excluding third parties from using the protected technology.
The contradictions between the proprietary and absolute definition of patents and their conception as instrument of industrial policy, made the patent system a very legalistic and artificial institution. The original limitations imposed upon this right in order to favor the general welfare were contradicted by the inherent and absolute nature of this right. These limitations were originally justified by the argument that patents are privileges granted to promote welfare and because of that, when necessary, could be restricted. Restrictions of property rights are in opposition considered an exception that violates the absolute right, which should only be tolerated when very relevant public interests justify this intrusion in the private sphere of rightholders.

In conclusion, the philosophical basis of patents moves from creating an instrument for promoting innovation and protecting innovators, *i.e.*, for defining a proprietary relationship between the inventor and his invention, which is considered “inherent”, meaning, it has originated solely by the fact that inventions are result of the work of the inventor. The instrumental goals of patents came to play a secondary role since the institution centered to serve a formal legal objective: the protection of property. This philosophical justification disregards all the different interests and contradictions of the patent system that impede the reduction of patent rights to private property and contributes to accentuating the artificial construction of the system. As a result, attention to factual economic forces and interests that influence the definition of suitable instruments for promoting technological progress have been neglected. The protection of the work of the inventor and his proprietary interests became the principal interest involved in the patent system.\(^\text{524}\)

Beyond the fact that both the creation of material and immaterial goods is the results of work which deserves protection as an inherent right, there are important differences between the object of protection and the social function of private property and patent rights which cause patent rights not be reduced to the factual

\(^{524}\) See Carrascosa Gonzáles, Javier, La propiedad intelectual en el Derecho international privado español, Granada, 1994, 30-31. He describes the actual neo-liberal property rights criteria as applicable to the modern Spanish Law 22/87. He understands this right as including the rights of exclusive use, exploitation and disposal, which temporary restrict competition, but are expected in the long term to increase welfare in a market economy. This is considered as responding to an individualistic conception which grants the author control over the diffusion of his work, with the emphasis on the author more than the diffusion.
b) Differences between the Object of a Patent Right and the Object of Copyrights

In creations such as literary works or designs, the most valuable element is not the idea but the way this idea is expressed. Furthermore, we cannot separate the value of the idea and the value of expression as they constitute a singular unity. Many of the ideas integrated within a creation may be result of the author’s imagination, nevertheless, only the expression of those ideas is recognized and protected by copyrights. The ideas beyond the artistic or literary work, the conceptual element, are unprotected. They are considered a piece of the liberty of thinking and reflection of men and a source of new ideas and concepts. Ideas remain free, a “common heritage of mankind”. On the contrary, inventions are mere ideas that have a practical value. Technical ideas are valued not by the way they are expressed or organized in a concrete case, but because of their functional capacity to solve technical problems. They provided new solutions to solve technical problems. As a result, patent protection goes beyond the protection of the expression of a technical idea. Patents protect the idea itself. This is the main difference between patent and copyrights. While the objects of protection of copyrights are original expressions of original, the objects of protection of patent rights are precisely technical ideas.

Contrary to the expression of a creative idea, technical ideas are not finished products. Inventive ideas require adaptation to the special requirement of the market and to other disposable technology and resources. Final products generally incorporate many different kinds of technical ideas, which in many of cases have been adapted and improved by the fabricator. Technical ideas show how to create a new means of production or a new product. The link between the inventor and the invention is direct and evident. But the link between the invention and the value the market gives it is not. Market value is the result of various factors and circumstances, including the ability of the user of the technology to adapt and improve it and the state of other complementary and lateral technologies.

An invention constitutes a resource of production that should be combined with others to manufacture a product or merchandise. The combination possibilities of
technical ideas are unlimited and so is the range of different products that could be manufactured with a determinate technology. A technical invention is one element that should normally be integrated with other technical inventions, know-how and management capacities to constitute a useful immaterial resource in a manufacture. Moreover, other resources like capital, labor, including other technical inventions, know-how and management capacities should normally be integrated with a particular technology in the production process.

To summarize, inventions do not normally constitute final products ready to be offered to consumers. Instead, they constitute a technical idea that can be applied in a manufactory process to make it more efficient, or to confer new functions or qualities to a product. Because of that, inventions cannot be reduced to merchandise, technical ideas have no intrinsic value. Its value comes from its usefulness in society. The way technical ideas are processed and expressed by others influence their value in the market. Because of that, the relationship between the inventor and the final product which is valued by the market is not so clear and direct, as in the case of authors’ creations. Consequently, their value depends strongly on the external conditions, *i.e.*, how they can be used in a specific market.

In conclusion, the work of the inventor (finding a technical idea) is not that directly related to the value of the final commodity with incorporated it as in the case of copyrights (whose object is the expression of an idea and not the idea itself). The identification of the technical invention and the correspondent work of the inventor with the final merchandise that used it is not so direct and clear as in copyrights. Consequently, rights of property over inventions cannot claim to be just inherent rights with the same strength as copyrights and property rights.

c) **Differences between the Protected Interests of Patent Rights and Private Property**

As already explained in regard of copyrights, the conceptual analogy between intellectual property rights and private property is not perfect. Private property is a legal institution created to recognize and protect the direct relationship between an individual and a corporal object. This relationship comes from a factual situation: the corporal objects have an existence defined in space and in time and cannot be in two places at the same time. This implies that only a limited number of persons
can simultaneously enjoy the service a corporal object renders. Therefore, an individual cannot use a material good without limiting others of the simultaneous use.

As opposed to material goods, intellectual goods can be reproduced without limit. Furthermore, there is no need to protect the direct relationship between an individual and an immaterial good, because the use of that good is done in the internal sphere of the individual, in an intellectual domain in which third parties cannot interfere. An author or inventor can always incorporate his idea or creation in other products, so long as he maintains the information organized in his invention or creation. In his inner scope he always has control over this information, and is able to do with it as he pleases and because of that, the possession of immaterial goods cannot be disturbed. Moreover, other individuals who have access to that information could incorporate it in other commodities without disturbing the direct relationship between the author or inventor and his creation or invention. In any case, each later materialization of an invention is also the fruit of the work of the individual that has understood and mastered the technology.

Thus the right of property, as commonly used for material objects, is totally ineffective to protect the main interest of authors and inventors. The right of property is designed to protect the direct relationship between the author and the inventor. Consequently, the application of private property to intellectual goods should refer only the direct relationship between the individual and the idea, i.e., the possibility the author or inventor has to continue using his inventions, eventually materializing or developing his creation or invention into material products. Moreover, as opposed to private property, rights over immaterial goods cannot challenge others use of this good at the internal level, i.e., in the private sphere. This interference in the internal level of individuals would be a limitation of an essential liberty, individual’s liberty of thinking and expressing ideas. Therefore, immaterial goods should be rights to regulate the use or exploitation of a creation in a specific market. It gives an individual the power of interfering in the social activity.

Due to the characteristics of the object of protection, the direct relationship between the individual and the “immaterial object” can only be a theoretical
construction, a legal fiction that does not correspond to reality. The scope of interests protected by this right are directly centered on another factual situation: the exploitation of this creation in a market. The inventor or creator is principally interested in exploiting his invention in the market, putting it at the disposition of the public. Since intellectual goods present an appropriability problem, the correspondent protection rights are intended to help inventors and creators to profit from the exploitation of their works in a market. As a result, intellectual property rights are directly related, not to the way the rightholder makes a direct use of his creation, but to the way the community can reproduce and commercialize the protected creation. Thus the extension of the property institution to protect ideas is inconsistent with the finalities of property rights.

\[d\) Differences between the Legal Nature of The Right of Exclusion of Property Rights and Intellectual Property Rights\]

The right of exclusion granted by property rights is a consequence of the fact that the direct relationship between an individual and his private property needs protection. The possession of material goods can be disturbed because other individuals can only use other’s property if they succeed in taking its the possession away from its owner. The right to exclude others from the use of the object is a natural and necessary consequence of the right of property, but it is not the first and immediate goal of it. The right of exclusion is a mean, a necessary instrument given to the proprietor in order to secured his right. Since property rights protect the interest of the owner to exclusively enjoy his object of property, the right to exclude others is an absolute right in the sense that the owner does not need to justify his will to exclude others. Property rights are precisely intended to protect this purpose. Property rights protect against perturbations of the direct enjoyment of the good caused by third parties. This explains why restrictions on private property are only granted if there is a very important social interest affected. Private interest are insufficient for appointing a limitation to property. Property is granted to individuals not to serve directly a social interest, but in

\[525\] See Baylos Corroza at 401-403.
\[526\] See Poignon, François, Comment le Droit peut-il proteger l’œuvre scientifique?, Paris, 1929, 132-133.
\[527\] Baylos Corroza at 403.
\[528\] Palandt, p 1073.
order to allow them to satisfy their private interests. Therefore, direct submission to the interests of general welfare is not characteristic of property rights.\(^{529}\)

Property rights constitute a legal framework to protect the interest of the owner to use and dispose of his property as he chooses. The subjective value of the object of property and not its social value constitutes the center of property rights. The market or commercial value of the object of property, is in principle irrelevant for the property right. It becomes relevant when determining a fair compensation for the perturbation of third parties. The price of the good is a matter of contract law.

Following the private property framework, *Beier*, refering to the legal nature of these rights states: “Both industrial property rights and copyrights are property rights which are of an exclusive nature. Despite the fact that the subject matter they protect is not of a corporeal, but of an incorporeal, immaterial nature...[both industrial property rights and other intellectual property rights confer on their holder the principally unrestricted dominion over the protected subject matter- The subject matter of the right is attributed to the rightholder for his sole use and disposal: he alone may use the invention, design, trademark, literary or artistic work, and to his end may exclude all others from use....”\(^{530}\)

However, there are importan functional differences between property rights - originally created to protect corporal goods - and the rights granting protection to innmaterial goods. Immaterial goods protection function in the opposite way. Since the direct relationship between an individual and an intellectual good takes place within the internal sphere of individuals and needs no protection, the personal or subjective value of the object, as well as the personal and direct relationship between the rightholder and the protected idea, are totally irrelevant for patent rights. Moral rights refer to the fame of the work, its social valuation. They are based on the recognition of the moral identification between the author and is creation. Regarding intellectual property rights, we should not talk about the direct enjoyment of the good but about the profit that the rightholder may obtain in the market.\(^{531}\)

The most important aspect to be considered is related to the commercial

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531 Baylos Corroza at 403.
exploitation of the protected idea. Specifically, the relationship between the author or inventor with the specific market where the creation can be commercialized. As a result, the content of the right is different from the right of property, it goes exactly in the other direction: while the property right is directly related to the personal scope (how an individual uses a good for himself), intellectual rights are directly related to the social scope (how a community can exploit an immaterial good).

Copyrights and patent rights are concerned with the way third parties may use a creation or invention. Therefore, in contrast to corporal objects, possession as such is insufficient to secure the right of use and disposal for the owner. Patents, as well as copyrights, protect the relationship between an individual and a market, or the public. They create a legal framework to protect the possibilities of exploiting the invention or creation in a market, including the protection of the market value of the invention or the fame of the creation. Therefore, there is a theoretical inconsistency of translating the legal nature of property rights into intellectual rights. This inconsistency is not that relevant for copyrights. However, the situation for patent rights is different, due to the different nature of the object of protection and the contradiction between private and public interests that it generates. This contradiction is the result of the equation of the right of exclusion of property rights to the right of exclusion of patents.

The main protected interest of intellectual rights is the interest of the author or inventor to exploit the fruit of his work in a market. This exploitation can be hindered or perturbed by third parties through competition. On the other hand, this exploitation can be facilitated by the collaboration of other enterprises that can supply their ability to produce and place in the market products that incorporate the technology or work protected. This means, that the exploitation of the invention can be achieved through payments by third parties for the transfer of

532 Id.

533 Beier, Exclusive Rights at 252.

534 This contradiction justifies the temporal limitation of copy and patent rights. See Alonso Martínez, Manuel, Estudios sobre el derecho de propiedad, 3 Memorias de la Real Academia de Ciencias Moarles y Políticas, Madrid 1875, 479-480. He states that while the land is fruitful when it is privately owned, ideas are more fruitful when becoming the inheritance of mankind. Their perpetual monopolization makes them void and unproductive.

535 Ulmer, Eugen, Rechtsvergleichung, at 7. Different ist the case of Copyrights because of the relevance of moral right. Id.
technology and the right to exploit it.\(^{536}\) In this case, the aspect of “restricting competition” is relegated to a position of secondary importance.\(^{537}\) However, in both cases, the right of exclusion constitutes the basic mechanism to control the way third parties can use the protected work or technology.\(^{538}\) It constitutes the basic mechanism to obligate parties to negotiate with the rightholder the way they would distribute the profit obtained for the exploitation of that technology in the market. Patent owners can decide to directly exploit the market, selling a final product that incorporates their technology, or to exploit the market of producers by selling them the right to use their technology and giving them the possibility of exploiting the corresponding final products market. Consequently, the right of exclusion can also be regarded as an instrument for protecting the market value of the invention. It protects the interest of the inventor to impede that through imitation and competition the market value of the invention decreases in such a way that they could not obtain a profit from the exploitation the invention. This is particularly relevant in cases when the inventor does not obtain a participation in the exploitation of his invention by competitors. Thus the main characteristic of intellectual property rights has been the \textit{jus prohibendi},\(^{539}\) the \textit{jus excludendi alios}, while the main characteristic of property is its \textit{jus fruendi}, i.e., the right to enjoy and to obtain the fruits generated by the direct exploitation of the material good.\(^{540}\)

This situation may be illustrated by the case \textit{Mirage Editions, Inc., v. Albuquerque A.R.T. Co}.\(^{542}\) In this case a manufacturer of framed pictures purchased copyrighted volumes of an art history book, clipped the photographed illustrations, and mounted them to be sold as frame pictures. This actuation was

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\(^{537}\) This alternative has traditionally been regarded as \textit{socialist} position, which only can be applied in cases where the enterprises are nationalized. \textit{Ulmer}, Rechtsvergleichung, at 7.

\(^{538}\) \textit{Id.}

\(^{539}\) \textit{Jus prohibendi} is defined as the right to prevent third parties from performing activities which may hinder the right holder from using or enjoying his property. Third parties are bound with an obligation of \textit{non facere}, i.e., they should abstain from using the protected invention or creation in certain ways that affect the legitimate interests of the right holder. See \textit{Francheschelli}, Remo, \textit{Nature juridique des droits de l’auteur et de l’inventor}, in \textit{Centre National de la Recherche Scientifique} et des Annales de L’Université de Lyon, 2 Mélanges Paul Roubier, Paris, 1961 at 453, 461.

\(^{540}\) The right to use and enjoy the invention belongs to the inventor, even though he has no patent. \textit{Id.} at 460.

considered an infringement of the intellectual property of Mirage Editions, the creator of the art history books, since the copyright protection extended from the original work, the book, to the derivative work, the framed pictures. In this case, “the owner of the book apparently never saw the market opportunity for framed pictures during the half dozen years the book was being sold. The person who saw that opportunity and who paid the asking price for the protected book was effectively denied any economic reward for entrepreneurship.”\textsuperscript{543} The protection of intellectual property rights gives the rightholder a power to appropriate or hinder the work results of third parties, even in cases where the activity of third parties does not cause a detriment on their actual economic interests\textsuperscript{544}. This problem is particularly important in patent rights.

Thus, private property, which is one of the fundaments of a free society, cannot be the foundation of patents. Even though private property constitutes a right to exclude others, the exclusion right acts as a defense to the disturbances resulting from third parties. The enjoyment of the object of property comes from a direct relationship between the owner and the object. In this sense, private property assures a scope of freedom in which the individual can develop his activities in the exterior world. In the case of patents, the enjoyment of the right comes from the exploitation of an invention in a market. This right is intended as an instrument given to the patentee to interfere in a market, not to protect its direct relationship with a determined good. Patent rights enable the patentee to control the incorporation of his invention in a product or service for commercial purposes, \textit{i.e.}, to be rendered to the market. This situation leads to the conclusion that the main goal of the patent right should be to allow the patentee to obtain a share of the profit obtained by the market where the invention is being used. In this sense, private property can only be attributed to an object or service that incorporates the invention, not to the invention itself. Thus, the rights that protect technical ideas are not equitable to private property. Patent rights are closer to monopoly rights than to property rights.

\textsuperscript{543} \textit{Besen and Raskind} at 16.

\textsuperscript{544} For this reason, \textit{Besen} and \textit{Raskind} proposed that both diversity and the overall quantity of creations are increased by assigning a relatively narrow scope of copyright protection in order to allow derivative work a “zone of freedom). \textit{Id.} See also \textit{Audretsch} at 45.
In summary, the exploitation of the invention differs from exploitation of a material good: the exploitation of a material good requires its occupation, its tenancy and normally, implies a waste of it. The exploitation of an idea normally implies the reproduction of it, meaning it will be incorporated in other material goods. Because of that, the legal nature of the right of exclusion defined by private property differs from that of intellectual rights. In private property, the exclusion right constitutes a right to defend the possession of the good in order to allow its owner to use it. In intellectual rights, the exclusion constitutes the prohibition of others to reproduce a good without authorization: It centers not on the protection of a relationship between an individual and a defined material good but on the relationship between an individual and the market of potential users of his invention. The right of exclusion confers on patentee a power to control the exploitation of the invention or work in the invention’s market. The exclusion right allows the patentee to exploit his invention by commercializing goods or services that incorporate the protected idea, i.e. selling commodities or charging fees to other producers who want to exploit that technology. Consequently, the main function of patents is assuring inventors a higher possibility of participating in the benefits society could obtain from their work or invention. Therefore, a market of potential users of the invention is legally created and defined by the scope of protection and the right of exclusion of the patent.

e) Differences between the Philosophical Justification of Patents and Property Rights

(1) Differences in the Interests Justifying Property and Patents Rights

Contrary to patent rights, private property constitutes a “natural right” over a particular good which the law declares but does not establish: the factual relationship between the individual and his property has an intrinsic value. Property rights are originated by the elemental principles of law and because of that, property rights are recognized as perfect inherent rights. The only requirements for the declaration of the right of property are that its object is product of the labor of the owner, or that he has legitimately acquired it. Since the object of protection is a corporeal good, the social function of the property normally coincides with its private function: a free society is based on granting an individual a private scope of
freedom. Considerations regarding this social function are only relevant when property interferes which other vital social interests. Because of this, the right of property has the character of “absolute inherent right” whose recognition by the legal order is not dependent on a further inquire of its social convenience.

Another reason to recognize private property as an inherent right is its fundamental importance to guarantee social order and peace. Society guarantees that the factual relationship between an individual and an object will not be disturbed by other individuals. This disturbance, which implies applying force to disturb the material possession of the good, constitutes an act of violence against an individual, which may generate ulterior violence. In order to stop further violence, the institutional framework should motivate an individual to turn to tribunals of justice to recover his possession or his property. The right of exclusion constitutes a vital mechanism to maintain social peace.

Concerning inventions, the factual relationship between the individual and an invention is not the center of the legal protection. As already mentioned, this direct relationship does not require protection. Individuals can reproduce this idea in their minds and reproduce it without directly affecting others. Additionally, there is no legal obligation for the inventor to share his idea by disclosing it to the public. That would be a disturbance of his fundamental freedom. The essential finality of patents is allowing the inventor to exploit the invention in the market. An invention is useless when there is no market that can profit from it.

There are several reasons that justify the granting of a patent right. First, is the work or effort of the individual to create a new work or invention. This is the inherent part which generates an absolute right to participate in the social benefit created by the invention. Second, society benefits directly when an individual has disclosed an invention that only he knew, making it accessible to the public. These elements make patents absolute rights, and equity recognizes the right of inventors to profit from the wealth created by their work. Third, there is a need to create instruments to promote technology creation and diffusion. This is the instrumental function of patents, which make patents relative rights (relative to the achievement of social goals).

545 This function is particularly evident in the protection of the possession. See Diez-Picazo, Luis, 2 Fundamentos del Derecho Civil Patrimonial, Madrid, 1986, 536-338.
Patents are not justified by an absolute goal, but by complex interaction of goals which seek to constitute a mutually profitable relationship between inventors and society. The first patent system in Venice attempted to find an equilibrium among all these elements. It granted a sort of weak property right to inventors subject to very strong conditions in order to achieve social goals. The British version (Statue of Privileges) emphasizes the social interest in promoting technology transfer. It gives a monopoly right to facilitate the introduction of a new industry during a determined period of time. The current system based on the French version of Intellectual Property emphasizes in full the first and the second elements. The center of the right is the recognition of a private property right that protects the desire of inventors to dispose of his invention at will. The social component is presumed to be satisfied by the disclosure of the invention. So long as there is a disclosure of the invention, the inherent right of the innovators to have a property right over the invention is recognized for a limited period of time.

(2) Right of Exclusions of Patents as a Relative Right

The inherent character of the right is not solely based on the fact that an invention is the result of the inventor’s work. The invention is valuable only if is capable of being exploited in the market. Because of that, the inherent character of patent rights is related to the justice that society rewards the inventor for the utility it obtains from his invention, i.e., that society gives the inventor a share of the profit it has obtained from the invention. Therefore, the patent right is principally directed at granting the inventor a power over a market. However, the power the right grants the individual to exclude others from exploiting his invention is not inherent by itself. It is not a goal by itself, but a means to achieve a social goal: securing the inventor the right to have a share of the profit society obtains from the exploitation of his invention. Additionally, in the determination of the fair share the inventor should obtain, other factors are involved. Patents are granted also because of the expectation society has that through this reward, the inventor is motivated to continue to provide society with other inventions. Consequently, by granting patents, society seeks to increase not only the inventors’ but also the social benefits.
In this sense, the patent right does not constitute an absolute inherent right. It is a mixture of absolute and relative elements that create a dynamic interaction. The implementation of this exclusion rule constitutes the central problem of patent rights. The right of exclusion is not granted as an inherent right but as the best known mechanism in a free society based on private property to protect the legitimate interest of the inventor. The use of the figure of property rights to describe the exclusion right granted by patents is not regarded as the best solution, but it has been accepted as the best known solution. In fact, patents have been described as a mixture between monopoly and private rights, of which the legal nature is obscure.

The right to exploit under monopolistic conditions, which is one possible use of the exclusive right has been considered the only possible solution to describe patents. It has been concluded that, in order to grant an appropriate protection to the economic interests of authors and inventors, the content of this protection in the patrimonial level should be necessary in the establishment of a monopoly of exploitation and use\(^{546}\). This economic postulate is the foundation of the conception of the exclusion right granted by the patent as a right to constitute a monopoly. The absolute character of the monopoly right of patents is founded on this economic interpretation. This situation has changed, as the globalization of markets has allowed inventors to obtain profits through licensing as an alternative to acting as monopolists\(^{547}\). This circumstance questiones the hypothesis that it is absolutely necessary to grant monopoly rights in order to promote innovation.

In conclusion, there is no justification to consider the exclusion right of patent rights as an absolute inherent rights and to regard as absolutely necessary the negative effects for society that the normal use of this right to create monopolies implies. What is inherent to the inventor is the right to obtain a revenue from the benefits his invention generates to society, in the same terms that equity obliges a restitution in the case of unjust enrichment. The exclusion right of patents is both, an inherent right and a relative right. It is a right to assure equity between society

\(^{546}\) Baylos Corroza at 391.

\(^{547}\) In fact, the opportunities of obtaining profit through licensing have traditionally been overseen. However, global competition has moved US firms to adjust their system and integrate in the commercialization of technology, to the extreme that at present licensing of intellectual property has become a booming business. See Ch. IV and Simensky, Melvin and Bryer, Lanning, The New Role of Intellectual Property in Commercial Transactions, New York, 1994, 333.
and inventors. This leads to the conclusion that the exclusion right should be regarded as a right given to ensure inventors a participation from the social exploitation of their invention, more than a right to consolidate a monopoly or a right to protect a private property from trespass.

(3) Existence of Legitimate Interests of Third Parties

The application of the philosophical justification of property rights to patents is a result of the misunderstanding of the legal nature of the patent right and the exclusion right it grants. The equation of the exclusion right of private property with the exclusion right given the patents has been an easy and inadequate solution to solve the problem of defining the legal nature of patents.

The definition of patents as private rights leads to the conclusion that the system is only consistent when one individual is proprietary. A joint title over an invention restricts the liberty of each inventor and forces them to conform a partnership, which contradicts the goals of private property. Consequently, the patent right is granted only to the inventor that applies at first for a patent, except in the case that the patent was jointly done by several inventors. Thus, a high level of competition is generated between inventors, and it is expected that they will disclose as early as possible.

This situation contradicts the way inventions are generated and exploited. Innovation requires the collaboration among several agents. For example, the exploitation of a patent requires the participation of a market of consumers and users. In addition, not only the work of the inventor is involved in the creation and exploitation of his invention. Inventions are usually developed from existing technologies and are used jointly with other complementary technologies. Furthermore, the price of technology depends on the state of alternative technology, the state of the art which determines the production costs of the

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548 See § 6.3 PatG and Art. 60.2 of the Paris Convention. Exceptions are the cases in which a parallel inventor has begun to use the invention before the patent application. In this case the parallel inventor can continue with the exploitation of his invention (§ 12 PatG).

549 See § 6.1 of the Paris Convention and Art. 60.1.1 of the European Patent Convention. See Schulte at 144-145.

550 See Bernhardt & Krasse at 5-6
merchandise and the general conditions in which the market of that product operates.

The exercise of a patent right implies interfering in the private sphere of other individuals, because the right is intended to assure the patentee a profit which is related to the amount he can charge for the use of his inventions. Since the exploitation of technology is the exploitation of a market, whose conditions are determined by the concomitant interactions of different units, granting the inventor an absolute right to exclude others through a private property or monopoly right in order let him define the amount of his participation appears contrary to equity. The definition of patents should take into consideration that the exploitation of technology usually requires the participation of different units not only in the fabrication process but also in the research of development of adaptations and complementary technologies. In this case, the figure of co-property and partnership seems a more suitable framework for the patent right institution than the figure of private property, because the contribution of other sources in the definition of the final product are normally so significant, that we cannot reduce or center the protection on the former technical idea. The global consideration of the invention and its exploitation in a market suggests another philosophical justification to the patent right. This justification should take into account not only the work and service rendered by the inventor, but also, the need to recognize the interests of the other participants in the process of exploitation of the patent: the legitimate interests of consumers and users of the patent.

Equity\(^{551}\) imposes that the inventor benefits from the social profit generated by the invention\(^{552}\). Equity also imposes on society the obligation to recompense the

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551 Equity is understood as the general principles of law, founded in a sense of justice, which claims that principles of fairness will derive a means to achieve a lawful result when the established legal procedure is inadequate. See Gifis, Steven, Law Dictionary, New York, 1984, 159.

552 A general principle of equity states that restitution of benefits obtained through accident or mistake must be relinquished, or restitution made, to those better entitled to the benefits. This principle is based on both honesty and generosity, and is commonly accepted by all legal systems as remedy to unjust enrichment. See Newman, Ralph, Equity in the World’s Legal Systems, Brussels, 1973, 604-10. Equity requires that there be a remedy for misappropriation of the benefits which should be recognized for those who invented or created an intellectual good. “It is clear that any civilized system of law is bound to provide remedies for cases of what has been called unjust enrichment or unjust benefit, that is, to prevent a man from retaining the money of, or some benefit derived from, another which it is against conscience that he should keep”. See Dicey and Morris, referring, among other English cases, to Fibrosa Spolka Akcyjna v. Fairbairn Lawson Combe Barbour Ltd. (1943) A.C. 32 at 1471. In the German doctrine, the principles of unjust enrichment have been combined with those related to unfair competition, specifically § 1 UWG, in order to grant protection against
inventor for his contribution to the development of the scientific and technological knowledge, and for his investments in creating new products and technical procedures that contribute to the general welfare. But equity also requires the inventor to recognize the contribution and participation of other economic units in the exploitation of his invention. The exploitation of a technology should also contribute to the development of the market and to the increase in welfare. In this sense, the two dimensions of the philosophical foundation of patents should be maintained: its dimension as an inherent right of the inventor to have a share of the benefits generated by the social exploitation of his work and its social dimension as an important instrument for promoting technology development and diffusion. This practical aspect justifies the State interfering in the sphere of privacy, creating exclusive rights to inventors in order to increase the general welfare. This right should be defined in terms that do not invite the patentee to use his right of exclusion to appropriate of the contributions of other actors in developing new applications and improvements of the original invention. In addition, equity imposes that the patentee does not use the patent to rape the market, abusing from his monopolistic position. The definition of patents as private property constitutes a “misdefinition” of the exclusion right of the patent, that encourages the patentee to misuse them.

This leads to the conclusion that the only inherent of inventors is the right to obtain a revenue for the service of providing one of the basic elements for the creation of the merchandise, but not the right to act as the proprietor of the market and of all the further implementations and improvements of the original technical idea which may give him have an absolute control over all the combined products that can be achieved with integration of this basic technical idea with other technical ideas and resources of production. The difficulties in administering a co-proprietary regime of patent rights and the emphasis given to the liberty of enterprise and initiative have contributed to hinder the development of a new concept to define patent rights as an alternative to private property.

certain forms of unfair imitation. See Callman, Rudolf, Sittenwidrige Ausbeutung fremder Arbeit, in 1928 GRUR 251, 256.

4. **Theory of Patent as Monopoly Rights**

The theoretical framework that defines patents as monopoly has coexisted with the framework of private property. The theory of private property presents some advantages and disadvantages with respect to the theoretical framework of patents as monopolies. This is the topic of this section.

**a) The Right of Exclusion Granted by Patents as a Monopoly Right**

The exclusion right granted by private property constitutes an instrument for protecting the direct relationship the rightholder has with a material good. It differs from the situation of immaterial goods. In regard of patent and copyright protection, the most important element to consider is the relationship between the creator or inventor and the market. Here, the relevant interest is the exploitation of the invention or creation in the market. Thus, the problem of appropriability has another dimension: the interest in appropriating the profit that the market obtains from a creation or invention. Copyright protection includes also moral rights, which can be defined in this case, as the protection of reputation of the creation, and thereby its creator, in the market. This necessarily affects third parties, the market of potential users, where the idea or creation is valued and where a commercial profit from the exploitation of the idea or creation is obtained\(^5\). Within this framework, a patent right can be defined as right to “participate in” or have a share of the profit generated by the social exploitation of an invention. Relating to third parties, the content of this right includes the right to administer the social exploitation of the invention. This explains why the legal acquirer of a commodity that incorporates a copyright or a patent, cannot dispose of or use this good at will, for example, by making further copies and selling them. The patented or copyrighted idea incorporated in that good cannot be used in a way that disturbs the patent or copyright\(^6\); This limitation should affect all the individuals that act in the market in which the patent or copyright was granted. This right of the owner of a patent or a copyright to interfere in the private sphere of third parties in order to force them to refrain from using an idea in determinate ways constitutes a characteristic of the legal monopolies and of private property.

\(^5\) *Baylos Corroza* at 402.

\(^6\) *Id.* at 402.
Patent rights were originally conceptualized as monopoly rights. They granted the patentee the right to exclude competition in order to assure a monopoly. This monopoly right protects the typical interest of an inventor who, at the same time is producer, wants to exclude any kind of competition and exploit the market under monopolistic conditions. In this case, the exclusive right is mainly an instrument to exclude competitors from exploiting the patented technology. It constitutes an instrument for controlling the activity of competitors. The conception of patents as private property has allowed the patentee to protect a broader scope of interests that contradict the goals of patent law and are not related to the monopolistic exploitation of the patented invention. An example of this is the enterprise that exploits an old patent and acquires a new technology with the intention of not exploiting it but of hindering competitors from accessing it. This case opposes the original interest of England, which was to introduce patents as a means to lure manufacturers from other countries to England.

The nature of the exclusion right in the case of monopolies is different from the right of exclusion or defense conceded by the right of property. The exclusion right of patents relates more closely to the figure of monopolies. This situation leads to an important doctrine, which states that copyright and patent law constitutes a right of monopoly rather than property rights. This conclusion is also supported by the fact that the proprietary relationship between a creator or an inventor and his work is already protected by normal civil legislation. The particularity of patent and copyright is that they interfere directly in the liberty of enterprise and competition.

b) Problems in Defining Monopoly Rights as Private or Subjective Rights

(1) Monopoly as an Economic Concept

Because of the dogmatic inconsistencies of the traditional definition of a patent right as private property, there is a modern doctrine that returns to the original

556 Baylos Corroza at 403, who quoted Franceschelli, 1Trattato di Diritto Industriale, Parte general, Milan, 1960, 569-572.
557 This position has been defended by an important part of the Italian doctrine, including Franceschelli, Ferrara and Guglielmetti, see also Baylos Corroza at 403, and 436-459.
558 Baylos Corroza at 405.
definition of patent rights as a monopoly. The definition of patents as private property neglects the economics goal of this institution to emphasize the dogmatic construction of these inherent rights. On the contrary, the theory of monopoly rights goes to the other extreme. This theory has been criticized for putting emphasis on the economic effects of the intellectual property rights, without succeeding in constructing a legal definition of these rights. The Monopoly Theory emphasizes the social and economic affectation of patents as a right to exclude the competition. However, it reduces the figure to an economic term. From a theoretical point of view, there are two principal objections to this doctrine. The first relates to the economic definition of monopoly. This objection points out that the monopoly theory confuses the “right of patent” as a potentiality with its actual exercise or result. Monopolies are traditionally used to define the situation when there is only one supplier of a product and more specifically, when there are no sufficient equivalent substitutes for that commodity in the market, so that the supplier has a total control over the price and quantity supplied in the market. This was the typical situation of inventors at the time the patent system emerged and the application of this situation in the present is not that easy. In the global economy the strong competition between different manufacturers and the continual development of alternative technologies reduce the opportunities to actually consolidating a monopolistic position over specific markets. Moreover, patented technologies do not usually refer to a completely new product, but to parts of these products. Because of that, it is very difficult today to define patents as mere monopoly rights.

Monopoly is an economic term which describes the way an enterprise operates in the market and it features the fact that the enterprise does not have competition. In this case, the theory argues that the right of exclusion is given with the primordial goal that the patentee creates a monopoly. Similar to the theory of private property, this theory tries to explain the cause or justification of the “right to exclude others” from the use of the patented technology. It defines the patent right as a the right to consolidate a monopoly. Both theories put emphasis on the “right of exclusion” as the foundation of the patent right. The same as the private property theory, the monopoly theory defines the patent right as an absolute right.

559 Id. at 437-459, who analyzes the modern Italian doctrine of monopoly rights referring to Intellectual Property Rights. Among others he cites authors like Franceschelli, Casanova and Pugliatti.
that imposes on the others the general obligation of not using the patented technology without a permission (i.e., an *ius erga omnes* related to *an non facere*). In this case, the monopoly theory defines a patent right as an “exclusive right” which is given to the patentee in order to grant him a legal instrument that should allow him to operate as a monopoly. It refers to the guarantee that states grant an inventor, that any unauthorized competition would be prohibited and suppressed. In this sense, the theory of monopoly views the monopolistic effects of the exclusion right as the normal and almost necessary effects of the patent right. Since the consolidation of a monopolistic condition also depends on the existence of competition from patented or unpatented technologies, the factual consolidation of a monopolistic position also depends on other economic factors. As a result, the patent right is only perceived as a legal instrument to suppress any competition created by competitors using of the patented technology. The theory of monopoly is generally accepted. This theory is consolidated in the sense that patents are generally defined not as an “economic monopoly” but as a “legal” one.

(2) *Theoretical Inconsistency between Monopoly and Subjective Rights*

The second objection to the monopoly theory pointed out the structural inconsistency of the definition of monopoly rights as subjective rights. The traditional Monopoly theory of patent has not succeed in defining the content of that right, as long it defines the object of the right as an activity, a *facere*. Because of that, the theory has been criticized as an artificial construction without a form.

A subjective right can be defined as a legal power over a defined object or good, in order to protect a private interest, which is considered to correspond by law or equity to that individual. An essential characteristic of private rights is that they are defined not by what is allowed by the owner of the right, but for what is required by the thirds (to do or not do). As a subjective right, the patent right must define an object of the right and a content of that right.

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560 *Fikentscher, Wolfgang, Wettbewerb und gewerblicher Rechtsschutz, Munich-Berlin, 1958, 143.*
561 *Baylos Corroza* at 452.
562 *Id. at 452, who quotes Carnelutti’s Teoria General del Derecho, and Dabin, Le Droit Subjective at 80.*
563 *Schuppe, Der Begriff des Subjektiven Rechts, 1963, 9-10.*
The object and the content of the private right defines the scope of activities that are excluded from third parties in order to assure the owner of the right the free space he requires to accomplish his protected interest. The object of the right is defined as the area or part of the external reality in which the rightholder can fulfill his protected interest, *i.e.*, the positive element of the right. The content of the right defines the scope of the power granted to the individual to protect his interest before third parties. The content of the right has been defined the negative part of the right because it has as a counterpart the obligation of the others not to disturb the protected relationship between the individual and the object of the right.

The positive element of the right, *i.e.*, its object, is the central nucleus of the private right. In this sense, the object of the right has the task of allowing an identity judgment, to define the part of the external and objective reality to which the right is referred. This identity judgment has two basic aspects: First, it defines the part of the external objective reality reserved for the owner of the private right, in which the activity of the titular is exerted to achieve the protected interest of enjoyment, etc. (objective connection to the positive part of the right). Second, it defines the part of the reality to which the power granted to the individual and the corresponding obligation not to disturb of third parties is referred (objective connection to the negative part of the right). The negative part of the right, *i.e.*, the content of the right, will generally define the type of right that is involved, according to the faculties granted to the titular and corresponding legal obligations of thirds parties.

Regarding the theoretical framework of the subjective right, the monopoly theory can be criticized for not defining a subjective right but a general legal obligation of third parties. This is because the object of the right is referred only to the negative part or content of the right: the exclusion of the others to use the patented technology and the right to exclude the others from using it, in order to configure a monopoly in favor of the patentee. The positive part of the right, *i.e.*, the object in which the interest of the patentee is achieved, is not defined.

Concerning private rights, the content of the right (negative aspect) should have an instrumental function, which is to assure its holder the enjoyment of the object

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564 Baylos Corroza at 452.
565 *Id.* at 453.
of the right. And here, the right of exclusion, content of the monopoly right, does not make an explicit reference to an instrumental function. It is not defined as an instrument for assuring the enjoyment of a positive interest by the titular of the right. The theory of the monopoly defines the object of the patent right as “the economic exploitation of an immaterial good”, i.e., a monopoly. In this case, the object of the right and its content are the same: its content is the right of exclusion of third parties from the economic activity of exploitation of the intellectual creation and its object is the same activity, from which the others are excluded. For this reason, part of the Italian doctrine referring to the theory of monopoly equates intellectual property rights with other legal monopolies and concessions given by the State in the exercise of the public power.

This critique can explain why the theory of private property has been accepted so well, as it allowed the patent right to easily conform with the theoretical requirement of private rights. The private property theory enabled the technical idea, the protected technology, to be defined as the object of the right.

In conclusion, the definition of patents as monopoly rights do not offer a coherent legal framework to describe patents as private rights. The recognition that an intervention in the liberty of enterprise is an essential characteristic of patents that has lead to the conceptualization of them as monopoly rights. The monopoly theory offers an theoretical framework to explain why patent holders have a right to interfere on the liberty of enterprise of others. This theory constitutes a legal authorization to create monopolies, rather than a theoretical framework to describe patents as subjective rights.

c) Proposal to Solve the Inconsistencies of the Monopoly Theory

The inconsistencies of the monopoly theory could be solved when regarding other alternatives to describe the protection of the economic interest of the patent holder. The function of exclusion rights is not the promotion of economic monopolies. They are intended to define a relationship between an individual and

566 Baylos Corroza at 403, who suggested that this case refers to the enjoyment of a good, which occurs through the exercise of a lucrative commercial activity that is necessary to obtain the economic returns that the exploitation of the creation allows.

567 Id. at 454, who submits this objection to the theory of Fancheschelli.

568 Id. at 455.
In the case of property, the exclusion right associate an individual with some specific corporal assets. In the case of patents, the exclusion right defines a relationship between an individual and determinate incorporeal or intangible assets which are suitable for generating wealth. Rather than protecting the interest of creating monopolies, patents assure inventors the possibility of benefiting from any kind of commercial exploitation of their invention, for example, securing that enterprises which use the patented technology pay royalties. The exclusion right given to the patent or copyrightholder can be regarded as an instrument for enabling him to define and administer the way his creation or invention is reproduced and placed in the market. As a result, the object of the patent right is not a monopoly (which is merely an description of an economic position in a market), but precisely the market defined by the patent right, whose exploitation is guaranteed to the patent holder.

Consequently, an alternative conceptualization of rights over intellectual goods can be constructed taking into consideration the following basic elements:

First, the interests protected by the right, one private, which is the inherent right of the inventor, who has rendered a service to society by creating and disclosing his work, to profit from the social exploitation of his invention, the other public, the interest of society to promote the creation and diffusion of innovation.

Second, the object of the right. Opposing private property, the invention is not the object of the right, because the relationship between the invention (technical idea) and the inventor does not require protection. Since the goal of the right is to guarantee the inventor a profit from the exploitation of the invention in a market, the object of the right is precisely this specific market where the invention or creation can be exploited, i.e., were the profit can be generated. The scope of protection of the patent defines the potential uses of the invention which are protected, and therefore, the protected market of the invention. The activities regarding the exploitation of the patent are performed upon the market.

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569 Fikentscher, Wettbewerbsrecht im TRIPS, at 533.

570 Cf. Fikentscher, who in order to solve the contradiction between patents and competition law proposes the thesis that the exclusion rights have the function of defining patrimoniary relationships, while competition law has the function of controlling the way these patrimoniary relationships change. See Fikentscher, Wettbewerbsrecht im TRIPS, at 533.
Third, the content of the right. This right can be described as the right to administer the social exploitation of the invention by giving licenses and excluding others from unauthorized exploitation of the market defined by the patent. This is, the right to exploit the market of the patented technology by imposing the conditions, restrictions and royalties on the users of the patented technology in order to obtain a profit. A general theory for innovation rights based on these premises is proposed in Chapter four.

d) Private Property and Monopoly Theory as Defining an Absolute Right to Exclude

The private property theory, which includes the theory of rights over immaterial goods, creates a framework in which the justification of the right is not expressly included and because of that, is not to be continuously valorized. This framework is centered on the obviousness of the right, its “inherent” quality, its absolute value. It gives the rights of immaterial goods the same absolute statue of private property rights. The protection is achieve by granting an inventor private rights containing the faculty of disposing, at will and taking into consideration mainly his personal pecuniary interests, over the protected intellectual good. Within this framework, limitations of “intellectual property rights” are regarded as limitations of private property, which are only to appear in very exceptional cases, since they the restrict the expression of the private will over property. Only in very exceptional cases is it possible to impose limits on the unlimited power that the owner has over his property.

The theory of the monopoly has the advantage of defining the “potential” effect of patents and the need to regulate them. This theory has the advantage that it takes again into consideration the negative effects of patent law on the liberty of competition, which were not addressed by the theory of private property or the theory of immaterial goods of Kohler. The theory of monopoly focuses on the economic and social costs of patents, but compelles to accept this costs as necessary. Control of these costs should come only under very extreme cases. As a result, the conditions and reasons for granting monopoly power are no longer expressly considered in the theoretical framework, because both the monopoly and

571 See Albaladejo, Derecho de Bienes, Barcelona, 1974, 195 and Ullrich, Technologieschutz nach TRIPS, at 624-625.

572 Fikentscher, Wettbewerb und gewerblicher Rechtsschutz, at 143.
the property theories of patents have as a basic supposition that “in order to concede an adequate protection to the economic interests of the authors, the content of the protection at the patrimonial level must necessarily concretize in a monopoly of exploitation and use”\textsuperscript{573}. This presupposition, which is an economic rationale, constitutes the basic premise of the current legal assessment of patent rights. This premise, as in all the suppositions of a theoretical model, is not always subject to internal reconsideration. The legal discussion is built over this fundamental hypothesis. This premise was true in the times of Elizabeth I. It also created the conditions for the formation of the first multinationals. But its validity is relative to the economic reality of the moment.

5. \textit{Monopolistic and Proprietary Conceptions of the Patent System as Stressing the Conflict of Interest Dichotomy between Social and Private Interests in Patent Rights}

The contradictions between private and social interests in patent rights is generated by the way the object of protection of patents and its corresponding exclusion right have been conceived. The problem occasioned by the protection of an idea and not each artistic expression of it can be illustrated using the case of paint techniques as the object of protection of a patent (which normally is not the case because patent law protects only industrial technologies). If this technique could be patented, the first impressionist would have not only a copyright for his first work, but a patent for all applications of this technique. He may be interested in ensuring a high price for his kind of pictures, prohibiting others painters to use this technique, or may be interested in selling rights to use the technique and obtaining a remuneration from other painters. This second alternative requires bigger organizational skills and accepting the risk that others painters could make a better use of the technique or improve it. As a result, it is to be expected that the painter prefers to use his right to exclude others and consolidate a monopoly. If we regard this patent as private property over the technique, we invite the rightholder to do with the market and the development of these techniques what he wants, even to hinder other painters from exploring and developing this technique. This situation would be contrary to the progress of arts because the negative effect of

\textsuperscript{573} Baylos Corroza at 391.
hampering other painters to explore and develop the impressionists techniques. The sense of justice claims against such a use of that hypothetical “patent”. This is the reason why copyrights protect only the expression of the idea and not the idea itself. The protection of the technical idea through patents seems absolutely necessary. The relevant question is how to delineate the content of the right to administer and obtain a profit from the social exploitation of this invention.

Technical inventions are only valuable for their usefulness. Furthermore, inventors can only obtain earnings as long as they can control the utilization of these ideas in the market. Because of that, the exclusive right granted by patents should give its holder the legal power to control the production and distribution of the products that incorporates the protected technical idea. This control over the market can be used in two main ways: creating a monopoly by excluding thirds entirely to exploit commercially the technology, or by controlling the diffusion of technology, defining a price that users should paid in order to have the legal authorization to exploit the invention themselves. Since the public interest in granting patents is to promote the creation and diffusion of technology, the interest of the patent holder to obtain a profit hindering technology transfer is incompatible with this public interest.

Contrary to patent holders, copyrights holders are generally interested in obtaining a profit through the diffusion of their work in the market. A copyright is granted on an object that presents a specific arrangement of elements. This unique arrangement is one possibility between several hypothetical alternatives. What distinguishes one alternative from the other is a mix of the amount of work, information and skill of the author. Once defined, this unique arrangement can be defined as the crystallization of the work and genius of an individual. The work is completely defined by itself and differentiated by others. The right to exclude others from using this specific arrangement of elements will normally be used in order to motivate others to recognize and pay for acquiring a copy of the unique work. The exclusion right does not hinder others creativity. There is an unlimited number of combinations to express the same idea and technique, which allows any individual to recreate the main idea and create another expression of it, if he does not want to take advantage of the work already protected by the copyright. In this sense, the artist or literary work presents a natural delimitation that permits a
comparison with a commodity that should be offered in the market under certain competition conditions, as long as it is always possible to express the same idea under other arrangements.

Since there are normally many alternatives to create works that compete with an object of copyright protection, but not as perfect substitutes, the author would normally maximize his benefit normally by placing in the market a large number of copies. Because his profit per unit will be normally small, the size of the market constitutes the most important variable. Furthermore, because each work would be bought as long as it is well known and becomes in mode, there are always positive effects from the diffusion of the work.\textsuperscript{574}

The situation for patentees is the opposite of copyrightholders. With respect to copyrights, the right to exclude is composed of two rights: the right to obtain a profit from each copying of the work for commercial purposes and the corresponding right to condition the authorization of the reproduction and commercialization of the good. The copyrightholder has no right to the creative idea which sustains his creation. With regard to patent rights, the content of exclusion right could be considered to be composed of three main rights. The first is the right to participate in the social use of the technology. The second is the corresponding right to administer the social exploitation of the invention, meaning the right to define under which conditions another enterprise may use the technology or commercialize the products that use that technology. Third is the authorization to exploit the technology or technical idea under monopolistic conditions. This last alternative is equivalent to a property or a monopoly right on a market, \textit{i.e.}, the absolute right to exclude other enterprises from any possibility of using the patented technology, regardless of whether the patentee obtains an economic benefit from that exclusion or not.

Patentees frequently enjoy a natural monopoly for their invention, meaning that their technology or technical idea does not have at a time adequate substitutes. This, together with their legal authorization to create monopolies, leads patentees to attempt to take the maximum advantage of the possibilities of creating a

\textsuperscript{574} This, however, does not imply that copyright protection does not present the same inconvenience as patent protection, as illustrated in the case \textit{Mirage Editions, Inc., v. Alburquerque A.R.T. Co}, 856 F.2d 1341 (9\textsuperscript{th} Cir., 1988) and pointed out by \textit{Besen and Rasking} at 16. Important is to notice that these problems are not so extreme as in the case of patent rights.
monopoly: patentees should try to obtain a higher profit per unit sold, a monopolist rent. This is reinforced by the fact that inventors are usually manufacturing enterprises with limited production capacities. They maximize the price of their production and are not always interested in allowing competition to produce the same invention in order to exploit together a broader market, even though that on the long run this strategy may maximize the global profit obtained from the patented technology. This makes a radical and fundamental difference between copyright and patent right: while authors would normally seek the broadest diffusion of their work, inventors have traditionally seek to obtain maximum rent as monopolists. This may also be explained by the fact that copyrights holders normally exploit their work through intermediaries (publishers, etc.), but patent holders are traditionally manufacturers.

The classical economic analysis can be used to demonstrate that the market power granted by patentees and its monopolistic exploitation is fair because it allows a patentee to obtain all the fruits of his work. The highest price a market is ready to pay for the use of a technology is considered fair because that price reflects the point in which the utility of that technology is equal to the costs paid by society. This analysis neglects other important elements. The size and the characteristics of this market are the result of several conditions: the quality of the technology, the existence of alternative technologies, the scope and importance of products where the technology can be applied, the existence of raw materials and other elements required for the use of the technology, etc. An invention is not a finished product by itself, but a component of element of several industrial processes or different possible industrial products. A technological idea has no value by itself for the inventor or for society. Its value is generated by the application of the idea in other processes and products, which originally may not have been considered by the inventor. As is the case for any resource of production, the value of the technology is also the result of the creativity of others to adapt it, recreate it, apply it to new uses, improve it, integrate it with other technologies to create new products, etc.

The definition of a patent as property or monopoly brings the necessity of defining a proprietary or monopolist relationship between an individual and a technical idea, \textit{i.e.}, to have property or a monopoly over an element that can be essential an component of an unlimited group of combinations, uses and systems. Patents
would give an unlimited power over all the expressions or application of a technical idea. As a result, a patent right defined as property or monopoly right can be considered an absolute right to exclude others from exploiting any improvement or modification of the main idea. Consequently, any one who succeeds in creating a development or a new variation of that idea, which is a significant improvement of the original idea, should remain under the control of the owner of the original protected idea.

The combination of these two positions: patents as private property and as a monopoly right have accentuate the negative effects of patents for the diffusion of technology. The privilege of patents was supported by two reasons: The patent right has the same philosophical foundation and social function of the right of property. It is an inherent right. In addition, the monopoly right is perceived as the natural expression of a right of property. A monopoly is regarded as a fair reward, which is absolutely necessary to motivate the inventor to continue bringing new inventions and disclosing them to the public. And, in this sense, the monopoly is regarded as accomplishing by itself an important social function. Additionally, it is viewed as the only possible way to enable the patentee to benefit from his contribution. Because of that, this monopoly has also be considered, like private property, based on natural law. The integration of the monopoly and the private property theory seems to reinforce one another, and consolidate the “hard or strong protection” patent system that characterized the United States and most of the Western Countries.

The recognition of the problems of giving a property or monopoly right over ideas moved the US constitutionalists to refuse to expressly define patents as property rights or monopoly rights in the Constitution and define them as a limited exclusion right granted to promote innovation. This concept emphasizes that this exclusion right is conceded not gratuitously, but according to the jurisprudence, because of the inventor’s merits of having created and disclosed a useful idea. Nevertheless, the doctrinaire evolution of this figure in the US system has maintained the original conceptualization of patents as monopoly rights, but attributes the philosophical justification of property to monopoly rights and thereby, equates monopoly rights right with private property.
In conclusion, since the exclusion right of patents tends to promote the interest of patent holders to create monopolies, there is a natural contradiction between the private interest of the patentee and society when granting the patent holder an absolute right to control the social use of a technology at will. As a result, the social interest of technology diffusion may be unprotected. The definition of the exclusion right of patents as an absolute right stemming from private property or monopoly rights appears to be unjust when all the private and social interests involved are considered. Within this conception, it has been difficult to bring intellectual rights and the control of its negative monopolistic aspects under a dogmatic framework.\textsuperscript{575}

\textit{a) Limitations to Patent Rights}

Private property is designed to protect a relationship between an individual and the material object he has created or acquired, in order to allow him to use it at his free will. This institution itself normally harmonizes social and private interest. The limitation of the absolute right of property comes as an exemption to the general rule. The assimilation of patents to “private property”, that means, its definition as an absolute inherent right recognized and protected but not created by law creates a system which cannot harmonize all the interests involved but, contrarily, it aggravates its antagonisms. The system requires an external means to limit the negative effects of patent rights, in particular the consolidation of monopolistic situations, which hinder society from optimizing the use of the existing technology.\textsuperscript{576} This situation explains why, even though copyright and patents are enacted in the same US Constitutional Clause and the right to useful inventions was considered with equal reason as copyrights to belong to the inventors as a right of Common Law,\textsuperscript{577} there are fundamental differences in both institutions.

\textsuperscript{575} Fikentscher, Wettbewerbsrecht im TRIPS, at 533.
\textsuperscript{576} Alonso Martinez, Manuel, Estudios sobre el derecho de propiedad, 3 Memorias de la Real Academia de Ciencias Moarles y Políticas, Madrid 1875, 17. Fikentscher suggested also the use of a monopoly, but in a two-fold sense, as an exclusion right defining a right over an asset, and the exercise of that right, which necessarily requires specific antimonopolistic legislation in order to assure that these rights do not become barriers against competition. Fikentscher, Wettbewerbsrecht im TRIPS, at 533.
\textsuperscript{577} See Stewart, S.M. at 25. It is interesting to note that the US Copyright Act of 1790 makes a distinction between common law rights in unpublished works and statutory rights in published works; and includes registration and deposit provisions and lack of any provisions dealing with the moral right of authors. Id.
The patent right has been traditionally limited by two main instruments. First is the restriction of the duration of the right to a determined period. Second, the concession of patent is restricted only to a certain type of inventions which are considered relevant enough to deserve protection. As a result, contrary to copyrights, patent protection requires the assessment of the invention by a public office, which grants the right. In addition there are other rules that prevent an inventor from benefiting from the patent system, for example, the fact that the invention has been already divulged previous to its application to the patent office. These restrictions are evidence of certain recognition that the patent institution by itself grants the inventor an excessive privilege that should be regulated in order to create an equilibrium between the social and private interest. They demonstrate that the basic conceptualization of the patent system as property of monopoly right does not present an “intrinsic” equilibrium of interests. The equilibrium is not shaped by the internal definition of the legal institution, but by the addition of artificial rules that contradict the spirit of private property and the principles of law. Within the framework of private property, restrictions on patent rights may be regarded as a sort of limitation or expropriation that can only be tolerated when very important public interests are affected.

Limitations of private property come as an exceptional remedy to external circumstances that have broken the normal equilibrium of interests that private property promotes. In opposition, some limitations of patent rights are the rule and not the exception. As a result, the instruments to control the negative effects of patents contradict the inherent right character of property and in general, contradict the general framework of private property and the principles of law that regulate this institution. Furthermore, it has been considered that this limitation contradicts not only the dogmatic construction of the private property rights but also the invulnerability of private property, which is a fundamental right recognized and protected by almost all constitutions. The interpretation of intellectual property rights as private rights could let, in an extreme case, to conclude that the limitations of the property rights recognized by intellectual

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579 *Id.*
property law violate the general constitutional principle of equal protection of the laws.\textsuperscript{580}

The temporal limitation of the patent right can be differently considered by the two main theories of patents. Under the viewpoint that the foundation of patent right is the same of private property, it may be interpreted that because of that limitation of the patent right, the patentee should have extreme comprehensive rights during the life of the patent. That is, during the validity of the patent, he should have a complete property right and should be allowed to constitute a monopoly. Further limitation to this right during the life of the patent should be considered in very exceptional cases. Moreover, the expiration of the patent already constitutes form of expropriation to the patentee. This interpretation calls for reinforcement of the comprehensiveness of the protection during the life of the patent right. Under this perspective, without the fulfillment of the formalities defined by the patent law and the granting of the right by the public authority, an inventor would have no right to request others to reward him for the use of his invention. These restrictions of the patent rights are in contradiction with the general principles of private property. Nevertheless, western countries tend to mix the concepts of patents as monopoly and private property. The concept of private property is used to concede patents strong protection, but only after granted the right, not before. As a result, under this perspective, patent rights are not inherent rights, they are not declared but constituted by a public office, the patent office.

The perspective of monopoly rights is more suitable for assissing these limitations. What is protected with patents is not the relationship between an individual and the object (protected invention) but the relationship between the individual and the market of users of that technology. The interest of the individual to exclude others does not come from a factual possession of the technology that he has invented, but is a privilege conceded to prevent others from duplicating this “object”. Patents intervene directly in the market in an authoritarian way and grant not “private property” but a condition of privilege. Limitations to this monopoly right are then considered absolutely necessary to equilibrate the private and public interest involved.

\textsuperscript{580} This construction has been proposed by some German authors when referring to the restriction of 10 years imposed by the European Directive RL 96/9/EC concerning the protection of data banks, see Heinz at 457.
As a result, the patent right is only temporary (in opposition to the right property that is permanent). Furthermore, the legal system do not recognized automatically a patent right to every invention, a series of formalities is required to grant and only the inventions that are considered important are patentable. In order to be patentable the invention must present a new element (novelty) and render a significant service to society (utility). The quality of this new element is also controlled. It should present an important progress in technology that was not normally to be achieved by a specialist on the field (inventive step). Furthermore, society should obtain a profit from the disclosure of the invention. Consequently the inventor should not have published or disclosed his invention before the presentation to the patent office.

The mixture of these frameworks leads to the conception of patent rights as absolute “inherent rights” but only on boundaries defined by the legal limitations of it. This is the case of the “hard protection system” based on the conception of monopolies as a mixture of private property and monopoly rights.

The limitations of the patent right can be regarded as very formalistic regulations to hamper the constitution of patent rights. This limitations distort the definition of patents as private property and monopolies as they attempts to center an equilibrium between the interest of rewarding inventors with the interest of preventing the monopoly power of rightholders by limiting the access of the inventor to patent protection (instead of defining a more suitable patent protection, i.e., reconsidering its legal nature). In this way a legalistic compromise is achieved between the negative and positive effects of patents. After being granted, patent holders enjoy a very strong right. Before being granted, inventors have problems in obtaining protection. Not all inventions obtain protection, this right is given only to very particular cases and when it is strictly necessary to obtain a disclosure from the inventor, which ensures that society to has access to the inventions. In case that the invention does not present considerable high standards of utility and inventiveness no patent protection would be granted. In addition, if the inventor has disclosure of the invention by publications or academic discussions, he will not have access to protection because the goal of disclosure has already been achieved. This situation makes the patent system a very unsystematic an artificial one, in which the principles of law are generally exempted and the right is limited by very
formalistic rules. In this case any kind of inherent right will be recognized before granting the patent because small formalities like the previous disclosure of the right can hinder him from patenting. This leaves the impression that the system is only looking for a first excuse to deny recognizing the right. As a result the patent system looks like a very artificial system, composed of very contradictory institutions and philosophical backgrounds.

A global view of the patent system, including the way the patents are granted and the way the right is restricted leads to the conclusion that the equilibrium between the advantage of technological progress, the promotion of inventiveness and the just reward to inventors and the costs of restricting temporary liberty to use the new technology are together the foundation of this right. The dogmatic framework of private property or monopoly right does not succeed in giving this complex institution a proper framework. The contradictions of the present patent system suggest the need to reconsider the basic interpretations of its legal nature and philosophical fundaments in order to attempt to find a concept that offers an intrinsic equilibrium of all the interests involved in the patent institution.

D. Analysis of the Two Principal Patent Systems

1. The Hard Patent Protection System of Western Countries

a) Basic Presuppositions of the System

The patent system in the Common Wealth legal system evolved from a contractual and dynamic perspective that continuously sought an equilibrium between social and private interests, to a more static definition of patents as “property” and “monopoly”. The opinion that “it is a mistake ... to conceive of a patent as but another form of private property. The patent is a priviledge conditioned by a public purpose: to promote the Progress of Science and Useful Arts, and that the exclusive right of the inventor is but the means to that end”\textsuperscript{581}, has been a dissenting thesis in the US case law.
As a consequence, the right of the patentee to prevent others from practicing the invention has long been regarded as absolute. The hard protection can be described in the following terms: “A patentee is entitled to exact as high a price for the patented technology as the market will bear, i.e., to exercise monopoly power in the sense of setting a supracompetitive price, without restriction either under patent or antitrust law. Furthermore, the strong public policy against compulsory licensing has precluded this relief, even when patent misuse has been found.” Consequently, within the hard protection system, the exclusion of competitors and charging of supracompetitive prices are at the core of the patentee’s rights, since it is considered a legitimate reward of the patent monopoly.

This type of evolution is a common tendency of every institution. Once an institution is created, the reasons for its creation become obvious and tend to be neglected. When institutions reach an important level of maturity, they tend to preserve themselves from changes and thus, tend to freeze their dynamic elements and to stress the attention to the static ones. This is also the case of patent rights.

582 See, e.g., Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405, 423-24, (1908), (suggesting that the constitution requires an absolute monopoly in the patent grant), and Motorola, Inc. v. United States, 729 F.2d 765 (Fed. Cir. 1984).


584 See Brulotte v. Thus Co., 379 U.S. 29, 33 (1964). Courts considering allegations of misuse from excessive royalty rates have regarded this proposition as “far-fetched”. See Warner-Jenkinson Co. v. Allied Chem. Corp., 477 F.Supp. 371, 396 (S.D.N.Y. 1979), aff’d mem., 633 F.2d 208 (2d cir. 1980). A patentee has the right to exclude a competitor entirely, and “(a) royalty demand which is so high as to preclude acceptance of a license offer is, after all, not appreciably different from a refusal to license upon any terms. The right to refuse to license is the essence of the patent holder’s right under the patent law. X W.L. Gore & Assoc. v. Carlisle Corp., 529 F.d. 614, 623 (3d Cir. 1976).


The US system is a good example of this evolution. The patent system was originally introduced in the US Constitution with a norm granting the Congress power to legislate in the area of intellectual property as an instrument for “promoting the progress of Science and Useful Arts”\(^{589}\). However, this dynamic goal has not always been carefully verified. The US legislation and case law on patent laws tend to reduce the goal of promotion of science and useful arts to two principal aspects: the reward to the inventor for the costs incurred in research and development, and the need to motivate inventors to disclose their inventions. The reward granted to inventors is defined as a right of exclusion for a limited period\(^{590}\).

This right of exclusion has been considered to be a “fairness to the inventive entity”, which moves society to distinguish creative individuals with a “reward” consisting on giving him the control over the fruits of his labor\(^{591}\). The beneficial effects to the society are supposed to come indirectly: the production of new technology is expected to increase, as the creative individuals have an incentive to produce.

The second element justifying this reward is the need to give an incentive for the disclosure of important inventions. Disclosure is defined as a “full and clear description of the invention and of the manner and process of making and using it, so that any person skilled in the art may make and use the invention”\(^{592}\). The US system considered that the disclosure itself is enough to satisfy the constitutional goal of promoting the progress of science and useful arts and to justify granting a monopoly right over the invention. The US Supreme Court has summarized this point of view as follows: “When a patent is granted and the information contained in it is circulated to the general public and those especially skilled in the trade; such additions to the general store of knowledge are of such importance to the public wealth that the Federal Government is willing to pay the high price of 17 years of exclusive use for its disclosure, which disclosure, it is assumed, will stimulate ideas and the eventual development of further significant advances on the art”\(^{593}\).


\(^{590}\) Id. at 678. In this case the US Supreme Court refers to the objectives of the patent law.

\(^{591}\) Errico at 2.

\(^{592}\) 35 U.S.C. § 112.

It is interesting to observe that case law makes reference to economic suppositions on which they make their interpretations. Since the goal of economic policy is defined by the Constitution, the goal of promoting technological progress is still the base of the patent system, but no longer an element or a variable that should be continuously introduced and evaluated for the interpretation of the content of patents. Within this traditional framing of the economic objectives of the patent institution, there is a tendency to consider that the social and economic objectives of the patent institution are completely achieved with the accomplishment of the formal requirement of the application for a patent (disclosure and evaluation of the utility of the patent). The patent law is considered settling a contract between inventors and society in which the constitutional goal is achieved.

Globally considered, the patent rights are regarded as contracts between society and inventors, in which the inventor discloses his invention to the public, and society confers on him an exclusion right, which is intended to protect the private interests of the inventor\(^{594}\). Within the consideration\(^{595}\) of the contract, the disclosure made by the inventor is considered the benefit accrued by society and the right of exclusion, the detriment suffered by society to compensate the inventor\(^{596}\). Consequently, an interpretation of the exclusion’s right in terms which favor society to the detriment of the inventor is considered containing conflict with both, the conception of patents are privileges\(^{597}\) and the consideration of the patent contract\(^{598}\). As a result, the US Supreme Court hat declared: “as to the suggestion that competitors were excluded from the use of the new patent, we answer that such exclusion may be said to have been the very essence of the right conferred by the patent; it is the privilege of any owner of property to user not to use it, without question of motive.”\(^{599}\)

Since the economic goals of the patent system are considered automatically achieved by the contract between society and the patentee, it is no longer


\(^{595}\) Consideration is defined as the inducement to a contract. The cause, motive, price, or impelling influence which induces a contracting party to enter into a contract. Some right, interest, profit or benefit accruing to one party, or some forbearance, detriment, loss, or responsibility, given, suffered, or undertaken by another. See Black’s Law Dictionary, 1990 at 306.

\(^{596}\) *Id.* at 28.

\(^{597}\) *Id.* at 28.

\(^{598}\) *Id.*

necessary to prove or control patent rights. Moreover, society must respect the consideration of this contract sacrificing the diffusion of the patented technology during the validity of the patent right. In the end, the economic presuppositions at the basement of the patent contract have a vital influence on definition of the content of the patent right. Due to this presupposition, the system looses part of his dynamic focus. The emphasis is no longer in the consideration of patents as an instrument of economic policy. The system is not any more centered on the definition of an appropriate framework to create a dynamic equilibrium of interests between inventors and society which promotes the progress of science and useful arts. In this sense the Supreme Court has declared: “A patent owner is not in the position of a quasi-trustee for the public or under any obligation to see that the public acquires the free right to use the invention. He has no obliteration either to use it or to grant its use to others. If he discloses the invention in his application, so that it will come into the public domain at the end of the 17-year period of exclusive right, he has fulfilled the only obligation imposed by the statute (35 U.S.C.A. Sec. 33). This has been settled doctrine since at least 1896. Congress has repeatedly been asked and has refuse to change a statutory policy by imposing a forfeiture or by a provision for compulsory licensing if the patent is not used within a specified time”.

The bargaining nature of the patent system is reduced to a very simple deal: Granting monopoly rights is the obvious and necessary way to motivate inventors to create and disclose new technologies.

Once the requirements of patentability are fulfilled, the right of exclusion during a limited period of time appears to be a “fair payment” and the system centers itself on the protection of the private property of the inventor and more specifically, his monopolist interests. This favors extreme positions which influence judges to take for granted the positive effects of patents. Once the contract between society and the inventor is fulfilled through the granting of a patent right and the correspondent disclosure, the absolute faculties to exclude given to the inventor should be honored by the State. Judges should “assume” the beneficial effects of patents and accept all the consequences that the monopoly implies for society. Consequently, they should accept the costs of the granted monopoly rights as fair

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600 Hartford-Empire v. United States, 323 US 386 (1945). See also Beier, Friedrich-Karl, Exclusive
and necessary. In order to achieve the goals defined by the constitution they must just protect the property and monopoly right of patent holders. Furthermore, it has been supposed that the theoretical - restriction of competition in a particular product is more than outweighed by the substitution competition any product is exposed to by other products, as well as the competition in innovation itself 601.

The convinience of the definition of this reward as a monopoly privileged was not been correctly assessed. This can be explained by the mangle of alternatives to the private property or monopoly theories which allow for a framework for the exclusion right of inventors. The existent monopoly framework is presented als the best alternative for granting inventors exclusion rights that contribute for the promotion of progress of Science and Useful Arts are often disregarded. This position is defended with the argument: “Experience has shown that the grant of exclusive exploitation rights is more likely to confer on an inventor or designer the well-earned “reasonable reward” simply and effectively than is any government remuneration system ]...[ since the inventor’s reward and incentive depend solely on private initiative and the market success achieved by the invention, thus fitting nicely into classic, liberal system of economy” 602. As analyzed in Chapter 4, this experience, however, has ignored other alternatives, particularly those latter developed by Japanese system of innovation.

b) Theoretical Contradictions of the Patent System in the United States

Although the US patent system is based on the definition of patents as monopolies and private property, case law has not gone so far as to define a strict dogmatic legal framework for patents. It has not reduced the patent right to a property or to a monopoly right, but it normally chooses one of these definitions, according to the nature of each case. This position has the advantage that it gives some flexibility and avoids reducing the legal institution to static concepts which per se do not present a convenient solution. This helps finding fair solutions according to the circumstances. However, this situation increases legal uncertainty and hinders the discussion about the legal nature of patents. As a result, this situation hampers

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602 Beier, Friedrich-Karl, Exclusive Rights, at 256.
the development of legal concepts which facilitate the understanding and application of the law.

The contradictions of the hard protection patent system can be illustrated by the way the economic analysis of this institution is made in the USA. The following text illustrates this situation: “Time-limited rights: Patents and copyrights. An interesting class of property rights consist of those that, while otherwise exclusive, are limited in duration. Patents and copyrights are the usual examples. Useful ideas, like crops, are generally the product of hard work, which must be rewarded in order to be encouraged. This is the rationale for recognizing property rights over useful ideas. There is nonetheless a certain arbitrariness to the ownership of ideas. Suppose two companies are working independently to develop a new type of television receiver. One firm completes development first and obtains a patent. The other firm is now excluded from taking or selling the new receiver, although she would have developed the same product on its own within, let us assume, a month after its rival. The reward, a monopoly of the product, seems incommensurate with the patentee’s actual achievement— the completion of its developmental work a few weeks ahead of its rivals. The reward is excessive in another respect. It consist of the right to obtain monopoly profits from the sale of the product embodying the patented idea and since this is a larger reward than most producers are able to obtain, resources may be diverted from the production of equally or more valuable goods to the production of ideas.

These considerations support some limitation on the duration of a patent. But even if they were entitled to no weight, the recording problems that would be entailed by a system of perpetual patent rights would compel a time limit. How many current products and processes might plausibly be said to embody ideas first disseminated centuries ago? Were patents perpetual, how many contemporary manufacturers would woe royalties to the descendants of Leonardo?603”.

From this text it is clear how the dogmatic frameworks of private property and monopoly rights are simultaneously used to defined Patents. Patents are seen more as instrument for excluding others than an instrument for participating in the benefits the market obtained from the use of the technology. Limitations of the right are the main instrument for controlling the excessive level of power given to

the rightholder. In particular, the temporary limitation of the right of property is considered necessary to avoid an absurd result of the conception of technology as a piece of property.

c) **Patent as Legal Monopolies and its Implications to Competition Law**

Because competition and free market are basic premises of the Western society, the contradiction between technology diffusion and exclusion rights of patent is a constant source of controversy. The Supreme Court of the United States has accepted the premise that the national commitment to a competitive economy is in part affected by the congressional provision for patent and copyright monopolies. The grant of a patent is then considered to be the grant of a statutory monopoly\(^{604}\). Therefore, patents are seen as an exception to the general prohibition of monopolies.

The contradiction of this statutory monopoly and the free competition is not solved\(^{605}\). The US legal system has not succeeded in integrating patent law within general principles of law, which are required to allow the system to harmonize private and social interests.

The prohibition of monopolies constitutes an important institution of the Common Law, since the Statute of Monopolies, 21 Jac I, c3 of 1623, when all monopolies were declared “contrary to the Laws of this Realm” and “utterly void and of non-Effect”. But even then, the Statute of Monopolies in Section IV, excepted patents of 14 years to “the true and first Inventor and Inventors” of “new Manufactures” as long as they were “not contrary to the Law, nor mischievous to the State, by raising Prices of Commodities at home, or Hurt of Trade, or generally inconvenient.”\(^{606}\).

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\(^{605}\) See *Areeda, Phillip & Turner, 3 Antitrust Law, An Analysis of Antitrust Principles and their Application*, Boston, 1978, 114, who writes: “Patents usually bring confusion to antitrust discussions. The patent is itself a government grant of monopoly and is therefore an exception to usual antitrust rules. Applications for patents and their interpretation are, moreover, an arcane art practiced by a specialized bar which often considers the patent a right based on natural law rather than a mere government privilege to serve social ends. The non-specialist regards patents as a mystery not knowable to ordinary mortals. ”

It is interesting to observe that the Supreme Court makes reference to a source of law that emphasizes the need to consider dynamic elements in the analysis of the content of the patent right, which were clearly considered by an early definition of this institution. The Statute of Monopolies makes reference to the importance to control both, the way patent rights are used, and their practical effects to society. A continuous control of these negative effects was provided by this Statute, which considers that the patent monopoly should maintain an equilibrium between private and social interests. The problem of how to defined monopolies that are not contrary to the law, or mischievous to the state, that do not raise prices of commodities at home, hurt trade or are generally inconvenient is still not solved in the US case law in particular, and in general by the hard protection patent system. This contradiction is based on the core of the institution, i.e., the using of the monopoly and property theories as framework for the patent rights, thereby equating the exclusion right of patents with monopoly rights.

In the case *Sears, Roebuck & Co. v. Stiffel Co.*\(^{607}\), the Supreme Court emphasized that the monopoly of patent was not prohibited because it is not a given favor, as the monopolies given by the Tudor Monarchs were\(^{608}\). This argument allows the US case law to conclude that because this monopoly right produces indirect benefits to society, it should be accepted. In this way, this case law recognizes that patents should be considered as an instrument that should simultaneously benefit the society and the inventor, and it should not be regarded as a mere privilege constituted in favor of the inventor. Notwithstanding, this dynamic element is taken for granted, as it is assumed already fulfilled by the disclosure of the invention.

The goal of patents, as expressed by the US Constitution, is to grant a right to the inventor to encourage his contribution to the progress of technology. Under this perspective, the system should define an equilibrium between the interest of the inventor to obtain a profit, an the interest of society to promote inventions. An equilibrium is meant to verify that the inventor increases unnecessarily the social costs of patents, i.e., that the exclusion rights of the inventor is construct in a way that harmonizes the private and social interests involved. This context should lead

\(^{607}\) *Id.*

\(^{608}\) The Supreme Court makes reference to The Case of Monopolies (*Darcy v.Allein*), 11 Co Rep 84 b., 77 Eng Rep 1260 (KB 1602).
to the interpretation that the use of patents to create monopolies is contrary to law when it is not strictly necessary to assure the patentee a fair profit from his invention. This interpretation is in accordance with the Statute of Monopolies, already mentioned, which rules that the use of the patent law should be “not contrary to the Law, nor mischievous to the State, by raising Prices of Commodities at home, or Hurt of Trade, or generally inconvenient”.

Nevertheless, the US Case law has not gone so far as to include in the patent legal framework an internal limit to the free use of patent rights. The core of the patent protection is an absolute right of exclusion, a monopoly right. The fact that patents are not favors because they encourage invention has been considered as a sufficient argument to allow their definition as temporal monopoly. The theory of monopoly opposes the traditional perspective that patents are a right of private property over the invention that should be recognized as a basic human right. Within the framework of monopoly right, the social function of the patent right is again considered a foundation of the right. It is because of this social function, that the constitution of a patent right defined as a monopoly is allowed in the US system, as an exception to the general principle of prohibition of all monopolies. In this way, by simultaneously using two contradictory theories, patents as property rights (inherent rights) and patents as necessary temporal monopolies, the US system seeks to achieve an equilibrium. The hard protection patent system controls the negative effects of patent monopolies by restricting patent granting only to important inventions, limiting the duration of the right and through competition law. This solution is not satisfactory, it has been considered the best available.

(1) Control of the Patent Monopoly though Restriction of Patent Granting

(a) General Aspects

The US legal system in particular, and the hard protection patent system in general, has tried to solve the contradiction of creating monopolies by considering the patent system as an exception regime which authorizes monopolies but is granted only in very particular situations. This situation explains the very

formalistic interpretation of the legal limitation of patents. Thus, patents are strictly constructed and used. The prerequisites to obtaining a patent are strictly observed and once issued, the exercise of the patent right is equally strictly enforced. The negative effects of patents are controlled by making it difficult to obtain a patent, following the argument that because a patent gives the right to establish a monopoly, which in principle is contrary to preservation of free competition, only very important inventions can enjoy this privilege. In the mentioned case *Sears, Roebuck & Co. v. Stiffel Co.*, the Supreme Court has considered that the basic elements of this balance are the limited duration of patents and the policy of the Congress of granting patents only to important inventions.

**(b) Problems of the Negative Preemptive Rule**

The search for equilibrium between these apparently opposite goals of promoting a competition market and at the same time granting monopoly rights through patents, has resulted in the restriction of patent recognition only to “true inventions” through the application of the negative preemptive rule. Thus, the policy of the Congress is to grant patents only to important inventions, as mentioned in the case *Sears, Roebuck & Co. v. Stiffel Co.*. Because of the negative effects of patents in the competitive economy, the Supreme Court ruled that the states do not have the legal competence to establish other regulations different from the Patent Act, since that would alter the basic equilibrium that this law creates. As a result, state law cannot extend the life of a patent beyond its expiration date or give a patent on an article lacking the level of invention required

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610 Id. at 666. See also *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234, 11 L.Ed. 2d 669, 669 (1964).


612 Preemption in old English law means the first buying of a thing, a privilege formerly enjoyed by the crown. In the US the Supreme Court adopted the preemption doctrine holding that certain matters are of such a national, as opposed to local, character that federal laws preempt or take precedence over state laws. Consequently, where legislature has adopted a scheme for regulation of a given subject, local legislative control over such phases of subject as are covered by state regulation ceases. See Black’s Law Dictionary, 1990 at 1177.


614 Id.
for federal patents. Patents can only be granted to important inventions following
the rationale that exception to free competition should only be given to very
relevant inventions.

This opinion is summarized by Mr. Justice Douglas of the U.S. Supreme Court as
follows: “It is not enough that an article is new and useful. The constitution never
sanctioned the patenting of gadgets. Patents serve a higher end in the advancement
of science. An invention need not be as startling as an atomic bomb to be
patentable. But it has to be of such quality and distinction that masters of the
scientific field in which it falls will regard it as an advance”616. This interpretation
restricts the possibilities of the States to promote inventions that do not fulfill the
requirements to obtain a federal patent by granting them “patent alike” rights,
which constitutes a prohibition to grant a patent unless the discovery falls within
one of the expressed categories of patentable subject matter of 35 U.S.C. 101617.
This position has been criticized in the sense that even though the Constitution
never sanctioned the patenting of gadgets, it neither forbidden it618.

The limitation of patentability only to very important inventions and its
reinforcement by the prohibition of introducing state legislation to adjust the
system presents some weaknesses. This centering on the “flash of genius” and
other standards to determine an invention leads patent law to become very
formalistic and unflexible. It became a highly technical specialty, not confined to
lawyers, but to patent specialists. The negative effects of this extreme formalism of
the patent practice and the focus on technical aspects instead on of the global
consideration of principles of law has been described as follows: “the technical
facts of the case have often obscured the fundamental principles in issue. Cases
have come to be resolved on an ad hoc basis; rationalization has been less
important than resolution... There is a respected suggestion that the subject matter
be turned over entirely to a specialized court with an expertise in reading diagrams
and understanding formulas. And yet the absence of oversight by a court of
general jurisdiction might exacerbate rather than relieve the problem that patent

615 Id.
618 See comments from Kurland, Philip (ed.), The Supreme Court and Patents and Monopolies, The
University of Chicago Press, 1975 at xii.
claims afford: an excessive amount of litigation and consequently, uncertainty, in a society that already suffers from too much litigation. And the economic consequences of sustaining the validity of a patent can be enormous.\footnote{Id. at xii.}

The negative preemptive rule implies that a state has no means of preventing the copying of an unpatented or uncopyrighted article itself or awarding damages for such copying\footnote{Sears, Roebuck & Co. v. Stifel Co., 376 U.S. 225, 11 L.Ed. 2d 661, 667 (1964).}, even though principles of law and equity provide basis for such an settlement\footnote{See separate opinion of Mr. Justice Harlan, stating that he does not see the reason why the State may not impose a reasonable restriction of the future “copying” itself, and that he would give the States more leeway in unfair competition “copying” cases that the Court’s opinion would allow at Sears, Roebuck & Co. v. Stifel Co., 376 U.S. 225, 11 L.Ed. 2d 661, 667-668 (1964).}

The Supreme Court stated that “Just as a State cannot encroach upon the federal patent laws directly, it cannot, under some other law, such as that forbidding unfair competition, give protection of a kind that clashes with the objectives of the federal patent law.” \footnote{Sears, Roebuck & Co. v. Stifel Co., 376 U.S. 225, 11 L.Ed. 2d 661, 667 (1964).} In particular, “to allow a State by use of its law of unfair competition to prevent the copying of an article which represents too slight an advance to be patented would be to permit the State to block off from the public something which federal law has said belongs to the public. The result would be that while federal law granted only 14 to 17 years protection to genuine inventions. States could allow perpetual protection to articles too lacking in novelty to merit any patent at all under federal constitutional standards. This would be too great an encroachment on the federal patent system to be tolerated.”\footnote{Id.}

The key element in these decision is the reason justifying the application of the preemption rule to patent rights, and in general, to intellectual property rights. This decision is based on the monopolistic nature of patent rights. The US Constitution defines the need to create an equilibrium between the monopolist interest of the patentee and the interest in promoting free competition. These basic principle of the constitution has been developed by the Patent Act and in the case law. The definition of patents as a monopoly right limited in principle by its duration and the patentability requirement has established a forced equilibrium. The negative
preemptive rule is a clear example of the negative consequences of interpreting patents as a necessary monopoly. This interpretation considers the main legal effect of patent to be of granting an exclusion right equivalent to a monopoly right, and thereby, the authorization of the patentee to seek a monopolistic position in the market, as long as he does not try to secure any monopoly beyond that contained in the patent.\footnote{Id. at 666.}

The negative preemptive rule of the hard protection system of the USA has hampered the introduction of new institutions and concepts that can improve the efficacy of the patent system to help inventors to solve their difficulties in obtaining a fair profit for their work. The tendency to consider patents as absolute property or monopoly rights which should be controlled by strictly observing the limitations and prerequisites defined by law encumbers the innovation system, hindering it to adapt to the changing needs of the technology markets and the new types of technologies.

\textbf{(2) Control of Patent Monopoly through Competition Law}

The need to protect the social interest related to innovation have let to the basic principle of patent law that: “in rewarding useful invention, the “rights and welfare of the community must be fairly dealt with and effectually guarded”\footnote{Kendall v. Winsor, 21 How 322, 329, 16 L ed. 165, 168 (1859), quoted at Sears, Roebuck & Co. v. Stifel Co., 376 U.S. 225, 11 L.Ed. 2d 661, 666 (1964).}. Within the contractual framework of patents, the interests of the community are considered protected with the restrictions of patent granting already mentioned. Aside from these restriction, competition law is set up to control abuses of patent rights. In principle, patents cannot be used to secure any monopoly beyond that contained in the patent.\footnote{See Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488, 492, 86 L ed 363, 365, 62 S Ct 402 (1942), quoted at Sears, Roebuck & Co. v. Stifel Co., 376 U.S. 225, 11 L.Ed. 2d 661, 666 (1964).} In addition, the patent monopoly may not be used in disregard of the antitrust laws.\footnote{International Business Machines Corp., v. United States, 298 U.S. 451, 463-464, 55 L.Ed 708, 719, 720, 42 S Ct 363 (1922), quoted at Sears, Roebuck & Co. v. Stifel Co., 376 U.S. 255, 11 L.Ed. 2d 661, 666 (1964).} The monopolistic effects of patents are controlled, but not through the reconciliation of the definition of the patent institution and its correspondent social contract. Within this framework, patents are still considered
legal monopolies. The hard protection system conciliates the social interests related with innovation with its hard protection perspective by creating a parallel antimonopolistic legal framework intended to control abuses of patent rights. In addition, the limitations of patent rights are interpreted in a very formalistic and restrictive way.

Similar tendencies are followed in the German system. German law draws a particular distinction between industrial property law and antitrust law (Law against restrictions of competition/ Gesetz gegen Wettbewerbsbeschränkungen). Since patents are regarded as legal monopolies, the antitrust law considers only the possible anticompetitive side-effects of patents. These side-effects include the use of patents to control markets which go beyond the scope of protection and exclusion rights granted by law to patentees.

In general terms, the remedy for anticompetitive measures is provided in the hard protection patent system only in cases where patent rights are misused, i.e., the patent is accompanied with market power conditions in which the patentee impose on the licensers tying arrangements requiring the purchase of unpatented staple component. This hypothesis remains the quintessential act of patent misuses. The misuse theory constitutes a flexible remedy broadly condemning “every use of a patent as a means of obtaining a limited monopoly of unpatented material” when the patentee has impermissibly broadened the physical or temporal scope of the patent grant.

The amendment of 1988 of the patent infringement statute of the USA, in Section 271(d) now provides: No patent owner otherwise entitled to relief for infringement or a contributory infringement of a patent shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having done any of the following: (4) refused to license or use any rights to the patent; or (5) conditioned the license of any rights to the patent or the sale of the

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628 Fikentscher, Wettbewerbsrecht im TRIPS, 533-34.
630 See Schenen at 263, who refers to Section 20 of the Gesetz gegen Wettbewerbsbeschränkungen (Antitrust Act).
patented product on the acquisition of a license to rights in another patent or purchase of a separate product, unless, in view of the circumstances, the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned.\footnote{35 U.S.C. §271(d) (1988).}

As a result, the control of the antimonopolistic effects of patents appears to be generated from external circumstances to the invention itself, which gives the patent holder the possibility of extending his legal monopoly over his invention to increase his market power over other related areas, outside the area of monopoly which the patent grants. The availability of substitutes has been employed as the measure of market power for patent misuse purposes. In this case the market power is determined by an elaborate antitrust analysis of the market share in the relevant product market.

The use of antitrust legislation to control a legal monopoly is controversial. The concept of misuse as a legal concept requires for its interpretation a remission to the legal nature of the patent right. The distinction between the property right and its misuse is only clear-cut in theory.\footnote{Bodewig, at 232-233.} Moreover, the term market power is difficult to determine since a patent is precisely intended to grant market power. In absence of patent protection, a competitor would not be required to pay any royalty, and could choose freely between the patented technique and available substitutes. Therefore, a royalty for this reason indicates a degree of coercion; licensees are interested in paying the license rather than using the substitutes which are assumed to be freely available. Thus, it may be concluded that all licensed patents confer market power.\footnote{See Burchfiel, Patent Misuse and Antitrust Reform: “Blessed Be the Tie? at 107.}

The highly simplified assumptions regarding the nature of the patent rights in the hard protection system, defining it as an absolute right to exclude appear unsuitable for building a coherent harmonization between patent rights and antitrust measures.\footnote{Id.} This leads to uncertainty. An example of this is the following conclusion: “In reality, legislators do not and cannot define rights precisely enough to enable the actors on the market and their legal advisors to make safe predictions as to what will be deemed as a lawful exploitation of one’s rights and what will be
deemed as misuse. The courts, in common law countries as well as in civil law
countries, have to fill in these gaps, to fine-tune the crude legislative definitions
according to the present legal, economic, and technological circumstances of the
respective case. The decisions about the scope of the right on the one hand and the
use or misuse of the right on the other seem, therefore, occasionally to merge, but
should be kept apart for reasons of analysis”. Thus, the theoretical framework of
patents provided by the hard protection system is not suitable for harmonizing all
the interests involved in the innovation process.

The EC Court of Justice has maintained the thesis that the mere exercise of an
industrial property right by preventing third parties from competing against the
rightholder is in itself neither an anti-competitive behavior nor an abuse of a
dominant position in the sense of Article 85 and 86 of the EC Treaty. The

The dichotomy between intellectual property law and competition law of the hard
protection system is problematic. The fact that the Court of Justice of the First
Instance has recently considered to deviate from the above mentioned principles by
regarding it an abuse if the holder of a copyright for a program listing does not
license his copyright under reasonable conditions on third parties is an example
of the need for reform.

2. Reform of The Hard Protection System: The Japanese Variant

The Japanese patent system constitutes the most important variant of the patent
system of the Western countries. Even though it is based on the same principles
and uses the same instruments as the Western patent system, it presents some
fundamental differences, which make it a soft patent protection system. These
differences are based on the conception of the patent system not as a mere legal
institution, but furthermore, as a legal institution created to achieved certain

638 See Schennen at 266. See also ECI, CICRA v. Renaut, in 1990 GRUR Int. 140; ECI, Volvo v. Veng in
121. Beier, Friedrich-Karl, Mißbrauch einer beherrschenden Stellung durch Ausübung gewerblicher
Schutzrechte?, in Westermann, Harm Peter (ed.), Festschrift für Karlheinz Quack zum 65.

economic goals. In this sense this system has maintained the goals that initiated the patent system in England, i.e., the creation of a legal institution designed to protect the interest of inventors as a mechanism to promote the industrial development of the country. The priority given to the economic goal and the constant search for a harmonization among the interests of the inventors, industrialists and society constitutes the main particularity of the Japanese patent system.

The Japanese patent system is also influenced by the Japanese vision of the legal system. Before the importation of the Western legal system, conflicts in Japan were solved through Giri, whereby a feudal nobleman distributes the rights among the tenants, who are, thereby, obliged (by Giri) to correspond and return this favour to his master. Giri is an obligation to return the benefit or favor received, a sort of consideration. However, this duty is not compelled by a public order, i.e., the master has not a right of enforcement, rather it constitutes a perpetual relation based on a sentiment of honor. Giri is based on two sources of moral coercion: tenants must show their dignity and honesty, (internal commitment) in order not to lose their face (external commitment). It is said that the Japanese, who introduced their legal system in the Meiji era, do not like the “law,” since they prefer the conciliation over a legal procedure that decides a litigation within a “white or black” framework. Another characteristic of the Japanese traditional system is the importance of the feeling of belonging to a specific community. These communities present a characteristic organization: members collaborate without a rigorous division of assets, trying to complement and be interdependent on one another. These communities are integrated into larger ones, creating

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642 Id. at 18.


644 Id. See also Kitamura, Ichiro, Une Esquisse Psychanalytique de l’Homme Juridique au Japon, in Société de Législation Comparée, Études de Droit Japonais, Cahors (France), 1989 at 25, 34-35.

645 The Japanese Constitution was enacted in 1889, the Civil Code in 1890 and Commerce Code in 1899. See Awaji, Takehisa, Les Japonais et le Droit, in Société de Législation Comparée, Études de Droit Japonais, Cahors (France), 1989 at 9, 11.

646 Id. at 18.

647 Kitamura, Une Esquisse, at 36-37.
intra-groups\textsuperscript{648} in which the confidential relation among colleagues and the aim of achieving harmonious unanimity through concordance and negotiation plays an important role\textsuperscript{649}. The spirit of \textit{wa}, that is, the spirit of union and harmony among colleagues constitutes a fundament of the Japanese public order, as stated in the first article of the Constitution enacted by \textit{Shôtoku}, a prince-regent at the beginning of the VII century: “We consider the \textit{wa} the supreme value”\textsuperscript{650}. Within this framework the relations among individuals should be globally considered, including the whole personality. Therefore, making an approach or judgement taking into account only one profil, and ignoring the other ones, is not recommended\textsuperscript{651}.

These two characteristics elucidate why the extrajudicial reconciliation, which parties discuss and search for a fair solution to which all agree, and conciliation, where a third party assumes a role between arbitration and mediation, constitute the common method for solving conflicts in Japan\textsuperscript{652}. Thus, Japan has an important experience in conciliation. This ancient institution was earlier enacted in the 1889 Code of Civil Procedures, influenced by the German Civil Code\textsuperscript{653}, and has been integrated into Japan’s judicial activities\textsuperscript{654}, whereby different committees of infra-judicial character have the assignment of resolving civil and commercial issues\textsuperscript{655}.

Power is in Japan widely diffused among the many constituent groups of Japanese society. Japanese villages thus evolved an elaborate system of consensul ordering among equals or near equals in legal status\textsuperscript{656}. Therefore, like in competitive markets, power can only be exercised with cooperation and collusion, \textit{i.e.}, government by contract. Thus, Japan is characterized of a relative weakness of law

\textsuperscript{648} Id. at 38.
\textsuperscript{649} Id. at 39-40.
\textsuperscript{650} Id. at 40, quoting \textit{Fukase}, Tadakazu, Héritage et actualité de l’ancienne culture institutionnelle japonaise (à propos de la Charte de dix-sept articles du prince-dauphin Shôtoku, cette Review, 1985 at 947.
\textsuperscript{651} \textit{Kitamura}, footnote (54), quoting \textit{Kato}, Eiichi Peter, Nihon-jin no gyôsei: uchi no rûru (L’administration des Japonais: les règles des chez nous), Tokyo, 1980, Article 1.(5) and (7).
\textsuperscript{652} Id. at 19, quoting \textit{Kawahima}, Takeyoshi, Dispute Resolution in Contemporary Japan, 1963 Law in Japan 41, 50.
\textsuperscript{653} See \textit{Koyama}, N. and \textit{Kitamura} I., La Conciliation en Matière Civile et Commerciale au Japon, Société de Législation Comparée, Études de Droit Japonais, Cahors (France), 1989 at 225, 229.
\textsuperscript{654} Id. at 259.
\textsuperscript{655} Id. at 227-228.
The most important function of legal rules is the establishment of the norms of legitimate conduct and action. The Japanese system “reflects in reality a multitude of social, political, and economic bargains - give-and-take understandings, arrangements, spot and relational contracts by, between, and among competing groups forced to cooperate out of nationwide mutual dependency- and at times a perceived or imagined outside threat.” However, patterns of community control play an important rule in compelling individuals to adhere to the high consensus on the standards of conduct, to the extreme that community cooperation will be refused to members who do wrong and breach harmony. Within this framework, the success of Japan is based, more than on their efficiency in the allocative sense, on their ability to hold the system together through a “sense of fairness which enable people to work cooperatively, conscientiously, and with a will.”

Concerning dexterous fairness (la bonne justice), the Japanese often quoted the legendary politic of Ooka Echizen-no-kami Tadasuke (1677-1751), one of the two prefects of Edo (ancient Tokyo), who resolved a conflict of honour between two gentlemen, one who lost and another who found a purse containing the considerable sum of three ryô: the first declined to perform reimbursement, the second to offer reward. The lorde of Echizen solved the conflict granting each party one ryô and keeping the other one for himself, celebrating the precept: “you and I, we three, will condescend upon lossing, each one, one ryô; you who were too smug and unaffectedly wanted to recover all the money you lost and happily was found by him; you, who could have kept all the money in your pocket, and I, who pay respect to the honesty of you both”. Thus, this conciliation, not being without fruits and blossoms, received the sympathy of the whole Edo.

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656 Id. at 195.
658 Id. at 187.
659 Id. 190.
660 Id. 170-171.
661 Id. at 191, quoting Dore, Ronald, Taking Japan Seriously: A Confucian Perspective on Leading Economic Issues, Stanford, 1987, 94.
662 Koyama, N. and Kitamura I. at 225.
Thus, the Japanese legal culture is influenced by the previous institutional framework, based on the *Giri*\(^{664}\) and the spirit of *wa* (community fellowship), whereby moral pressure, instead of power, has been the basis of the public order\(^{665}\). Within the nation, there is consistency of this traditional normative consciousness\(^{666}\). This background explains the way Japanese understand the basic problematic behind patent rights, *i.e.*, the institutional framework created to achieve conciliation among the interests of technology users, inventors and society.

**a) Development of the Japanese Patent System as an Instrument for Industrial Development**

The patent system of Japan does not have the long tradition of the Western System. Paradoxically, before the introduction of the patent system in Japan, inventive activities were prohibited in Japan. *Giri* may also present a negative aspect, since it leads to a submission to the expectations and will of the benefactor, in such terms that the individuals own personality must be submitted for the benefit of general welfare, *i.e.*, the individual is morally compelled to serve the interests of the public\(^{667}\). This may compel an unconditional submission of the *status quo*, *i.e.*, current prejudices and not always faultless dominant perceptions of what the general welfare and public interests are. Therefore, *Giri* and *wa*, when not accompanied with openness to change and innovation, *i.e.*, respect for the private initiative of innovators and tolerance for deviations, constitute a powerful instrument to hinder those who, deviating from the general norm, search for new options that resolve in a better way the conflict of interests behind the “social contract”. The liberal ideals in Western countries, which demand the separation between morality and law, were in part justified as a necessary mechanism to render individuals free from the “inquisitory” order fixed by the dogmatic theological and philosophical view of some church authorities. However, a coherent implementation of the liberal ideals should grand the freedom to question whether the resulting liberal order, which separates morality and law, private initiative and solidarity, constitutes today the best possible solution to the conflict.

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\(^{664}\) *Awaji* at 24.

\(^{665}\) See *Kitamura* at 41.

\(^{666}\) *Id.* at 25.
between status quo and innovation. A continual reconsideration of current institutional framework is necessary to let the innovation potential of individuals free.

Japan was also constrained by its ancient traditions. The defense of acquired rights and the fear of losing the wisdom accrued by the existent institutions, constrain the human spirit’s search towards evolution and growth, and compel it to be content with the existing institutional and philosophical order. Thus, in the interest in defending its traditional values, Japan enacted the Bakafu Decree from 1721, which prohibited inventive activities. This decree was in force in Japan around 150 years. It was after the opening of the country to international trade in 1868 that the first patent legislation was introduced. In 1860 the feudal and anti-industrial society of the Tokogawa Shogunate was overthrown, and in 1868, the Japanese Emperor Meiji began a decisive policy to promote the modernization and industrialization of the country. He declared that all forces in Japan should join to turn it into an advanced nation. Japan was ready to learn from the experiences and the institutional framework of Western countries, but simultaneously, was willing to keep the advantages of their ancient institutions. Conciliation has been one of the strengths of the Japan culture.

This was a time when the gap between industrialized and non-industrialized nations was still small and the Japanese Emperor had a strong commitment to move the country to the industrial level of the other industrialized nations. Industry developed in a framework whereby the sense of collective purpose and the achievement of success in business and society were important sources of motivation. In this context, industry was regarded as having the purpose of “serving the needs of society and improving the quality of life”.

Japan’s first patent law was the Summary Rules of Monopoly, promulgated in 1871. This law failed almost immediately, partially due to the problems of finding qualified people to examine applications. The system was very expensive because of the need to hire foreigners as interpreters. The lack of an efficient

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667 Id. at 34-35
669 Id.
670 Errico at 110.
The patent system was a hindrance to the industrialization of Japan. Although industrials had the advantages of copying technology, strong competition hindered innovation as it hampered the recovery of investment in research and development. Additionally, enterprises had problems in growing due to the negative effects of the way enterprises reacted to protect their technology. They made efforts to maintain their technology in secrecy and follow the policy of hiring only relatives. There was a clear realization in Japan that the lack of a suitable patent system compelled entrepreneurs to keep the business small and prevent an efficient spread of technical knowledge. The objective of the rapid industrialization of the country could only be achieved through a system that simultaneously encouraged the creation and diffusion of technological knowledge among the industry.

Japan defined its current patent law under this perspective. After thirteen years of legislative inactivity, the Patent Monopoly Ordinance was promulgated in 1885, it intended to be an experimental operation for three years. In 1888 a new Patent Ordinance was promulgated. This law did not recognize the right of aliens to obtain patents, since “if patent protection was accorded to foreigners, they would acquire most of the patents and thereby obstruct the development of the domestic industry.”

In 1899 the Patent Law was enacted together with the Design Law and the Trademark Law in order to accede the Paris Convention. The Patent Law of 1921 established the basis of the present Japanese patent law system. The present patent law was enacted in 1959. The goals of the law are clearly defined in the Article 1 which states: “The purpose of this Law shall be to encourage inventions by promoting their protection and utilization so as to contribute to the

672 Id., mentioning the example of a spinning machine of purely Japanese style invented by T. Fusekumo in 1875.
673 Id. at 3-4.
674 Id. at 4-5.
675 Id. at 5.
676 Id. at 6.
678 Id.
development of industry.” In this way, the patent law of Japan defined the harmonization of private and public interests involved in innovation as a priority.

Japan had the advantages of a late entrance into the patent system. It had available valuable information about the experiences of the system in other countries which allow them to gain an objective view about the advantages and disadvantages of the system. Japan’s critical position was influenced by the strong movement of Patent Abolitionist in the West in the late 1800s. The major concerns of the abolitionists were taken into account by Korekiyo Takahaschi, the first president of the Japanese Patent Office, as a signal that the system requires to be continually optimized in order to achieve its goals. The major arguments of the abolitionists were centered on the lack of equilibrium among the interests within the system, which deteriorates its efficiency to promote industrial development. More specifically, there were two main areas of concern: first, that the right of exclusion may be excessive because inventors already have other sources of incentives. The second source of concern was over the costs of the system: the exclusion of others to use inventions hinders newer inventions because the mere use of technology promotes newer inventions, patents hinder free trade and slow the industrialization process, as other industries are denied the use of this technology. Moreover, patents disputes lead to litigation, decreasing overall societal efficiency by misdirecting efforts. Taking into consideration this objection to the western patent system, the Japanese authorities made efforts to create a system which, balancing these contradictions, allows the efficient achievement of the goals of the industrial progress. The system strives to simultaneously encourage inventions, promote the diffusion of technological information and foster the implementation of new technologies in the whole industrial sector.

The Japanese system was created under similar circumstances to the original statue of Elizabeth I of England, since it was promulgated principally as an instrument for promoting industrial development. The interest in defining the patent system as an instrument of industrial policy moved Japan to analyze the patent systems around the world to shape the most suitable system for their country. This aim has been summarized by Takahashi as follows: “We have looked about us to see what

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679 Errico at 137.
nations are the greatest, so that we can be like them. We said: ‘What is it that that makes the United States such a great nation?’ and we investigated and we found that it was patents and so we will have patents.\footnote{U.S. Department of Commerce/Patent Office, The Story of the United States Patent Office, Washington D.C. 1972, 20.}

The Japanese “soft” system of technology protection is a consequence of the Japanese conscience about the importance of finding ways to adjust the patent system to cover the needs of both, to promote inventiveness and technology diffusion.\footnote{See Foray, Knowledge Distribution, at 103.} This system follows the US tradition of not defining precisely the nature of the patent right, but define more precisely which interests should be protected by the patent system. As a result, the Japanese system is not centered on the protection of an absolute right of monopoly or private property. The system attempts to define a dynamic instrument for harmonizing the interest of the industrial sector to profit from the new technologies and the interest of the inventor to have some control of his invention and to obtain a fair remuneration for the general benefit that society obtains from it. Mutual beneficially negotiation of technology among patent holders is promoted. Additionally, it takes account of the interest of foreign enterprises that would transfer their technology to Japan. The Japanese system never loses the perspective of the “bargaining” aspect of the patent system and the need to adjust it so it will maximize its positive effects to society.

\begin{itemize}
\item[b)] \textit{General Characteristics of Japan’s Patent System}
\end{itemize}

While the hard protection patent system had tried to limit the negative effects of patents by establishing very formalistic restrictions on patent rights, which are defined as private property or monopoly rights; the soft protection patent system had achieved its objective through a definition of a complex system of cooperative rules that integrate and harmonize all the interests.\footnote{Id. at 99.} It provides inventors incentives to propitiate that the industrialization of the country would be done by private enterprises that pursue their objectives according to a defined rules.\footnote{UNCTAD, The Visible Hand, at 75.}
Patent rights are instruments for motivating enterprises to search for new technologies and to negotiate their technology through cross licenses.\textsuperscript{685}

The soft protection system of Japan is characterized for configuring a systematic integration of several measures, thereby promoting networking between economic actors. Different from the hard system, where the interpretation of the content of the patent right constitutes fundamentally a problem for the tribunals of justice, in Japan the patent system is defined and principally administered by the Ministry of International Trade and Industry (MITI) and controlled by the Tribunals of Justice.\textsuperscript{686} As a result, the patent system constitutes an dynamic institution able to respond to the needs of the industrial sector.

The protection of the patent rights depends not only on the texts of the law but also on the circumstances in which the administration grants the right (patent application process) and decides about the content of these rights according to the specific industrial policy (for example compulsory licenses). For this reason it is necessary to analyze the interrelation between the legal definition of the Patent right with its administration by the Patent office and the MITI in order to present a clear perspective of how this system has succeed in promoting the diffusion of technology.\textsuperscript{687} This system integrates legal and economic variables in order to achieve the economic goals of patents.

The basic elements of the Japanese system can be summarized as follows: First an implicit definition of the legal nature of the patent right (as a right given to allow inventors to obtain profit from the exploitation of their invention); second, the definition of the protectable invention, facilitating the patentability of small inventions, and third, the way the conception of the nature of patents and the definition of patentability influence the private and public decisions related for example, to negotiation of technology and compulsory licenses. These basic elements are reinforced by the industrial policy and climate generated by the MITI.

In this sense the Japanese patent system follows a systematic approach to the

\textsuperscript{685} Rahn, Guntram, Patentstategien japanishen Unternehmen, 1994 GRUR Int. 377, 378-79 and Foray, Knowledge Distribution at 106-107. See also Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178.

\textsuperscript{686} See Heath, Bureacracy and Protection, at 333.

\textsuperscript{687} The Japanese Patent Office is an extraministerial agency of the MITI, empowered to administer various matters concerning inventions, utility models, designs and trademarks. See Doi, The Intellectual Property Law, at 16.
problem of patent protection, in contrast to the hard system, which follows a reductionistic approach centered on the protection of private property by the tribunals of justice. While the hard system has reduced the goal of patent protection only to promotion of the investment on basic investigation, sacrificing other objectives such as the diffusion of technology, the Japanese approach considers patent rights as a necessary but not a sufficient condition for the promotion of industrial development. This institution is integrated into a general system of industrial promotion. The definition of the patent right as an instrument of industrial policy constitutes the key aspect that is opposed to the concept of patents as absolute rights developed by the hard protection system.

The systematic perspective of the Japanese system is found in Article 1 of the Japanese Patent Law. Not only the promotion of the creation of innovation, but also the utilization of inventions is considered to be a vital mechanism to encourage innovation. Furthermore, the objective of the patent law is not only the encouragement of inventions but also the contribution to the development of industry.

3. Requirements of Patentability in the Two Basic Variants and its Relation to the TRIPS Agreement

The comparison between the USA and Japanese patent systems offers a good analysis of the way that the patent systems function and the efficacy of the different frameworks in the promotion of technology.

The hard protection patent system has evolved in all its complexity. The requirements and conditions of patentability are becoming more complex as the society and economy have evolved. As industry develops, there are more enterprises that can learn and use the patented technology. This increases the risk that the invention be promptly copied and manufactured by competitors, thereby

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This system was described by Foray in the following terms: the P-system provides strong protection for innovators but impedes the rapid disclosure of information. It places greater emphasis on novelty and on the monopoly rights that accompany the award of a patent, while loosening the constraints of disclosure and creating a number of barriers to entry at the Patent Office. Foray, Knowledge Distribution, at 107.
compelling the innovator to search for protection for his technology. Simultaneously, since the importance of the industrial sector in the economy increases, the social costs of the exclusion right of the patent increases pressuring the system against the concession of patents. Another factor is the shorter life of technology through the acceleration of technological progress, this motivates some firms not to patent but to keep the technology secret and intensively exploit the new technology before competitors find the invention out through reverse engineering.

The hard protection patent system has addressed to this paradox not only by maintaining the strength of exclusion rights in order to offer innovators an appropriate incentive to their work, but also by increasing the requirements to grant a patent right and so reducing the possibilities of obtaining a patent. Not all the inventions will be protected, only those that have a relevant level of importance.

The system evolved from requiring a general description of the invention and the its commercial application in the country which granted the patent, to center the protection on the disclosure of a new technology. The disclosure system offers the advantage of delimiting the invention, as the object of protection. In this way confusion between the increasing number and complexity of inventions is controlled.

On the other hand, the aim of the soft protection system of Japan is to dissuade the patentee from using his exclusion right to exploit his patent in a monopolistic manner. This system motivates inventors to commercialize their technology, making commercialization the best way of obtaining profits from inventions. In order to achieve this objective, the Japanese system has made some adjustments to the traditional hard protection system.\endnote{Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178.}

The basic elements of the disclosure and protection of inventions of the Hard and Soft patent system will be analyzed and compared with the rules of the TRIPS Agreement, which defines a general framework for patents.
a) Definition of the Object of Protection

Each patent system must define its patentability standards in order to select the kind of inventions it wants to promote through the granting of an exclusion right. The TRIPS Agreement in its Article 27 defines a general obligation of member countries to grant patent rights and the general conditions required to grant a patent.

The TRIPS Agreement establishes that the object of patent protection should be any kind of inventions, whether products or processes, in all fields of technology. It does not include a legal definition of patentable invention, leaving it to the legislatures of the Member countries to decide what is patentable invention. Even though, the intentions of the TRIPS Agreement is the implementation of the patent system for all kind of technologies, with very limited exceptions.

Additionally, these articles prohibit any kind of discrimination in availability and enjoyment of patent rights related to place of invention, the field of technology and whether products are imported or locally produced.

(1) Nature of Patent Right

The main difference between the Hard and Soft patent system is the conception of the legal nature of patent rights. This conception is implicitly defined by both systems. The hard system had traditionally considered a patent right as an sort of inherent right secured by legislative acts. Patent rights share the same philosophical justification as private property. The right to begin the prosecution of an invention is inherently vested by the act of invention.

The Japanese Patent Law regards patents as an instrument for promoting industry through the protection of inventors. The system focuses on the “administrative nature of patents”. Patents are created by administrative acts. The

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691 Paragraphs 2 and 3 of Article 27 of the TRIPS Agreement authorizes countries to except patents in order to protect ordre public or morality, methods of health treatment of human and animals, and biological processes for the production of plants or animals other than non-biological and microbiological processes.

692 Errico at 152.

693 Law No. 121, 1959, as amended.
Japanese system makes the difference between patenting as an administrative act and a patent right resulting from patent prosecution. An administrative act should establish the right to prosecute\textsuperscript{694}.

The TRIPS Agreement does not contain express definition of the legal nature of the patent right. Even though, from a global analysis of its articles it can be concluded that TRIPS defines a patent right in a manner which is closer to the soft patent system that to the hard protection system. This corresponds to the intent of the TRIPS Agreement to find the minimal standards of protection that provide a common framework for both systems. In addition, this Agreement results from the efforts to solve the North-South conflict between developed and developing countries. Consequently, the TRIPS Agreement seeks to harmonize the interests of patentees and the users of technology\textsuperscript{695}. The explicit definition and integration of the economic interest of the patent system moves the conception of patents in the TRIPS Agreement towards the soft system of patent protection. A detailed analysis of TRIPS conception of patent rights is undertaken at the end of this section.

(2) Definition of Patentable Invention

Article 2 of the Japanese Patent Law defines an invention as “the highly advanced creation of technical ideas by which a law of nature is utilized”\textsuperscript{696}. The requirement of utilizing a “law of nature” reduces the scope of inventions that are considered to be patentable. As a result, inventions like advertising methods and print fonts that could be patented in the USA are not patentable in Japan\textsuperscript{697}.

A similar effect is produced by the definition of inventions as “technical ideas”. The definition of the patentable inventions as “technical ideas” is strongly related to the requirement of “utility” or commercial use that normally is present in every patent system. In the Japanese system this requirement is already embodied in the definition of the object of a patent.

\textsuperscript{694} Id. at 153.
\textsuperscript{695} See Article 7 of the Agreement. Se also Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1181.
\textsuperscript{696} See Someno at 371-72.
b) **Instruments for Determining Patentability**

The patentability conditions established in article 27 of the TRIPS Agreement are those generally recognized in all patent systems. Inventions should present the following requirements: they should be new, involve an inventive step, (non-obvious) and should be capable of industrial application, *i.e.*, they must be useful.

Although the conditions of patentability: new, non-obvious and useful are generally required by all patent systems, the interpretation of these terms can differ greatly. This situation enables a liberal adaptation of the patent system to the needs of the industrial policy. It also allows for the substantial differences between the Japanese soft patent system and the Western hard patent system 698.

(1) **Requirement of Novelty**

(a) **General Aspects**

The United States patent system is regulated by the Patent Act of 1959, which controls the application and granting procedures. This law requires its patentability standard that the creation must be new and useful 699. The novelty comes from comparing the invention to the state of art. Article 54 (2) defines the state of art as comprising of everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing to the respective patent application.

The novelty requirement means that the applicant must prove that he is the first in this country to create his invention. Although the patent is granted in the USA, the requirement of novelty is considered regarding the state of art in the world. The applicant must prove his idea has not been published or patented by another person anywhere in the world more than 12 months previously 700. A patent is granted when the applicant proves that he has invented a new “technological” element that

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697 *Errico* at 154.

698 See *Heath*, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178.

699 United States Patent Act of 1959, §101. “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any useful improvement thereof, may obtain a patent therefor, subject to the conditions of this title.”

700 United States Patent Act of 1959, §102. The US patent system also requires the inventor not to have disclosed the invention to the public, by publication or other means in the last 12 months.
can be considered to be an improvement of known technology, or constitutes a completely new technology. Novelty means that the invention presents elements that are different from anything found in any prior structure\textsuperscript{701}, something that was not known to anyone before\textsuperscript{702}.

On the other hand, the Japanese Patent Act does not directly define the requirement of novelty. Novelty is defined in a negative way. Article 29(1) mentions tree hypothesis for denying patentability\textsuperscript{703}. These hypotheses correspond to the lack of the requirement of novelty in the US Patent Law. The three hypotheses of non patentability defined by Article 29(1) of the Japanese Patent Act are: 1).- Public knowledge of the invention in Japan prior to the filing of the application; 2).- Public working of the invention in Japan prior to the filing of the application; and 3).- Description of the invention in publications distributed in Japan or elsewhere prior to the filing of the application.

According to Paragraph 2 or Article 29(1) of the Japanese patent law, inventions presented for filing in foreign countries should be taking into consideration in the novelty examination\textsuperscript{704}. Foreign filing dates may be operable in Japan, but prior filings shall not obviate novelty requirements if they have the same inventor. Paradoxically, the hard protection patent system offers other solution. In the case of publications of the invention made by its inventor, the US Patent System grants a year’s grace period from publication to application\textsuperscript{705}. This situation may be justified by the fact that for the US Patent System, patents are not only an instrument of policy economy, but also responds to the recognition of an “inherent” right of the inventor.

\textsuperscript{701} Ing-Seeley Thermos Co. v. Refrigerated Dispensers, Inc., 354 F.2d 533 (1965).
\textsuperscript{703} Doi, The Intellectual Property Law, at 13.
\textsuperscript{704} Id.
\textsuperscript{705} See §102 of the US Patent Act and Holmes, William, 1 Intellectual Property and Antitrust Law, Deerfield, IL. 1997, § 1 at 22-23. This term has been seen as an estoppel rule responding to the need to define a limit to the principle of the first inventor. See Avery, Curt, Das US-Patent, Cologne, 1967, 89. “Estoppel means that party is prevented by his own acts from claiming a right to detriment of the other party who was entitled to rely on such conduct and has acted accordingly”. See Black’s Law Dictionary 1990 at 551 and Graham v. Asbury, 112 Ariz. 184, 540 P.2d 656, 658.
(b) **Objections to the Hypothesis of Non-Patentability**

In both the Soft and Hard Patent System, the requirement of novelty has been interpreted in a very formalistic way. In case the invention is disclosed before the application, an inventor is excluded to patent, whether or not he can prove that he is the first inventor\(^\text{706}\). The invention goes automatically to the public dominion when it does not fulfill all the requirements of patentability, including novelty\(^\text{707}\). The exclusion of patentability when the invention is publicized before the patent application may lead to the conclusion that the solely purpose of patent rights is to motivate inventors to disclose. This position is contradictory with the traditional conception of patents as based on property rights\(^\text{708}\). Additionally, it is also contrary to the conception that patent rights constitute an inherent right granted to avoid an unjust enrichment. The conception of patents as inherent rights related to unjust enrichment may be inferred from the following legal text: “The Nation should give fuller recognition to individuals and companies which have made outstanding contributions to the promotion of technology or technological manpower for the improvement of economic, environmental or social well-being of the United States”\(^\text{709}\). The loss of the right to patent seems to be in contradiction with the conception that patent rights constitute a fair social remuneration for inventors, it corresponds more to a perspective considering patents as privileges given to inventors to move them to disclose their inventions. The price society pays is considered too high to grant the patent in the case that the invention is already accessible to the public. The concession of a monopoly right from 17 to 20 years impedes society from benefiting to an optimal exploitation of that technology during that period. This rule, originated in the Western patent system, is based on the perception of patents as a monopoly privilege that has a very high social cost but should nevertheless be granted to move away the selfishness of the inventor, who may keep all the benefits from his invention maintaining it in secret. Under this perspective, this high price of granting a monopoly right should not be paid in the case that the inventor had

\(^{706}\) See *Holmes* § 1, at 22 and 26 referring to novelty and loss of right to patent.

\(^{707}\) See *Avery* at 89-91.

\(^{708}\) This solution is different in copyrights where the only requirement is that the work be original. The solution is contradictory since: “Once an invention runs afoul of the novelty requirement, its inventor is deprived of all rights, irrespective of the effort put into the work or the absence of public knowledge about the earlier technology”. See *Dreyfuss* and *Kwall* at 626-627.

\(^{709}\) 15 U.S.C.§3701 (11), as quoted by *Samuels* at 183
generously disclosed his invention to the public. This constitutes another of the contradictions of the patent system. The system is not based on principles of law but on contradictory regulations that seek to constitute an artificial equilibrium. For this reason, the rules of the system are characterized by their strict formalities. The system is based on the “security” aspect of the law and not on its “fairness”. This element of “equity” would lead to an equilibrium between the personal interest of the inventors and the social requirements of society, assuring that the inventor obtains a fair recognition of his contribution to the social welfare. Both systems have considered that the disclosure is the most important reason to grant patents.

The exclusion of patentability in case of disclosed inventions shows the dichotomy between inventors rights and patent rights. If one considers that patents are granted to solve the appropriability problem of inventors and the “unjust enrichment” problem that it generates, they should be granted even when the invention is previously disclosed, in the cases in which the applicant proves that he is the inventor. The exclusion of patentability can be justified in such a case with the argument that in case that the invention is already disclosed, the high social cost of the exclusion right of patents overrules the right of equity of unjust enrichment, what justified the rejection of a patent right. An example of this position can be found in the German legal system. German case law used to reject the claims of unjust enrichment even in case of patent infringement, when the infringement was done without fault\textsuperscript{710}, since the hypothesis of unjust enrichment was applied within the framework of unfair competition, centered not on the need to reward inventors but on the need to encounter abusive acts of competitors. Another justification is that the patent right should grant a right to exclude all others, even other independent inventors, since they will be otherwise essentially perfect competitors and will not obtain a profit\textsuperscript{711}.

The patent system has not only positive effects on the promotion of inventions but also on the creation of technology markets. In order to motivate and finance the activities of technology diffusion, it is necessary to provide institutions to help enterprises which assume this important function to solve the appropriability

\textsuperscript{710} See BGH (German Federal Supreme Court), Case XZR 81/72, \textit{Otto Anschütz v. Heinrich W. Peters} (decision of Nov. 30, 1976), 9 IIC 156, 160 (1978).

\textsuperscript{711} See Dreyfuss and Kwall at 626-627.
problems of inventors which hinder them from participating in the benefit society receives from the use of new technologies. Thus, it is important to define fair rules of patentability and protect the efforts of inventors. In order to define a fair harmonization of social and private interests involved in patents it is necessary to find a solid definition of patent rights based on principles of civil law which simultaneously offers a proper solution to the appropriability problems of inventors.

An appropriate framework based on the application of the right of equity of unjust enrichment could provide a remedy in this situation, because it would facilitate the granting of the patent and simultaneously reduce the anticompetitive effects of patents. A possible solution within this framework could be the definition of a diminished patent right for the cases in which invention is already disclosed. The exclusive right would be reduced to the right of charging a reasonable fee for the use of the invention. This has the advantage of motivating the inventor to continue working on his investigation and also to make efforts to divulge his inventions in order to find possible users of his technology. In addition, within a quasi-contractual framework, the granting of double patents, which is excluded in the US patent system, is desirable since it promotes the use of patents not to create monopolies but to obtain a profit from licensing or sharing it under other legal instruments. This perspective is also consistent with an innovation system intended to promote networking.

(2) Determination of Newness through “Non-Obvious” or “Inventive Step” Requirement

One of the central problems of the patent system is the recognition of patents for improvements of existing technologies. Inventions result from the discovery of a totally new technology or from the improvement or new application of a known

712 Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178.
713 Regarding double patents see Avery at 94-106.
714 The doctrine of double patenting prevents single patentee from obtaining two patents on same invention. See Anchor Hocking Corp. v. Eyelet Speciality Co., D.C.Del., 377 F.Supp. 98, 101. The German system follows the same principle. See Avery at 94-106.
715 This is precisely the topic of the next chapter.
technology, or a combination of different technologies. With respect to improvements, newness could come from changing or combining old technologies with a “cosmetically different” or into a significantly new technology. Only improvements which present an important change which cannot be easily anticipated are protectable.\(^{716}\)

The inventive step is the criteria used to solve the problem of defining which element of change made by an inventor should be protected. It evaluates the amount of “creativity” that this new element includes. The inventive step compares this invention to the known technology to determine if the new elements provided by invention have enough attributes to be recognized and protected as a patentable invention.\(^{717}\) It defines whether an invention is an obvious and evident arrangement of already available knowledge or whether it constitutes an important technological advancement.\(^{718}\) The criteria of non-obviousness has been formulated in order to define the level of genuine advances in science to which the invention should contribute in order to be patentable.\(^{719}\) In this sense, non-obviousness is a quality or characteristic of the “new or different element” that should be present.\(^{720}\)

The criteria of non-obviousness is also related to the problem of defining the content of each protected invention. The description of the invention should have a reasonable limit and could not include all the elements that are obvious or redundant. This situation makes it necessary to introduce a criteria for evaluating the claimed new element in order to differentiate it from what was not explicitly mentioned in the description of other patented inventions, but are obviously implicit.

The definition of the inventive step has two main characteristics. First, it defines whether an improvement is considered to be included in an already patented invention or not. In this case, the non-obvious requirement is an instrument for protecting inventors from losing protection due to minimal changes in their

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\(^{718}\) See Dreyfuss and Kwall at 648-49.

\(^{719}\) Id. at 650.

\(^{720}\) See Timely Product Corp. v. Arron, 523 F.2d 288 (2d Cir. 1975).
technology\textsuperscript{721}. The second effect is to determine when a totally new invention will be subject to a patent, which means, when an exclusion right may be born to protect an invention. As a result, small differences in the definition of the inventive step could imply very important differences on the level of protection of an invention.

The inventive step constitutes one of the essential requirements for granting a patent. Each patent system should define how broad the inventive step should be in order to grant a patent. In addition, the determination of the inventive step is to a certain degree subjective. Differences in the definition and regulation of this requirement separate the Hard and Soft Patent Systems. Although the Article 27 of the TRIPS Agreement mentioned it as an requirement for patentability, it does not give additional information about it. In principle, the definition of this requirement is left to each Member State. Article 1 establishes that Members are free to determine the appropriate method of implementing the provisions of the Agreement within their own legal systems and practices. In principle Member States are obliged only to define the content of this requirement in terms of good faith, according to the global goals of the Agreement.

\textit{(a) Inventive Step in the Hard Protection System}

The requirement of nonobviousness was set for the first time in the recodification of the patent law in 1952\textsuperscript{722}. The US case law has tended to strictly interpret what newness is, indicating that this should be distinguished from the “mechanical skill” or combining, adding or substituting elements or existing technologies\textsuperscript{723}. Case law reflected a trend of using inventiveness to enhance the standards of patentability to the extreme of stating that in order to be patentable, a “new device, however useful it may be, must reveal [a] flash of creative genius, not merely the skill of the calling”\textsuperscript{724}. This strict interpretation created chaos in the law of patentability since validity became increasingly difficult to predict causing patents to lose value\textsuperscript{725}. From 1950 to 1966 the US Supreme Court did not review any patent cases on this

\textsuperscript{721} Errico at 32.
\textsuperscript{722} Id. at 648.
\textsuperscript{723} See National Hat Pouncing Machine Co. v. Hedden, 148 U.S. 482 (1892).
\textsuperscript{725} Dreyfuss and Kwall at 649.
The Congress responded to this problem with the formulation now found in § 103(a), which provides an easy test for nonobviousness. The new element should not be “obvious” to a person with ordinary skill in the field, as he analyzes the prior art of technique at the moment the application of the patent is presented. The person with ordinary skill, is defined as a “hypothetical person, having all the prior art at hand.

In order to determine “non-obvious”, the US system defines as reference the criteria of anticipation. Anticipation is defined as the knowledge a person having ordinary skill in the art may have previous to the invention, that the presented embodiment of the invention was already possible. In the hard protection system of USA, the requirement of non-obviousness goes beyond this criteria, because, even though anticipation is not found, the invention may still not pass the non-obviousness standard. The inventive step should be high enough to justify the considerable social costs that the concession of the protection implies.

In this sense, if we consider that a patent is an vital instrument for motivating private innovation, the withholding of patent protection to minor inventions also has a cost for society. This cost is precisely, leaving without incentives this kind of innovativeness, and thereby scarifying this kind of innovation.

The hard protection system has tried to solve this problem granting “utility model” protection to certain kind of small inventions. Another solution implemented by the US system is to accept in special cases other factors to complement the inventive step in order to justify granting a patent. For example, the US courts have recognized the effort as a “factor to be considered in determining whether invention evidences patentable novelty” and therefore, the inventive step of the invention. In general, the nature of the problem solved as well as attempts by

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726 Id.
727 Id.
728 Section 103 of 35 U.S.C. states: “A patent may not be obtained if the differences between the subject matter to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains”.
730 Holmes, §1, at 28-29.
731 Errico at 32.
732 See American Lecithin Co. v. Warfield Co., 128 F.2d 522 (7th Cir. 1942).
others are considered\textsuperscript{733}. In the same way, wide and successful use of a device or large sales may be evidence of patentable novelty, but not conclusive\textsuperscript{734}.

\textbf{(b) Particularities of Japanese Patent System Regarding Inventive Step}

The Japanese system regulates the requirement of novelty in a similar way to the US system. With respect to the combination of elements of prior art, the Japanese system also requires that the new or different technical idea which is incorporated in an invention was not present of taught by the prior art\textsuperscript{735}. Both systems would not grant patent in the case of a simple substitution of a new means for achieving the same effect of a previous invention\textsuperscript{736}. In similar terms, both systems would grant a patent when the substitution is achieved with a new or previously sufficiently unsuspected article. The figure of inventive step is also a parameter to define which kind of innovativeness would be subject of protection.

Although both system regulated the requirement of newness in similar way, their results can be significantly different. This is especially important for the case of modifications and improvements of previous patented inventions. In opposition to the Hard Protection System of the USA, the Japanese system requires a significant smaller inventive step to grant a patent. In general, the inventive step in Japan should be smaller than in the USA. The Japanese system defines a different reference to judge the length of the step: While in the US system the standard is that the new element be not obvious to a person skilled in the art\textsuperscript{737}, in Japan, the standards holds so long as “a person with ordinary industrial and technical knowledge cannot easily conceive of the substitution or improvement”\textsuperscript{738}.

In this way the Japanese system favors the patentability of small improvements of technology\textsuperscript{739}. Japanese law recognizes improvements as specific types of

\textsuperscript{733} See Orthopedic Equipment Co. v. U.S., 702 F.2d 1005 (Fed. Cir 1983), and Union Carbide Corp. v. Dow Chemical Co., 682 F.2d 1136 (5 th Cir. 1982) respectively.

\textsuperscript{734} Thropp’s Sons Co. v. Seiberling, 264 U.S. 320 (1924).

\textsuperscript{735} Errico at 157. See also Someno at 375.


\textsuperscript{737} See Holmes at § 1, 28.


\textsuperscript{739} See Someno at 375-76.
inventions under the categories of product and process inventions, pioneering and improvement inventions and combination of simple and complex inventions. As a result, the Japanese system offers a very interesting equilibrium between the interests of former and subsequent inventors: even though the scope of protection is not as strong as in the USA, it is easier to obtain a patent for a smaller improvement, which increases the possibilities of obtaining protection. The profit for the improvement will tend to be smaller than in the USA but the probabilities of actually obtaining a remuneration for the result of an specific research are significantly higher. This system is suitable for Japan’s original position as technology importer, as it reduces the level of protection of foreign owners of technology and promotes the process of indigenous improvement of imported technology.

(3) Commercial Use or "Usefulness" and Scope of Protection

This requirement is defined in the Article 27 of the TRIPS Agreement in terms that the invention should be capable of industrial application. Since the market value of an invention depends on its ability to provide solutions to the industrial manufacture, the concept of “usefulness” is closely related to the definition of the scope of patent protection.

(a) Requirement of Utility in US Patent Act

The requirement of usefulness is regulated in Sections 101 through 103 of the Chapter 10 of the US Patent Act. This requirement is the least adequately defined in the Act and has been developed by case law. US courts have established that the proofs of utility should be convincing to one skilled in the art, but in general have accepted any evidence of substantial utility or practical value, including certain commercial success. Anyhow, courts have not proceeded to assimilate

Errico at 157.

See Someno at 376.

Regarding the qualities of the Japanese patent system to build strategies to motivate technology transfer and control the monopolistic power of foreign MNEs, see Rahn, Gutram, Patentstrategien japanischer Unternehmen, 1994 GRUR Int. 377, 378-79.


utility to commercial marketability, because this implies imposing upon patentees a burden far beyond that expressed in the statute\textsuperscript{745}. 

US courts have elaborated several justifications for the requirement of utility. First, it has assumed that the patent system, as an incentive to encourage inventors, has no practical need when there is a lack of utility of the invention. In this case the patent protection is considered unnecessary. Moreover, courts have assumed that when the inventor cannot find a use for his inventions, he would not received any benefit by holding it secret. In such cases, inventors would probably disclose it widely to find someone who could find a use\textsuperscript{746}. This position is contradictory: first, inventors would not have interest that others appropriate their invention when they find a utility for it, unless they already have a patent on that inventions. Otherwise they could not receive any benefit from their invention. On the other hand, they could have an incentive to maintain their invention secret until they managed to find certain utility in it.

This requirement fits with the definition of patents as monopoly rights given not as a favor, but as a reward for the service rendered to society. Only when the invention is useful can this service be relevant for giving the privilege. In addition, this definition fits with the conception of patents as rights granted to solve the appropriability problem of inventors. Since the appropriability problem is a problem of obtaining a profit from the exploitation of the patent in a market, it appears only when the invention can be exploited in a market, \textit{i.e.}, when it is useful and because of that has a market value.

The requirement of utility has not played a very important role in the US Patent System. This requirement has proved to be the least demanding of the patentability conditions, in which the courts merely require some minimal showing that the invention works and has at least some beneficial use\textsuperscript{747}. The requirement of utility has become tantamount to “total incapacity”\textsuperscript{748}. This may be explained by the fact that the system has evolved into a proprietary framework of inventions, whereby

\textsuperscript{745} Studiengesellschaft Kohle v. Eastman Kodak Co., 616 F.2d 1315, 1339 (1980).
\textsuperscript{746} See Brenner v. Manson, 383 U.S. 519 (1966).
\textsuperscript{747} Holmes, § 1 at 21-22.
\textsuperscript{748} See Dupont de Nemours v. Berkley & Co., 620 F.2d 1247, 1260 n.17, 205 U.S.P.Q. 1 (8th Cir. 1980). See also Holmes at §1, 22.
the aspects of economic policy which originated the patent protection have been relegated to a position of secondary importance.

The requirement of utility has also been regarded more as an application requisite that requires the inventor to disclose the specific use of the invention. Under this perspective, patent protection excluded non-obvious uses of the technology because there is no need to promote unexpected results. The inventor should receive no reward for the unintended good fortune of developing an invention that for him was useless, but later acquires value because of complementary discoveries of others. This brings the problem of defining which is the contribution of the first and which is that of subsequent inventors. Thus, the utility requirement, viewed as a complementary criteria to the inventive step may play an important role in the proprietary definition of patents, because of its importance in identifying and delimiting the object of the intellectual property right protection, i.e., the invention. The disclosure of the utility contributes to identify the improvements or uses that were not intended by the previous inventor, or that he has not realized to have been implicit in his discovery. In this sense, the disclose of the utility is necessary to hinder inventors from appropriating unexpected results and applications of their original inventions. Consequently, the utility requirement defines the range of the invention that could be attributed to the inventor. Because of that, this requirement presents important implications for the patent policy.

The existence of the utility requirement may be used to infer that the US Patent System recognizes that the value of an invention has a direct relationship with its utility for society, and that this value has not been created by the original inventor, if he does not know the utility of his invention. This consideration stresses the problems of the definition of patents as private rights. It makes clear that the invention as any intellectual good has a value not by itself, but in relation to its utility, i.e., its capability to be exploited in a market. The problem of patentability of inventions without utility must be regarded on the opposite direction: there is also a need to grant protection to those ceaseless improvements, i.e., future inventors who increase the utility and market value of a patented

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750 Errico at 28-29.
751 See Dreyfuss and Kwall at 611.
invention. Therefore, inventions are protected as long as they are subject to be exploited on the market and only on the scope of the disclosed utility.

However, a patent on a non useful device could have always an important economic value, as an option for the future, as long as it enables the patentee to obtain some economic participation in every new use that is found for his invention. In this case the protection given by a normal patent seems to be an unjust reward, as it allows the patentee to appropriate from the inventiveness of thirds parties that found new uses, excluding them at will. The interrelation of inventions with future improvements and new applications increases the utility and market value of an invention, therefore, the market value of a patent is also influenced by the work of other inventors, which find improvements and new applications. To strong protection to original inventions may invite the patent holder to excludes others from developing and improving the original protected ideas in order to monopolize all the benefits. This points out the importance of finding legal concepts to define a more versatile conception of patents based not on proprietary or monopolistic protection, but on the need to solve the appropriability problem of technology. The patent system should find a way to distribute the benefits coming from the inventive process among all the participants and according to their contribution.


Contrary to the US Patent System, the Japanese System is centered on the utility of the invention. The requirement of utility is expressed in the first sentence of Article 29 (1) as “Any person who has made an invention which can be utilized in industry...”\(^{752}\). This requirement is related to the goal of the patent system defined in the Article 1 of the Japanese Patent Law: “The purpose of this Law shall be to encourage inventions by promoting their protection and utilization so as to contribute to the development of industry.” This situation is consistent with the perspective of patent rights as an instrument of industrial policy more than as a mechanism of creating property rights. Article 2 of the Japanese Patent Law defines an invention as “the highly advanced creation of technical ideas by which a

law of nature is utilized\(^753\). In the Japanese system the requirement of utility is already embodied in the definition of the object of a patent as a technical idea.

The definition of the object of a patent as a “technical idea” gives a very strong criteria for differentiating between the scientific idea and the technical creation of an invention which applies a scientific idea to solve a particular technical problem. Only the “technical creation” is protectable. The general aspect of the disclosure should be a description of the scientific idea that lies behind the “technical idea” contained. In this case, because scientific ideas are unprotectable, the extent of the disclosure cannot be expanded to include “technical ideas” that could have realistically been conceived of along with the disclosed invention\(^754\).

The Japanese Supreme Court states that the technical idea must be safely operable in the industrial field to be protected, contrary to the scientific idea, which requires only to be established academically\(^755\). In this sense, this conception of an inventive idea is drastically different from the one of the US system, which also protects the conception of a technical idea even if it is not already reduced to the practice. The Japanese definition requires not only the conception but the reduction to practice of the technical idea, so that an actual working model is described fully in such a way that every nut and bolt functions\(^756\).

The Japanese system has used the concept of “technical ideas” as an instrument for reducing the broad interpretation of the patent claims. The Supreme Court has rejected patents with the argument: “anything in the technical contexts which is not sufficiently disclosed to this extent (concrete and objective to such an extent that those skilled in the art can obtain the desired technical result by reading the disclosure) leaves the application’s subject matter incomplete as an invention\(^757\)”.

In this way, the Japanese System does not protect undeveloped inventions.

As a result, the scope of protection of inventions remains so reduced, limited by the concrete disclosure, that it offers other enterprises the option to search for the development of other ‘technical ideas’, using as raw material the already patented

\(^753\) Id. at 9.
\(^754\) Errico at 156.
\(^756\) Errico at 156.
ones. In this way, this system leaves to the industrial base the way to open access and develop patented inventions to new commercial processes and products. The Japanese system would rarely expand the scope of patents as in the USA\textsuperscript{758}.

In contrast to the Japanese system, the US system tends to accept broader claims, extending the patent disclosure to include many related inventions that would not have been protected in Japan\textsuperscript{759}. The patent disclosure may be expanded to include many other embodiments of an invention that were realistically conceived of along with the disclosed invention\textsuperscript{760}. Additionally, the US Patent Office allows the inclusion of “means for” clauses, which are interpreted broadly to include all possible known means which serve the stated purpose.

Consequently, Japanese disclosures are generally very concise, filing a very rough sketch while in the USA the disclose is rather fully detailed, describing many variations of an invention\textsuperscript{761}. This difference in the interpretation of the object of a patent explains why the number of applications filed in Japan is substantially higher than in the United States\textsuperscript{762}. For example, while in 1986 Toshiba Corp. filed about 20,000 applications in Japan, the average annual filings of IBM in the United States is about 600\textsuperscript{763}. The main effect of this difference is that the Japanese System promotes research in improvement of existing technology and the use of patents as an instrument of technology diffusion rather than monopolistic exploitation.

The fact that an enterprise obtains a patent for the improvement of an existing technology motivates enterprises in Japan to be continually searching for ways to find new applications, better methods or recombinations of existing technologies, because they can protect their invention, even though this protection is very reduced. Furthermore, enterprises will tend to patent at every stage of the inventive process to secure a place in the industry. The probability that this patent


\textsuperscript{758} Errico at 156.

\textsuperscript{759} See chapter 4, section B.3.

\textsuperscript{760} Errico at 156.


\textsuperscript{762} See Someno at 376.

will be considered to be an independent patent which can be exploited without the license of related patents is higher, whereby the possibility of exploiting the invented improvements increases.

The opposite situation occurs in the United States, where enterprises tend to disclose their inventions at a very mature state to obtain the maximal scope of protection and ensure their strength to exclude other enterprises in the industry. Once an invention is patented, their remains very little incentive to continue searching to improve the existing technology and finding other applications. Investigation on new applications and improvements are thus discouraged in the United States and in general, in the hard protection system, since the broad interpretation of the claim will tend to prevent improvers from obtaining any rewards from their inventions. Thereby, this system gives the patentee a stronger monopolistic position in the market.

By contrast, in Japan many different enterprises could have patents on related inventions and improvements of patented technologies. This situation invites them to negotiate cross license agreements. Enterprises have a strong motivation to enter into licensing and technology transfer agreements in order to get and maintain a market presence. The need to have something to offer in these negotiations constitutes an important incentive for enterprises to continue achieving improvement of existing technology. Therefore the Japanese Patent System is designed to promote technology transfer while the United States Patent System tends to invite enterprises to use patents to consolidate monopolistic positions.

The difference of perspectives between the US system, centered on proprietary interests and the Japanese system, centered on bargaining aspects, has been a cause of tension between the commercial relationship of both countries. The contradiction of both systems is reflected in the continual tension between Japan and the USA regarding the protection of intellectual property rights in Japan. The Hard Protection System of the USA has disregarded this advantages and considers the Japan system as violating the private property of inventors. The Japanese System has been criticized for harming small companies and foreign

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764 See Rahn at 381.

corporations trying to gain a market share in Japan. It has also been criticized by the USA as not granting a “proper” protection to the US intellectual property and promoting theft or “piracy”. Paradoxically, the US Congress created a program under the National Technical Information Service to monitor Japanese technical activities and developments, including collecting, abstracting, translating and disseminating Japanese technical information.

On the other hand, the US Congress has declared that: “Industrial and technological innovation in the United States may be lagging when compared to historical patterns and other industrial nations”. Among the industrialized countries, Japan had the highest growth of gross domestic product per capita over the period between 1965 and 1988, with the United Kindom and the United States slowest. This may explain why the US Congress admitted that: “Government antitrust, economic, trade, patent, procurement, regulatory, research and development, and tax policies have significant impacts upon industrial innovation and development of technology, but there is insufficient knowledge of their effects in particular sectors of the economy”. In addition, the US Congress declared that “No comprehensive national policy exists to enhance technological innovation for commercial and purposes. There is a need for such a policy, including a strong national policy supporting domestic technology transfer and utilization of the science and technology resources of the Federal Government”. The next chapter deals precisely with these matters, i.e., the importance of a national system of innovation and the role patent law may play in its consolidation. This change in the US patent culture resulted in flourishment in the licensing business in that country, which increases the profits in innovation investments.

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766 *Errico* at 155.
767 *Id.*
773 See *Simensky and Bryer* at 333.
E. Summary and General Conclusions

The present patent system presents two variants: The traditional system of western countries characterized by a hard protection of patents, and the soft system of Japan characterized by a soft protection of patent rights. The present hard protection system is criticized for promoting the conflict of interest between technology creators and users. This problem has been reflected in the traditional framing of negotiation of technology, as a conflict of interest problem, such as the North-South conflict between developing and industrial countries.

1. Summary of the Objections to the Hard Protection System

a) Legal Instruments Do not Conciliate all Interests

The patent system originates in The System of Privileges of Venice and developed in England with the Patent Statute of Elizabeth of England and the Statute of Monopolies of 1623. This patent system constituted a basic bargaining position between society and innovator: society grants him for a short term a monopoly privilege which even though brings high costs to society, is considered necessary to motivate inventors to disclosure their inventions. This was considered the best possible deal between society and inventors, because of the short term of duration of the privilege and because monopolistic exploitation was at the time the best way to exploit an invention. The market was relatively small so that an enterprise, without needing to collaborate with others, was able to appropriate fully all the potentialities of the invention and supply the market.

The want to recognize an inherent right to inventors joined with the political convenience of substituting the world “monopoly” with “property” in order to introduce the patent system in France originated in the French Patent Act of 1971. As a result, the basic privilege conceded by the patent was defined as “property”, the strongest of the private rights. The essence of property rights is the exclusion of others from the use of the protected invention.

The use of property rights to define patents is not as suitable as it has been to define copyrights. The invention has no intrinsic value, its value depends on its usefulness in facilitating the fabrication and the design of new products for the market. Its value comes from the service it can give to a market of users.
Therefore, the complexity of interests involved cannot be reduce to the property institution. Not only the inherent right of the inventor, to obtain recognition for his work should be considered, but also the participation of other economic unites which can improve the invention and find applications to it. The assimilation of patent rights to monopoly rights and their integration in the general “property rights” regime is the base of the contradiction of the patent system.

Property rights were designed to give a person control over a “material” object, which normally can only be exploited by excluding others from it. Rights over technology have another nature: the interest protected is not the personal and direct relationship between an individual and a technical idea. These interests are found and take place within the internal scope of individuals and therefore no additional legal protection in this area is required. Therefore, the interest protected by patents is the interest to exploit technology in a market to obtain profit. Therefore, the original goals of the patent system were to consolidate a relationship between an inventor and the market, creating mechanisms which allow the inventor to obtain from the market as a reward for the use of his technology. Property rights are designed to protect the interest of the owner to directly use the object of property, which requires the exclusion of others. What is protected is the scope of freedom of the individual to dispose, at his will, the corporeal object of his property. Rights over technology present the opposite situation, since the direct use of the object of property by the owner does not require protection. In this case, the direct use of a technical idea takes place at the internal level of the individual, where others cannot interfere. The protected interest is not the interest in directly using the invention, but in the exploitation of the object of patents by the placement of the invention in market. The exclusion of the others was originally given as a mechanism to allow the inventor to intervene in the market, excluding competition or forcing them to pay him for the use of the invention. This intervention is necessary to guarantee the inventor a suitable price of sale of his product and the possibility of requesting a participation from the profit other users of the technology, such as licensees, obtain from the use of the technology. Consequently, property rights and patent rights refer to different hypothesis of using the object of the right, and to different interests. Because of that, the property institute is not suitable for describing the content of patent rights.
The monopoly institution is more adequate as it considers that the main effect of a patent is the intervention in the market of users of the patented technology. Additionally, in contrast to private property, where the exclusion right is absolute, in the case of patents the exclusion right should be considered relative to the achievement of certain objectives of industrial policy, as the promotion of technological development. Monopolies are subject to public control as a rule, while property is subject of that control only in exceptional cases, when a relevant public interest should be protected. However, the theory of monopolies to describe patents is also not suitable. The concept of monopoly is an economic concept, it does not describe a legal relationship. It does not configure a subjective right. The traditional Monopoly theory of patent has not succeed in defining the object of that right, as long it defines the object of the right as an activity, a *facere*. The positive part of the right, *i.e.*, the object in which the interest of the patentee is achieved, is not defined. Because of that, the theory has been criticized as an artificial construction without a form. Furthermore, the object and the content of the right coincide: the object is a monopoly and the right is the right to create a monopoly excluding others. Thus, the object of the right is referred only to the negative part or content of the right: the exclusion of the others from using the patented technology. This right is thereby defined as the right to exclude the others from using the patented invention, in order to configure a monopoly in favor of the patentee. As a result no object of the right is defined.

This problem can be solved by contesting that the object of the right is precisely the market of users of the patented invention, and that the interested protected by the patent right is the interest in obtaining a profit in that market. Consequently, the content of the right, the exclusion right is no longer an absolute right to create monopolies or dispose at will, but constitutes an instrument for assuring that the market pays the patentee a reward for the use of the patented invention. As a result, the goal of the intervention is reincorporated in the patent institution. Even though this suggestion refers to a theoretical problem of how to properly define patents as subjective rights, their practical implications are very important, as it defines the concepts that are used to solve the conflict of interests emerging from these rights.
The patent system emerged as a “contractual” or “bargaining” institution seeking to balance the private and public interest in a way that maximizes the welfare of both, inventors and society. Paradoxically, this essential element has lost its dynamism. Within the conceptual framework of the Hard Protection System, which defines patents as mere property or monopoly rights, patent holders tend to frame patent rights not as an instrument for obtaining profit from the social exploitation of their inventions, but as a legal faculty to absolutely deter the social use of the patented technology by competitors and create monopolies. The use of property and monopoly right to define patents lead to the conception that the monopolistic exploitation of the invention is the main protected interest of the innovator. As a result, the hard protection system is likely to protect the interests of a producer in restricting to a minimum the use of the technology in order to charge higher prices, or to absolutely hinder the use of a new technology which could make his factory obsolete or reduce his actual profit based on a monopolistic position, even though this contradicts the fundamental goals that justify the creation of patent rights.

This definition tends to accentuate the conflict of interests between inventors, technology users and society. Technology diffusion has been delegated to a position of secondary importance. The emphasis moved from the creation of a mechanism to ensure inventors to profit from their work, to the protection of the interest of excluding others in order to exploit the invention as a monopoly, which is incompatible with the diffusion of technology.

As the patent system looses the perspective of his dynamic function, it has become very formalist. The absence of an alternative legal institutional framework able to conciliate the apparently contradictory private and public interests involved in patents has contributed to the idea that the essence of the patent is to assure a monopolistic exploitation of it. The possibility of focusing on mutual interest is disregarded in the hard protection patent system. In order to attenuate these problems, the system reduces the protection to only very important inventions. The limitations of patent granting present the following negative elements. First, the system is very formalistic: what count is the first to file or present an
innovation to the patent office\textsuperscript{774}, in addition there are some arbitrary novelty rules excluding patenting in case that the inventor has previously disclosed this invention through other means like scientific papers. Second, it is a zero sum game: whether a person obtains a right of full monopoly over the invention or does not obtain anything. Third, the gains of technology transfer, \textit{i.e.} the participation of the patentee in a global exploitation of the patent are not promoted or facilitated. In this case, the right of exclusion is viewed as the main objective of patents, not as an instrument which may be use in exceptional cases, in which an enterprise is unwilling to negotiate giving the patentee a fair share of the profit it obtains from the patented invention.

Consequently, it is convenient to search for fundamental principles of Law, based on the existence of common interests, which may provide a suitable framework for patents. Finding a suitable definition of the legal nature and content of the patent rights is a priority. This should allow for the development of principles which harmonize all interests, including those of technology users, while securing innovators a profit from their contribution to society. Consequently, it is convenient to move the patent system away from its legalism in order to base it on principles of equity which warrant integrity and ethics in commercial transactions, in particular, the promotion of technology transfer through collaboration agreements between enterprises.

\textbf{b) Economic Presumptions of the System Are no Longer Current}

Since the patent system constitutes a sort of “deal” with the patentee in order to promote technology transfer, a specific evaluation of the economic reality constitutes the departure point for the interpretation of the patent legislation. The legislation should evolve simultaneously with the economic reality it seeks to regulate. As any other instrument of economic policy, a specific evaluation of the actual functioning of the economy constitutes an essential parameter in the assessment whether the objectives of the patent law are adequately achieved or not. This should provide for criteria for the interpretation of the current legal rules, in order to allow the system to achieve the goals that the legislature has entrusted

\textsuperscript{774}The first-to-file principles has not yet been introduced in the US system, even though it is basic principle of the Paris Convention.
to it. Thus, the evaluation of the economic reality of innovation should constitute the departure point of the patent system and also, the basic reference for its interpretation and evaluation. The dynamic nature of the economy, accentuated drastically during the last years and the fact that the legal system seeks to simultaneously achieve goals which are in apparently in contradiction (such as promotion of technology creation and promotion of technology diffusion and use) make the patent law very difficult to define, interpret and apply.

In the present global economy, where the economic conditions differ substantially from those in which the patent system was designed, the negative effects and contradictions of the “monopolistic” conception of patents increases. It appears that the use of a patent to exclude others from using the invention in order to secure a monopolistic position is no longer the most common and suitable way to exploit a patent because it hampers the competition between economic unites and, with it, an efficient exploitation of the invention. The system should not conceive and promote the monopolistic use of patents as the normal and expected use. Today it is questionable if the exclusion right as it has been normally used gives an adequate and fair reward to the patentee. The balance of interests between inventor and society necessitates a reconsideration of the current system. This is the result of the prolonged and intricated negotiation of the TRIPS Agreement in the Uruguay Round.

The exclusion of others from the use of the patent is no longer absolutely necessary to secure an innovator the likelihood of obtaining a fair income for his contribution to society. However, the exclusion of others is still vital to force competitors and other users of the technology to recognize the right of the patentee to obtain a compensation for the utilization of his invention. The exclusion of others is an appropriate measure for the cases in which third parties do not want to negotiate a license or recognize patentee’s certain liberty to administer the exploitation of the patent. The patentee’s protection includes giving him the faculty to define reasonable conditions under which a license should be granted or not.

The global economy offers an alternative way to conciliate this contradiction: the principle of justice ensures that the inventor obtains an income according to his contribution to society. However, the patentee should not have an absolute right
to exclude others in order to exploit the market as a monopolist. The traditional contradiction of interests is expected to be solved, leading to the diffusion of technology. Its wide use, in turn, should simultaneously increase the benefits of both parties, as long as the patentee is able to participate in the expanded social profit, as the number of users increases. This way of conciliation is achieved when the system does not put emphasis on “exclusion” value of a patent any longer, and favors its “diffusion” value. This is precisely the goal of the patent system defined in Article 7 TRIPS.


In front of the Hard Protection System, the Japanese version, though small changes in the definition of patents and on the patentability requirements, achieves a patent system which promotes both technology creation and technology diffusion. The most important modifications to the hard protection system are:

1.- The introduction to the patent law of the economic objectives of the system. It defines a patent system which maintains its original goals of promoting industrial development by encouraging innovation. Patent rights are not absolute rights but instruments of technology promotion.

2.- It defines the exclusion right not as a final goal of the system, but as an instrument in the hands of innovators to negotiate with others the payment for the use of technology.

3.- It defines patents as technical ideas which should be useful and reduces the scope of protection in order to focus the patent protection on specific technical achievements, so that further improvements and new applications generated by other innovators could also be protected. As a result, licensing and cross-licensing agreements between firms are promoted. In this way, in contrast to the hard protection system, which reduced the patent protection only to very important inventions, the monopolistic effects of patents are controlled by extending the patent protection to smaller inventions and thereby promoting the competition between innovators.
The soft protection system is consistent with the TRIPS Agreement, which was designed to harmonize the interest of the State Members of the GATT Agreement, especially the interests of developing and industrialized countries.
IV. INSTITUTIONAL FRAMEWORK FOR AN INNOVATION SYSTEM

A. Principles of Economic Policy for Creating a Network of Innovation Promotion and Diffusion

1. Importance of a Systemic Framework for Promoting Innovation

The patent system is an institutional arrangement designed to promote technology creation. The analysis and evaluation of this institutional arrangement has to take into consideration the objective technical and economic possibilities that make it feasible. Since these technical and economic opportunities change over time, we should expect that institutions will be accordingly adjusted\(^{775}\). In this chapter the main technical and organizational changes in the innovation markets will be analyzed in order to propose adjustments to the patent system and to the innovation system, which are required to maximize the beneficial effects of those institutional arrangements.

The former chapter discussed how the patent system was originally created as an instrument of economic policy designed to promote the creation and diffusion of new technologies, and how its redefinition as a property right led to the reduction of patent rights to absolute rights. As a result, the original aspects of economic policy were relegated to a position of secondary importance. Therefore, the traditional patent right framework presents a conflict between technology promotion and diffusion.

In the following section the economic aspects of the innovation system will be explored taking into account the current requirements of an industrial policy dedicated to the promotion of innovation. Since economic considerations are the basis of the patent legal order, the reconsideration of the economic premises of the patent system could lead automatically to a reconsideration of its legal content. In this chapter the current technical and economic possibilities of a system of

innovation will be analyzed in order to define which institutional framework is suitable for a system promoting innovation and technology transfer. Special emphasis is put on the new options generated by the globalization process and the development of new ways of organizing industrial sectors, specifically the network arrangements.

a) Traditional Justification of Patents as Monopoly Rights

The exclusion right of patents has been considered absolutely necessary to provide inventors the necessary protection against unfair copying of their inventions, thus allowing them to obtain a profit. Since the creation of the patent system, granting patent rights defined as monopoly rights has been considered the best incentive to higher innovation. As a result, the exclusion right was interpreted as an equivalent to a monopoly right.

Patent policy has been traditionally committed to striking a balance between the level of protection necessary to sustain a desired flow of innovations and the need to promote technology diffusion. The protection should not be superfluous in view of alternative incentives to innovation and the social burdens that the monopoly power imposes. The patent system should try to find an equilibrium between diffusion and promotion of innovation.

The exclusion of competitors has been regarded as an essential part of the patent grant’s incentive mechanism, even though it may reward well beyond what is required to call forth the necessary innovative effort. Although monopoly rights presented serious disadvantages for the diffusion of innovation, they have been accepted as the “second best” solution, i.e., the best available solution that can be realistically implemented to protect the innovator.

The temporary restriction of the monopoly right has been the main instrument in achieving an balance between promotion and diffusion of technology. This has led to the idea that the negative effects of the monopoly should be fully tolerated during the life of the patent right. From this point of view, a patent right grants an absolute monopoly right analogous to the property right, which can only be limited

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776 Id. at 84.

for very serious social interests. Defined in these terms, the patent system basically constitutes a zero sum game, whereby the inventor either obtains absolute protection through a monopoly right or he remains unprotected.

The traditional monopoly model is coherent with the perspective that inventions are the result of an individual effort or at least the result of an effort that can be easily attributed to an inventor. This presumption was valid at the time of the early industrial revolution, when the research activities and the accumulation of knowledge were not so developed. Inventions were rare and isolated events, and communication and cooperation among inventors was very difficult and scarce. Innovative activities were more the result of technological breakthroughs. The difficulties of an incipient activity of research and innovation justified very strong protection. Additionally, the patent system, as a very young institution, did not have the necessary development to define more refined mechanisms to promote the creation and diffusion of innovation.

Granting a monopoly right to the innovator was consistent with the usual conceptualization of the process of innovation. A presumption of this conceptualization is that the production of knowledge implies negative externalities to other innovators. Undiscovered ideas were regarded as limited resources, like the fish of the sea. When one fisherman has caught a fish, the others have reduced probabilities of catching another. This situation promotes what is called the “innovation race” \(^{778}\). Consequently, innovators considered that it is not desirable to reveal anything about their research domain. A fisherman will not tell his rivals about his most productive fishings pot, as long as he thinks he can exploit it alone, and he does not expect any benefit from telling the others about it.

Therefore, the protection of innovators through absolute monopoly rights was compatible with the economic context in which patent rights emerged. At that time emphasis was given to fostering the generation of new knowledge. The patent system was created to give the best protection to inventors who usually work independently. It was also designed to protect the exploitation of this knowledge by enterprises that were self-reliant and searched for control rather than cooperative arrangements. The patent system was viewed as a mechanism to ensure that inventors disclose their results that otherwise would have remained

\(^{778}\) Foray, Knowledge Distribution, at 102.
secret. In this way, the patent was a kind of reward designed to protect one party and exclude all others. As a result, the patent system was used mainly as an instrument for preventing competitors from exploiting this new knowledge, while motivating inventors to disclose their works. The principal advantages of the system were the disclosure of inventions and their free use at the expiration of the patent protection.

This economic context explains why it has been traditionally affirmed that the monopoly right constitutes the best incentive for innovation, even though it hinders technology diffusion among competitors. The traditional scenario accepts the sacrifice of the dissemination of knowledge during the duration of the monopoly right as a necessary cost.

The economic costs of the patent system are the costs of creating and protecting monopolies. Monopolies cause the price of the goods that incorporated the new technology to rise, so that the quantity offered to the public is smaller compared with the price and quantity obtained under market conditions. These costs have usually been perceived as necessary costs that consumer and competitors should accept in order to give the innovator an incentive. However, these costs are larger than supposed. A monopoly right can be used not only to stop competitors from imitating, but also to stop competitors from innovating. Such an example is found in the patent granted to Watt for his invention of the steam engine. The emphasis on the need for inventor incentives led Parliament in 1775 to renew the patent given in 1769 for a period of 25 years. Watts used his authority over his invention in a way that held back the development of the metalworking industry for over a generation. Because he was hostile to the use of high-pressure steam, he refused to license his invention, discouraging others like Murdoch from experimenting with locomotives. This situation hindered England from having railways much earlier779.

When the interrelation between diffusion and creation of innovation is considered, the costs of restricting diffusion of technology are higher than the traditional costs of monopolies. Furthermore, the social costs are higher because of a tendency on the part of the owners to disdain the opportunities to increase their income through licensing. As a result, patent holders exclude others from innovating, the

779 See Renouard, Agustin-Charles, Traité de Brevets d’invention, 1844, reissued by CVNAM, Paris, 1987. See also Foray at 85-86.
monopolistic use of patents is intensified and the potentialities of the innovation process in promoting welfare decreased.

b) Systemic Nature of the Development of Knowledge

At the end of the 1980s, statistical evidence on international sectoral patterns of technological advantage had already given support to the idea that innovation tends to unfold as a cumulative process, accompanied by gradual incremental changed. This trend opposes the traditional idea that modern enterprise relies less on the external evolution of science and technology, and more on the internal creation and refinement of new productive methods and new products. New economic trends lead to the reconsideration of patents as monopoly rights. The increasing opportunities for a routine exploitation of existing technologies, due to the facilities of acquiring information and the existence of research centers that can constantly find improvements of existing technology, have created a new model of innovation. This model was developed by Japanese enterprises and constitutes an institutional arrangement that allows enterprises to develop an economic advantage based on a policy of continuous technology improvements. Its legal and organizational components create an institutional framework which allows all the sectors to incorporate into a system information exchange and participate in the production of new technological devices. Since this model is constituted by the way activities are carried out at the levels of organization and incentives for improvement, rather than readily identifiable pieces of hardware, it has been for western economists difficult to appreciate.

Within the new innovation paradigm, the development of knowledge has been described as a process of identifying and arranging several pieces of a puzzle, in order to find their compatibility and interdependence. This process accentuates the systemic nature of knowledge evolution, as a process strongly dependent on the accumulated stock of knowledge and on the evolution of ‘knowledge streams’.

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780 See Cantwell at 45.
781 Id.
783 Id. at 230.
784 Foray, Knowledge Distribution, at 84.
not only in one discipline but in others\textsuperscript{785}. The discovery of interactions leads to a continuous process of innovation.

Even though it is sometimes possible to identify an invention as absolutely novel so that it could be possible to attribute it to a defined person or group of persons, this situation is increasingly the exception. The nature and conditions of scientific progress require a previous and adequate stock of knowledge, whose analysis enables further progress. Innovation is a multidisciplinary and continuous process, in which all progress is the result of a gradual accumulation of small steps. Even an absolutely new discovery or invention had required the use of preexisting concepts and instruments. In any case, the inventor was working among the so-called ‘shoulders of giants’.

The new paradigm of innovation emphasizes the importance of new combinations for the development of innovation. The continuous process of innovation allows both the achievement of significant progress and the rearrangement of the elements of previous technology, and the inclusion of new elements. A continuous repetition of this process allows substantial progress and the creation of technologies which compared with preceding ones could be considered to have achieved absolute novelty. This paradigm is based on systematic and intensive exploitation of available knowledge bases and on strategies of recombination and integration for the generation of novelty\textsuperscript{786}.

\textsuperscript{785} Id.

\textsuperscript{786} See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 230.
The systemic model of innovation can be explained graphically as follows:\textsuperscript{787}:

\begin{center}
\textbf{Three Models of Innovation}
\end{center}

This paradigm of innovation explains the speed of development of the most recent technologies. Concerning biotechnology, for example, it can be observed that the improvements of plant varieties is based on gradually concentrating in one complex organism the qualities of earlier generations\textsuperscript{788}. An analogue process of putting together the existing approaches, instead of creating a new independent approach, is also present in the software industry. Here, in order to eliminate much of the redundant work of many programmers writing codes that do essentially the same thing, programmers “reuse” systematically existing program codes and write software from the beginning with the intention of making it more reusable\textsuperscript{789}.

The semiconductor industry also offers a good example; here the cumulative effects of small improvements have been of central importance. This industry has moved through a multitude of small steps. The industry went from producing chips

\textsuperscript{787} Taken from Foray at 89.


with just a handful of transistors to chips with millions of such transistors\textsuperscript{790}. A similar trend can be seen in the computer industry, where the speed of computers increases by several orders of a magnitude\textsuperscript{791}. Forced by global competition, the US semiconductor sector followed the Japanese patent strategy. The earnings in the fourth quarter of the fiscal year 1992 represented the best profit performance for semiconductor operations in any quarter in the period 1989-1994. Almost half of those profits -$11 million out of $27.5 million - was attributable to licensing of intellectual property\textsuperscript{792}.

The constant development of new research tools, like electronic networks, continually increases the relevance of the new innovation paradigm. Networks are developing due to the facilities of intercommunication among research groups, and the increase in the efficiency and number of their research unites. Electronic networks are constituting a sort of ‘universally accessible digital library’. They connect some information sources that provide a mixture of private and publicly available information shared by collaborators, as well as electronic mail\textsuperscript{793}. The use of information technology favors the increase in cooperative research among organizations. The positive effects of these new research tools, joined with the advantages provided by the accumulative nature of innovation, let us expect that cooperative research will significantly increase with time.

This new innovative regime has stressed the importance of complementarities among processes of knowledge-access, diffusion and innovation generation. In opposition to the ‘race model’, the systemic nature of innovation generates another conceptualization in which the production and diffusion of knowledge is considered to generate positive learning externalities. This situation is comparable with the discovery of a new territory\textsuperscript{794}. That opens new opportunities to discover new lands, as the frontiers of the discovered territory are explored. Therefore, explorers are interested in exchanging information about their discoveries.

\begin{footnotesize}
\textsuperscript{790} See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators?, 78 Am.Econ.Rev. 223, at 230.
\textsuperscript{791} Id.
\textsuperscript{792} See Simensky and Bryer at 333, quoting the executive chief office of the National Semiconductor Corporation, Gilbert F. Amelio, in National Semi’s Profits Climb, San Jose Mercury News, 18 June, 1992.
\textsuperscript{794} Id. at 102.
\end{footnotesize}
Furthermore, the information about where others have failed to make a discovery will be valuable in guiding one’s own search. As long as all the parties have the same dynamic perspective that there is always more to discover, they will agree with the principle that “the more there is invented or discovered, the easier it becomes to invent or discover still more”\(^\text{795}\).

The new innovative regime constitutes a key element for success in the competitive process. Innovation does not end when a new or improved product is brought to the market, but a continual stream of small improvements provides for the continual creation of new and better products\(^\text{796}\).

As a result, the costs of the traditional patent system, which had conformed with granting strong incentives to investment in organized R & D and sacrificing the diffusion of knowledge, have become increasingly burdensome. This situation has brought the traditional monopolistic patent system to a crisis. A revision of the system is required in order to foster both the distribution of knowledge and the access to it of research entities that pursue routine improvement of existing technology. In order to promote innovation, it is essential to increase the amount of technological information available to each participant. This situation requires intellectual property institutions to be reconsidered and redesigned as vehicles for cooperation and investment coordination among enterprises. Enterprises should regard innovation as an instrument for expanding their productive capacities rather than a mechanism to create a market power position excluding others.

This framework offers an opportunity to solve the traditional North-South conflict, as it leads to the conclusion that the global economy should promote the creation of knowledge in all regions, even by promoting imitation. The creation of knowledge -whether in developed or developing countries- spreads its benefits across borders. Economies move from imitating to innovating. As a result, it is also in the interest of industrialized countries that developing countries gain access to technology. This would not only increase the innovation potential of the world, but the export markets, specially the markets for rich-world exports, \textit{i.e.}, the products which normally are produced and consumed in industrialized countries. This perspective can be summarized in the following terms: “since financial

\(^{795}\) See Machlup, F., The Economics of Information and Human Capital, Princeton, 1984, 75.

\(^{796}\) See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 230.
support for innovation in poor economies benefits rich countries as well, it may be in the west’s interest to pay for it. And, who knows, if developing countries are encouraged to become explorers, they may be less inclined to be pirates.”

c) Invention-Innovation-Diffusion Sequence in a Modern Network System

The way knowledge is used and created in the economy should be understood in order to define a suitable patent system. The innovation process can be described as a dynamic interaction among three main stages. First, there is invention of critical new technologies. Second is the innovation process, where entrepreneurs recognize the match of technical possibilities to market demand. In these two phases, an invention is developed to the point of full-scale production and commercialization. The third phase is product imitation and diffusion. In these phases, other firms enter into the market, whereby the prices decrease through competition. As a consequence, there is an erosion and eventually elimination of monopoly profits initially earned by the innovating firm.

The interrelation between the process of creation of a new technology (invention) and its improvement (innovation) does not necessarily occur in the same organization. There is evidence that a large fraction of the ideas or inventions developed and marketed by well-known corporations originated with typically smaller enterprises, like independent inventors, university laboratories, etc. Due to the systemic nature of innovation, in all these three phases there may be a continuous creation of innovation, while there is only generation of profit through the commercialization of the technology in the second and third phases (innovation and diffusion).

The creation of networks promotes interaction among all phases of this process. This induces a new scenario for innovation which increases the opportunities of

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800 See Jewkes, John, Sawers, David, and Stillerman, Richard, The Sources of Invention, New York, 1969, Chapters IV-X.
generating new technologies and opens new possibilities of exchanging profits among participating enterprises. For example, innovators may obtain profit through royalties and other ways of participation from the wealth generated by the collective exploitation of the technology. As a result, the search for profit generation may move firms from the innovation phases in which monopolistic revenues predominate to a diffusion phase in which more enterprises use the technology.

d) **Japanese Industrial Strategy to Exploit the Systemic Nature of Innovation**

Japan’s national system of innovation offers a good example of how the exploitation of the systemic nature of innovation favors the creation and commercialization of new technologies. The development of this concept can be explained by the specific economic conditions of Japan and its ability to create organizations that support consensus and negotiation among parties.

The traditional innovation process has been characterized as a discontinuous process in which innovation is mainly achieved through jumps in technology that force the system to change. In addition, the innovation process has been traditionally regarded as a process of specialization in which the sector dedicated principally to product technology (new products and product changes) is the leading sector in R&D. Consequently, changes have traditionally been imposed by the upper level into the system, through hierarchy channels. The traditional model is based on a predominant vertical flow of innovation. The system starts with the discovery of a new scientific principle and goes downstream in a linear progression, through successive applications, towards areas of engineering. The production of new market products is the culmination of this process. This traditional model constitutes the base of the institutional framework of the western patent and innovation system.

Opposite to the traditional western innovation model, the Japanese innovation system began as a predominate importer of technology. The innovation process in Japan traditionally starts with an intensive exploitation of the acquired technology.

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801 See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 230.
At the beginning, Japan was not in the condition to create radical changes on the imported technology. Therefore, the basic method of innovation in Japan has been a simple learning by doing process, which concentrates on gradual improvements and cost reduction. The Japanese innovation system puts emphasis not on the product technology, but on the process technology (new processes and process changes). Consequently, the motivation of Japanese enterprise is to make the best use of accumulated stock of in-house-engineering knowledge, pushing to continual development of new products or process. In contrast to the traditional innovation system of the US firms, Japan stresses an innovation process through small rather than large jumps. This situation leads to the affirmation that in comparison to the US enterprises, the Japanese firms could be characterized as uninventive and uninnovative.

This model of innovation still applies to Japan. However, it is based on principles that are of common validity. Basically, innovation is mainly a cumulative incremental technological advance. Most industrial R&D expenditures are on products that have long been in existence, such as aircraft, automobiles, and cameras (that have been around for 150 years). This explains why as the Japanese industrial and innovation sectors reached a mature and competitive stage, the tendency has not been to change to the traditional western innovation system, but to keep taking advantage of their piece-by-piece improvement system. Instead of taking a position between product or process innovation, Japan has managed to develop a new innovation logic, the "systemic innovation concept", which eliminates the traditional dichotomy between product or process innovation. Within a systemic innovation framework, institutional inter-linkages that allow the interaction among several elements or components are promoted. These interactions enable each component to participate in the proposal and

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implementation of technology improvements. As a result, innovation sources are multiplied and the creation of technology markets is facilitated.

An institutional system is designed to serve the dynamic process of innovation. This system regarded innovation as a sequential process of chain reactions. In order to promote these reactions it is necessary to consider all the steps that constitute this process, which are path-dependent in time and interrelated. Therefore, the Japanese innovation model searches to promote every innovative step. Among these steps we find the proliferation of new divisions of labor, accumulation of knowledge and capital, as well as the creation of resources, including human resources in a sequential learning process. Within this institutional arrangement, the patent system was conceived to be an instrument for promoting innovation dynamics. Consequently, Japan adjusted the traditional patent institutions in order to integrate them into an innovation system.

e) **Challenge of the West Innovation System - Improving Networking and Imitation Abilities**

In 1934, Schumpeter affirmed: “As long as they are not carried into practice, inventions are economically irrelevant. And to carry any improvement into effect is a task entirely different from the inventing of it, and a task, moreover, requiring entirely different kinds of aptitudes.” The Western patent system has tended to undervalue the systemic nature of innovation and the positive elements of the Japanese innovation system. However, this situation has been forced to change as a result of more heated competition whereby certain US industries heavily suffered due to Japanese imports. In the beginning, the tendency of US firms was to blame the competition coming from Japan instead of learning from the advantages of the Japanese innovation system. They charged Japanese competition with unfair business practice and involvement of extensive government subsidies. Thus, the main disadvantage of US firms has been that they do not profit from the systemic nature of technology. They did not take all the benefits

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809 See *Rosenberg, Nathan and Steinmueller, Edward, Why are Americans Such Poor Imitators* at 227.
810 *Id.*
from the advanced technology they create, leaving the Japanese the opportunities to make improvements and increase their competitiveness.

The key element of Japanese success is the way this country carries out activities related to the creation and function of a network system\textsuperscript{812}. Certainly, the way the patent system is conceived, and the working culture that it promotes, plays a vital role. The western system does not favor firm’s investments in R&D in order to adapt, improve or find new applications of the technology created by competitors. An example is that in the mid-1980s, only about 2.5 percent of the nearly 5,000 inventions reported by the federal government each year were licensed for commercial use\textsuperscript{813}. Government agencies have problems in moving technology into the private sector. There is a vicious circle in which many government patents lack of commercial value because little effort is made by government agencies to seek private-sector users, even for their most important and commercially valuable inventions, and there is frustration because the lack of success in previous attempts\textsuperscript{814}. Contrary to Japan, enterprises were not that willing to negotiate technology from other firms. Because of the current patent culture of the US, it has been difficult to harmonize the interest of licensing federal technology with the principle, “if the public paid for the research, the public should retain rights to the results”, which accompanied the traditional practice of some public agents such as the Department of Energy. According to this principle, the traditional practice was to grant nonexclusive licenses to all interested US companies. However, companies were not willing to negotiate nonexclusive licenses. This federal policy was criticized as being “among the salient barriers to cooperative relationships with industry and to effective technology transfers”\textsuperscript{815}. Thus, the Reagan administration realized that the US had problems in coupling the nation’s capabilities for generating scientific and technological innovations with its

\textsuperscript{811} Id.
\textsuperscript{812} Id. at 230-234.
\textsuperscript{814} Id.
capabilities for undertaking commercial activities\textsuperscript{816}, and proposed some changes in the institutional framework for innovation.

In order to solve this problem it is essential that the system promote networking among enterprises and, thereby, the efforts connected with the imitation and improvement of existing technology\textsuperscript{817}. Mansfield\textsuperscript{818} has suggested: “Faced with the Japanese technological challenge, US firms might respond by putting more resources into process R&D, which would make it more difficult for Japanese firms and others to appropriate a large share of the benefits from US product innovation. Also, US firms might increase their own capacity to imitate quickly, efficiently, and creatively. If they respond effectively, there is no reason why the United States cannot increase the economic return from its industrial R&D, although it is inevitable (and by no means undesirable, both from the point of view of the United States and of the world as a whole) that many of the economic benefits from this R&D will continue to accrue to other nations”. However, the main problem is not the absolute amount in R&D investments. In the 1980s the US invested $17 billion yearly in federal laboratories and employed about one-sixth of the nation’s research workers\textsuperscript{819}. The main problem is to find effective means of increasing the flow of technology from these laboratories to the private sector\textsuperscript{820}, i.e., to create a system that allows for the diffusion of technology, from basic R&D towards the users of the technology that can improve it and find new applications in the market.

US Congress and the Reagan administration concentrated on reexamining the adequacy of the federal R&D efforts and the mechanism used to support R&D, including cooperation links among federal laboratories, universities and enterprises\textsuperscript{821}. However, although the definition of collaboration links among federal innovation agents is a necessary condition, it is not sufficient. It is also important to reexamine the way the institution framework influences the relationships among the private sector. The US has tended to overlook the

\begin{footnotesize}
\begin{itemize}
    \item \textsuperscript{816} See Hill, C.T., Rethinking Our Approach to Science and Technology Policy. 1985 Technology Review 11, quoted by Soderstrom at 213.
    \item \textsuperscript{817} Rosenberg and Steinmueller at 234.
    \item \textsuperscript{818} Mansfield, Edwin, Industrial R&D in Japan and the United States at 228
    \item \textsuperscript{819} Soderstrom at 213.
    \item \textsuperscript{820} Id.
    \item \textsuperscript{821} Id.
\end{itemize}
\end{footnotesize}
importance of adjusting the institutional framework for patent protection in order to neutralize the negative effects of the hard protection system and take advantage from the principles developed by the Japanese patent system. As a result, the required change in the patent culture is dragging.

The trend for hard protection is sustained with the argument that since 90 percent of the expenditures to put a new product in the market are engineering design, production engineering, tooling-up, manufacturing, start-up expenses, and marketing start-up expenses, the system requires assuring a strong possibility of financial reward to innovators, \(\text{i.e., strong patent protection.}\) Following this line of reasoning, exclusive licensing of federal patents is proposed in order to motivate participation in the exchanges, since prospective profits are required and “government-funded inventions usually need considerable refinements and substantial investments of capital before they are ready for the marketplace”\(^8\). However, this position is contradictory, since it ignores that through patent rights, economic agents that are willing to provide for this 90 percent of the costs are excluded by those incurred in the other 10 percent (research that triggered the basic invention embodied in the product)\(^9\), since patent holders are entitled to exclude the other participants in the innovation process at will. The hard protection system motivates patent holders to exclude other innovators from the process of finding new applications and improvements of the existent technology. Thus, the integration of a patent legal framework into the innovation system is critical element in the definition of an innovation system. This requires a system capable of harmonizing the apparent contradictory interests of creators and users of technology. Strategies such as granting exclusive licenses for determinate uses of an invention accompanied by compulsory licensing in special cases may provide a solution. These strategies may be understood and implemented within a national innovation system, capable of integrating the patent system into the systemic nature of innovation.

\(^8\) Id. at 214.
\(^9\) Id.
f) Need for Definition of National System of Innovation

In order to work efficiently, the new scenario of innovation requires an institutional framework that promotes the creation of networking. This institutional framework should generate a national system of innovation. The latter is defined as “the network of institutions in the public and private sectors whose activities band interactions that initiate, import, modify and diffuse new technologies”\(^825\). This system constitutes the essential framework in which all the opportunities of the new innovation paradigm can be exploited. Thus, the most important similarity of the economies that have successfully exploited foreign technologies is that they have national systems of innovation. These systems have included public policies that strengthen the “national absorptive capacity”, that is, the technological capacities of labor and development of competition capacities among domestic firms\(^826\), and have succeeded in promoting cooperative arrangements for the diffusion of technology.

A national system of innovation should be based on three key assumptions. First, is that the most fundamental resource in the modern economy is knowledge and, accordingly, that the most important process is learning. The second assumption is that learning is predominantly an interactive and, therefore, socially embedded process that cannot be understood without taking into consideration its institutional and cultural context. The third is that the traditional role of nation states in supporting learning processes is now challenged by the process of internationalization and globalization\(^827\).

This system cannot be reduced to the traditional market system, in which the coordination process was supposed to be achieved through relative price determination in impersonal conditions. The market system overlooks other coordination systems, for example, information diffusion processes, which are not directly reflected in prices and, because of that, remain as externalities. These coordination systems are integrated by the way the various economic actors are


\(^826\) *Archibugy* at 154.

interconnected in the economy. The ways in which information flows among them are becoming more and more essential.

There are many reasons for explaining why these elements have been ignored. One is the modern economic analysis, which is done using the general equilibrium theory. This theory concentrates on the final result of the economic activity, \textit{i.e.}, the determination of relative prices (ex-post situation). As a result, it tends to overlook the process and institutional framework in which this equilibrium is achieved\textsuperscript{828}. Additionally, many theoretical frameworks, like the neoclassical growth theory, have ignored the importance of the path dependence process of development, although the original conditions and the interaction among specific factors as well as the sequence in which events unfold play an essential role in the success of any development process\textsuperscript{829}. This situation explains why western countries have not given enough importance to the systemic nature of innovation and have conciliated a patent system that defines absolute exclusion rights. This has hampered western countries from integrating their patent systems into a system of innovation. This situation affects negatively the international competitiveness of these countries in some Asian countries like Japan, Taiwan, etc.

An example of this is the market loss of West German firms to Japanese enterprises in the recent decades. This market loss is not only present in smaller industries such as television, sound equipment, and photographic goods. Moreover, Japan has also been catching up with Germany in the chemical and mechanical industries, moving ahead in pharmaceuticals and instruments, and increasing its lead in electronics, data processing and communication, as well as in materials science and transportation equipment\textsuperscript{830}. In addition, Germany not only has fewer important patents (as measured by a high frequency of citations)\textsuperscript{831}, but patent statistics suggest that Japan is improving its technological position in respect to Germany in many industries, since in the period 1975 to 1985 Japanese

\textsuperscript{828} Imai, Ken-Ichi, The Japanese Pattern of Innovation and Its Evolution at 243.


\textsuperscript{831} Id. See also Narin, F., and Olivastro, D., Identifying Areas of Strength and Excellence in F.R.G. Technology, Report to the Bundesministerium für Forschung und Technology, 1987.
patents in the USA increased from 8.9 to 17.9%, while German patents grew only from 8.5 to 9.5%.832

This problem is also present in the USA and has been explained in the following terms: “The recent technological performance of US firms appears to be relatively week in several areas. US firms have been slower than their counterparts in a number of other industrial economies to adopt new manufacturing technologies and, some observers suggest, do not utilize these technologies (e.g., robotics, computer-integrated manufacturing) as intensively or as effectively as foreign firms. Detailed comparison of the performance of US and Japanese automobile firms suggest that US firms have been hampered by much longer development cycles for new products. Still other analyses have faulted the ability of US firms in a wide array of industries to commercialize new technologies rapidly and effectively. These weaknesses, especially the first (in view of the importance of capital costs in investment decisions), may be only loosely related to the structure and performance of US institutions for R&D”833. For this reason, a reformulation of the institutional framework that promotes technological and other information moving among actors in the market is of strategic importance. This has been expressly recognized by the US Congress when declaring: “No comprehensive national policy exists to enhance technological innovation for commercial and public purposes. There is a need for such a policy, including a strong national policy supporting domestic technology transfer and utilization of the science and technology resources of the Federal Government”834.

In conclusion, the national system of innovation constitutes a coordinative mechanism operating through various information exchanges. This system is the ex ante background in which the market process takes place. The configuration and well functioning of this system constitutes a vital factor for the success of the technological development. A modern innovation system is a key element in the consolidation of markets for technology. The profit opportunities created by the development of networks among enterprises make the excluding of other participants in order to create monopoly positions an unnecessary and even more, a contradictory mechanism to exploit the market.

832 Id.
2. **Elements for Creating a Modern Innovation System**

There are two basic elements of a modern innovation system: An inter-firm network, developed by the private sector through the definition of cooperation mechanisms between private agents, and an institutional framework that includes supporting organizations. Both elements should be promoted by the state in order to assure an appropriate climate for inter-firm coordination and cooperation. This inter-firm collaboration allows the diffusion of knowledge in a way that all members can gain. Overall coordinating mechanisms allow innovation agents to gain rapid access to the knowledge required for specific needs. This favors the design and use of products and technologies that present a high level of reusability and divisibility, which facilitate recombination. In this way new uses of technologies are found and currently, new opportunities to obtain profit from innovation and resources for R&D. Consequently, the value of knowledge is increased by the facilitation of the process of finding new applications for it. Furthermore, as cooperation among innovators is facilitated, the risk that the knowledge be held without the resources needed to fully exploit its potential, or even the probabilities that no commercial application of an invention is found, are significantly reduced.

Due to the importance for the innovation process, the ability of a country to take advantage of this new paradigm constitutes a key factor which determines the international competitiveness of a country and its ability to accrue the opportunities created by the new technologies.

\*a\*) **Instruments for Creating an Inter-Firm Network**

(1) **Japanese Experience**

(a) **General Overview**

The innovation process requires specific organization to coordinate it. This organization should promote the interpenetration of the market with different research organizations. This section describes the way in which the organization

\[^{834}\text{15 U.S.C. § 3701, see Samuels at 182.}\]
and coordination of a modern system of innovation, in particular the Japanese, was
developed and consolidated.

One of the most important features of Japanese industrial organization is its ability
to create networks to exchange information and coordinate activities. This has
enabled Japan to create an industrial structure that propitiates the innovation
process. The Japanese innovation institutional framework is centered on an inter-
firm cooperation system among enterprises. Japan founded this system in the
“rapid growth period” of 1955 to 1964\textsuperscript{835}, a period which provided optimal
conditions for mutual gains through increasing production and sales potentials.
This system was based on the \textit{Keiretsu}, defined as a group of cooperative firms,
which often are related by subcontracting. This group presents a semi-fixed
relationship based not only on a pure economic interest, but also on a social
context, in which trust, loyalty and power transactions are cultivated. The group is
based on the principle that all members should gain from cooperation. Cooperation
among enterprises should create a “positive-sum game”, in which the global
production and profit capacity of the group is expanded, and the corresponding
increases in profit are properly distributed among all members.

This institutional arrangement has allowed Japan to develop a long-term semi-fixed
relationship between users and suppliers, or among affiliated firms, subcontractors,
vendors and others. As a result, participants will find appropriate conditions for
benefiting from mutual sharing of information about the technology and the
product involved. In this form, all members participate in the costs and gains of a
dynamic process of innovation.

The oil crisis of 1973 destroyed the optimistic long-run expectation of increased
sales of the Japanese firms, but rather than destroying the dynamics of
collaboration among firms, it reinforced the Japanese innovation model. This crisis
was particularly dangerous for Japan, because this country has scarcely any natural
resources. Firms studied the possibility of making a more efficient use of energy by
utilizing microelectronics and information technology. By concentrating on
problem-solving empiricism, with a “piece-by piece” and “bit-by-bit” approach,
Japan managed to find solutions of the contingent problems in each sector. As a

\textsuperscript{835} Imai, Ken-Ichi, The Japanese Pattern of Innovation and Its Evolution at 227.
result, the oil crisis reinforced the Japanese tendency to promote collaboration among firms the step-by-step innovation dynamics.

Japanese industrial groups and network-type organizations presented optimal conditions for appropriating the advantages of the systemic nature of innovation. The elements of this framework and its advantages for the innovation process can be summarized as follows:

(b) **Elements for Creating Indirect Informational Linkage Among Micro- and Macro-Economic Agents in Japan**

The management system favoring growth strategies and innovation, and its interaction with intra-firm and inter-firm competition, have been the central forge behind Japan’s economic achievement.

An innovation system is based on indirect information linkages among micro and macro-economic agents. These linkages are created and developed by the interaction of several economic and administration variables that lead enterprises to collaborate and exchange information. This infrastructure and its correspondent administration culture constitute a basic condition for the proper functioning of a system of innovation based on technology diffusion, which is accepted by all participants as fair since all participants obtain profit from it. As a result, patents are no longer conceived as absolute exclusion rights but as a mechanism to allow economic units to obtain a share from the wealth generated by their contributions to the development of existing technology. Within this context, it is easy to understand how the Japanese innovation system succeeded in modifying the Western patent system to promote technology diffusion. This section describes the economic framework that enabled the development of the soft protection patent system.

(i) **Agglomeration Among Enterprises Through “Zaibatsu”-Affiliated Companies**

The development of network-type organizations was particularly propitious in Japan. The existence of loose business grouping (keiretsu), like Misui, Sumitomo and Fuji, has played an important role in the creation of informational linkages

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among micro- and macro agents. Kereitsu firms sought to incorporate at least one firm from each major industry and to concentrate their import export activities through a general trading company, called sogo shosha\textsuperscript{837}.

Another informal organization that consolidated informal linkages among enterprises in Japan are the zaibatsu-affiliated companies. The zaibatsu in prewar Japan were large diversified business groups organized in a holding company that controlled several principal operating companies and their subsidiaries. They developed to become groups of powerful and influential businessmen and politicians (generally linked through familial connections)\textsuperscript{838}. Zaibatsu managed to weave a political, financial and business web which allowed Japan to function as a single, large economic machine\textsuperscript{839}. They were dissolved in the occupation after the Second World War\textsuperscript{840} by breaking the holding and prohibiting founding family members from business activities. This reorganization was intended to make the market more competitive, since it made evident that the government adopted an antimonopoly stance moving away from its pre-war pro-monopoly, pro-cartel position\textsuperscript{841}. However, the aim of this policy was not to deconcentrate industries but to restrict the concentration of economic power and to allow for smaller firms to increase their share of the market and let new firms enter it.\textsuperscript{842} Until the reform of 1997, the Japanese Antimonopoly Law stipulated that “any company shall not operate as a holding company in Japan”\textsuperscript{843}. Holding companies are defined as companies “whose principal business is to control the business activities of a company or companies in Japan by means of holding stock”\textsuperscript{844}. In the 1950s zaibatsu holdings re-emerged as formerly zaibatsu-affiliated companies affiliated to banks. However, none of them were a holding company because the principal

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\textsuperscript{838} See Odagiri and Goto at 77.

\textsuperscript{839} Errico at 114.

\textsuperscript{840} Odagiri and Goto at 77.

\textsuperscript{841} Odagiri at 281.

\textsuperscript{842} Id. at 284-285.

\textsuperscript{843} Art. 9, 1-2 of the Japanese Antimonopoly Law. This prohibition was limited by Law No. 87 of June 18, 1997 only to the cases where the concentration creates an extreme concentration of economic power. See Siegfanz, Frank, Holding-Gesellschaften in Japan und die Teilnovellierung des Antimonopolgesetzes von 1977, ZJapanR 58,58, (Nr. 4,1997).

\textsuperscript{844} Odagiri at 140.
business is not to control subsidiaries but forms of real activity, such as manufacturing and retailing\textsuperscript{845}.

The restriction of holding firms has been important to protect competition in Japan. In contrast to US firms, Japanese firms have refused to adopt a divisional form\textsuperscript{846}. US enterprises tend to be organized not functionally, \textit{i.e.}, in terms of the business functions of stages in the manufacturing process, sales, research or finance. The organization is divisional, that is, one which is split into a number of quasi-autonomous divisions. These divisions are responsible for engineering, producing and marketing a product or set of products. In addition, they are headed by a general manager and supplied with the resources necessary for operation as an independent economic entity\textsuperscript{847}. On the other hand, the Japanese system stresses the cross-divisional mobility of personnel\textsuperscript{848} and the diversification of firms. Thereby, firms are able to avoid lay-off. Companies make a wide utilization of personal, transferring, for example, the now redundant workers to other less adversely affected sections\textsuperscript{849}. The Japanese system allows breadth of skill in personnel and increases internal competition by enlarging the pool of candidates for promotion\textsuperscript{850}. Moreover, Japanese enterprises avoid the divisional system because it tends to promote a short-term financial returns perspective in each division. Instead, Japanese firms favor a tendency toward growth maximization (as opposed to profit maximization)\textsuperscript{851} and towards internal expansion instead of merger and acquisition, as in the USA and the UK\textsuperscript{852}. Japanese firms tend to expand instead of creating subsidiaries and transferring some activities to them (hive-off strategy)\textsuperscript{853}.

Through \textit{zaibatsu} holdings, Japan managed to concentrate half of its exports and two-thirds of imports in the hands of the 10 largest trading companies\textsuperscript{854}. This

\textsuperscript{845} \textit{Id.}
\textsuperscript{846} \textit{Id.} at 140-141.
\textsuperscript{847} \textit{Id.} at 139-140.
\textsuperscript{848} \textit{Id.} at 142.
\textsuperscript{849} \textit{Id.} at 143.
\textsuperscript{850} \textit{Id.}
\textsuperscript{851} \textit{Id.} at 144.
\textsuperscript{852} \textit{Id.} at 141.
\textsuperscript{853} \textit{Id.} at 144.
\textsuperscript{854} See Shinohara, M., \textit{Industrial Growth, Trade and Dynamic Patterns in the Japanese Economy}, Tokyo, 1982, 44.
played an important role in developing exports, securing cheaper imports and providing credit for marketing activities of manufacturing firms\textsuperscript{855}. The kigyo-shudan constitutes the present organization in Japan. Unlike the zaibatsu, within this framework, enterprises are not dependent on a holding company that controls many firms through majority shareholdings and acts as a central decision-making unit. Kigyo-shudan are groups constituted by loose combinations of independent companies with equal power. These groups pursue information exchange and growth through in-group joint ventures and mutual insurance\textsuperscript{856}. However, they have been less capable of adjusting to new economic realities and foster weaker personal relationship among the top managers of member companies\textsuperscript{857}. This may explain the recent removal of the prohibition of holding companies in Japan\textsuperscript{858}.

(II) SYSTEM OF JOINT-VENTURES AND SUBCONTRACTING

The networking culture also played an important role in developing subcontracting among large and small enterprises. During the 1950s and 1960s, only 20 to 25\% of the workers were in large enterprises with 500 or more workers. Between 30 and 40\% of workers employed in manufacturing belonged to small enterprises with less than 30 workers\textsuperscript{859}. Small and large firms became used to coordinating their activities through subcontracting relationships. For example, Toyota ordering automobile parts from parts producers in its affiliated network and Toray supplied thread to weavers in its network which pays weaving and processing fees\textsuperscript{860}.

The system of joint-ventures was also promoted during the mid 1960s, when the Ministry of International Trade and Industry (MITI), responsible for the industrial policy, sought to eliminate firms that were excessively small by promoting joint ventures among Japanese companies. The main goals were to eliminate excessive competition within the country, which was often considered destructive, and to promote alliances which may enable Japanese firms to become stronger competitors in international markets\textsuperscript{861}.

\textsuperscript{855} UNCTAD, The Visible Hand, at 54.
\textsuperscript{856} Odagiri at 194.
\textsuperscript{857} Id. 195.
\textsuperscript{858} Regarding this legal reform see Siegfanz at 58.
\textsuperscript{860} UNCTAD, The Visible Hand, at 55.
\textsuperscript{861} Errico at 125.
Joint ventures and subcontracting were key elements in the consolidation of Japan’s system of networking among small and medium-sized firms. The coordination between lead manufacturers and secondary subcontractors has been effected by primary subcontractors. Primary subcontractors and manufacturers have strong ties with intense information exchange; they also coordinate the information flow among lead manufacturers and secondary subcontractors. The system of subcontracting also allowed the existence of highly specialized units with innovation capacities that coordinate with specific industries. Although several subcontractors often make the same product, they often handle different specifications.\(^{862}\)

This coordination network among all participants offered a suitable groundwork for the consolidation and functioning of the national system of innovation in Japan. A stable buyer-supplier relationship provides a constant flow of information and promotes both, market competition as well as innovation.\(^{863}\) In addition, improvements in the product or production process by the supplier or subcontractor will be noted and rewarded by the parent company and cooperative R&D will be carried out.\(^{864}\) Improvements, if possible, will be utilized in other firms in the group.\(^{865}\)

(III) USER-PRODUCER INTERACTION

User-producer interaction is an important institutional arrangement to facilitate the adaptation of products to the needs of the markets and the incorporation of new technologies in the manufacturing and design of new products that can better satisfy the needs of consumers.\(^{866}\)

The advantages of this institutional arrangement for the innovation process are emphasized by “learning-by-doing”, “learning by interaction” and specifically “learning by using”\(^{867}\) paradigms. The detection and incorporation of ideas coming


\(^{863}\) Odagiri and Goto at 107.

\(^{864}\) Id.

\(^{865}\) Id.

\(^{866}\) See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 233-234.

from users constitute a very important source of innovation. An example of this is that “once a new machine has been introduced, different people will use it in different ways in order to produce different products, or different varieties of the same product, which have to compete with each other for the same customers. It is the divergence of interpretations of the range of potentialities of the new machine which here lends shape and direction to the market process.”  

Thus user-producer interaction increases the productivity of R&D since agents operating in the value chain involving innovation (as users, manufactures or suppliers of the innovation) have a richer variety of opportunities to appropriate the rewards of innovation than independent innovators.

The Japanese industrial organization model, which allows dense information exchange among users and producers, offers the Japanese innovation system an appropriate framework to exploit all the possibilities of increasing the efficiency and attractiveness of its industrial goods. As a result, Japanese enterprises have been particularly successful in systematically finding broad applications of existing technologies and improvements of their capital goods. They have also been especially efficient in taking advantage of the incorporation of new technologies. An example of this is the success in incorporating “electronics” into the process of machino-facture, creating the “mechatronics” industry and combining the machine and electronics industries. Mechatronics constitutes a technological system with high precision which enhances the technological coordination among processing, assembling and testing.

The user-producer paradigm has been important in the Japanese auto industry. It has allowed development efforts to be jointly initiated and pushed forward, as it extends the coordination of product design and manufacturing beyond the level of the individual firms, and the exchange of information about modifications and improvements in the manufacturing process.

The national system of innovation has granted Japan special advantages for developing and utilizing the modern innovation paradigm, in which production is

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869 See Gerosky at 109.
no longer a process of transforming general inputs into finished products, but an “activity of research and coordination”\textsuperscript{871}. It has also allowed Japanese industry to incorporate in its products all possible adaptations to save energy. The user-producer interaction system explains Japanese success in developing international competitiveness. It also stresses the important influence of an appropriate institutional arrangement of innovation in the consolidation of international competitiveness.

(IV) INTERACTION AMONG R&D, MARKETING AND MANUFACTURING

The incentive to invent and innovate depends critically upon the interrelation of four variables: the costs of invention and innovation, risks, payoffs potentially attainable if one is technically and commercially successful and the rate at which competitive imitation occurs\textsuperscript{872}. Poor performance in the development process can be commercially fatal to firms that are highly successful in research. Poor performance can readily translate into higher costs, inferior design, quality and reliability of final products\textsuperscript{873}. As a result, a technological head start, resulting from successful innovation, can degenerate into a scramble to retain what turns out to be a shrinking market share against the costs and performance advantages of competitors, including those who may have had no role in the initial innovation or in the antecedent research that made it possible\textsuperscript{874}.

Networking presents a solution to an optimal mixture of the four variables defining the incentive to invent. It allows the costs of innovation to be shared among several enterprises. Cost sharing is important because the costs of research and development could in some cases be enormous\textsuperscript{875} and also because, due to the systemic nature of innovation, there are important scale advantages of making a researching pool. As a result, the risk or uncertainty of not obtaining profitable results in profits decline\textsuperscript{876}.

The success of an innovation project depends not only on finding an idea that is technically feasible (technical success) but also on the assurance that the product


\textsuperscript{873} See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 231.

\textsuperscript{874} Id.

\textsuperscript{875} See Scherer, The Economic Effects of Compulsory Patent Licensing at 15.

\textsuperscript{876} Id. at 17.
or process finds a place in the market at a price that compensates for both development and manufacturing costs (commercial success). It is often overlooked that the commercialization problem constitutes a vital obstacle to the success of R&D projects. Some studies show that only about 55 per cent of technically successful projects in the chemical industry led to commercialize a product and only 38 yielded profit returns at least as high as the returns the companies obtains from non-research investments\(^877\). Networking increases the chances of finding profitable ways of exploiting inventions. It allows firms not only to find more alternative solutions to their technical problems, but also to find new uses and applications of their innovation. On the long term, the ability to imitate and improve upon one’s own prior performance, rather than starting from scratch, is central to success at development activities\(^878\).

The speed and flexibility of the companies’ new product development is based on the working of this intra-company network and an outside suppliers’ network\(^879\). This network has made possible and at the same time has been promoted by the Japanese innovation system. Networking promotes the development processes of existing technologies, as they are characterized by an integrated, interactive and iterative nature. It has made possible the more rapid exploitation of robotics in Japan, as robotics is based on the interactive nature of the assembling capabilities\(^880\).

The networking system allows faster development of innovation and increases flexibility and information sharing, but requires great coordination skills in order to cope with the ambiguities, tension and conflicts within groups. In this system the traditional division of labor turns into a “shared division of labor” or “network division of labor”. A project member is expected to interact extensively, to share everything from risk, responsibility and information, to decision-making, and to acquire breadth of knowledge and skills which are loosely coupled.


\(^878\) See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 231.


\(^880\) See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 231.
The modern innovation system requires and promotes at the same time extensive social interaction and a cooperative network among project participants and suppliers. Joint partnership is created between the project team and the suppliers by mutual exchange information in order to enhance flexibility and assure success. In this way project members can learn how to induce suppliers to create precisely what they are looking for and suppliers are enabled to understand their position within the entire process.

The existence of this intra-company network facilitates the implementation of a system of overlapping development phases of new products. The traditional phases of a new product development project are clearly delineated, delimited and sequenced step by step (program planning system). So, first comes the concept phase, then feasibility, definition, design and production. Risk is minimized because one phase proceeds only after all the requirements are satisfied, but a bottleneck in one phase can slow down the entire development process. New innovation possibilities appear through the informational feedback among analytical design, redesign, production, marketing and the accumulated knowledge of research. The overlapping of different production phases is one of the key factors of Japanese international competitiveness. It not only increases the innovation potential, but allows Japanese companies to develop new products rapidly and with maximum flexibility. This system is also facilitated by the long-term attachment, and also by a carefully organized training an rotation scheme.

In contrast US firms often have compartmentalized research and manufacturing functions. This presents the advantage of promoting individual ingenuity and sharply focused specialization which can overcome may obstacles. However, this promotes breakdowns in the development process characterized by “finger pointing”, in which functionally specialized groups within the firm blame one another or external suppliers. Furthermore, this hinders the small evolutionary steps crucial to the ongoing development process, leaving competitors with many opportunities for imitation and modification. As a result, competitors take advantage of the opportunities to improve their performance or reduce their costs,

882 Odagiri and Goto at 107.
883 See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 231.
884 Id.
thereby truncating the appropriation of returns from innovation\(^{885}\). US firms have overlook that the more specialized an activity becomes, the greater the importance of efficient information exchange if inappropriate tradeoffs or inappropriate optimization criteria are to be avoided\(^{886}\). A set of shared understanding and concerns which characterized networking systems is essential to an efficient appropriation of highly specialized technologies\(^{887}\).

(V) IMPLICATIONS OF NETWORKING FOR CREATION OF DEMAND OF INNOVATION

The creation of networking provides the structure required to canalize the demand for innovation. A market structure requires organizations that facilitates supply and demand to concentrate and interact. As long as the potential demanders of technology have difficulties making contact and negotiating with potential suppliers, the development of technology markets is obstructed. Networks create necessary links between potential suppliers and demanders of technology, which contributes to concentrating demand and supply in a market. Furthermore, the consolidation of networks and its functioning contributes to creating a suitable negotiation atmosphere which allows the identification of solutions to the market failures that hinder the development of technology markets.

Since promoting a stronger demand for technology constitutes a crucial element in the creation of technology markets, networking constitutes a suitable instrument for promoting technology. This is specially true since a correlation between the issue of patents covering capital goods inventions and the demand for those capitals goods has been established\(^{888}\). The peaks or troughs in investments tend to precede, not trail, peaks and troughs in patenting. Furthermore, an increase in demand enlarges the number of people engaged in production. This increases the probability of invention and simultaneously the profit expectations of any given inventions. Since research and development decisions of industrial firms are closely geared to perceived profit-making opportunities\(^{889}\), it can be concluded that the

\(^{885}\) *Id.* at 231-232.

\(^{886}\) *Id.* at 232.

\(^{887}\) *Id.*


pull of demand, inducing invention, tends to be stronger than the stimulating effect invention has on demand and, hence, subsequent investment\textsuperscript{890}.

This explains why the Japanese have, on numerous occasions, been the leaders in the commercialization of new products that were invented elsewhere\textsuperscript{891}. Japanese firms were the first to succeed in large-scale application of transistors -including radios and color television receivers- even though the US pioneered in both the scientific and technological frontiers of the invention of transistors\textsuperscript{892}. This explains the advantage Japanese firms have in commercializing products that require a smooth coordination of different technologies, such as electrical, electronic and mechanical. Examples are paper copiers, facsimile machines, floppy disk drives and personal computer printers\textsuperscript{893}.

(VI) NETWORKING AND PROMOTIONAL-PROTECTIONIST POLICIES

Networking may present negative effects, since it may also be used to exclude access of new economic agents. The vertical linkages, the concentrate nature of Japanese industries and the government’s role in coordinating joint activities among them has been caused of concern of US firms and policymakers\textsuperscript{894}. This has been particularly important in the semi-conductors industry, where three large firms (Fujitsu, NEC and Hitachi) controlled more than two-thirds of all telecommunications equipment production in Japan and dominated national and global markets in many consumers electronic items and semiconductor capital equipment. This created a market structure where US firms and sellers faced significant barriers to market entry\textsuperscript{895}.

Therefore, it is important that the TRIPS-WTO system improves the general rules promoting a global networking system and the means for controlling promotional-protectionist policies. In addition, it is important for other regions to understand the Japanese model in order to define suitable mechanisms to integrate in the networking system, since the different approach of the Western system itself constitutes per se a barrier to integrate in a system of innovation, since it promotes

\textsuperscript{890} Schmookler, Jacob, Invention and Economic Growth, Cambridge, 1966, 115-36.
\textsuperscript{891} See Rosenberg, Natan and Steinmueller, W. Edward, Why are Americans Such Poor Imitators? at 232.
\textsuperscript{892} Id.
\textsuperscript{893} Id.
\textsuperscript{894} See D’Andrea Tyson at 38.
\textsuperscript{895} Id. at 38-39.
an incompatible patent culture. This barrier will dissolve, since the Western system is increasingly understanding and implementing the Japanese model of innovation.

(VII) IMPLICATION OF NETWORKING FOR PATENT RIGHTS POLICY

In conclusion, networking reduces the costs of innovation and increases the innovation’s absolute profit potential. It increases not only the size of the market, but the speed in which the market can be tapped and the innovation’s superiority over alternative or substitute products and processes. Simultaneously, as it allows the exploitation of global markets; profit can be obtained through increasing the scale of production and sales rather than through a monopolistic exploitation with a high level of prices and low levels of production. In order to allow all networking members to participate in the profit, the level of production and activity should be increased. This differs from the situation of a sole innovator, who tends towards a monopolistic exploitation of the invention, increasing the price of the device instead of the level of production in order to maintain the desired level of profit. Networking conciliates the social and private interests of innovation, reducing costs and risks of innovation, and allowing an intensive exploitation of the technology through a larger number of economic units. As a result, through networking, a larger volume of the innovation products and lower prices is expected to be placed on global markets. Both technology creation and diffusion are simultaneously promoted and the international competitiveness of the country increased.

The networking system can only properly function when the linkage mechanism of networking is well developed and the institutional framework provides smooth solutions for the distribution of benefits among sectors. It also requires that participands understand the benefits of the system, thereby having incentives for keeping it. Within this context, the solution of the traditional patent system to grant absolute exclusion rights that promote monopolies is inadequate.

(2) US and European Experience in Creation of an Innovation System Network

The US and European tradition as producers of technology (in contrast to the original position of Japan as an importer of technology) had motivated firms in...
Europe and the USA to rely too much on the internal development of technology and know-how. In addition, these firms have tended to seek a total control of the production of the components of their merchandise. As a result, they overlooked the possibilities of increasing their technological and commercialization frontiers through coordination with other economic actors. Consequently, these enterprises delayed in developing the negotiation abilities and instruments for creating an innovation system based on networking as Japan did. An example is the fax patent of Siemens. Siemens developed the basic technology for the fax machine and determined that with the expected arrival in 10 years of internet, they had no possibilities of making money on it. Their calculations were made on the basis of maintaining the control of the development, production and sale of the fax machine, instead of integrating on a network with other firms. Finally, the patent was sold to Japanese enterprises which, with networking, succeeded in placing the product on the global markets quickly.

Notwithstanding, the pressure of the high competitiveness of Japanese firms in global markets compels Western firms to adapt. This urgency has been expressed by the US Congress in the following terms: "Many new discoveries and advances in science occur in universities and federal laboratories, while the application of this new knowledge to commercial and useful public purposes depends largely upon actions by business and labor. Cooperation among academia, federal laboratories, labor, and industry, in such forms as technology transfer, personnel exchange, joint research projects, and others, should be renewed, expanded, and strengthened."

Since the 1980s, European firms have been moving towards the creation of a network innovation system in order to increase their competitiveness in the global economy. The commercial success of leading enterprises did not come from the ability of these firms to develop internally all parts of a system, but from the ability to interrelate with other sectors. The user-producer relationships were developed, as enterprises realized the importance of developing the ability to identify, target and meet the requirements of either specific sector applications, or groups of

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898 See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178.
users, or even a single large customer. Firms such as Nixdorf concentrated on developing internal networks, creating small and decentralized local operating units by continuously splitting up growing units into smaller ones. They also developed a closer link between development, marketing and commercialization, through feedback and interaction in both directions, motivating people involved in development to be open to useful information coming from the other departments.

A similar tendency is to be observed in the USA. The US competitive advantages accrued in the past from its basic research and strong knowledge base have been eroded since foreign firms now are more technologically sophisticated and technology is more internationally mobile. As a result, the private sector has pursued new organizational approaches to exploit R&D and innovation outside the firm, such as domestic and international consortia or alliances and domestic university-industry research linkage. Collaborative research efforts in the USA at the national and international level are also responding to the same pressure found in Europe: rising costs and risks of product development, the increased breadth of the scientific and technological knowledge base, the need to compete in high-technology industries, more rapid product cycles in some industries, and more competitive pressure from foreign firms.

The European experience confirms the importance of creating a user-producer network. The integration of the innovation system is not achieved through vertical mechanisms, but functionally. For example there are 800 main suppliers to the automotive industry and other giants such as Sony, IBM and Hewlett-Packard. In 1990, there were in Baden-Württemberg alone 3,200 suppliers to SEL-Alcatel with a purchasing value of DM530 million. The relationship between suppliers and

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901 Id. at 258.
902 Id. at 259.
904 Id. at 53.
905 Id. at 55.
customers in the region promotes a great deal of innovative activity among these enterprises, including “simultaneous engineering”\textsuperscript{906}.

Even though, Western firms still have to change their innovation culture in order to fully benefit from networking. The need to gain knowledge and expertise about local markets and new technologies usually motivates enterprises to search for information in firms that have already developed competencies in this areas. Notwithstanding, rather than creating a network, during the 1980s European and US firms still searched to acquire, take control or participate in these firms. During the 1980s European firms increased their size through merges and acquisitions, and the industrial concentration in the sector increased.

An example of this process is provided by Nixdorf. Nixdorf made only a limited use of agreements and cooperation with other firms\textsuperscript{907}. Nixdorf succeeded during the early 1980s in developing intensive user-producer relationships. It offered hardware and software tailored to specific market segments. However, it failed to integrate into a network and thereby failed to access the market standards that would have assured compatibility of its products. Nixdorf offered only internally developed proprietary hardware and software, and sold it exclusively in Germany. At the end of the 1980s, Nixdorf entered into a crisis because of the entry of multinational firms. Nixdorf’s products were not competing in a market where open standards and compatibility became increasingly dominant and in which applications required the concentration of increasing resources\textsuperscript{908}. This situation motivated the enterprise to search for new markets and increase its cooperative agreements, opening its systems to UNIX and offering personal computers with standard software\textsuperscript{909}. Nixdorf was finally acquired by Siemens.

Olivetti, on the other hand, had the policy of developing articulated networks of alliances, as a catch-up strategy in the 1980s which enabled Olivetti to become the leading European firm in personal computers. This policy became in time the dominant strategy among all leading computer firms, including IBM\textsuperscript{910}.


\textsuperscript{907} Malerba at 258.

\textsuperscript{908} Id. at 262.

\textsuperscript{909} Id. at 262.

\textsuperscript{910} Id. at 261.
In the USA research collaboration integrating scientific and engineering research of a more fundamental character takes place mostly at the university-industry level\textsuperscript{911}. Research collaboration among US firms has been concerned with research that is less applied in character and less closely linked to a specific commercial product, and does not focus on basic research\textsuperscript{912}. International collaborative ventures focus mainly on development, production, and marketing rather than pre-commercial research\textsuperscript{913}. In addition, the US appears not to be able to take advantage of international collaboration since international collaboration is a response to, rather than a cause of declining US competitiveness\textsuperscript{914}. Exceptions are the computer and electronics industries which collaborate at the domestic, international and university levels\textsuperscript{915}

Europe has also positive experience in coordinating R&D activities in the conductor and computer industries. In order to confront the increasing costs of R&D and production, enterprises engaged in cooperative agreements. In this way they shared costs and reduced the risk of new developments, obtained complementary expertise and exchanged technology. In the sector of system application, the varieties in demand and heterogeneity among customers motivated firms to reach agreements in order to exchange information about applications and technology\textsuperscript{916}. As a result, internal R&D has become increasingly important for the identification, selection and absorption of external knowledge and external technology, and for the search for partners in the development or exchange of technology\textsuperscript{917}.

The process of creation of networks has also been promoted by the increase in the globalization of competition in basic components and systems. Europeans enterprises chose an internationalization strategy by moving away from the supply of a wide range of products at the domestic level in order to be able to supply specific products at the world level\textsuperscript{918}. Consequently, R&D and production

\textsuperscript{911} Mowery and Rosenberg at 55
\textsuperscript{912} Id.
\textsuperscript{913} Id.
\textsuperscript{914} Id. at 56.
\textsuperscript{915} Id. at 55.
\textsuperscript{916} Id. at 255.
\textsuperscript{917} Id. at 261.
\textsuperscript{918} Id. at 261.
activities spread over other markets in order to promote user-producer interaction. These enterprises practiced user-producer interaction to provide full understanding of the characteristics of markets and differences among countries. They sought to access an internationalization of networks of alliances, agreements and acquisitions.

b) Mechanism for Coordination at Governmental Level

(1) Institutional Framework at Regional Level - Regional Agglomerations

One of the factors that influences the creation of technology markets is the regional organization of the industrial sector (spatial dimension). The existence of a regional agglomeration has been considered an important factor for innovation. Regional agglomerations constitute an instrument for facilitating the collaboration between suppliers and customers in a region. These agglomerations are usually promoted by the government. Regional agglomerations promote the concentration of many different enterprises and institutions that support the innovation process. Members are specialized in different areas so that even though there are cooperation links and complementarities among them, they are still competing.

The contribution of regional agglomerations to innovation has been attributed to the localization of buyer-supplier networks and the existence of robust institutional support mechanisms at the local level. The advantages of these agglomerations cannot be reduced to the traditional economic theory, which emphasizes the reduction of transaction costs and the creation of high external economies by this “industrial atmosphere”. Agglomerations facilitate a “collective learning process” and the diffusion of information, knowledge and know-how, which raises the creative capacity of firms and institutions. In addition, they reduce the “dynamic uncertainty”, allowing for a better understanding of the possible outcomes of a

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firm’s decisions. This situation allows firms, especially small ones, to benefit from a collective social endeavor, in which the expertise of a wider social constituency distributes the costs and burdens of innovation.

The buyer-supplier networks, technology transfer agencies and trade associations constitute important factors throughout the region spreading the costs and benefits of innovation. These forms of self-organization are particularly important for small and medium-sized firms to bridge the underdevelopment of technology markets.

The directed or dirigist model of promoting innovation at the regional level has been developed by France, in the form of technopoles (growth poles). Technopoles agglomerate large, medium and small enterprises together with colleges and research institutes. They were instituted by the state in collaboration with local and municipal authorities.

This system entered into crisis because even though this structure contributed to creating external economies among enterprises, the structure by itself is insufficient for guaranting either the development of a strong synergy among members, or an adequate interaction between players. Synergy may be supported by the state, but can only be created by a cohesive regional and local political culture, which responds to a clear community view of the need to cooperate in order to seek mechanisms to help secure competitiveness and ability to establish innovative business. A win/win negotiation framework among all parties involved is an essential requisite. Therefore, a systemic consideration of all factors involved in the creation of networks is absolutely necessary to create a national system of innovation. Among these factors, the way the patent system defines the protection to inventors plays a fundamental role. In order to promote networking, the patent system should be adjusted to motivate cooperation among enterprises rather than a monopolistic use of patents.

Japan has also used regional organizations to promote local cooperation among enterprises. The “Kohesetsushi” are example of these organizations, which could

920 See Cooke and Morgen at 26.
be found in the Japan’s essentially local, civic model of technology transfer funded in the 1920. They are today coordinated by the prefectures, the MITI and the Japan Small Business Corporation. The MITI typically provides only informal “guidance”. Other examples are to be found in some industrial districts of northern Italy\textsuperscript{923}.

The German Federal State of Baden-Wüttemberg has also promoted the creation of a network paradigm in order to maintain and develop competitiveness. It has encouraged collaborative research among small and medium-sized enterprises in order to allow them to acquire the experience and knowledge necessary to comply with more expensive and skill-intensive R&D. The coordination of the administration of the inventions and know-how resulting from collaborative R&D is made by a special institutional framework, the Fraunhofer Institute, which acts as an “honest-broker”\textsuperscript{924}.

These examples allow the conclusion that the best model for innovation and technology transfer is achieved not by simply relying on “market forces”. They correspond to the evidence that suggests that innovation is increasingly a collaborative learning process\textsuperscript{925}. An institutional framework is necessary to provide the conditions that allow the creation of collaboration links among firms within a networking system. The infrastructure of institutional support should be soft, because the collaboration between parties can be only based on the mutual recognition of the need to create collaboration links.

(2) Definition of a National Industrial Policy. - The Case of Japan

(a) Differences Between Japanese and Western Approach to Industrial Policy

(I) Differences regarding the role of industrial policy
Japan’s success in creating a national system of innovation is due to its ability to define and implement a national industrial policy. Japan’s policy differs from Western industrial policy in its perspective on the role of market forces and on the way private and public sector are integrated into networks. In contrast to the

\textsuperscript{923} See Cooke and Morgan at 28-29.


\textsuperscript{925} See Cooke and Morgan at 31.
USA, where frequently the business community and government are in
disagreement with the government, the industry-state relationship in Japan is
characterized by a large degree of cooperation; they create a network. The
Ministry of International Trade and Industry (MITI) plays a fundamental role in all
domestic and international aspects of Japanese industry’s investment and trade
relations. It assures the coordination between state and firms in a way that leads
some to refer to the country itself as “Japan, Inc.” 926. Tasks of the MITI have
been promotion of the process of private sector capital accumulation as a whole,
the induction of dynamic private investment activity and the promotion of local
and international commercialization of technologies and exports. The MITI had
tried to harmonize the interest of a free society under capitalism with the
advantages of institutional coordination.

In contrast, Western countries have traditionally regarded the intervention of the
government to define a strong industrial policy as negative. Striving towards a free
society had lead to an overestimation of the market mechanisms. It is supposed
that market mechanics, in a perfectly competitive environment, promote efficiency.
Policies assume that the most desirable resource allocation occurs with minimal
intrusion from government 927. The traditional way of the United States has been
to wait for the market mechanism to correct the problem. In this way, Western
countries have tend to act ex post, in a reactive way, when the failure of the
market is considerable and without reference to industry-specific goals 928. After
having recognized that the industrial and technological innovation in the country
was lagging when compared to other industrialized nations, the USA admitted the
failure of not having defined a comprehensive innovation policy 929. In addition,
they overlook the impact of the current patent institution in the economy, i.e., that
patent rights also constitute an intrusion of the government in the economy, since
their practical effect is equivalent to granting monopoly rights in order to achieved
certain public objectives.

926 Errico at 116-7.
927 Id. at 120.
928 Okimoto, D.J., Between MITI and the Market, Japanese Industrial Policy for High Technology.
929 Compare (5) and (8) of 15 U.S.C. § 3701.
The Japanese perspective has been less dogmatic and more practical than the traditional Western one. Industrial policy is clearly defined and used as an important instrument to support and lead the market system to achieve the best economic performance\(^\text{930}\). It is designed to repair or protect the market when a market failure is detected and when differences in resource allocation (especially with respect to foreign resources) and industrial development cause undesirable feedback in the market mechanism. Industrial policy is intended to push the market system away from an inefficient operation towards a more efficient one. Government intervention is based on the perspective that through coordination and cooperation a temporary inability of the market system and the industrial sector to achieve certain industry-specific goals should be improved. A market failure is said to arise “when the goods and services deemed necessary by society cannot be easily or adequately provided through dependence on only the free economic activities of private sectors motivated by private profit\(^\text{931}\)”. Japanese Governments has constantly sought for ways that ensure that its societal objectives are achieved through the actions of the private sector, pursuing, as freely as possible, its own goals\(^\text{932}\). The MITI’s policy was to take action anticipating market failures and seeking to structure the market positively, in ways that improve the likelihood that industry-specific goals will be achieved.

In the same way that the Japanese industrial policy anticipates failures of the market to correct them, it looks for the development of a system that allows the government to change position quickly on many fronts to rectify a failing policy. Industrial policy is designed to be fast, efficient and accurate. The process of definition of these policies can be summarized as follows: (1) to acquire accurate information regarding the function impediments of the market and extent of distortion, (2) to develop means for creating and implementing accurate solutions, including “appropriate treatment of the functional distortion” and (3) to have the

\(^{930}\) See Archibugi at 62.


ability to look beyond the direct and immediate effects of a policy, and design for the long term.  

(II) DIFFERENCES REGARDING WAY OF DEFINING GOVERNMENT POLICY

In order to create networks, the creation of consensus is fundamental. The system cannot develop when the participants do not believe in its rules. This explains why in Japan the definition of government policy entails an intensive participation of all sectors involved. The definition of government policy is created in partnership with large business and in coordination with two key ministries, the Ministry of Finance and the MITI. The policy incorporates a forecast of the development of the economy, basic directions that the government should follow, including medium-and long-term goals and management means and priorities. Basic guidelines for household and corporate decisions are also included. The consensus about the plan is achieved in two phases: first, through an exchange of views among politicians from the ruling party, academics and government officials; second, through a deliberative council system in which study groups, research groups and deliberative councils can incorporate their views. The Japanese system of decision-making is based on a collective process of making prognostics of the future of the different sectors and of the evolution of different industries, and obtaining advice from the different sector organizations. In addition, there is a tendency to solve conflicts of interests through negotiation and even by tolerating deviations in case that advantages of the proposed policy are not so clear. The definition of Government policy follows the principle that the government should attempt to influence corporations to see the “big picture” and to do things which are obviously in their own best interest. The Agency of Industrial Science and

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934 UNCTAD, The Visible Hand and the Industrialization of East Asia, at 53.
935 Errico at 117.
936 UNCTAD, The Visible Hand and the Industrialization of East Asia, at 53.
937 Errico at 117.
939 Errico at 119. He gives the example of Toyota, which in 1957 began a new line of diesel trucks despite MITI disapproval “on the grounds that Isuzu was already in that market”.
940 Errico at 126.
Technology (AIST), belonging to the MITI controls and coordinates policy, legislation, funding and research in institutes of the public and private sector.

An example of this concerted process is the MITI’s policy of encouraging the growth of larger firms with economies of scale while promoting standardization and specialization among smaller firms so as to capture economies of scale. This policy promoted the creation of networks between small and large firms. An example of the deliberative council system of Japan is the Industrial Rationalization Council of the 1950s and the Industrial Structure Advisory Council of the 1960s.

The quality of the work of Japan’s Ministries assured through a rigorous selection of civil servants who represent the top one per cent of university graduates and constitute an “old boy” network that create interdependent links among politicians, administrators and businessmen in Japan. The networking between the state and private sector is also promoted with practices such as the amakudari, whereby officials leaving the bureaucracy on retirement take up high-level posts in private industry and industrial associations.

(b) **Basic Differences Among Participation of the Public Sector in R&D in the USA, Europe and Japan**

The participation of the state in R&D is one of the main differences between the innovation policy in Japan and in the USA and Europe. As early as 1980, the investment of Japan in research was the second largest of the world, after the USA. The participation of resources dedicated to research in respect to the general national product (2.77%) is not very different from that of other Western industrialized countries (between 2.72% USA and 2.83% Germany). The main difference between Japan and other industrialized countries is the participation of the private sector in R&D: Japan places a greater emphasis on commercial (rather than on academic) research.

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939 UNTACD, The Visible Hand and the Industrialization of East Asia, at 53.
940 *Errico* at 117.
941 UNTACD, The Visible Hand and the Industrialization of East Asia, at 54.
943 *Id.* at 212.
than government-financed) projects. Germany is also an exception, since in Germany about 63% of total national R&D is financed by the business sector, in contrast to the other industrialized countries. However, this percentage is lower than the one in Japan (78%).

Thus, the size of the US Federal R&D budget is one of the salient differences between the US and the Japanese innovation system. While the participation of the government in the USA and Europe is between 40% to 50%, in Japan it corresponds only to 27%. As a result in Japan 55% of scientists work in the private sector. This trend had accentuated with the time: at the beginning of the 1990s the correspondent percents were 18.6 for Japan, 33.2 for Germany and 46% for the USA. This creates a paradox: in Japan, where R&D is mainly financed by the private sector, technology is publicly owned because the system promotes technology transfer. In contrast, in the USA and Germany, where R&D is principally financed by the government, technology is privately owned, since the system is based on strong patent rights which grant absolute rights to exclude others. One explanation of this paradox is that the Japanese innovation system has specialized in R&D of new applications and improvement of existing technologies, which assures that the resources invested in R&D will give direct economic results to industry. However, the existence of a national system of innovation in Japan, which propitiates participants obtaining profits from networking and its correspondent patent culture, are essential elements in explaining this phenomenon.

945 Keck at 138. Interesting is to observe that about 31% of domestic industrial German R&D capacity (measured by R&D employees is accounted for in Germany by seven top spenders: Simens, Daimler-Benz, Bayer, Hoechst, Volkswagen, and BASF. Id.
946 Mowery and Rosenberg at 40.
947 Namiki at 79. Namiki is Director of the Technology Research and Information Division of the Agency of Industrial Science and Technology (AIST), of the Ministry of International Trade and Industry.
948 Namiki at 79. See also Fransman at 66.
949 See Fransman at 64-65.
950 Cf Soderstrom at 213-15, maintaining that the failure of the US government to license federal patents is due to its failure "to recognize some of the fundamental tenets of a capitalistic economy": licensees have only prospective profits when negotiating exclusive licensing and not non-exclusive ones according to the traditional government patent policy. However, the problem is more complicated and stems from the patent culture of the hard protection system influencing agents to oversee the profits potentials of networking.
951 See Mansfield, Edwin, Industrial R&D in Japan and the United States at 228.
As a result, US firms do not benefit so intensively from the systemic nature of innovation and have less of a capacity to imitate quickly, efficiently and creatively, compared with Japan. Applied R&D in Japan has yielded a higher return than in the United States. This need has been expressed by the US Congress in the following terms: “The Federal laboratories and other performers of federally funded research and development frequently provide scientific and technological developments of potential use to State and local governments and private industry. These developments, which include inventions, computer software, and training technologies, should be made accessible to those (local) governments and industry. There is a need to provide means of access and to give adequate personnel and funding support to these means.”

The relatively small participation of the government in R&D in Japan presents, even though, certain disadvantages for this country: the private sector is not generally willing to invest in areas where practical applications are to be obtained only in the very long term. This situation reduces Japan’s potential to dedicate resources to R&D of new areas. As a result, Japan relies on advanced technology from the West. This has been the case of research in new materials and biotechnology, areas which are in the long term expected to have a multiple effect in the economy, society, industry and technology.

In order to solve this problem, the Ministry of International Trade and Industry (MITI) has developed system to create public R&D centers and finance projects with the private sector in new areas. This system links the ground research of state research centers with the applications-oriented development of private industry. The USA is following this model by creating a Technology Administration, established in the Department of Commerce and a system of clearinghouse for state and local initiatives on productivity, technology and innovation.

952 Id.
953 Id. at 227.
955 Id. at 227.
956 Namiki at 83.
957 Id. at 84. See also Fransman at 71.
959 Id. at § 3704a.
Creating a Framework for R&D Cooperation Among Firms

The Japanese framework for R&D cooperation among firms originated as a response to the crisis of the early 1970s, the consequences of which were the devaluation of the dollar in 1971 and the quadrupling in the cost of oil (post-oil crisis). This situation led Japan to decrease its support for monopolies and promote greater cooperation among firms. The principal goal was to reduce the potential risk of a future crisis that could have been originated if the market remained dominated by monopolies and company failures. In addition, Japan aimed to create a “big picture” perspective among enterprises about the need to merge or expand. The Structural Improvement Law granted a framework for the promotion of new technologies. In particular, the MITI promotes research and design (R&D) by providing tax breaks and subsidies to research.

The most important instrument of the MITI has been the creation of an institutional framework for the coordination and administrative guidance of research efforts of the private sector in nearly all industrial and research facilities. The private sector provided the majority of capital outlays for R&D. The standard technique to promote more efficient research and production resources allocation used by the MITI was the formation of joint ventures. In addition, the system constitutes an important instrument for promoting ground research.

The “National huge projects” (to the order of between DM80 to 160 Million) with a duration of five to ten years are examples of this strategy. In this case, the state research centers provide for basic research while different enterprises create a collaboration framework to assume the responsibility for the execution of research and development. This system provides not only positive synergy between technology and science, but also enables the private sector to find and industrialize new applications from basic research, assuring that the investment in R&D will generate new patents as soon as possible.

A climate of inter-firm collaboration is created, allowing firms to share know-how coming from different industrial sectors. It also provides small- and medium-sized enterprises with research facilities, which would otherwise not be possible. In a

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961 Errico at 129.
962 Namiki at 86.
similar way, smaller joint projects between public research centers and private enterprises are developed. Consequently, this system facilitates cooperation among diverse industrial sectors, which only together can develop projects that require the integration of diverse technology fields, and engage more heavily in basic research than private firms, since basic research normally results in fewer patents\textsuperscript{963}.

A specific example of this institutional framework is the VLSI (very large-scale integrated circuits) Technology Research Administration. This Administration has conducted joint research, shared resultant patents and licensed foreign technology in the field of integrated circuit industry.

Cooperative R&D projects have been an important policy tool aimed to strengthen international competitiveness through encouraging foreign firms to join them\textsuperscript{964}. This strategy allowed Japan not only to close the gap with the USA companies in new technologies, but to speed ahead and take control of the marketplace.

\textit{(d) Interaction Between Private Enterprises and Public Research Institutions}

Investment of Western governments in R&D has played a significant role in the development of innovative science and engineering, such as semiconductor technology and biotechnology. The fundamental work of developing these new industries has been done at universities and national laboratories in Western countries, like M.I.T., Harvard, Johns Hopkins and Los Alamos in the USA\textsuperscript{965}. University research has nearly doubled as a share of the gross national product (GNP) during 1960-1985 (from 0.13 to 0.25), due to a huge increase in federal expenditures on university research, which has taken the form of contracts and grants for specific research projects\textsuperscript{966}. In order to increase the competitiveness of the country, Article 15 U.S.C. has assigned the US Secretary of Commerce to provide assistance for the establishment of Cooperative Research Centers, affiliated with any university or non-profit institution. These centers should pursue the development of a generic research base and improvement of mechanisms for

\textsuperscript{963} Odagiri at 299-300.
\textsuperscript{964} See Fransman at 72-73.
\textsuperscript{965} Errico at 145.
\textsuperscript{966} Mowery and Rosenberg at 47.
the dissemination of innovation among universities.\textsuperscript{967} The Secretary of Commerce may make grants and enter into cooperative agreements, including activities performed by individuals. These grants may not exceed 75 percent of the total costs of the program.\textsuperscript{968} These programs have resulted in an exponential development of the exploitation of patents coming from universities through licensing.\textsuperscript{969}

Japanese firms have developed a strategy to establish links with these US state research centers by helping with the finance of research projects or by entering into joint research projects. The AIST (Agency of Industrial Science and Technology) promotes international cooperation with advanced countries in the field of industrial technology.\textsuperscript{970} Japanese firms have increasingly sought to develop these links with US research centers. In 1989 Hitachi donated $16.5 million to the University of California at Irvine for the building of a biotechnology research facility, in order to have access to joint research there. The MITI donated a 10-year $30 million to fund faculty chairs and 10-year $85 Million for the Shiseido Corporation-Massachusetts General partnership in the Cutaneous Biology Research Center. In return, Japan expected research disclosures from these universities.\textsuperscript{971} A system of open-door liaison policies was also developed, in order to enable any company which buys into the program to access research information and technology licensing.

This situation is often negatively perceived in the USA. The US patent culture and institutions have not been propitious for technology transfer. As a result, the US innovation system is requires to gain experience to profit from such collaboration agreements. This may explain why the cooperation agreements with Japanese enterprises were originally perceived as a way of the Japanese government and enterprises to take advantage of the US investment of R&D without offering proper payment.\textsuperscript{972} The opportunity open to universities to obtain extra income

\textsuperscript{968} See 15 U.S.C. § 3706. See also Mowery and Rosenberg at 53-54.
\textsuperscript{969} See Gering, Thomas, Gewerbliche Schutzrechte im Spannungsfeld des Innovationsprozesses zwischen Hochschule und Wirtschaft, in Bosch, Rudolf (ed.), Patentschutz und Innovation in Geschichte und Gegenwart, Peter Lang Europäische Verlag der Wissenschaften, 1999, at 127, 129.
\textsuperscript{970} Watanabe at 222.
\textsuperscript{972} Id. at 10-12 and 46-65. See also Mowery and Rosenberg at 54.
from selling licenses is regarded as bad business. This position is justified when comparing the investment of the USA in research with the profit obtained from licensing. For example, the US Government spends over $400 million a year supporting research at M.I.T. More than 55 Japanese companies pay collectively less than $3 million a year to learn all of the technology secrets with an option to license at extremely undervalued prices\textsuperscript{973}. In fact, for the US, the bad business is not technology transfer with Japan, but its relative inability compared with Japan to profit from networking and from the systemic nature of innovation at the national and international levels.

This situation stresses the importance of technology networking. The Japanese experience shows that the creation of technology markets through the promotion of networking constitutes a vital element that is often disregarded in the USA. This explains why Japan could develop leadership in technology without making the huge public investments in R&D that Europe and the USA did. As long as enterprises can obtain direct profit for innovation, not only by direct application but also by negotiation with other enterprises, it is to be expected that enterprises are ready to cope with huge R&D investments, as happens in Japan. Furthermore, this situation points out the problems of the hard protection patent system. Paradoxically, in the USA, the government finances a large part of R&D but the technology tends to be used in a private and monopolistic way; and in Japan, without this public expenditure, technology tends to circulate in markets assuming the characteristics of a public good. This situation illustrates the contradictions of the monopolistic and proprietary protection of technology, and the importance of coupling the patent system with a national policy of innovation creating networks.

(e) \textit{Creation of Impartial Centers for Patent Administration}

The association of Japanese state and private research centers around a joint project presents the problem of assigning the patents coming from joint projects. More than 7,000 inventions, which represent 80\% of the patent claims of all public research centers, come from joint projects with the private sector\textsuperscript{974}. This creates a problem regarding the exploitation of inventions and patents generated by a joint

\textsuperscript{973} Errico at 146.
\textsuperscript{974} See Namiki at 87.
venture. In order to solve this problem, the Japanese state has assumed the role of
patent administration through a foundation created for that purpose. The patents
that result from joint research belong to the state, which assumes the role of
transferring the technology to all interested firms through licenses.

(f) **DEFINITION AND CONTROL OF PATENT AND ANTITRUST LEGISLATION**

The coordination process of the industrial policy of Japan includes all intellectual
property rights legislation, antitrust laws, and trade and industrial policies. In
particular, Japanese patent laws allows the MITI to control the regulations of
Patent Registration\(^{975}\) and Patent Enforcement\(^{976}\).

In contrast, in Western countries the patent system is regarded fundamentally as a
register of private rights, whose administration is only the concern of legal
authorities and should be not influenced by economic interests. This tendency has
increased in recent years.

The example of Japanese success in cooperative research and technology
development lead the Reagan and Bush Administration to adopt a more lenient
enforcement posture in antitrust policy, relaxing the restrictions on mergers and
consortia that engage in production and the antitrust penalties connected with the
collaboration among firms in precommercial research\(^{977}\). However, rather than
increasing the returns of innovators through technology diffusion, the policy still
focuses on increasing the returns to innovators through granting strong exclusion
rights\(^{978}\). The antitrust policy has been accompanied by improved enforcement of
intellectual property protection. Among these measures is the creation in 1982 of a
Court of Appeals for the Federal Circuit (CAFC), which has strengthened the
protection granted to patentholders\(^{979}\). In addition, the US pursued stronger

\(^{975}\) MITI Ordinance No. 10, 1960.

\(^{976}\) MITI Ordinance No. 33, 1960.

\(^{977}\) See Mowery and Rosenberg at 59-60.

\(^{978}\) Id. at 60.

\(^{979}\) Id. at 59.
international protection for intellectual property rights\textsuperscript{980}, which crystallized in the introduction of TRIPS at the Uruguay Round\textsuperscript{981}.

This US policy has not given enough importance to the need of promoting and facilitating the negotiation of technology transfer among economic actors. Thus, it has failed to address one of the most serious weaknesses of the US national innovation system, which is the slow pace of domestic adoption of new technologies in manufacturing\textsuperscript{982}. This policy has tended to overlook the importance of supporting domestic technology adoption and competition in technology commercialization\textsuperscript{983}. Instead, the importance of increasing rewards for innovators through stronger protection has been overstressed, thereby increasing in some instances the costs associated with the adoption of the technology produced by innovators, and hampering diffusion\textsuperscript{984}.

B. Legal Instruments for Optimizing the Patent System

1. Basic Considerations for Optimization of the Patent System

a) Elements for Revising the Patent System

The traditional conception of the patent system considered that the best way to promote technology creation is to grant innovators absolute rights to exclude other technology users. The main disadvantages of this system were the possibility of misuse by the patent holder, who, abusing the monopoly right as in the case of Watt\textsuperscript{985}, does not allow others to develop the patented technology. Only in extreme cases, special legal institutions such as antitrust measures and compulsory licenses may provide a solution. It is interesting to note that the negative effects of the traditional patent system also concerned in the late 1800s the Patent Abolitionists in the West, at a time when Japan was introducing its patent Law. In 1890, in its “Summary of Opinion concerning Future Policy of the Patent Office”,

\textsuperscript{980} Id.
\textsuperscript{981} Id. at 60.
\textsuperscript{982} Id.
\textsuperscript{983} Id.
\textsuperscript{985} See Renouard, A. C., Traité de Brevets d’invention, 1844, reissued by CVNAM, Paris, 1987.
Takahashi outlined the major concern of the abolitionists in the West, as follows.986

1. Inventive persons will invent without special encouragement as it is part of their nature.
2. Inventors already have a headstart over competitors by virtue of their having made the inventions;
3. Government incentive, not disincentive, of the use of technology would promote inventions;
4. Patents hinder free trade;
5. Manufacturing is bound and slowed down by patents, which deny other industries the use of protected invention; and
6. Patents cause litigation, which decreases overall societal efficiency by misdirecting efforts.

These concerns were listed by Takahashi so that policy makers would always keep in mind the need to optimize the patent system. The Japanese patent policy has been shaped by these concerns. He proposed some guidelines on how to adjust the patent system so that it could contribute to the promotion of technology creation and diffusion.

Today, two basic facts motivate the reconsideration of traditional hard patent protection. The first is the systemic nature of innovation. The second, the possibility of redefining a system of innovation based on networks exchanging information and coordinating inventive activities, so that all the members can participate in the gains from innovation. The new paradigm of improvement leads to a redefinition of the patents system not only as a system to reward independent inventors, but also a system to facilitate the co-ordination of research and innovation activities in decentralized markets.987 This cooperative approach was one of the key elements in the success of the Japanese industry and innovation system.

986 Errico at 138.
987 Foray, Knowledge Distribution, at 77.
This approach leads to a reconsideration of the basic presupposition of the traditional patent legislation, which assumes inventions to be absolutely novel and grants priority of invention to the first to disclose. The collaborative approach encourages the continuous improvement of existing technologies and their adaptation to the changing needs of global markets. This goal is fundamental in order to assure the maintenance of international competitiveness and to facilitate the process of bringing new technologies to the market. This approach also constitutes an important challenge to Western countries that are trying to maintain their high standards of international competitiveness in the face of Japan and other East Asian countries that follow the Japanese systemic model of innovation.

The adjustment of the patent system to the new innovative regime requires its integration to a more organic system, capable of taking into account the diversity of interests involved. This does not imply a radical change of the system. The general aspects of these adjustments can be summarized as follows.

(1) Importance of Promotion of the Network Framework of Innovation

Within the present economic framework, new opportunities are open for reconsidering the patent system as an instrument for promotion of both technology creation and diffusion. The promotion of innovation is also done by the promotion of the diffusion of technology.

Instead of conceiving of innovation as an isolated act of an inventor, the redefinition of the patent system should start recognizing the fact that innovation is the result of a collective effort. The innovative process should not be regarded as an isolated private effort, but as a continuous flow of knowledge distribution which continuously provides opportunities for innovators.

Consequently, the system should provide incentives not only to increase the individual effort of innovation, but also the coordination and diffusion of knowledge. However this does not require the creation of a collective system of invention, in which the resources and incentives to R & D are granted collectively. The networking system is not based on a centralized and tyrannical distribution

988 Id. at 88.
authority. In contrast, it is based on a soft system which makes it compatible to deploy private resources on R&D in a collective invention process.

(2) **Legal Nature of Patents Should Be Coherent with Systemic Nature of Innovation**

The present paradigm, which considers innovation as a collective process is inconsistent with the traditional definition of patents as property rights whose natural effect is the granting of an absolute right of exclusion to the inventor. This invites inventors to use patents to create monopolies excluding others. The innovation network requires a redefinition of the function of the patent system. The patent system should be considered an element of an institutional framework created to enable the distribution of profit and rewards among firms. This institutional framework is absolutely necessary to promote the organization of specialization and communication among firms.

(3) **Patent System Should Be Integrated into General National System of Innovation**

A coordination mechanism among firms is necessary to motivate each industry to introduce procedures for the dissemination of information regarding the stock of codes, technologies and programs available, so that individual innovators can draw upon the work of other innovators. This coordination mechanism should allow the speed of innovation to increase as well as the diffusion of technology at the industrial level. It should provide institutions that harmonize the interests of technology creators and users in order to favor the increase in specialization and communication among firms. This can only be achieved by creating a national system of innovation and the concomitant developing of cooperation abilities between firms and government. Within this framework it is possible to create the flow of information and retributions required to assure profits from the creation and dissemination of knowledge to all participants. This implies reconsidering the patent system as an instrument of industrial policy.

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989 *Id.* at 91.
(4) Patent Right as Institutional Arrangement for Creating Technology Markets

The patent system can be regarded as an instrument for the creation and promotion of technology markets where both consumers and producers of technology can obtain a profit from exchange.

b) Coherence of Proposed Changes within the TRIPS Framework

The TRIPS Agreement, in its preamble, clearly defines a very convenient legal framework to build an optimal patent system. It defines the need to consider patent rights not only as mere “private rights” but also as instruments of national and international industrial policy, including developmental and technological objectives. Consequently, the protection of the interest of the inventor should be harmonized with the social interests. The protection should avoid creating distortions and barriers to legitimate international trade.

Within the framework of a modern system of innovation, the articles of the TRIPS Agreement referring to the need to harmonize patent rights with the requirements of the industry offer a new perspective. Article 7 of the Agreement statues that the protection of patent rights should be considered an instrument of industrial policy. Article 7 reads: “the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare and to the balance of rights and obligations”. TRIPS bring about a dynamic conception of patents, in which the objectives of industrial development are vital elements in defining and interpreting the patent legislation. Furthermore, patents are no longer absolute rights because they require a balance of rights and obligations, and are supposed to achieve a mutual advantage of producers and users of technological knowledge. It is difficult to conciliate between the traditional definition of patent rights as absolute rights analogous to private property or monopoly rights and the TRIPS requirement of harmonization of the interest of patent holders, technology users and social interest in promoting welfare and free trade.
The need to define a legal framework that conciliates all this interests is pointed out in the principles defined in Article 8. Article 8.2 reads: “Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by rightholders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology”.

In conclusion, the TRIPS Agreement presents a framework which is totally coherent with the systemic nature of innovation and the need to promote networking.

c) **General Overview of Reform Directions**

An optimal patent system should be consistent with the modern model of innovation. In order to enable patent rights to contribute to the promotion of innovation and to its diffusion, it is necessary to incorporate the patent system into a more complex system which allows both, the distribution of knowledge and profit among the participating entities. From this perspective, the principal function of patents should be to determine the contribution of participants in the innovation process and disseminate rights to enable the distribution of profit and rewards from users of technology to inventors.

In order to induce innovators to enter into cooperative arrangements, reform of the patent law should consider the following aspects:

a) Patent rights should be defined not as property rights or monopoly rights, but as *sui generis* rights analogous to the rights granted on terms of equity to the creators of welfare, in order to assure them participation in the welfare created by their contribution (quasi-contract of unjust enrichment). The emphasis of the right should not be given on its exclusion aspect. It should be considered principally as a right to receive payments from the users of the protected technology. Within a networking framework, based on the free initiative of actors, this right should be correlated with the right to administer the exploitation of this technology in the market. This allows for integrating patent law and competition law\(^\text{990}\).

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\(^{990}\) This alternative seems more equitable than the traditional which separates patent and antitrust law. An example of the traditional position is the following: a possible remedy under patent law to increase
b) The definition of the legal nature of the patent right should incorporate the need to balance the rights and obligations of the patent holder. In this context patent rights can be defined as usufruct rights granted over the market generated by the invention.

c) The scope of patent protection should be restricted\textsuperscript{991} and the creation of patent rights over any important contribution of the innovation process should be facilitated by relaxing novelty requirements.

d) The process of patent filing should be facilitated. Features of Japan’s patent regime are: low costs of filing, priority given to the first to file as opposed to the first to invent, and freedom given to applicants to make changes to a proposed patent for a limited period of time after the initial application has been filed\textsuperscript{992}.

e) The negotiation of technology should be facilitated through the definition of a legal framework for the promotion of license and other forms of contracts. This includes the definition of a suitable framework to promote cross-license and proprietary pools of patent rights (co-property).

f) There should be introduction of \textit{sui generis} legislation adapting patent rights specifically to the needs of the sectors in which the recombination model of innovation is particularly important\textsuperscript{993}. This entails inclusion of instruments like compulsory patent and copyright licensing at a reasonable cost, particularly for research uses, etc.\textsuperscript{994}. Other instruments such as the introduction of a system of prepaid, lump-sum access fees to patented technology could assure protection of the inventor and access of the technology to researchers. This model has been applied in the case of biotechnology. It has allowed a free circulation of genetic resources by a system of dependent licenses in the case of dependent innovation\textsuperscript{995}.

\textit{This sui generis} legislation should be based on solid general principles of law that

\textsuperscript{991} Korah at 396.

\textsuperscript{992} Foray, Knowledge Distribution, at 99

\textsuperscript{993} See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178.

\textsuperscript{994} Foray, Knowledge Distribution, at 92. See also Korah at 397.

bestow coherence upon the system, facilitating the interpretation of the rules and thereby, providing participants with legal certainty.

g) Restriction of know-how protection. In order to promote the diffusion of knowledge, alternative instruments to trade secrets for protecting technology should be available, particularly for the cases that patent protection is not available. This instruments should be designed to enable developers of know-how to disclose and to charge fees for the diffusion of their knowledge, following the principles of utility models, industrial designs or small patents. Therefore, as a general framework, a misappropriation statute seems suitable as it facilitates the recognition of rights over small inventions and promotes the commercialization of information. In order to increase legal security, it is convinient to define the condition for the assesment of the work-results, defining which kind of work-results would be per se protected. This may follow the former US institutional framework for copyrights, whereby an office may be created to previously prove if the disclosed information or product offers enough qualities to protect the interest of the holder to control and charge fees for their public use.

h) Other specific measures should be considered. Among these are profiting from international conventions such as the PCT, the creation of intellectual property rights protection regions or common markets, the instruction of patent lawyers, etc.\textsuperscript{996} In addition, suitable protection against anticompetitive uses of patents through competition law including expanding the experimental use exemptions\textsuperscript{997} and permitting parallel importation may be indispensable\textsuperscript{998}.

2. \textit{Process of Patent Filing, Examination and Granting as Instrument for Technology Transfer}

a) \textit{Delaying of Patent Issue as Instrument to Force Licensing}

The delaying of patent filing has been used as an instrument to force licensing agreements in Japan. Many US enterprises in Japan are confronted with delays in

\textsuperscript{996} See Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178-1181.

\textsuperscript{997} Korah at 397.

\textsuperscript{998} Heath, Bedeutet TRIPS wirklich eine Schlechterstellung, at 1178-1181.
obtaining protection for their US patented technology. The patenting process in Japan takes between 5 and 7 years, while in the USA an average of $2\frac{1}{2}$ years.

These delays have left the US firms in Japan without protection, enabling Japanese firms to start using their technology to pressure the US firms to grant them licenses or sell them their patents. This situation is especially sensitive because of the numerous small companies owning an important patent, which search for globally exploiting their technology by manufacturing themselves. Because the Japanese Patent Office is controlled by MITI, it is suspected that the process of patent filing is used by the Japanese government to pressure foreign companies to grant licenses and to undervalue their prices.\textsuperscript{999}

Texas Instruments is one of many firms having to deal with this problem. This company, after having developed technologies which are the bases of all semiconductor devices, owns fundamental US patents in this field. Texas Instruments had problems obtaining the corresponding Japanese patents and had several infringement suits against Japanese-made devices which infringed previously granted US patents.\textsuperscript{1000} This situation has been regarded by US Trade officials as a MITI and Japanese Patent Office policy seeking to delay the issuance of basic patent in the field of the electronics industry until Japan had achieved parity with US competitors. The lost of royalties suffered by Texas Instruments has been estimated at as much as $100 million to $500 million a year in royalty payments, based on Japan’s $17 billion annual integrated circuit market.\textsuperscript{1001}

The case of Corning Glass\textsuperscript{1002} offers another example. This firm owns patents in the field of fiber optics, for telecommunications. This firm has patents in the USA and patent applications in Japan. Sumitomo Electric Industries, Ltd. applied for protection in Japan for their own optical waveguide fibers and started producing fiber optics in Japan. A tremendous delay in the patenting process in Japan and limited protection for applications in that country left Corning Glass without recourse. On December 1984, Corning Glass suited Sumitomo in the USA and later obtained a favorable sentence declaring that Sumitomo infringed two of his

\textsuperscript{999} Errico at 143.
\textsuperscript{1000} Id. at 142.
\textsuperscript{1002} Errico at 141.
patents. Prior to the outcome of the trial, notwithstanding, Corning Glass accepted a licensing agreement\textsuperscript{1003}.

The delaying issuing in patents may be effective to promote licensing only in countries such as Japan, where enterprises are aware that activities in that market are an important source of profit, and because of that are willing the keep their presence at any cost. However, this strategy is contrary to good faith and deteriorates good will, which constitutes a vital element in technology transfer. Japan justifies its delays claiming that the Japanese Patent Office is understaffed. Although the number of patent applications in Japan in 1986 was five times that in the USA, the Japanese staff of patent examiners was only 861 compared to 1415 in the US\textsuperscript{1004}.

\textbf{b) Constraint of Pre-Grant Disclosure}

One of the most important differences between the patent file procedures in Japan and in the USA is the pre-grant disclosure. Pre-grant disclosure enables the public disclosure of applications prior to the granting of a property right\textsuperscript{1005}. This was introduced in the 1970 reform, which adopted the early disclosure system. This system is similar to the one found in the German Patent Act of 1967\textsuperscript{1006}. Commonly, information is disclosed only after a property right has been granted. In the USA, every submitted application is examined under secrecy and remains secret whether first rejected, rejected finally or abandoned. US laws allow publication only after the patent has been granted\textsuperscript{1007}.

Article 65(2) of the Japanese Patent Law establishes the pre-grant disclosure under the terms: “after one year and six months from the filing date of an application for a patent, the Director-General of the Patent Office shall lay the application open

\begin{itemize}
\item \textsuperscript{1003} Errico at 141. It is interesting to note that the author considers the fact of Corning Glass granting the license as “damage”. This reflects the traditional US perspective that considers licensing as a loss for the patentee rather than a valid mechanism of obtaining further utility.
\item \textsuperscript{1005} Doi, The Intellectual Property Law, at 16.
\item \textsuperscript{1006} Id. at 22.
\item \textsuperscript{1007} Errico at 152-153.
\end{itemize}
for public inspection, unless the application has already been published”. These applications are publicized in the Patent Gazette of the Japanese Patent Office\textsuperscript{1008}.

This system is supposed to accelerate the speed of examination by inviting the public to challenge applications at an earlier stage\textsuperscript{1009}. It also invites applicants to license and avoid litigation. Neither the submission of an application nor the request for examination grant protection automatically to the inventor. Inventors will not be fully protected until the patent is granted. The publication of the submission, that means, its public disclosure, only grants inventors partial protection. The protection granted in the period between publication and patent granting does not constitute an injunction right. The protection is limited to compensation from those working the invention commercially. If the patent fails (and it may be challenged by any party during the examination period), the compensation must be returned. As a result, the inventor retains no power to stop others from working its technical idea from the time of application to the final grant of the patent. Since the examination of patent applications often takes five or more years to complete from the request date, along with the publication, applicants are pressured to license\textsuperscript{1010}. This is how the Japanese system is designed to force firms licensing even before the patent is granted\textsuperscript{1011}.

The promotion of early disclosure constitutes an important element in both the diffusion of information and the creation of innovation. As long as the scope of patent coverage is narrow and novelty requirement is quite relaxed, potential competitors who have “reverse engineered” the invention during the laying-open and opposition phases can file their own patent applications\textsuperscript{1012}. When early disclosure is accompanied by a very weak protection, as in Japan, the system promotes interlocking licensing agreements and technology sharing as soon as possible.

\textsuperscript{1008} Id. at 153.  
\textsuperscript{1009} Doi, The Intellectual Property Law, at 22.  
\textsuperscript{1010} Id.  
\textsuperscript{1011} Id.  
Chapter 4

3. Reduction of Scope of Protection and Relaxation of Novelty Requirement through Case Law

a) The Scope of Protection and Patent Claims

In order to understand the role of the scope of protection in the patent system, it is important to be acquainted with the way an invention is claimed at the Patent Office. The scope of protection is closely related to the way a claim is interpreted in order to determine whether an invention should be included or not in the claim. The set of claims is one of the two main parts of a patent application. The first part is a specification of the inventions which usually describes, in the form of a brief science or engineering article, the problem the inventor faced and the steps he took to solve it, including a precise characterization of “the best mode” of solving the problem and carrying out the invention. The set of claims concludes the specification. The specification points out and claims with precision the subject matter which the applicant regards as his invention.

The scope of protection defines where the protection of an invention finishes and place remains free for others to invent and obtain protection for further improvements and combinations. Because of that, it constitutes a very sensitive matter for the innovation process, as inventions integrate into each other and accumulate small improvements. The scope of protection defines the “boundaries of the patented invention”, i.e., it determines the extent of the number of competing products and process that will infringe the patent. Consequently, the scope of protection of the invention constitutes one of the most important elements in the definition of the economic value of patents. As a result, the definition of the scope of protection of an invention plays a vital role in the promotion of the innovation process and is a key factor in controlling the possibilities of monopolistic abuse of the patent right and in promoting collaboration among inventors. The definition of scope of protection is one of the fundamentals of the Japanese use of patent rights as an instrument of industrial policy.

\textsuperscript{1013} Fist paragraph of § 112 of the US patent statute.

The evolution of the interpretation of the scope of protection by US case law illustrates the problems generated by the definition of patent rights as absolute, exclusive rights to exclude and the need to adjust the system to a more collaborative framework that allows inventors to participate in the innovation process creating new combinations and improvements.

b) Main Theories for Interpretation of Patent Claims

There are two main theories about the way a claim should be interpreted: the central and the peripheral. The central theory, originally used by US and German courts, defines a limited examination of claims by the Patent Office. In this case examination should only check that the specific words of the claim do not impinge on (read on) another invention. The scope of patent protection is determined by defining the principle forming the inventive idea or solution underlying the claim language. Because of that, the central definition requires a narrowly written claim and narrow specifications. The interpretation of the claims, both for infringement and for validity, is left to the court, which is supposed to interpret the claims in a broad way. Courts are supposed to use the doctrine of equivalents to expand the scope of narrowly written claims.

In contrast, within the strict peripheral theory, claims are supposed to be broadly written, with broad specifications. Consequently, claims should define the precise contours of the inventive concept or principle. But the patent’s specification does not need to point out precisely how to make every product, process or compound that would fall within its claims. The US Patent System developed the peripheral theory after the enactment of the 1836 Patent Act, when the USA began to place increasing importance on claim language in order to define the scope of protection. Current US practice started in 1870. Its introduction is explained in the case Merrill v. Yeomans: In this case the US Supreme Court refused to find infringement of a product, hydrocarbon oil, when the claim covered only the...

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1015 Errico at 162.
1017 Id. at 3.
1018 Id. at 11.
1019 Merrill v. Yeomans, 94 U.S (4 Otto) 568 (1876).
process of manufacturing the oil, even though the oil was fully described in the specification. The Court ruled that patent protection must be limited to what the inventor described as his invention. This decision was based on the argument that the public interest would be impeded by vague and indefinite descriptions of claims. Competitors have the right to fair notice of the claimed invention, so as to allow them to avoid infringing upon the patent and permit them to design around the patent. As a result, the claim measures the scope of the patent monopoly. US courts, however, incorporate principles of the central theory when, relying on the general equity principle, they created the doctrine of equivalents to preserve the idea “the essence or core of the invention”, which stems from the central definition theory.

Germany employs the central definition theory. This theory is inspired by the civil law system. Within this system, the central definition theory offers a suitable solution for the distribution of competencies between the Patent Office, which has exclusive jurisdiction to determine the validity of the patent, and the tribunals of justice, whose jurisdiction is restricted to determine infringement. The basic jurisdictional structure and theories of Japanese patent law were originally derived from the German system. However, the Japanese system is regarded as taking an intermediate position between the central and peripheral definition theories. It has adapted the principles of the central theory to change their function to correspond with the peripheral definition theory, converting them into principles for restricting claim scope. This adaptation by the Japanese system has been explained by the argument that Japanese patent policy ascribes greater significance to legal certainty and the competitor’s interests than to encouraging innovation and the inventor’s

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1020 Id. at 12.
1021 See Winans, 56 U.S. 330, 347.
1023 Id. at 3.
1024 Id.
1025 Id.
1026 Id. at 4 - 5. Takenada at 5 regards this situation as a Japanese court’s confusion with respect to claim interpretation theories, i.e., courts had overlooked the principles needed to expand the claim scope in order to remove the likelihood of an unreasonable result. However, the understanding of the Japanese innovation system may explain the position of the Japanese courts, which more than following “black and white” theories, search for harmonizing the interests of agents participating in the innovation system by restricting claim scope interpretation.
interests. This argument overlooks the importance of protecting the interests of other competing innovators and technology users in promoting innovation. A central point in determining the claim interpretation in both the Japanese and the US systems has been the promotion of innovation through enabling competing inventors to participate in the continuous development of existing technologies.

c) Adjustment of the Scope of Protection

Claim interpretation case law illustrates the importance of industrial policy in the constitution and interpretation of intellectual property rights. Notwithstanding that the definition of the scope of protection constitutes a central element of the patent right, its definition has been left to the discreional interpretation of patent offices and courts. Patent scope decisions are made by the Patent Office when it determines which claims of a specific patent will be admitted or rejected. Analogously, courts decide about these questions when determining about patent infringement. Although there are several legal principles and objective facts regarding an invention that constrain the decision regarding the scope of protection, patent offices and courts have considerable room for discretion while deciding if the actual differences between the infringer’s claim or product are insignificant or not defining a distinct invention. The central and peripheral theories have tended to converge, particularly due to recent development in the doctrine of equivalents in US courts and the 1981 revision of German Patent Act to accommodate the European Patent Convention (EPC) protocol.

(1) US Case Law

In order to settle infringement, US courts analyze first whether there is “literal infringement” of the patent, i.e., they examine whether the accused invention “reads directly, unequivocally and word-for word on the claimed structure”.

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1027 Id. at 4
1028 Merges and Nelson at 840.
1029 Takenada at 3.
The second aspect to be studied is the interpretation of the claim, which is usually done following the criteria of the “doctrine of equivalents”. In this case, the court determines if a device that does not infringe literally a patented claim could be considered essentially the same as the device that was patented. Under the doctrine of equivalents, two devices are considered the same if the court determines that they do the same work in substantially the same way and accomplish substantially the same result, even if they they differ in name, form or shape. In this case, the court not only allows for the words of the claim to be stretched, but make them cover more than their meaning will bear.\textsuperscript{1031}

The discretional interpretation power of courts has been an important mechanism for adjusting patents to the actual needs of the industry. In this way, US courts tend to compensate for the deficiency of a clear industrial policy regarding patent law. The main criteria developed by US case law to adjust patent protection to the needs of the industry can be summarized as follows:

\textit{(a) Protection of Pioneer Inventions through Infringement Doctrines}

US patent doctrine holds that a pioneer inventor should obtain a reward for the broad new range of application he has enabled. Pioneer inventions are defined by the Supreme Court as “a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art”\textsuperscript{1032}. Another criteria for the test pioneer status is whether the patent led to a new branch of industry\textsuperscript{1033}.

That the protection of pioneer inventions is restricted only to their precise embodiments has been regarded as unfair. In the USA, restriction of the scope is considered a poor way to stimulate invention and encourage its early disclosure. This is because broad and stark protection motivates inventors to patent early in the development process and also to keep investing in its development without fear that another firm will steal their work. Therefore, within this kind of protection, it is expected that inventors are encouraged to coordinate their


\textsuperscript{1033} See Ludlum Steel Co. v. Terry, 37 F.2d 153, 160 (N.D.N.Y. 1928).
activities with other firms\textsuperscript{1034}. These arguments have led to estimate that the restriction of the broad of scope is incompatible with the constitutional purpose of patent law of promoting progress in the useful arts\textsuperscript{1035}. Consequently, inventors should obtain protection for the broader principle claimed.

Following this argument, the US courts apply the doctrine of equivalents to grant a broad protection. The doctrine of equivalents is generally used to widen the protection of patents that represent an important degree of advancement over the art. In this case, courts tend to apply strictly the doctrine of equivalents to find infringement, even for products whose characteristics lie considerably outside the boundaries of the literal claim. This was the case with the International Nickel patent of a cast ferrous alloy called “nodular iron”\textsuperscript{1036}. This alloy presented vastly improved physical properties. The claim of the patent referred to the addition of a small but effective quantity of magnesium to molten iron which caused a crystallized form of carbon (graphite) to occur in a spheroidal rather than flake form. The quantity of magnesium fixed by the patent was “about 0.04%” as a minimum. Ford Motor Company invented a nodular iron which contained under 0.02% magnesium. International Nickel accused Ford of infringing his patent. In this case the court judged both as equivalent substances\textsuperscript{1037}.

The application of the doctrine of equivalents led courts to inquire if the device accused of infringement performs the same function and achieves the same result as the invention in the claims and, if it does so, in the same way\textsuperscript{1038}. In order to make this inquiry, the court should determine if “persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was”\textsuperscript{1039}. This includes the application of new technologies which permit making a partial variation in technique and embellishment to the previous patents. An example of the use of the doctrine of equivalents to exclude improvements for obtaining independent patents is the application of the semiconductor advanced technologies that improved the Hughes

\textsuperscript{1035} See Application of Hogan, 559 F.2d 595, 606; 194 U.S.P.Q. 537 (1977).
\textsuperscript{1037} 166 F. Supp. 551, 564; 119 U.S.P.Q. 72, 83.
\textsuperscript{1039} See Great N. Corp. v. Davis Core & Pad Co., 782 F.2d 159, 165, 228 U.S.P.Q. (BNA) 356, 359 (Fed. Cir. 1986).
Aircraft patent, which referred to a device for controlling the attitude of a communication satellite and was developed by Williams. The new technology improved the original patent by permitting satellites to use on-board microprocessors to process and execute control signals, which originally were be done on the ground\footnote{See Hughes Aircraft Co. v. United States, 717 F.2d 1351, 219 U.S.P.Q. (BNA) 473 (Fed. Cir. 1983).}. The court concluded: “Partial variation in technique, an embellishment made possible by post-Williams technology, does not allow the accused spacecraft to escape the ‘web of infringement’”\footnote{Id. at 1365.}. Another similar case is the development of laser beam technology, which infringed a patented method for laying pipe, calling for a beam of light to align pipe segments\footnote{See Lasser Alignment, Inc. v. Woodruff & Sons, 491 F.2d 866, 873-74, 180 U.S.P.Q. (BNA) 609, 613 (7th Cir.), cert. denied, 419 I.S. 874, 183 U.S.P.Q. (BNA) 321 (1974).}.

In opposition, the application of the doctrine of equivalents for patents referring to “mere improvement”, \textit{i.e.}, dependent patents, is not so strict. Courts tend not to consider “equivalent” a product or process which is even a modest distance beyond the literal terms of the claims\footnote{See Brill v. Washington Ry. & Elec. Co., 215 U.S. 527, 532-33 (1910).}.

\textit{(b) Reduction of Broad Scope of Protection to Protect Improvers}

The application of the doctrine of equivalents constitutes an important disincentive for the research of new applications and improvements of existing technology, as protection for improvement research is denied. This situation is accentuated by the fact that US case law does not always distinguish between allegedly infringing devices that use “new technologies” basically to get around the claims from those that used the technologies to do something significantly better\footnote{See Merges and Nelson at 857.}.

Strong patent protection, including broad scope, can present negative effects for the development of technology as it may be used for blocking other innovators. The blockage is produced simultaneously by several factors.

a) Other researchers will not have incentives to dedicate efforts to improve or find new applications. It would be difficult for them to keep their inventions outside of the broad claim in order to receive a suitable protection for their work.
Furthermore, even if they may obtain a dependent patent, its exploitation depends always on the good will of the owner of the principal patent.

b) The owner of the original patent will also have no strong incentive to keep on improving his technology, as long as he can exploit this technology on a monopolistic basis. As a result, research into developments from the basic innovation may be delayed for many years\textsuperscript{1045}.

c) Broad protection increases the competitive rivalry among the firms only to obtain the original patent\textsuperscript{1046}, but after the grant of the patent, it gives the owner of the patent a dominant position. Consequently, broad-scope protection does not favor a competitive environment for improvements. It benefits an environment dominated by the pioneer firms, which are not always able or willing to coordinate with others the development of their patented technology\textsuperscript{1047}.

The definition of the scope of protection outlines the kind of innovators that are predominately sheltered by the patent protection. The limitation of the scope of protection rewards those who do reverse engineering and modify existing inventions in minor ways. On the other hand, the reduction of the scope of protection penalizes those who wish to exclude others from participating in the innovation process generated by their major technological breakthrough\textsuperscript{1048}. For this reason, the reduction of the scope of protection promotes a more efficient exploitation of accumulated stock of knowledge, as it promotes a pull between R&D agendas to find new products or processes that can be developed from the existing stock of knowledge\textsuperscript{1049}. It constitutes a key element in the promotion of a networking innovation system. An optimal scope of protection should find an equilibrium between the promotion of pioneer inventions and improvement of existing technology.

\textsuperscript{1045} See Korah, Valentine, Patents and Antitrust, 19 EIPR 395, 396 (1997).
\textsuperscript{1046} Id. See also McFetridge & Smith, Patents, Prospects, and Economic Surplus: A Comment, 23 J.L. & Econ. 197, 202 (1980).
\textsuperscript{1047} See Merges and Nelson at 844.
\textsuperscript{1048} Ordover at 40.
These reasons explain why the Japanese innovation system, which had traditionally restrained the use of the doctrine of equivalents\textsuperscript{1050}, succeed in continuing to develop technology, while the US system has been more centered on searching for total innovation, without fully exploiting the advantages provided by the network in innovation production and diffusion. As a result, in comparison to Japan, the US innovation system does not give enough importance to the process of finding new applications and developments of existing technology. For these reasons, it may be concluded that a broad scope of protection, when accompanied with a strong protection level, hinders the creation of networking in the innovation process.

US case law has created the following theories in order to reduce the scope of protection and adjust the patent system to the needs of industry.

(I) REVERSE EQUIVALENT DOCTRINE

Widening the scope of the protection of patents through the doctrine of equivalents generates the risk that patents acquire a unlimited power. This has been recognized by the US courts when it was stated that “carried to an extreme, the doctrine of equivalents could undermine the entire patent system”\textsuperscript{1051}. In order to preserve symmetry in the rules on infringement and restraint the negative effects of the doctrine of equivalents, the Supreme Court developed the doctrine of reverse equivalent with the following arguments:

“ [a] charge of infringement is sometimes made out, though the letter of the claims be avoided. The converse is equally true. The patentee may bring the defendant within the letter of his claims, but if the latter has so far changed the principle of the device that claims of the patent, literally construed, have ceased to represent his actual invention, he is as little subject to be adjudged an infringer as one who has violated the letter of a statute has to be convicted, when he has done nothing in conflict with its spirit and intent”\textsuperscript{1052}.

This was the case with \textit{Boyden Brake}. Boyden improved the train brake invented in 1869 by George Westinghouse and patented in 1887. He added an ingenious mechanism for pushing compressed air \textbf{simultaneously} from the central reservoir

\textsuperscript{1050} See \textit{Someno} at 375. This trend is changing in Japan. The decision of the Supreme Court of February 24, 1998, \textit{Tsubakimoto Seiki K.K. v. THK K.K.} is an example. These aspects will be discussed in the next section.

(invented by Westinghouse) and a local reservoir in each brake cylinder (also invented by Westinghouse), into the brake piston. Boyden’s improvement added the stopping power of the brake required to operate safely the increasingly long trains in the late nineteenth century. The invention of Boyden could be described as a “triple valve”. In this case, this invention could be considered already covered by the literal wording of the Westinghouse patent. This claim included “combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple valve (the device that coordinated the airflow from the main reservoir and the individual brake reservoir) and an auxiliary valve device, actuated by the piston of the triple-valve ... for admitting air in the application of the brake”. It was clear that in this case the claims literally read upon the accused structure.

The Supreme Court solved this case applying reverse equivalent. The Court justified its decision with the following argument: “We are induced to look with more favor upon this device, not only because it is a novel one and a manifest departure from the principle of the Westinghouse patent, but because it solved at once in the simplest manner the problem of quick (braking) action, whereas the Westinghouse patent did not prove to be a success until certain additional members had been incorporated into it”. In this case, a consideration of the practical value of the improvement seems to be the main reason for granting patent protection to it, which allowed Boyden to continue exploiting his invention without being hampered by the Westinghouse patent.

As a result, the doctrine of reverse equivalent constitutes a defense to literal infringement. It can be summarized as follows: “Where a device serves the same or similar purpose to the patented invention, but functions in a substantially different way, the fact that it falls within the literal language of the claim does not warrant a finding of infringement.”

1053 Id. at 561.
1055 Id. at 572.
Recognition of the problem that the patent system tends to overprotect the first inventor and give very little protection to the work of improvement of finding new applications led US case law to develop the doctrine of “undue experimentation”. This doctrine leads to finding a patent nonenabling and void when, in order to make the allegedly infringing embodiment, extensive experimentation beyond what was disclosed in the patentee’s specification is required. In this case, the Court stated: “if the description be so vague and uncertain that no one can tell, except by independent experiments, how to construct the patented device, the patent is void” 1057. This argument allowed Thomas Edison to keep working and obtain his Incandescent Lamp Patent1058. This patent challenged the patent of Sawyer and Mann. They discovered that carbonized paper worked as an effective light-emitting conductor in light bulbs and claimed the right to use all carbonized fibrous or textile material as incandescing conductors1059. In this specific case, the Supreme Court held that the Sawyer and Mann patent was invalid since it would take a good deal of additional experimentation to determine whether incandescing conductors could be made out of the many materials they claimed1060.

The disclosure and enablement theories reduce the scope of protection since they take into consideration the effort required to find new applications or improvement of patented technologies. However, the claim is in principle valid as long as the analysis of its content enables a person skilled in the art to make and use it as it was understood at the filing date (enablement doctrine), even though the claim turns out to be beyond his actual research and covers later developments, which, possibly, were necessary to make the original invention commercially useful. Examiners can only reduce the claim when they can prove that the claim is well beyond the area actually explored and disclosed by the inventor (disproving enablement)1061.

1057 See Merges and Nelson at 850.
1059 Id.
1060 Similar is the case of the Morse telegraphy patent, which claimed the ownership of all methods of communicating at a distance using electromagnetic waves. This claim was declared invalid since the disclosure had not disclosed, or even imagined all methods. See O’Reilly v. Morse, 56 U.S. 62 (15 How.), (1854).
1061 See Merges and Nelson at 538.
(III) "AS A WHOLE" TEST OF EQUIVALENTS

There is a recent tendency in the courts to apply the doctrine of equivalents more consistently with the principles of enablement. In some cases, an “as a whole” test for equivalents is made, whereby the court evaluates the total improvements in order to determine a non infringement. The criteria consider all the improvements achieved. An example of these improvements are the reduction of the number of components (if the new engineer reduces the cost of logic and the economic costs of manufacture), the increase in the efficiency of individual components, change in materials and in general any enhancements in the overall design\textsuperscript{1062}.

An example of this is a recent case involving Texas Instruments’ pioneering patent on the hand-held calculator.\textsuperscript{1063} In this case, the court rendered the improved devices as noninfringing concluding “that the total of the technological changes beyond what the inventors disclosed transcends ... equitable limits ... and propels the accused devices beyond a just scope” for the Texas Instrument’s patent\textsuperscript{1064}.

(2) Japanese System of Claim Interpretation

The Japanese system is constructed to promote the claim of small inventions. This is achieved through the reform of 1921 of the Patent Law which established that in the description of the scope claimed for the patent “only the matter indispensable to the construction of the invention described in the detailed explanation of the invention shall be stated”\textsuperscript{1065}. The determination of inventive step and novelty are the same in Japan, they result from the comparison between the claim and the prior arts\textsuperscript{1066}. In determining infringement, the common practice in Japan has been to compare each description of a contested claim with the correspondent description of the patented invention. Infringement exists if the descriptions are identical\textsuperscript{1067}.

\textsuperscript{1062}Id. at 859.
\textsuperscript{1064}Id. at 1571, and Texas Instruments, Inc. v. United States Int’l Trade Comm’n , 231 U.S.P.Q. (BNA) 833, 841 (Fed. Cir. 1986).
\textsuperscript{1066}Someno at 375. See also Finnegan at 23.
\textsuperscript{1067}Id.
The technical scope of the patented invention is determined by the claim\textsuperscript{1068}, and therefore the description of the claim constitutes the basis for determining infringement. Thereby, a claim falls under the scope of protection of an already patented invention only when all descriptions of the claims are compared and exhibit all the descriptions of the patented invention\textsuperscript{1069}. Consequently, there is no infringement when an element or feature is missing in the description of a patented invention\textsuperscript{1070}.

Article 72 of the Japanese Patent Law regulates the “utilization invention”. A utilization invention is an invention which adds a new technical element to the essential elements of a patented invention; it must include and utilize all of the essential elements of that patented invention. Example of this is the case Société des Usines Chimique Rhone Poulene v. Yoshitomi Seiyaku K.K.\textsuperscript{1071}, referring to patent on a chemical method. The French company owned four Japanese patents on a process for manufacturing chlorpromazine and granted another Japanese firm an exclusive license. The respondent was engaged in the manufacture of chlorpromazine preparation by the oxide method, which was identical to Wintemin in construction. The claimant filed a petition for a temporary injunction contending that the oxide method used by the respondent was an equivalent or a detour method that infringed upon the claimant’s patents and that is was at best a “utilization invention”\textsuperscript{1072}. The starting substance, chemical means, and end product constitute the essential elements of the patent. The respondent’s oxide method did not include all such elements of the claimant’s patented invention since method (1) was different in the means and end product, method (2) in the starting substance, and method (3) in the starting substance and means. This lead the Japanese court to the conclusion that none of the respondent’s methods can be regarded as “utilization inventions”.

This extreme position has been partially modified by the doctrine of the “incomplete use of an invention”. This doctrine refers to a third incomplete

\textsuperscript{1068} § 70 of the Japanese Patent Law. See Someno at 375.

\textsuperscript{1069} Decision of the Tokyo Cour of Appeals of June 17, 1976, quoted by Someno, Yoshinobu and Someno, Keiko, Patentverletzung durch unvollkommene Benutzung der Erfindung, 1983GRUR Int. 581, 583.

\textsuperscript{1070} See Someno at 375, who mentioned among others the decision of the Dist. Ct. of Nagoya of Dec. 21, 1987, Hankô 2305-139-399.

\textsuperscript{1071} See Doi at 38, who quoted the case Société des Usines Chimique Rhone Poulene v. Yoshitomi Seiyaku K.K., HANREI JIHÔ (Osaka Dist. Ct., Sept. 11, 1958); 1DIGEST 34.
person’s use of a technique in order to avoid infringement, under the following circumstances: a) an unimportant point of the description of a patented invention is omitted, b) he produces similar products to those resulting from the patented technique, c) the efficacy of the utilization invention, in comparison to the previous one, are principally demerit. In this case, this conduct is regarded equivalent as to the case where the respondent uses the same technical idea, excluding the omitted feature, and thereby infringes the scope of protection of the patented invention.\textsuperscript{1073} The determination of the importance or unimportance of the omitted feature is controversial\textsuperscript{1074}, to the extreme of leading the District Court of Osaka to doubt the applicability of this doctrine.\textsuperscript{1075}

The doctrine of equivalents has also been used in Japan in order to avoid a harsh result for the patentee under literal interpretation of the technical scope of the patented invention.\textsuperscript{1076} The District Court of Osaka has defined this doctrine under the following terms: “requisite for the constitution of an equivalence is the interchangeability, \textit{i.e.}, that the technique on the basis of the patented invention could be exchangeable with another with the same effects, and this change be manifest, \textit{i.e.}, a person skilled in the art could consider it as obvious.”\textsuperscript{1077} The Tokyo Supreme Court stated on the decision of February 24, 1988, that “even if the allegedly infringing device partially differs from the wording of the claims, an equivalence can be affirmed if: (i.) the above difference concerns an essential part of the claimed invention, (ii.) the allegedly infringing device despite the replacement still attains the same purpose and result, (iii.) a person skilled in the art could have easily anticipated the replacement at the time of production, (iv.) the allegedly infringing device at the time of the patent application did not belong to the state of the art or could have been easily anticipated therefrom, and (v.) in

\textsuperscript{1072} \textit{Id.} at 39.
\textsuperscript{1074} \textit{Someno} and \textit{Someno} at 582.
\textsuperscript{1075} Decision of July 25, 1980, Hanrei-Kôgyôshôyûkênhô, 2535-5-495-529, quoted by \textit{Someno} and \textit{Someno} at 582.
\textsuperscript{1077} See \textit{Someno} at 376 and \textit{Doi}, The Intellectual Property Law, at 36-37.
the course of patent application proceedings, the scope of the patent claims was not meant to exclude the allegedly infringing device. If the allegedly infringing device according to the above can be understood as an equivalent to the scope claimed in the patented invention, it should be regarded as falling within such scope”.

This decision strengthens the use of the doctrine in Japan since the Supreme Court states that a person skilled in the art could have easily anticipated the allegedly infringing replacement at the time of production. Previously, instead of the time of production, it was required that the person skilled in the art could have easily anticipated the allegedly infringement replacement at the time of filing, failing thereby to acknowledge the impossibility of predicting all possible future modifications at the time applicants draft claims.\(^{1078}\)

The Japanese courts have also recognized the US doctrine of file wrapper estoppel, but applying, for those cases, the Civil Code principle of good faith.\(^{1079}\) The Tokyo District Court held that the inventor who declared that his invention was limited to a process of using a certain type of coating method was not permitted to contend later that the other process which did not use this method had the same functional effect, and, therefore, he was barred from claiming that the defendant’s process of using the other method was equivalent to the plaintiff’s patented invention.\(^{1080}\)

The court protection of improvers is not as important in Japan as it is in the USA. Article 92 (1) of the Japanese Patent Law provides that a patentee or an exclusive licensee may, when its patented invention falls under one of the cases provided in Article 72, \(i.e.,\) when such patented invention utilizes a patented invention, registered utility model or registered design or a similar design, request the other person under the said Article to negotiate for the granting of a nonexclusive license for the working of the patented invention or a nonexclusive license on the utility model right or the design right. When the patentee or the exclusive licensee is unable to obtain a nonexclusive license after negotiation or is unable to enter


\(^{1079}\)Doi, The Intellectual Property Law at 37.

into negotiation, he may request an arbitration of the Direction General of the Patent Office under Article 92.(3)\textsuperscript{1081}.

(3) \textbf{Limitations of Application of Doctrines Reducing Scope of Protection}

Although the US system tends to have a peripheral character, application of the reverse doctrine of equivalents to narrow the broadly written claims is rare\textsuperscript{1082}. Courts have problems in defining the required level of improvement, \textit{i.e.}, the level of newness of the “new way to used the technology” that would be enough to justify the application of the reverse equivalent doctrine. Courts are generally sharply divided on this issue\textsuperscript{1083}. Sometimes the claim is drastically narrowed, as a mechanism of avoiding nullifying the patent. This was the case with the Selden patent of a combustion engine granted in 1895 on the basic elements of the early automobile, transmission and engine\textsuperscript{1084}. The claim failure in specifying many important details about the device and the broad idea was obvious. However, instead of invalidating the patent, the Second Circuit drastically narrowed the claim to the particular kind of gasoline engine used by Selden\textsuperscript{1085}.

The importance of the use of the enablement theory can be perceived in the case of the Gillette patent. Claim two of the Gillette patent: reads “(I claim as) a new article of manufacture, a detachable razor-blade of such thinness and flexibility as to require external support to give rigidity to its cutting edge”\textsuperscript{1086}. Examiners and courts are supposed to narrow the protection granted to a such wide claim, giving the doctrine of equivalents an inverse function (reverse doctrine of equivalents). But in fact, the US system seldom uses the reverse doctrine of equivalents. On the contrary, courts tend to expand the scope of the claim with the doctrine of

\textsuperscript{1081} Doi, The Intellectual Property Law, at. 39.
\textsuperscript{1082} Errico at 164. See also Merges and Nelson at 864.
\textsuperscript{1083} See 775 F.2d at 1123, 227 U.S.P.Q. at 587 (lead opinion, five judges joining). See id. at 1132, 227 U.S. P.Q. at 594 (Davis, J., concurring); id. at 1133, 227 U.S.P.Q., at 595, (Kashiwa, J., dissenting, five judges joining).
\textsuperscript{1084} See Columbia Motor Car Co. v. C.A. Duerr & Co., 184 F. 893, 894 (2d Cir. 1911).
\textsuperscript{1085} Id. at 908-9.
\textsuperscript{1086} See Gillette Safety Razor Co. v. Clark Blade & Razor Co., 187 F. 149, 149 (C.C.D.N.J. 1911), aff’d, 194 F. 421 (3d Cir. 1912).
equivalents\textsuperscript{1087}. The \textit{Gillette} case gave a precedent for a broad protection of devices that offer a large potential to develop alternative uses.

The “grooved and eye-pointed needle” patent of Elias Howe is a classic example of the difficulty in defining the scope of protection of these kind of devices. The US Supreme Court in \textit{Deering v. Winone} stated, “The invention of a needle with the eye near the point is the basis of all the sewing machines used, but the methods of operating such a needle are many; and, if Howe had been obliged to make his own method a part of every claim in which the needle was an element, his patent would have been practically worthless”\textsuperscript{1088}. This same argument was used by the defense of Clark Blade regarding the suit for patent infringement of Gillette. Clark argued that Gillette’s patent did not describe sufficiently all the possible embodiments of the blade. In addition, Clark’s design fell outside the range of what Gillette’s disclosure had described. The Third Circuit rejected the defense using the same argument that the Supreme Court used in the case of Howe.

The reverse doctrine of equivalents, although frequently argued for by infringers, rarely successfully asserted in the USA\textsuperscript{1089}, and it has never been applied by the Federal Circuit\textsuperscript{1090}. Courts tend to issue an improvement patent, or hold that a patent is valid but subservient to another patent\textsuperscript{1091}. Courts use the reverse doctrine of equivalents most to limit the reach of a patentee’s claim in the face of substantial technological improvements\textsuperscript{1092}. Consequently, innovators who improve existing technologies suffer the enormous risk of not being able to participate in the profits that their work may generate. Therefore, use of the doctrines reducing the scope of protection are not enough to move the patent system away from hindering the creation of a networking innovation system.

This situation can be explained by the fact that case law cannot easily change the global perspective of an institution. US case law has not modified the conception of patents as monopolies or private property; instead, it has tried to adjust the

\textsuperscript{1087}Errico at 164.


\textsuperscript{1089}As shown in \textit{Phillips Petroleum Co. v. United States Steel Corp.}, 673 F. Supp. 1278, 1340, 6 U.S.P.Q. 2d (BNA) 1065, 1123 (D. Del. 1987).


\textsuperscript{1091}\textit{Phillips Petroleum Co. v. United States Steel Corp.}, 865 F. 2d 1247, 1253 n. 11, 9 U.S.P.Q. 2d (BNA) 1461, 1466 n. 11 (Fed. Cir. 1989).
system by creating exceptions for particular cases. The excessive application of exceptions to general principles can produce too much uncertainty in the legal system.

The Japanese system seems to go to the other extreme, giving a too narrow scope of protection. Notwithstanding the strict central definition, which appears to be better suited to the Japanese patent system, Japanese courts, rather than compensating the narrow specification with the doctrine of equivalents, tend to interpret patent claims narrowly. In this way, the system eases even more in designing around predominantly foreign innovations.\textsuperscript{1093}

Similar positions are prevailing in new technologies like biotechnology. An example is the transgenic mice case. Transgenic mice provide important assistance for finding cancer therapies because of their extreme sensitiveness to carcinogens.\textsuperscript{1094} Leder and Stewart developed a technique to isolate a gene which is associated with cancer in mammals. The transgenic mice resulted from the injection of the gene into a fertilized mouse egg. The claim concerning the transgenic mice was very broad, including not only their technique and the mice they created, but also all “non-human transgenic mammals”. The European Patent Office rejected the claims of this patent that went beyond rodents. The main concern of the European Patent Office was that other inventions like the development of other techniques or the development of higher-order mammals would infringe this patent, even though considerable experimentation and problem-solving may be required to produce the same result. The broad scope of protection may block other research.

The extreme positions of US case law, which grants too broad a scope of protection and Japanese jurisprudence, which grants too narrow a scope of protection, are result from the lack of an adequate definition of the legal nature of the patent right able to conciliate all interests of the parties involved. As a result, patent systems have to choose between a too high level or a too low level of protection. The core problem of the patent system is the absolute exclusion right given by patents. Only through a systematic adjustment of the institution, starting

\textsuperscript{1092} Merges and Nelson at 864.


with the definition of its legal nature can this problem be solved appropriately. An example of this is precisely Edisons’ incandescent lamp patent mentioned above. Although this patent was granted in order to motivate the improvements of Edison on the basic invention of Sawyer and Mann, the lack of competition propitiated by the patent slowed the pace of the technical advance of Edison’s firm\textsuperscript{1095}. Even more, the incandescent lamp patent was later used to stop the development of this technology. This problem has been summarized in the following terms: “The lengthy and expensive patent struggle in the lamp industry from 1885 to 1894 was a serious damper on progress in lamp design, although process improvement continued. The Edison interests concentrated on eliminating competition rather than outstripping it... . After 1894, when it was no longer protected by a basic lamp patent, General Electric devoted more attention to lamp improvement to maintain its market superiority” \textsuperscript{1096}.

The right way to change the spirit of an institution is through a global consideration of its virtues and defects, and all the available possibilities of improving it. This is more the responsibility of legislators. As discussed before, the TRIPS Agreement brought new elements which enable US case law to reconsider the legal nature of the patent right in order to conciliate interests of improvers and pioneer inventors.

In conclusion, the doctrines for the reduction of the scope of protection of the patent right developed by US case law constitute a powerful complementary instrument to adjust patent protection in order to conciliate between the interests of pioneers and improvers of technology. They are an important instrument, but not sufficient for adjusting the patent institution in order to take advantage of the systemic nature of innovation and the networking system. Other instruments like compulsory licensing and the redefinition of the legal nature of the patent right may also be necessary to grant suitable protection to users and improvers of patented technologies. These measures should be intended to make patent holders aware of the profitability of networking with licensing\textsuperscript{1097}.


\textsuperscript{1096} Id. at 138-139. See also Merges, Robert, and Nelson, Richard, On the Complex Economics of Patent Scope, at 884-887.

\textsuperscript{1097} Concerning the potentiality of licensing, see Simensky and Bryer at 333-34.
4. Regulation of Small Patents

a) Paradox of Information

One of the basic problems that patent rights solve is the information paradox. If information is unprotected, its holder cannot sell it, because in order to negotiate it, he must disclose the idea, but once disclosed, the buyer does not need to pay a price to obtain the information he already has. On the other hand, only when the idea is already known by the other party, that party can make an objective valuation of it. One solution of this paradox is the patent protection. In order to maximize the use of this solution to facilitate exchange of information it is better to facilitate the issue of patents. The issue of small patents, covering small information, could improve the patent system, since the information will be ready to exchange as soon as it is available. When the requirements for patenting are high, parties must increase the amount of required research to conform with them, delaying the patenting of that information. As a result, one way to promote technology transfer and technology creation simultaneously is by promoting the filing of small inventions, reducing the scope of protection and the inventive step requirements.

An example of this principle is the commercialization of microelectronics and biotechnology innovations by new firms in the USA. The relatively permissive intellectual property regime in these industries aided technology diffusion and reduced the burden on young firms of litigation over innovations that may have originated in part within established firms or other research installations. The continuing uncertainty over the strength and breadth of intellectual property, protection particularly in biotechnology, may have discouraged litigation. Technology diffusion was also promoted by liberal licensing and cross-licensing policies, which were a by-product of the 1956 consent decree that settled the federal antitrust suit against AT&T.

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1099 See Mowery and Rosenberg at 49.

1100 Id.

1101 Id.
b) Advantages of Filing Small Inventions - Case of Utility Models

In Japan an invention is conceived as a “technical idea” that allow those skilled in the art to obtain the desired technical result by examining the disclosure. This definition of inventions, together with the reduced scope of protection, leads to the objection that Japanese patents “disclose very little, they file what is a very rough sketch, [something that is just an idea in somebody’s head].” However, the advantages of the system seem to overrule its disadvantages. This system facilitates the process of patent filing, allowing inventors the easy protection of every technical idea they have, without trying to make a complicated application that could include many related inventions, as is the case in the USA. The most important requirement of the filing is a full description of how the invention works, i.e., the reduction to practice of the invention.

It is important to note that undeveloped inventions remain unprotected in Japan. The Japanese Supreme Court interprets this “completeness” requirement as follows: “anything in the technical context which is not sufficiently disclosed to this extent (concrete and objective to such an extent that those skilled in the art can obtain the desired technical result by reading the disclosure) leaves the application’s subject matter incomplete as an invention.” This interpretation forces inventors to disclose their invention in a concrete way as soon as they find a technical application for it. In Japan, the conception of an idea and its reduction to practice are nearly simultaneous under the law. In this way, the industrial base may have better access to new commercial processes and products.

On the other hand, the refusal to protect incomplete inventions may hinder innovation, as it does not allow an inventor to obtain a share in a work, which, however incomplete, can generate further results through the systemic nature of innovation. This situation does not facilitate the joint research process. It would be better to allow a sort of co-property of patents when one inventor proves that had

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1104 See § 2, 1 of the Japanese Patent Law. See also Someno at 371-72.


1106 Errico at 156.
he contributed to the basic idea (an undeveloped invention) and another contributed to the final development and improvement of this invention. A suitable solution provided by the compulsory licensing framework, as it is latter defined. The protection of small inventions facilitates the filing of patents; however, in order to obtain protection for all applications and improvements of the original idea, inventors are continuously compelled to present new “technical ideas” as further developments of the original one. They are forced to patent at every state of the inventive process in order to secure themselves a place in the industry. Since it is possible that other firms find and patent other applications and improvements of the already existing patented technology, firms constantly find the need to make cross-license and technology transfer agreements within one another. This is clear when the number of patent applications of Japanese and US enterprises are compared: while in 1986 Toshiba Corp. filed about 20,000 applications in Japan, IBM filed in an average year 600 applications in the USA.

The small patent of Japan responds to similar needs as those that motivated Western countries to create utility models protection. Utility model laws were created to protect functional improvements in the three-dimensional shapes of hand-tolls and similar implements which neither patent, ornamental design laws nor trade secret law effectively protected. Contrary to patents, utility models did not protect the underlying idea or process, but the external product configuration or part thereof that enhanced the technical proficiency of the tool or implement, having a narrower scope of protection than patents. On the other hand, the protection is almost immediately obtained for a relatively short period of time (6 to 10 years) without a substantive examination, deviating from the patent norm, which traditionally requires a true inventive step as a prerequisite for protection. Utility model protection was predominantly created to reward

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1107 See the latter section entitled: Liability Rule as Optimal Protection to Patent Entitlements.
1108 See Someno at 376.
1109 See Rahn at 338-39, referring to the patent-net strategy.
1110 See An American Views Japan’s Copycat Culture, The Wall Street Journal (July 12, 1988), at 29. See also Someno at 376.
1111 Reichman, J. H., Legal Hybrids Between the Patents and Copyright Paradigms, 94 Colum L. Rev. 2432, 2455 (1994).
1112 Id. at 2455-2456.
minor local inventions at early states of the industrial revolution in such countries as Germany, Italy and Japan\textsuperscript{1113}, and to provide artificial lead time to compensate for the lack of natural lead time in trade secret law\textsuperscript{1114}.

c) \textit{Problems of Small Inventions -The Patent Flooding Technique}

Reduction in the scope of patent protection allows other firms to research on patented technology and to obtain patents for their inventions. This system has been criticized for bringing disadvantages to small companies and foreign corporations trying to gain a market share\textsuperscript{1115}. This system hinders enterprises from using their patents to consolidate monopolies, as other firms obtain patents over areas in which the owner of the main patent had already projected further developments. However, this situation can hamper the owner of the basic patent in marketing its technology, because many of the practical and commercial expressions would infringe patents owned by others.

This was the case with the Fusion Systems Corp. in 1970\textsuperscript{1116}, which perfected an ultraviolet light that dried up photochemically active inks onto almost instantly. This technology allows the decoration of, for example, soda cans and plastic items, at a lower price and with better quality. Fusion System Corp. also produced most of the ultraviolet curing equipment in the world. Fusion System Corp. refused to grant licenses of this technology to Mitsubishi. In 1977, Mitsubishi began filing a number of patent applications in Japan, surrounding the patented invention with over 250 patents over very similar equipment. This situation would not be possible in the USA, where most patent applications would never have been granted since the obviousness standard requires higher inventiveness than the Japanese system\textsuperscript{1117}. In the end Mitsubishi bought enough stock of the firm to control the directory and purchased the rights to the technology for Japanese and US markets\textsuperscript{1118}.

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\textsuperscript{1113} \textit{Id.} at 2455. See also \textit{Beier}, Friedrich-Karl \textit{et al.} (eds.), 6 German Industrial Property, Copyright and Antitrust Laws 72, 2d. rev. & enlarged ed. 1989, IIC Studies, Munich, 1989.
\textsuperscript{1114} \textit{Reichman} at 2459.
\textsuperscript{1115} \textit{Errico} at155.
\textsuperscript{1116} \textit{Id.} at 140-141.
\textsuperscript{1117} \textit{Id.}
\textsuperscript{1118} \textit{Id.} at 141.
The patent-net strategy or patent flooding technique has been interpreted by US enterprises in Japan as a patent war\textsuperscript{1119}. Normally, US enterprises, particularly small firms, feel this technique is a patent extortion that forces them to invest thousand of dollars on applications of their own. Small firms cannot afford to invest such large sums.

Patent wars are a good example of the importance of an appropriate framework for patent regulation that conciliates the interest of participants in the innovation system. In some cases, the original patent should obtain protection from subservient patents, which, through small improvements, can hinder the exploitation of an important discovery, which may be originated after incurring important costs. But generally, the core of the problem is the intention of the patent holder to block further developments of its technology and assure a monopolistic position in the market. To solve this kind of problem, mechanisms that allow parties to distribute in an effective way the gains originated by their innovation efforts have to be created, in a context of networks in which technology is shared and profits from its exploitation are distributed among all the participants.

The inability of the holder of a main patent to negotiate with the holder of improvement patents could lead to unfair results for both parties. A key factor in solving this paradox is the creation of an institutional framework that invites the patent holder to seek profits from innovation through technology transfer instead of concentrating efforts in exploiting their innovation on a monopolistic basis.

In conclusion, the protection of small patents can be interpreted as disadvantageous only for firms that does not want to incorporate themselves in the network of cross-licensing. Small firms would be more flexible in their developing process if they could easily acquire technology from other firms and obtain additional profits by improving the existing technologies and licensing them to others. Furthermore, foreign corporations are also negatively affected by the use of patents to gain market share by monopolizing patented technologies. Therefore, the net effect of protecting small inventions should be positive. Small patents protection is expected to give more stability to industry as it protects both small and foreign corporations from going out of business just because another

\textsuperscript{1119} See Rahn at 378-379.
enterprise has patented a new vital technology and is using it in a monopolistic way, excluding others.

5. Basic Problems of Dependent Patents

Depended or subservient patents are those granted on an invention that constitutes an improvement or a new application of an already patented invention (principal patent), such that the dependent invention cannot be used independently of the principal. Similar situations can occur between two independent patents in cases of interdependent inventions. Inventions can be interdependent when they can be integrated to create a device, for example, sometimes the use of a particular technology is necessary in order to give a commercial use to another technology. These cases are considered “utilization inventions” by the Japanese Patent Law.¹¹²⁰

a) General Problems of the Dependent Patents

The legal framework should take into consideration the actual problems generated by the exploitation of patent rights as monopoly or as property rights, which hinders the holder of a dependent patent from giving commercial use to his invention. Article 72 of the Japanese Patent Law, for example, states “A patentee, exclusive licensee or non exclusive licensee hall not work his patented invention as a business, when such patented invention utilizes a patented invention, registered utility model or registered design or design similar thereto of another person based on an application filed earlier than the date of the patent aplication concerened or when his patent right conflicts with the design right of another person based on an application for design registration filed earlier than the date of the patent application concerned.”¹¹²¹ A Similar position is found in the US case law and German jurisprudence.¹¹²²

The problems of the holder of a dependent patent can be summarized as follows.

¹¹²¹ Id.
(1) **Blocking Patents**

The traditional definition of patent rights, centered on the exclusion right, constitutes an obstacle for the protection of improvements. In this case, the inventor can patent the improvement, but this should not affect the original patentee’s rights. As a result, the original patent right can be used totally to exclude the exploitation of the subservient patent. Original patents can be regarded as the right to exclude an astoundingly meritorious improvement which also deserved patent protection\(^{1123}\).

In this case, the patent of one technology blocks the commercial exploitation of the other patent. This happens when there is a broad patent on an invention (dominant patent) and there is another narrower patent on some improved feature of that invention (dependent or subservient patent). Subservient patents are granted when they disclose an improvement feature that meets the statutory test of novelty and nonobviousness\(^{1124}\). Because a patent grants the right to exclude, and not an affirmative right to practice, an invention\(^{1125}\), neither of the two patentees can lawfully use the invention of the other without the others’ consent. The owner of the subservient patent cannot exploit it without a license of the owner of the dominant patent. At the same time, the subservient patent reduces the scope of protection of the claims of the dominant patent because, even though the improvement falls within the scope of his claim, the holder of the dominant patent requires a license from the owner of the subservient patent if he wants to practice the particular improved feature.

The use of an original patent to block subservient ones constitutes a mechanism that totally hinders the holder of the subservient patent from obtaining a profit from the invention. Given such a case, the subservient patent has no economic value for its holder.

This problem is solved in the Japanese system by defining the obligation of the patent holder to negotiate the granting of a nonexclusive license. In case that the patentee is unable to obtain a nonexclusive license after negotiation or is unable to

\(^{1123}\) Merges and Nelson at 865.


enter into negotiation, he may request arbitration of the Director General of the Patent Office under Article 92 (3)\textsuperscript{1126}.

(2) \textit{Use of Patents as a “Holdup” Right}

Since a subservient patent will obtain no profit if the holder of the original patentee’s right denies a license, the holder of the original patent has unequal bargaining power. This situation gives the original patentee the power to obtain as much of the value of the improvement as possible\textsuperscript{1127}. In an extreme case, the holder of a subservient patent either obtains no profit, or accepts any offer of the holder of the original patent. Since the holder of the original patent has a right normally defined as a monopoly right, or a property right, he has in principle no limits on the use of his patent, including the exclusion of the improvement, even when the improvement has higher or more relevant industrial value than the original patent. The definition of the patent right invites the holder of the original patent right to use a hard bargaining position with the subservient patent.

In case the subservient patent brings enormously improves on the industrial value of the original patent, the holder of the original patent could be interested in the non-implementation of the improvement (since the original device may lose an important market share) unless he can rape an important part of the new value originated by the innovation. The system promotes a “windfall” to the original patentee at the expenses of improvers\textsuperscript{1128} and in many cases negotiation “deadlocks” that affect both parties\textsuperscript{1129}.

(3) \textit{Determining the Contribution of the Subservient Patent}

Since each invention is unique, it is difficult to determine to which degree the prior work added value to subsequent ones. This problem is originated by the abstract quality of the benefits conferred by prior works and the systemic nature of

\begin{footnotes}
\item[1126] See Doi, The Intellectual Property Law, at 39.
\item[1128] See Merges and Nelson at 866.
\end{footnotes}
innovation, *i.e.*, the cumulative and interdependent nature of works covered by patent rights\textsuperscript{1130}.

Both extreme cases are possible: prior creations may be regarded as a minor inputs that are subsequently incorporated into a larger product, or new creations may constitute minor inputs that are subsequently incorporated into an already well defined old product. In addition, it is possible that new creations take on a form similar to a common “ancestor work”. Therefore, it is also possible that parties may not even know if one creation infringes another patent, *i.e.*, whether the prior work added to the value of the subsequent one\textsuperscript{1131}.

This situation heavily complicates the negotiation of licenses between original and subservient patent holders, since they are unlikely to agree in which proportion the value of a new invention corresponds to the prior creation and to the improvement\textsuperscript{1132}. As a result it is difficult to expect that parties would easily reach agreement on the joint costs and benefits of a mutual exploitation of both patents in a new product\textsuperscript{1133}. The high transaction costs involved in the negotiation of license agreements constitute one of the principal causes that preclude the formation of a market for patent and license rights\textsuperscript{1134}.

(4) *Misappropriation*

The problem of misappropriation constitutes an important argument for granting strong protection to original patent holders. It refers to the risk that an original inventor has of not recouping costs of R&D at a fair return on investment because another skilled manufacturer can discover a new design, apparently much more efficient and cheaply. Semiconductor chips and particularly computer programs that can be easily decompiled are typical examples. The misappropriation case is based on the fact that it is not always possible to protect all the know-how incorporated in the creation of new technology and that the product itself can actually easily copied because it “bears their know-how on their face”, or because

\textsuperscript{1130} Merges, Robert, Of Property rules, Coarse, and Intellectual Property, 94 Colum. L. Rev.2655, 2659 (1994).

\textsuperscript{1131} *Id.* at 2658.

\textsuperscript{1132} *Id.* at 2658.

\textsuperscript{1133} *Id.* at 2660.

\textsuperscript{1134} *Id.* at. 2661.
the new stand of technology allows it. Innovators may confront the problem that their inventions are cheaply and easily copied or improved. In those cases, weak patent protection could hinder them from obtaining reasonable payment for their research and development investments.

As a result, “cycles of over- and underprotection” are to be expected in new products of technology. For this reason, patent protection should consider not only the specific protected technology, but also the methods of copying and improving it in order to determine an optimal balance of protection. In order to protect intangibles that do not fall specifically into intellectual property law, US case law has recurred to the “common law of misappropriation”. This law is perceived as a relatively amorphous field, influenced by notions of proper commercial ethics which allow a significant subjective component to the decisions, but that nonetheless, has been developed by case law to define certain clear themes. Courts will generally grant protection to ideas that are concrete, novel and useful.

A possible solution to this problem is the creation of a general antimisappropriation statute. This statute can give courts enough instruments to reduce the degree of over- and under-shooting of patent protection, allowing them to balance the conflicting policies in close cases. This statute should take into consideration and solve market failures.

(5) Need of Special Rules for Special Technologies

The protection of special technologies like biotechnology had clearly shown the need to define special rules to adjust patent protection to the actual needs of that industry. Biotechnological inventions usually cover the alteration or modification

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1135 Karjala, Dennis, Misappropriation as a Third Intellectual Property Paradigm, 94 Colum. L. Rev. 2594, 2602 (1994).
1136 Samuelson, Pamela, A Manifesto Concerning the Legal Protection of Computer Programs, 94 Colum. L. Rev. 2308, 2308 (1994).
1137 Karjala at 2603-2604.
1139 Id. at 120
1140 See Karjala at 2604.
of products already found in nature. A patent in this area usually blocks other improvements or applications because new research can often bring important results that can considerably change the economic value of the technology, even though these changes are based on precedent innovation. Patenting natural products offers a suitable example. There is a patent principle that states that a product patent covers a product no matter how it is made. Thus, when a new procedure a change on a natural product is achieved, inventors would tend to patent the new product itself, instead of the process.

This is the case of the claims concerning purified versions of products that exist in nature. Purified versions are achieved though bacteria or other expression “vehicles”. Since the information granted by the original patent usually helps toward the discovery of the new process or product, the nonenabling theory is not easy to apply in order to support new investigation. This was the case with a product created by Genentech, which used a recombinant DNA technology. Genentech discovered a recombination of a patented product which was much simpler and cheaper to prepare. However, this recombination was found to infringe a patent covering the product. In similar circumstances, the nonenablement theory has been applied in cases in which the applicants’ disclosed screening method yielded a success rate of only 4 working antibodies out of 143 candidates. In this case the court appointed out that undue experimentation was not necessarily required.

The field of electronics also offers interesting examples. Patent protection has been considered unimportant because of the difficulty of establishing novelty. Therefore, most patents are vulnerable to legal attack. It is thus usually easy to design around patented features. In addition, the product life cycles are much shorter than patent lives, while a new (or imitative) product development lead times are long. This situation leads to the conclusion that in the field of electrical and mechanical machinery, unpatented know-how provides stronger protection against imitation.

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1142 Merges and Nelson. at 851.

than patents\textsuperscript{1144}. In such cases, a patent of this technologies has sense only when the patent holder decides to make a business out of license negotiations.

In conclusion, due to the contradictions generated in the economics of new technology, new rules are required for patent protection. These rules should be based on solid principles of law, which allow patent holders to profit from their work through negotiation with other technology users and producers, and simultaneously hinder patent holders from blocking new improvements.

6. Problems of Experimental Use

The importance of the disclosure of the inventions is that it informs other scientists about new technological developments and offers them the possibility of carrying out experiments of this invention, which favors new inventions\textsuperscript{1145}. For this reason, the use of a patented invention for research purposes is generally accepted as an exception of the general prohibition of using a patented invention without the authorization of the patentee\textsuperscript{1146}. However, the experimental use defense has not been that evident. According to Title 35 U.S.C. § 271 (a), a statutory patent grant gives a patentee the “right to exclude others from making, using or selling” a patented invention. The use of a patented invention, without either manufacture of sale, is actionable\textsuperscript{1147}. The experimental use constitute a defense from infringement which originated in the following opinion written by Supreme Court Justice: “It could never have been the intention of the legislature to punish a man who constructed such a machine merely for philosophical experiments, or for the purpose of ascertaining the sufficiency of the machine to produce its described effects” \textsuperscript{1148}.

The definition of patent rights as private property has led to the interpretation that the free use of the protected technology by a third party is only allowed when this

\begin{itemize}
  \item \textsuperscript{1144} Scherer, The Economic Effects of Compulsory Patent Licensing at 61.
  \item \textsuperscript{1145} See Dreyfuss and Kwall at 764-65.
  \item \textsuperscript{1146} See § 6b in the German PatG 1981, See Straus, Zur Zulässigkeit, at 310.
  \item \textsuperscript{1147} See Aro Manufacturing Co. v. Convertible Top Replacement Co., 377 U.S. 476, 484. See also Roch Products, Inc. v. Bolar Pharmaceutical Co., Inc., U.S. Court of Appeals, 733 F2d. 858 (Fed. Cir., 1984), quoted by Dreyfuss and Kwall at 769-770.
\end{itemize}
use does not cause any economic deterioration of the protected invention. This principle can be summarized as: “No Act an Infringement unless it Affects the Pecuniary Interests of the Owner of the Patented Invention.” As a result, some non-commercial uses of the protected technology are questionable. This is the case of experimental use. Only experimental use for mere scientific purposes or strict research is traditionally not considered a violation of the protection granted by a patent right. Thus, experimental use, when carried out with the intent and design to develop another device or process for commercial gain is not allowed in the USA. In the USA this experimental use has been considered an indirect commercial use and therefore, a violation of the patent right.

The traditional German interpretation has stated that the only tests exempted by law from the effects of the patent are tests for scientific purposes. All other tests activities not covered by Sec. 11, No. 2 of the German Patent Act represent inadmissible and unlawful acts of use. This includes tests which, in addition to the purpose of gaining knowledge, present other further purposes or objectives for which such knowledge is to serve, which can be classified as commercial. This is the case of tests during the term of a patent, and which may be used as proof of marketability in government approval proceedings, which are considered already initiating the commercial exploitation of the used patented technology. This position is taken in the decision German “Ethomumesat”, which states that the right of experimenting does not authorize to make experiments which during the vigency of the patent, which may lead to the authorization of a competing product which may be placed in the market when the infringed patent expires. This line

1149 See Dreyfuss and Kwall at 771.
1150 § 890 of Robinson, W. The Law of Patents for Useful Inventions, (1890), quoted by Dreyfuss and Kwall at 771. For Robinson, the interest of the patentee is represented by the emoluments which he does or might receive from the practice of the invention by himself or thoses using his invention... Hence acts of infringement must attack the right of the patentee to these emoluments, infringement must attack the right of the patentee to these emoluments, and either turn them aside into other channels or prevent them from accruing in favor of any one.
1152 See Dreyfuss and Kwall at 769. See also Roche Products, Inc. v. Bolar Pharmaceutical Co., Inc. 733, F.2d 858 (Federal Circuit, 1984).
1153 See Chrocziel, Die Benutzung patentierter Erfindungen zu Versuchs- und Forschungszwecken, Cologne, 1986, 205. See also Straus, Zur Zulässigkeit, at 310-311.
of reasoning can also be found in the US doctrine: The legislature, enacting the patent monopoly right, has decided the progress of innovation, principally through recompensing the inventor with an exclusion right. Therefore, experimental uses which may deteriorate the pecuniary interests of the patentee are not allowed, since the remuneration of the patentee would thereby evidently be reduced\textsuperscript{1156}.

The EU Ordinance No. 1768/92 and it correspondent Project of Law of 4.9.92\textsuperscript{1157} authorizes a expansion of the duration of pharmaceutical products patents. This decision is justified by the fact that patenting this kind of products requires a prolonged authorization process which reduces their effective exploitation period\textsuperscript{1158}. This change strengthens the position of the German courts, which have ruled that experiments that not only pursue to improve the pharmaceutical product, but also contribute to the authorization of these products infringed therefore the original patent\textsuperscript{1159}. It is questionable whether this position hinders the innovation process in this field, as well as the public interest of promoting a cheaper supply of these products in the market\textsuperscript{1160}. This is more evident in the case alluded to above “Ethofumesat”, where a dependent patent was involved\textsuperscript{1161}. The Hard system of patent protection fails to properly take into account the interest of dependent patent holders and the public interests of promotion of innovation and supply\textsuperscript{1162}. It seems unable to define the equilibrium between the interests of patentees and uses of technology which have been mandated by Article 7 of the TRIPS Agreement. The interests of other inventors to joint efforts in the development of already patented inventions and to profit from their patented improvements is neglected in order to grant a stronger protection to patentees. This is particularly evident in pharmaceutical products. Here it has been argued that improvements and new developments of such products can be achieved with smaller efforts and risks than those normally incurred in the original

\textsuperscript{1156} Id. See also Pedrazzini, Mario, Zur patentrechtlichen Problematik von Versuchen, die ein fremdes Patentrecht benützen, 1996 GRUR Int. 373, 376.

\textsuperscript{1157} BR-Drucks. No. 601/92.


\textsuperscript{1159} See “Ethofumesat”, and Straus, Zur Zulässigkeit, at 316-317.

\textsuperscript{1160} Straus, Zur Zulässigkeit, at 316-317.

\textsuperscript{1161} A similar problem is to be found in the case Roche Products, Inc. v. Bolar Pharmaceutical Co., Inc, 733 F.2d. 858 (Fed. Cir., 1984), see Dreyfuss and Kwall at 769.

\textsuperscript{1162} See Straus, Zur Zulässigkeit, at 318.
developments\textsuperscript{1163}. Therefore, a protection to improvers is only granted in cases where a relevant public interest is involved, as for example, in cases where the dependent patent offers significantly better therapeutical results. Only in these cases may a compulsory license be granted\textsuperscript{1164}.

This is also the position of the USA. The US Congress also amended the Patent Act (§ 156 ) to provide extension of the patent term for certain subject matter that cannot be sold without the FDCA. The US system also authorizes compulsory licensing only when important public interest are involved\textsuperscript{1165}. However, the same enactment which created the extension of the patent for invention which cannot be sold without the FDCA approval, created § 271 (e) (1), permitting certain uses of patented products to generate information required under federal laws regulating drugs\textsuperscript{1166}.

The Western patent system, restricts experimental use of protected patents. It considers the patent right a sort of Seniorage over an invention, which includes the exploitation of all commercial possibilities, even those which require further research and inventive efforts\textsuperscript{1167}.

Contrarily the employment of the principle of the systemic nature of innovation has led Japan to encourage this experimental use of patented technology, as a way to increase innovation and cross-licensing\textsuperscript{1168}. Thus, Article 69, § 1 of the Japanese Patent Law authorizes “the exploitation of the patented invention to be carried out for a test or a research”. In a recent decision, the Japanese Supreme Court states that, clinical tests fall within the “test” defined in above mentioned paragraph. The court considers that if a such a clinical test by a generic drug manufacturer is deemed to infringe a drug patent, it would impart too much protection to the patentee and less benefit to the public due to the delay in the commercialization of

\textsuperscript{1163} See Pietzcker, Rolf, Patentrechtliche Fragen bei klinischen Untersuchungen - eine Erwiderung, 1994 GRUR 319, 321.
\textsuperscript{1164} § 24. 1 German PatG. See Straus, Zur Zulässigkeit, at 319.
\textsuperscript{1165} See 28 U.S.C. § 1498, which permits the USA to use a patented invention without authorization, but gives the patentee a right to “reasonable and entire” compensation in case of federal employees and contractors.
\textsuperscript{1166} Dreyfuss and Kwall at 773. According Eli Lilly & Co. v. Medtronic, Inc, 496 U.S. 661, 110 S.Ct. 2683 (1990), this exception also applies to medical devices.
\textsuperscript{1167} See Pedrazzini at 374.
\textsuperscript{1168} Errico at 166.
the competitive and usually less expensive generic drug\textsuperscript{1169}. The decision was built upon the following arguments: “The patent system is not only to encourage an invention by imparting an exclusive right for utilization thereof for a certain period of time to a person disclosing the invention but also to give an opportunity of utilizing the thus disclosed invention to a third party, thereby to contribute to the development of industries. From this point of view, it can be said that it is one of the keynotes for the patent system to enable any person or entity to freely utilize the invention after expiration of a patent thereby to give the benefit widely to the society in general”, and: “On the other hand, it should be interpreted that a third party is not allowed to produce during the duration period of the patent right the generic drug to be assigned after the expiration of said period, beyond the scope necessary for the test for requesting an approval of manufacture under the Drugs, Cosmetics and Medical Instruments Act. By interpreting in such however, it is interpreted to exclude even such production etc. for the tests necessary for requesting an approval of manufacture of the generic drug for said period, it would result as if the patent term is extended for a considerable period of time. This should be said as being beyond the benefit which the patent law has intended to impart to the patentee”\textsuperscript{1170}.

7. Compulsory Licensing as Instruments to Grant Proper Protection to Dependent Patents Holders and Technology Users

The original patent holder’s enormous power to block the commercial use of improvements and new applications is the principal problem of dependent patents. This situation strongly discourages the systemic exploitation of innovation and consequently, all the networking around the principal invention. On the other hand, there is a risk that dependent patents take the commercial value away from the original inventor, in cases in which the dependent patents define improvements or new applications that make the original invention obsolete. This situation requires the definition of proper regulations which adjust the interest of both

\textsuperscript{1169} Japanese Supreme Court, Case No. 153/1998 (received) entitled: “case of demanding injunction for sale of a drug”, decided on April 16, 1999, were the appellant was Ono Pharmaceutical Co., Ltd.\textsuperscript{n} and the defendant was Kyoto Pharmaceutical Co. Ltd. (Translation made by Tsukini & Associates, Tokyo). The Japanese Supreme Court confirmed the judgment of the Osaka High Court.
parties. The institutional framework should create better conditions for the negotiation between parties and facilitate the balance between the rights of the original patent holder and the holder of the improvement patent\textsuperscript{1171}. Compulsory licensing is an institution that can help to promote the creation of a system of innovation, harmonizing both, the interests of patent holders and users of technology. This section analyzes this institution.

\textit{a) Traditional Perspectives of Compulsory Licensing}

\textit{(1) Compulsory License as Anti-trust Measure in the USA and Europe}

\textit{(a) General Aspects}

The definition of the exclusion right as an absolute right has promoted the use of patents as an instrument to exclude competition, to the extreme that “patents are multiplied to protect an economic barony or empire, not to put new discoveries to use for the common good: it is a common practice to make an invention an to secure a patent to block off a competitor’s progress\textsuperscript{1172}. The United States has consistently taken the position that there should be no compulsory licensing of patents\textsuperscript{1173}. In this context, compulsory licensing have been regarded as an extreme restriction to patent owners, which may be only granted when there is an important collision between the exclusion interests of patentee and the social welfare or in antitrust case settlement. Typical is the case of the patentee refusing to exploit socially important inventions such as a cure for cancer or a better technique for brewing coffee. In such case the competent authority (the Congress

\textsuperscript{1170} \textit{Id.} See also Heath, Christopher, Erlangung und Durchsetzung von Patentrechten in Japan, 1998 GRUR Int. 555, 567.

\textsuperscript{1171} The difficulties of finding an equilibrium between the interest of providing an incentive to inventors and promoting free competition constitutes a vital problem of the Western patent system.. The failure to harmonise these interests promotes legal disputes and pressures for legal reforms. This uncertainty is not suitable to harmonise these interests. See Dawson Chemical Co. v. Rohm & Haas Co., 448 U.S. 176, 100 S.Ct. 2601, 65 L.Ed. 2d. 696 and Dreyfuss and Kwall at 773.

\textsuperscript{1172} See dissenting opinion of Mr. Justice Douglas in Special Equipment Co. v. Coe., 324 US 370 (1945) quoted by Dreyfuss and Kwall at 767.

\textsuperscript{1173} Dreyfuss and Kwall at 782.
in the USA) is expected to enact a compulsory license statute permitting others to use the invention upon the payment of a fee by the government\(^{1174}\).

Since all negotiations of technology transfer require a high amount of mutual trust, the framing of compulsory licensing as a regular mechanism to promote technology transfer has been questioned\(^{1175}\). In fact, the US legal system has rejected it and compulsory license provisions are available for patents only as a remedy for violation of the antitrust laws\(^{1176}\). Every attempt to alter the US law in order to make available compulsory licensing to the cases in which patent-based monopoly power has been abused has been beaten down as a result of determined opposition from industrial groups and the patent bar\(^{1177}\). In recent years, there is a tendency of US government and antitrust policy and case law to revise their viewpoint, whereby the attainment and exercise of power on the market as a result of innovative activity and patent rights is viewed as being harmless, even where it is enhanced by the accumulation of a large number of such rights\(^{1178}\).

Compulsory licensing is more developed in copyright statutes\(^{1179}\). In order to remove negotiation costs as an element of copyright transactions a legislatively predetermined or administratively prescribed rate is set for specific uses\(^{1180}\). Compulsory licensing reflects also congressional concern with the market power conferred on dominant music firms (specifically a music roll firm)\(^{1181}\). Compulsory licensing is under US law available for four classes of works 1) musical


\(^{1177}\) See Scherer, Industrial Market Structure and Economic Performance at 456, see also Staff of the Subcomm. on Patents, Trademarks, and Copyrights of the Senate Comm. on the Judiciary, 86\(^{th}\) Cong. 2d Sess., Compulsory Licensing of Patents - A Legislative History (Comm. Print 1958) (written by Cahterine S. Corry). See also Merges and Nelson, On the Complex Economics of Patent Scope at 840. He comments that compulsory licensing was routinely ordered for a brief time during the heyday of antitrust enforcement.

\(^{1178}\) Beier, Exclusive Rights, at 267.

\(^{1179}\) See Dreyfuss and Kwall at 782.


\(^{1181}\) Merges, Robert, Of Property Rules, Coarse, and Intellectual Property at 2670.
recordings\textsuperscript{1182}, songs played on jukeboxes\textsuperscript{1183}, 3) certain cable television transmissions\textsuperscript{1184} and certain uses of copyrighted works by public television\textsuperscript{1185}.

Concerning patents, the US patent system had chosen to introduce compulsory licenses as “mandatory licensing provisions embodied in antitrust case settlement”, which had in 1960 already affected between 40,000 and 50,000 patents\textsuperscript{1186}. This definition of compulsory license presents a coherent unity with the definition of patents as monopoly rights. Since the antitrust concerns are well accepted in the USA, the application of compulsory license is regarded a fair remedy.

The European Community had followed a similar position in case of copyrights and industrial designs. Article 86 of the E.C. Treaty forbids, as incompatible with the common market, the abusive exploitation of a dominant position within the common market. This protection is construed far more broadly than section 2 of the Sherman Act\textsuperscript{1187}. Within this context, the ECJ has frequently held that a firm enjoying a dominant position may be required to supply former customers\textsuperscript{1188}. This doctrine has been applied to enable smaller firms to enter a market, requiring the grant of a license in the case of copyrights\textsuperscript{1189}. However it is controversial of this judgment applies also to patents\textsuperscript{1190}. In the Volvo case, the ECJ ruled that the exclusive right was part of the very subject matter of a design right, therefore, to require a compulsory license even for a reasonable royalty would deprive the holder of the very substance of his intellectual property right\textsuperscript{1191}. The Court ruled that an abuse of the holder enjoying a dominant position may be configured in the following situations: (1) he refused to supply spare parts to independent repairers,

\begin{footnotes}
\item[1186] See Hollabaugh, Marcus and Wright, Robert, Compulsory Licensing under Antitrust Judgments, Staff report of the Subcommittee on Patents, Trademarks and Copyrights, Senate Committee on the Judiciary, Washington, 1960), 2-5.
\item[1187] Korah, Patents and Antitrust at 399.
\item[1188] Id. See also United Brands Co. and United Brands Continental BV v. Commission decided on 1986, case 133/84, [1986]ECR 1259, [1987]ECR 294. See also Bodewig at 242-245.
\item[1189] Korah at 400-01. See also the Magill litigation, Radio Telefis Eireann (RTE) v. Commission,(1995), 1995 case C-241, ECR 1-743, 4 CMLR 718.
\item[1190] Korah, Patents and Antitrust at 400.
\item[1191] Beier, the Exclusive Right, at 274.
\end{footnotes}
(2) he charged too high a price for those spare parts and (3) he ceased making spare parts for a particular model, when there were many cars still on the road\textsuperscript{1192}. As it would be discussed in Chapter 5, the competencies of the EU with regard to intellectual property rights are restricted by Articles 222 and 36 of the Treaty to the vital interests of the integration of the common market\textsuperscript{1193}. This may explain why the ECJ, having restricted competencies, has abstained to define general rules for intellectual property rights, therefore limiting its intervention to the protection of the interest of the EC common market. This situation may change when the EU organs, including the ECJ, taking into consideration the importance of the systemic nature of innovation for the development of the European Common Market, particularly its global competition, resolves that intellectual property rights are of their competency, since within the current integration and development of technology markets, and its effects in the their global competition, it is prioritary to define a european innovation system.

\textit{(b) Economic Effects of Compulsory Licensing under US Antitrust-Legislation}

Since under the Western system, the exclusive right of a patent is by its nature anticompetitive, it has been difficult to define a suitable relationship between antitrust policy and patent law\textsuperscript{1194}. Compulsory licenses would be granted as a remedy to factual monopolies, \textit{i.e.}, when the patent holder is obtaining privilege profit as monopolist and because of that, it can be presumed that he is obtaining considerable incentives for his investments in R&D. This can explain that there is no indication that mandatory licensing had an adverse effect on R&D investment\textsuperscript{1195}. Enterprises enjoying a monopolistic position are aware that they are in an antitrust-impacted business for long run and know that that they had to maintain a vigorous R&D program to remain competitive. They are aware that

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{1192} Id. at 401. See \textit{Volvo AB v. Erik Beng (U.K.) Ltd} (1988), case 238/87, [1988]ECR 6211, 4 CMLR 122. See also Bodewig at 247.
  \item \textsuperscript{1193} See also Korah, Patents and Antitrust at 408. She proposes the integration of Articles 90 and 86 of the Treaty to allow the Commission to address directives or decisions to member states which infringe Article 90 in cases when the patent holder refuses to grant licenses and is unable or in danger that it might fail to meet demand. Regarding non-working of a patent, see Laudien, Dieter, Patents and Competition, in Albach (ed), Intellectual Property Rights and Global Competition, Berlin, 1995, at 255, 258-261.
  \item \textsuperscript{1194} See Dreyfuss and Kwall at 780-82.
  \item \textsuperscript{1195} Scherer, The Economic Effects of Compulsory Patent Licensing, at 63.
\end{itemize}
\end{footnotesize}
with the time, the present technology becomes mature and consequently easily to 
be invented around. Consequently, they continue with their R&D, as it provides 
with know-how difficult to achieve unless one actually carried out development 
and R&D keeps the enterprise innovative\textsuperscript{1196}.

Antitrust suits and the correspondent consent decrees have been of importance for 
startup firms. Example is the 1956 settlement of the AT&T case. The consent 
decree prohibited AT&T from commercial activities outside of 
telecommunications and included liberal patent licensing terms what improved the 
environment for startup firms in microelectronics\textsuperscript{1197}. In the same year, another 
consent decree with IBM mandated liberal licensing by this pioneer computer firm 
of its punchcard and computer patents at reasonable rates\textsuperscript{1198}.

A possible negative effect of this compulsory license could be pointed out in the 
case of particularly risky investment decisions (those which might also have the 
highest payoff in technical accomplishment) because the uncertainty of possible 
patent protection may have a small but important effect\textsuperscript{1199}. In this cases it is 
expected that compulsory license may negatively influence the R&D investments 
of companies contemplating diversification into new areas of technology in which 
they lack the security of established distribution channels or brand recognition\textsuperscript{1200}. 
This problem can only be solved when courts grant compulsory licensing control 
which does not impede enterprises to obtain a fair profit, taking into consideration 
the particular technological risks involved.

There are two main arguments to question the positive effects of mandatory 
licensing under antitrust decrees\textsuperscript{1201}. First, there is some evidence that patenting of 
companies impacted by mandatory licensing decrees in the USA during the period 
1954-56 declines\textsuperscript{1202}. Second, given the initial market structure, subsequent market 
growth and the panoply of public policies affecting the industry, there is no

\textsuperscript{1196} Id. at 63.
\textsuperscript{1197} See Mowery and Rosenberg at 49.
\textsuperscript{1198} Id. See also Flamm, K., Creating the Computer, Washington, D.C., 1988.
\textsuperscript{1199} See Scherer, F.M, Herzstein, S.E, Deyfoos, A.W., et. al., Patents and the Corporation, Boston, 1959, 
154.
\textsuperscript{1200} Id. at 148-154.
\textsuperscript{1201} Scherer, The Economic Effects of Compulsory Patent Licensing, at 78.
\textsuperscript{1202} Id. at 67.
significant observed impact of compulsory licensing in reducing concentration relative to the changes that might have been expected in any event.\textsuperscript{1203}

This objections are an evidence that the creation of a better system for the diffusion and promotion of technology is not depending on isolated measures but in its integration of this measures in a system. It is very difficult to measure the economic impact of specific policies like compulsory licensing alone, first because the dynamic effects are generally not considered. A specific measure may not contribute to reduce the concentration of the industry, but could be essential to avoid that the situation becomes worse. Furthermore, its effects are to appear not in the short but in longer terms. The creation of a better system for the diffusion and promotion of technology is not depending on isolated measures but in the integration of particular measures like compulsory licensing within a networking system.

(2) Compulsory Licensing as a Remedy Against Failure to Work - Paris Convention

Compulsory licensing was introduced in the Paris Convention in 1883, as a remedy against failure to work, and in general, to prevent abuses which might result from the exercise of the exclusive rights conferred by the patent. Within this framework, a distinction has been made between the general framework of compulsory licenses in the public interest, and compulsory licenses for failure to work or for insufficient working of a patent.\textsuperscript{1204} Article 5A (2) of the Paris Convention reads: “(2) Each country of the Union shall have the right to take legislative measures providing for the grant of compulsory licensing to prevent abuses which might result from the exercise of the exclusive rights conferred by the patent, for example, failure to work”. This rule had initially a protectionist nature, since it was primarily intended to force foreign patent owners to commence domestic production as soon as possible, instead of supplying the domestic market with imported products which were protected by patent against competition.\textsuperscript{1206} A latter amendment at the Reform Conference of the Hague in 1925 includes Article 5 A (1) to prohibit...

\textsuperscript{1203} Id. at 76.
\textsuperscript{1204} Beier, Friedrich-Karl, Exclusive Rights, at 262.
\textsuperscript{1205} Id.
\textsuperscript{1206} Id.
forfeiture of the patent in case of imported products, manufactured in another Member state using that patent.\textsuperscript{1207}

In order to harmonize the interests of rightholders and the interest of impeding the insufficient working of a patent, the revision conferences in London (1934) and Lisbon (1958) adopted the amendment of Article 5 A (4)\textsuperscript{1208}, stating that compulsory license may not be applied for on the ground of failure to work or insufficient working before the expiration of a period of four years from the date of filing of the patent application or three years from the date of the grant of the patent, whichever period expires last. This norm should be interpreted within a rule of reason\textsuperscript{1209}, since according to Article 5 A (4) compulsory licensing shall be refused if the patentee justifies his inaction with legitimate reasons. In addition, such a compulsory license shall be non-exclusive and shall not be transferable, even in the form of the grant of a sub-license, except with that part of the enterprise or goodwill which exploits such license. These principles are included and refined in Article 31 TRIPS.

Following this framework, other Western countries have presented milder positions regarding compulsory licensing than the US and Germany. In Britain, the state is permitted to compel licensing if a patented invention is not commercialized “to the fullest extent that is reasonably practical for three years”\textsuperscript{1210}. This position is similar to the one defined by the Article 83 of the Japanese Patent Law which states: “When a patented invention has not been adequately worked continuously for more than three years in Japan, anyone who desires to work the patented

\textsuperscript{1207} Id.

\textsuperscript{1208} Id.

\textsuperscript{1209} The rule of reason constitutes a principle of law. It can be defined in the following terms: “The unaccountable judge is still accountable to reason. A judge, it is said, must issue reasoned decisions. The judicial system as a whole is designed to promote reason as the paramount judicial virtue. To reason, moreover, is to reason from the received postulates of the law, not outside of them. Legal reason represents the process of applying impersonal principles of law to varying facts. Thus conceived, reason may chart the course between the subjective dangers of the pragmatic and the ideological. The great danger of pragmatic judging is that it is divorced from underlying legal principle; the danger of the ideological, that it is severed from the subtleties of real life facts”. See Wilkinson, J. Harvie, The Role of Reason in the Rule of Law, 56U. Chi.L.Rev. No. 1, at 779, 792 (1989). The rule of reason test was developed for determining whether alleged acts connected with restraints of trade violated § 1 of the Sherman Antitrust Act [15 USCA § 1]. The legality of restraints on trade is determined by weighing all factors of the case such as the history of the restraint, the evil believed to exist, the reason for adopting the particular remedy and the purpose or end sought to be attained. See US v. National Soc. of Professional Engineers, D.C.D.C., 404 F. Supp. 457, 463 (1975).

\textsuperscript{1210} Patents Act, 1977, c. 37 § 48.
invention may request the patentee or his exclusive licensee to negotiate for the granting of a nonexclusive license. Provided, however, that this shall not apply when four years not elapsed from the date of filing of the application of the said patented invention”1211. While this article has not been applied it is considered to certainly stimulate licensing activities of foreign patentees1212.

According to Article 27 TRIPS, where patents shall be available and patent rights enjoyable without discrimination as to the place of invention and whether products are imported or locally produced, the principle of Article 5 A (1) of the Paris Convention is expanded. Therefore, within the current framework, failure to work the patent may not be considered abusive per se, but following a rule of reason, i.e., with regard to other subjective or objective circumstances in light of which the conduct seems reprehensible or unreasonable, such as the obstruction of a more recent, advanced invention through a defensive patent which is not worked, or insufficient supply of the market with essential commodities1213. Under this framework, compulsory licensing is regarded as an instrument to prevent abuses or protect important public interests.

(3) Compulsory Licensing as Expropriation

Under the traditional perspective of patent rights as property rights, the compulsory license constitutes an intrusion to private property. This intrusion is only legally authorized in very specific and extraordinary cases, in order to protect a social interest. Just the term “compulsory” elicits the idea of coercion, use of social forces to violent a right and to oblige one party to accept a social decision. In this sense, the compulsory license presents similar characteristics to an expropriation and because of that, it have been traditionally stated that the type of the social interest that may justify this intrusion should be very relevant.

This perspective is a consequence of the conception of patent rights as property rights and it is followed by the majority of Western countries that accept

1211 See Doi, The Intellectual Property Law, at 41. This position conforms with Article 5 A (4) of the Paris Convention.
1212 Id. See also United Nations, Department of Economic and Social Affairs, The Role of Patents in the Transfer of Technology to Developing Countries, Report of the Secretary General, New York, 1964, 24-25.
1213 Id. at 263.
compulsory license, therefore, compulsory licensing are rare exceptions\textsuperscript{1214}. An example is Article 24, 1 of the German Patent Law, which requires a public interest for granting a compulsory license\textsuperscript{1215}. The German Federal Supreme Court has declared that this “public interest” cannot be described in a general form because as any general clause, it is subject to change\textsuperscript{1216} and the circumstances of each case should be contemplated\textsuperscript{1217}. Some clues or evidences are used to determine this public interest\textsuperscript{1218}. Economic aspects like the promotion of the technical progress, the scarcity of the product in the market, the need for a better supply\textsuperscript{1219} or a danger to a whole industrial sector\textsuperscript{1220} have been traditionally considered. Example of these social aspects are the danger that an important enterprise should close and therefore a large increase in unemployment may rise\textsuperscript{1221}, the promotion of general health\textsuperscript{1222}, access to the public of an medicament with better therapeutic qualities, improvement of security conditions in enterprises\textsuperscript{1223} or guarantying the continuous supply of electricity\textsuperscript{1224}.

In a decision of 1995, the BGH held that a public interest in sense of Article 24, 1 of the German Patent Law can only be considered under the latest version of the Article 5 A, 2 of the Paris Convention. This is, when the patent holder somehow abuses of his monopoly status, for example, that he disregards the “social function” of private property\textsuperscript{1225}. The BGH considers that Article 14 of the German Constitution, which defines the protection of private property as a fundamental right, also applies to patent rights\textsuperscript{1226}. Consequently, compulsory license is granted only as a remedy to an severe abuse of the patent holder. The decision “\textit{Polyferon}” of the BGH\textsuperscript{1227} is a good example of this problematic.

\begin{itemize}
\item\textsuperscript{1214} Beier, Friedrich-Karl, Exclusive Rights, at 259.
\item\textsuperscript{1215} Id. at 265.
\item\textsuperscript{1216} See the “\textit{Polyferon}” Decision, 1996 GRUR 192.
\item\textsuperscript{1217} See BGH, case “\textit{Cafilon}” in 1972 GRUR 471.
\item\textsuperscript{1218} See BGH “\textit{Polyferon}”, decision of May 5, 1995, case XZR 26/92 (BPatG), 1996 GRUR 190, 192.
\item\textsuperscript{1219} 93 RGZ 50 (May 27, 1918).
\item\textsuperscript{1220} 83 RGZ 9, 14 (Jun. 27, 1913).
\item\textsuperscript{1221} 113 RGZ 115 (Marz 11, 1926) ; 143 RGZ 223, 226 (Jan. 24, 1934).
\item\textsuperscript{1222} 126 RGZ 266 (Nov. 30, 1929). Cf. RG (Reichsgericht) Mitt. 193, 343, 1935 GRUR 877, 878.
\item\textsuperscript{1223} RG Bl.f.PMZ 1927, 151.
\item\textsuperscript{1224} RG, case I 90/35 (RPA) of Jan. 18, 1936, in 1936 GRUR 604, 605.
\item\textsuperscript{1225} See the “\textit{Polyferon}” decision, 1996 GRUR 190, 191.
\item\textsuperscript{1226} Id. at 192
\item\textsuperscript{1227} Id. at 190.
\end{itemize}
applicant is holder of a dependent patent on a medicament for rheumatic Arthritis (Polyferon). The defender is holder of the original patent for the component IFN-gamma.

Central argument for this decision is that courts, by determining the public interest, should balance the interests of the patent holder and the constantly changing perspectives of the community\textsuperscript{1228}. For determining this balance of interests, the definition of patent rights as private property or monopoly plays an important role. The BGH interpreted the patent right as conferring an exclusion right that could normally be used to create a factual monopoly in the market. In the mentioned decision the court states “a public interest cannot be solely justified by the exclusion right of the patent holder, even when this right brings to seizure a factual monopolistic position in the market”. In addition the BGH affirmed that “the legal system grants the patent holder an exclusion right, as reward for the disclosure of his invention and for the concomitant efforts and diligence, dangers and costs. This exclusion right can be exploited independently from the conditions of the competition”\textsuperscript{1229}. The patent right is interpreted as granting an “unrestricted recognized exclusion right”\textsuperscript{1230}. Under this perspective, a compulsory license is regarded as an severe attack against the unrestricted recognition of the exclusion right and the interests of the patent holder. That is, an imposition against the will of the patent holder that proceeds only under special conditions\textsuperscript{1231}.

Consequently, the BHG considers that the private interest of the applicant, such as the case of mere dependency, the failure to work or insufficient working of the invention, or the existence of a monopolistic and dominant position of the patent holder does not satisfy the “public interest requirement” of the German Law\textsuperscript{1232}. This position contraries the spirit of the TRIPS Agreement, when requiring in its Articles 7 and 30 that the legitimate interests of thirds parties should be taken into

\textsuperscript{1228} \textit{Id.} at 192.
\textsuperscript{1229} \textit{Id.}
\textsuperscript{1230} Literally, the court states: “Deshalb kann das öffentliche Interesse erst dann berührt sein, wenn besondere Umstände hinzukommen, welche die uneingeschränkte Anerkennung des ausschließlichen Rechts und die Interessen des Patentinhabers zurücktreten lassen, weil die belange der Allgemeinheit die Ausübung des Patents durch den Lizenzsucher gebieten”. See the “Polyferon” decision, 1996 GRUR 192.
\textsuperscript{1231} See the “Polyferon” Decision, 1996 GRUR, 190, 192.
\textsuperscript{1232} \textit{Beier}, Friedrich-Karl, Exclusive Rights, at 265.
In the alluded Polyferon case, the BGH decided that there was no public interest in granting the compulsory license because of the existence of another medicament that not under considerable lower conditions satisfies the same therapeutic need that Polyferon. As a result, the BGH revoked the decision of the inferior tribunal that granted the compulsory license. Consequently, the interests of the holder of the dependent license to have the possibility of obtaining a profit by exploiting his invention are not taken into consideration. This perspective is coherent with the framing of patents as private property. However, it disregards the systemic nature of innovation and the importance of networking for technology development and diffusion. In addition, it disregards the principles stated in the TRIPS Agreement which require patents to harmonize the legitimate interests of patent holders and users of the technology.

German Patent law provides for a compulsory license if the patentee is not willing to grant a license for someone who offers “reasonable compensation”, but only under the command of a public interest. This position corresponds to Article 93 of the Japanese Patent Law which provides that when the working of a patented invention is specially necessary for the public interest, anyone who desires to work the patented invention may request the patentee or his exclusive licensee to negotiate for the granting of a nonexclusive license. In contrast to Germany and the US Japan allows compulsory licensing also to protect legitimate interest of technology users. This position is followed by other countries, e.g., Swiss Patent Law, which expressly authorizes compulsory licensing to protect not only public interest but also legitimate third parties, in this case dependent inventions.

b) Compulsory Licensing Under Article 31 of TRIPS

The protection of the private interest of users of technology, which are connected with the public interest to promote the diffusion of technology have traditionally not been included in Western legislation, particularly in countries with an export-
oriented economy, such as US and Germany\textsuperscript{1238}. However, integrating Article 5 A of the Paris Convention with Article 7 TRIPS, it is possible to sustain the thesis that compulsory licensing may be authorized when the patent holder refuses to grant a license in cases when, due to special circumstances, this refusal is equivalent to a failure to word, since according to the rule of reason, the refusal is not justified and damages relevant legitimate interests of users of technology. Thus, the \textit{rule of reason} should take into consideration the changes originated in the current networking framework, in which the possibilities of the systemic nature of innovation are globally exploited.

This is the position of Article 31 TRIPS, which allows for other use of patents without the authorization of the rightholder. Article 31 (a) follows the theory of the \textit{rule of reasons}, when stating that “authorization of such use shall be considered on its individual merits”. The essential condition is that the rightholder shall be paid adequate remuneration in accordance with the circumstances of each case, taking into account the economic value of the authorization (Article 31 (h)), and that prior to such use, the proposed user has made efforts to obtain authorization from the rightholder on reasonable commercial terms and conditions and that such efforts have not been successful within reasonable period of time, except in circumstances of extreme urgency or in cases of public non-commercial use (Article 31 (b)).

Thus, there is a public interest in adequately protecting improvement innovation. Therefore, the private interest of holders of dependent patents should also be taken into consideration, as ordered in Articles 7 and 31 (1)\textsuperscript{1239} of the TRIPS Agreement. An example is the recent EU Directive Relating to the Legal Protection of Biotechnological Inventions\textsuperscript{1240}, which literally follows Article 31(1) of the TRIPS Agreement. Article 12 of this Directive defines an equilibrium between the protection of biotechnology inventions through patent rights, and the interest of public access, stating that: “Where a breeder cannot acquire or exploit a plant variety right without infringing a prior patent, he may apply for a compulsory license for non-exclusive use of the invention protected by the patent inasmuch as

\textsuperscript{1238} \textit{Id.}
the license is necessary for the exploitation of the plant variety to be protected, subject to payment of an appropriate royalty. Member States shall provide that, where such a license is granted, the holder of the patent will be entitled to a cross-license on reasonable terms to use the protected variety”. According to Article 12.3(b), applicants should demonstrate that: “the plant variety or the invention constitutes significant technical progress of considerable economic interest compared with the invention claimed in the patent or the protected plant variety”. This position is also similar to Article 92 of the Japanese Patent law, which orders compulsory licensing in favor of holders of dependent or utilization inventions¹²⁴¹, in order to allow improvers to exploit their invention in cases where the patentee or the exclusive licensee is unable to obtain a nonexclusive license after negotiation or is unable to enter into negotiation. In this case, compulsory licensing is considered not an expropriation but an arbitration of the Director General of the Patent Office.

The solution of the Japanese system is suitable for promoting synergy in the innovation system, since it is more generous when protecting holders of dependent patents. Japanese Patent Law does not require that the improvement should present a significant and important technical progress of considerable economic interest compared with the previous patented invention; thereby giving improvers better chances for taking advantage of their inventions. The position taken in 31(1)(i) of the TRIPS Agreement, and also present in the correspondent European Laws¹²⁴², makes the possibilities of improvers of obtaining protection more uncertain, when rigorously interpreted. This is the case in the hard protection patent system, where compulsory licensing is still having an exceptional nature¹²⁴³. Thus, for the granting of dependent licenses, or second patents, all the restrictive requirements of Article 31 (a)-(k) of the Agreement also have to be met¹²⁴⁴. A strict interpretation may lead to the conclusion that in all cases where dependent patents are involved, all condition 31(1)(i) should be rigorously satisfy. This interpretation considers dependent patents as a special case where the requirement of compulsory should be more strict, and where the other hypothesis for granting

¹²⁴² Straus, Bedeutung des TRIPS, at 200-201.
¹²⁴³ Beier, Exclusive Rights, at 253.
¹²⁴⁴ Id. at 266.
compulsory license are excluded. This position is not coherent since it leads to inconsistent results. An example is the case where public interests motivate granting a compulsory license to a dependent patent holder. According to this interpretation, the government may be hindered to authorize it in cases where the invention, from a technical standpoint, does not involve a relatively important technical advance, or, if it does, from a strict economic standpoint, the technical advance itself is not of considerable significance.

Thus, each relevant interest for granting compulsory licenses, *i.e.*, public interest, need to control anticompetitive situations, abuse of patent holder, failure to work, legitimate interest of dependent patent holders, etc. is a self-reliant source authorizing compulsory licensing, which does not mutually exclude but complement one another. Therefore, Article 31 (a) states that authorization of such use shall be considered on its individual merits. Moreover, Article 31 of TRIPS should be integrated with Article 7, which emphasizes the importance of allowing courts to balance a variety of considerations. Thus, the condition of Article 31(1) constitutes a restriction only for the justification of compulsory licensing connected with the interest of the holder of the second patent to use it, and not for the other relevant interests involved, *i.e.*, for cases where compulsory licensing is granted *solely* to allow the exploitation of a patent and where the refusal to license is legitimate since it causes the holder of the first patent a detriment. In this case, the dependent patent should involve an important technical advance of considerable economic significance in relation to the first patent. Therefore, the interest of the second patent holder to exploit the patent is not *per se* relevant, but subject to the *rule of reason* elucidated at 31(1)(ii) TRIPS.

In conclusion, within a holistic interpretation of GATT-TRIPS, compulsory licensing shall be used under the *rule of reason*, in order to balance the various

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1246 Art. 5A(1) of the Paris Convention, which defines compulsory licensing as to “prevent abuses” such as failure to work, as well as Art. 31 (1) TRIPS may be interpreted as supplementary requisites for applying Art. 31 of TRIPS. See Straus, Bedeutung des TRIPS, at 199-201. This construction is consistent with a grammatical interpretation of Article 31(1), when stating “the following additional conditions shall apply”. However, Articles 31 (1) and 7 TRIPS could be jointly interpreted as stating that, when all these conditions are present, the holder of the dependent patent should have the right to claim a compulsory license, and not as an additional restriction to the Member’s general faculty to grant compulsory licensing defined by Article 31. The grammatical interpretation leads to a result which it is contrary to the spirit of TRIPS, since it implies that holders of dependent patents would have a worse position than other kinds of technology users, opposing Article 7 of TRIPS.
relevant public and private interests involved, such as failure to work, the need to protect legitimate interest of other users of technology, the importance for industrial development. In other words, compulsory licensing may be granted to create a balance between the legitimate interest of rightholders and other legitimate interests of users of technology. This general principle of TRIPS is elucidated in the Article 30, which states that Member States may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonable conflict with a normal exploitation of the patent and do not unreasonable prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties. However, compulsory licensing is considered under Article 31 as “other use” other than that allowed under Article 30. An explanation may be that this “other use”, allowed without the authorization of the rightholder does not constitutes an exception to rights conferred, but a mechanism which is inherent to the legal nature of patent rights as defined in Article 7 TRIPS. Thus, patent rights should contribute to the promotion of technological innovation and the transfer and dissemination of technology. Therefore, under the systemic nature of innovation, it is possible to sustain the thesis that there is an abuse of the rightholder when, he, award of the existence of legitimate interest of technology users, refuses, without a legitimate reason, to obtain a reasonable reward through licensing.

c) The Needs for Compulsory License under the Modern Innovation System

Several studies regarding compulsory license have concluded that “a considerable number or process inventions and improvements that have been patented under the existing system would not have been patented in a world of (reasonable royalty) compulsory licensing”\textsuperscript{1247}, or at least a “tight curtain of security would descend over large areas of new industrial technology.”\textsuperscript{1248}. This conclusion is based on an static framework of the patent system, therein networking between enterprises has not been regarded as an alternative to generate profit, innovation and competitiveness. The opportunities coming from the creation of networking linkages between enterprises and a better exploitation of the systemic nature of

\textsuperscript{1248} Id. at 352. Also see Scherer, The Economic Effects of Compulsory Patent Licensing at 62.
innovation are not taken into account. These aspects, particularly in the field of new technologies, can turn the conclusion in favor of the compulsory license system. The networking perspective would define a different framework for compulsory licensing, whereby the focus is not centered on the “expropriation nature” of a compulsory license, but in the need to promote a framework that motivates enterprises to seek mutual profits from technology transfer negotiations. The expansion of the networking system in the world increases the interdependence between enterprises and between different technologies, and with it, the need to restrict the monopolistic exploitation of technology. As a result, compulsory licensing is expanding as a mechanism to restrict the negative effects in technology diffusion of the patent system. Compulsory licensing should be defined in terms so that it may constitute a valid mechanism to protect the patentee while upholding the principle of free access. In order to conciliate these goals, compulsory license should be integrated into an institutional framework designed to promote networks. For this reason, compulsory license should not be regarded as a punishment for the patentee’s abusing of his right as monopolist, but more as an incentive and a coordination scheme that allows innovator to obtain a reasonable profit exploiting this innovation in a network context. The exploitation of the patent right under a network context could improve the profit opportunities of the patent holder to even make them a better option than the monopolistic exploitation of the invention when the size of the market created by the network is sufficient large.

Within this context, compulsory licensing provides an appropriate framework for distributing the profits generated by the collective use of a patented invention. An example of this is the system of dependent compulsory licensing developed for biotechnology, whereby technology is available under a context of paid free access. Similar disposition is followed in some Common Law Countries like England and Canada. Section 41 of the British Patents Act of 1949 provides that, the Comptroller of Patents shall, upon application by any interested person, order the licensing of patents covering food, medicines and surgical or curative devices “unless it appears to him that there are goods reasons for refusing the application”. This law pursues that such inventions are “available to the public at the lowest
prices consistent with the patentees’ deriving a reasonable advantage from their patent rights. Analogous criteria followed the Canadian Parliament regulating the granting of compulsory licenses for medical products and procedures. In setting the terms of the license and fixing the amount of royalty or other consideration payable, it states that the Commissioner shall regard the desirability of making the medicine available to the public at the lowest possible price consistent with giving the patentee rewards for the research leading to the invention. In this case, the royalty should not be set so low as to be “not commensurate with the maintenance of research incentive”.

The compulsory licensing system may also play an important role in the designing and use of technical compatibility standards, whereby the positive effects of the creation of networking are increased for patentees and users. In this case, users of patented technical standards may create a network upon the standard without the fear of eventually being excluded from the use the protected technology. This benefits both parties, patentee and patent users as it increases the opportunities to find new applications for that technology. For this reason, some standardization committees require the innovator to relinquish or grant licenses at a “reasonable” fee, as a precondition for incorporating private technology into the official standards. An example of this are the practices of the European Space Agency (ESA) regarding intellectual property. Article 37.1 of ESA’s standard contract states that the contractor has ownership rights to inventions and technical data arising or resulting from work carried out in performance of these contracts, subject to the provisions of his or her national legislation. ESA is allowed to reproduce new processes with the express permission of the contractor, but the

1251 Id. at 47. However, in 1987, the Canadian Government amended Art. 39 of the Patent Act, narrowing the criteria under which a compulsory license could be obtained. The amendments restricted compulsory license provisions to apply only to those patented medicines that were not invented and developed within Canada or manufactured for export out of Canada. See Swain, Margaret, et al., Canadian Biotechnology and Pharmaceutical Patent Law, in Campbell, Dennis (ed.), , International Intellectual Property Law, New Developments, Chichester, (Engl.), 1995, at 279, 291.
1252 Id. at 47
1253 Foray, Knowledge Distribution, at109.
contractor is obliged to grant licenses requested by nationals of ESA members in sectors other than space\textsuperscript{1254}.

d) Basic Criteria for Granting Compulsory Licenses

One of the main problems of compulsory licensing is the need to determine global policies defining royalties. This requires international coordination in the field to reduce transaction costs and allow a fair solution for both parties. Courts may tend to give too small royalties to patent holders. The reasonable fee should include not only the costs of successful research but also the costs of unsuccessful research\textsuperscript{1255}. Canada, for example, has been accused of a “free rider” attitude. When fixing royalties, the Exchequer Court decided that “It would ... be unrealistic to think that the returns from the Canadian market have any important bearing on whether research on an international scale will go on or not”\textsuperscript{1256}. Within this context, compulsory licensing brought negative effects to the development of local pharmaceutical industry in Canada, research based industry moved in part to the US, average yearly growth of exports dropped from 16.6\% in 1964-65 to 9.9\% in 1970-79\textsuperscript{1257}.

Compulsory licensing is to be solved in beneficiary terms for all participants, the mandatory license should be granted in a context which promotes networking between enterprises so that they share the risk of R&D investments and facilitate the creation of distribution nets. So considered, compulsory licensing can be regarded as an appropriate instrument to simultaneously promote innovation and contribute to control the monopolist power of enterprises.

Some principles have been proposed in order to achieve an equilibrium between incentives to innovation and social costs of monopolistic exclusion. Scherer\textsuperscript{1258}, for example, suggests the following rules:

(a) Compulsory Licensing should only be granted five years after the date of patent application, letting that presumption be waived for cases in which stronger patent

\textsuperscript{1254} Id.

\textsuperscript{1255} Scherer, The Economic Effects of Compulsory Patent Licensing at 61.

\textsuperscript{1256} See Merck & Co. Inc. v. Sherman & Ulster Ltd., 65 C.P.R. 1, 24 (1971).

\textsuperscript{1257} Laudien at 260.

\textsuperscript{1258} Scherer, The Economic Effects of Compulsory Patent Licensing at 86.
rights appear essential to maintain the incentive. (b) Stronger patent rights are considered necessary for maintaining the incentive when the patent holder persuades an appropriate tribunal that: (i) Its share of the relevant product market, including close substitutes, averaged less than 20 per cent over the preceding five years. (ii) Its total sales of related products during the past five years and the reasonably anticipatable sales of such products over the coming five years, were each less than ten times R&D costs; or (iii) the Patent Holder exercises extraordinary creative initiative or accepted extraordinary technical and financial risks in its innovative effort.

These proposals present the problem of not taking into account all the costs of the monopolistic use of patent rights and the possibilities of assuring the patent holder an equal or higher income through networking. They are not flexible enough to take into consideration all the specific situations in which an appropriate balance between social and private interests can be reached.

A simple rule that can harmonize all parties interests is the principle that he who wants a compulsory license should prove that in his particular case, or under feasible conditions, there is a way for the patent holder to obtain a reasonable profit from the exploitation of his patent right through licensing, taking into consideration the costs of development of that technology and the actual profit potential the patent holder has. Based on these criteria, it is possible to find cases in which due to the relevance of the invention for the industry, it is possible to obtain a substantial profit by licensing the technology in global markets at the very beginning of the patent granting. In addition, even though the patent holder can prove that his sales are relative small in relation to the relevant market or in proportion to its R&D costs, it is possible for the one interested in a compulsory license to prove that this license would only imply additional income for the patent holder, or that there is a unexploded potential market that due to a monopoly policy by the patent holder has not been developed to the detriment of some participants (the industry, the consumers and also the patent holder).

Finally, it is important to consider that the amount of new aggressive innovative efforts is not just depending on the strength of the patent protection. Remaining innovative constitute a valuable asset for the image of an enterprise. Innovation also yields other advantages stemming from the facts that technology improvement
are necessary for remaining competitive and that the required levels of know-how are difficult to achieve unless one had actually carried out development\textsuperscript{1259}. The innovative efforts of an enterprise will give it advantages in mastering new technologies and in negotiating cross-licenses and other resources related to those technologies. Furthermore, it is expected that the possibility of obtaining a compulsory license will motivate innovators to invest in new applications and improvement of patented technologies.

8. Importance of Strengthen Enforcement of Patent Rights

Weakening the scope of protection of patent rights, moving them from a monopolistic or proprietary framework to a soft system like the Japanese requires simultaneously making more efficient the protection of rightholders, so that their possibilities of making profit within a networking framework are secured. In addition, technology users should be aware that the payments they perform are not only fair, but also constitute a legal obligation absolutely necessary for the constitution of technology markets, and therefore, protected by the State. The system must encourage a culture which recognizes the need to reward innovators.

The existence of an efficient enforcement system is not an sufficient requirement for the creation of a patent licensing culture, but it is a very important one, particularly when the network structures are not functioning properly, or there is a need to create a social consciousness of the importance of rewarding innovators. The enforcement system is not only important to reduce the risks of deceit, but fundamentally, it is important to create expectations of behalf of technology users, that they should pay for the use of the innovation work-results of others. In order to work smoothly, the enforcement system should be based on solid principles and complemented with an appropriate negotiation framework which promotes win/win results.

The USA has important experiences in this area. Circuit Courts judges tended to dismiss patents as invalid just to speed the process, to a extreme that between 1959 and 1975 three of every four patents in Circuit Courts were ruled invalid or

\textsuperscript{1259} Id. at 63.
not infringed\textsuperscript{1260}. This situation is not a good incentive to promote a patent licensing culture. In 1972 Canada created Federal Court specialized in patent issues. In the USA, many jurisdictions have also recognized the need for judges with technical expertise to understand the complex issues in litigating intellectual property disputes\textsuperscript{1261}. As a result, in 1982 the USA established a new court with judges familiar with patents, which substituted the Circuit Courts of Appeals in this matter\textsuperscript{1262}. Under the Court of Appeals for the Federal Circuit, three of every four patents is found to be valid or to have been infringed. This has increased the value of patents in the USA\textsuperscript{1263}. In England the Patent County Court was set up in 1991\textsuperscript{1264}.

Thus, the CAFC changed the traditional vision, which characterized the 1920-930s through much of the 1970s. Under the traditional vision, courts regarded patents as anti-competitive weapons used by monopolist to stifle entry and to bar competition, so that: “it was difficult to get a patent upheld in many federal circuit courts, and the circuits diverged widely both as to the doctrine and basic attitudes toward patents. As a consequence, industry downplayed the significance of patents.\textsuperscript{1265} Contrarily, the court strengthened the enforceability of patent rights and make more difficult to challenge a patent’s validity. It was more willing to grant an injunction against an infringer and increased penalty on infringers by awarding higher damages in patent disputes\textsuperscript{1266}. The CAFC altered the rules of the patent game increasing the incentives to patents. An important example is the case \textit{Polaroid Corp. v Eastman Kodak Co.}\textsuperscript{1267}, which related to Kodak’s 1976 introduction of the “EK” instant camera. Polaroid filed suit charging Kodak with infringement of 2 patents relating to the instant cameras and field. The district court found Kodak infringed 20 claims of 7 patents, this moved Kodak to

\textsuperscript{1260} See Simensky and Bryer at 22.
\textsuperscript{1262} Id.
\textsuperscript{1263} Id. at 23.
\textsuperscript{1264} Id.
\textsuperscript{1266} See Merges, Robert, Patent Law and Policy, Charlottesville, Va, 1997, 12, and Hall and Ham at 6.
Polaroid contented that Kodak’s infringement was willful even though the latter “repeatedly obtained validity and infringement opinions from Mr. Carr, a leading national expert in patent clearance and unabashedly praised by Polaroid’s counsel”... The court stated that: “A defendant does not escape liability simple by obtaining the opinion of patent counsel. Courts have found willfulness when the infringer ignored advice of counsel and did not seek an updated opinion... or when, *inter alia*, an opinion letter, conclusory in nature, was provided just two days before the defendant issued its first invoice for the infringing device...”

Polaroid was awarded almost $1 billion in patent damages and Kodak was barred from competing in the instant-film camera business. This position gave patentees a powerful lever against firms in negotiating royalty rates and increased the ability of firms to secure income from licensing rights to patents on more favorable terms. This fact contributed to move the US toward licensing, since it appeared precisely at the time where the US innovation system tried to follow the Japanese approach in the promotion of technology diffusion and networking among enterprises. The large penalties imposed and the realization that US courts were willing to take an aggressive stance against infringement by halting, either temporarily or permanently, production based on infringing technology fueled concerns among executives in many firms about the importance of obtaining the necessary licenses. On the other hand, enterprises had already made the decision to “harvest” more patents from the same R&D program, both as a defensive strategy and to assist them in winning favorable terms in cross-licensing negotiation with other firms in the industry. An appropriate climate for using patents as a negotiation instrument for obtaining revenues through licensing and acquiring technology through cross-licensing was set up.

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1270 Hall and Ham at 6.

1271 Id. at 8.

1272 Id. at 12.

1273 Id. 8
This was particularly the case in semiconductors, where it is difficult for firms to rely on a given patent, or set of patents, to entirely exclude rivals from a given product line. As a result firms have tended to obtain webs of related patents surrounding critical technologies. Patents became in this sector a bargaining chips in negotiations with other patent owners. As a result, stronger patent rights may have facilitated specialization in the industry and supported a market for know-how exchange involving entrant firms. The semiconductor sector in the USA is a good example of the trend towards the Japanese innovation model. It may explain the dilemma that as the power and role of intellectual property enforcement moves to center stage, the incentive created by vigorous enforcement of property rights in ideas and information outweighed the tendency of such enforcement to discourage new entry by would be challengers. The traditional dichotomy between technology protection and technology diffusion is thereby overwhelmed.

C. Integration of Legal Nature of Patents with a System of Innovation

1. Importance of a Systemic Perspective in Promoting Technology Negotiation

The traditional regime of strong protection has been regarded as adequate for promoting technology transfer. This thesis has been supported with the argument that firms would only be disposed to go into contracts of technology transfer, like licenses, when they have enough guaranties for the protection of their technology. Firms required enough guaranties to be willing to provide for the supplementary services like aid and expertise needed to develop the relevant knowledge disclosed in the patent. This has led to maintain that “it is clear that firms offering such contracts will avoid countries with weak intellectual property regimes and because of that, the would-be borrowers of technology have an interest in a regime of stronger protection for intellectual property, either through statutory measures, or

1274 *Id.* at 10.
1275 *Id.* at 13.
1277 *Id.*
judicial enforcement of trade secrecy rights. In similar terms, a hard protection has been seen as a necessary condition to promote licensing, under the following arguments: “Removing factors against licensing, such as loss of market power, for example, gives the inventor the incentive to make his technology available without the threat of a competitor even when he licenses to another (increasing the licensee’s capacity to produce a larger supply of needed technology).”

This traditional perspective can be criticized for reductionism, in the sense that it creates a model that does not reflect upon all relevant elements. The innovation industry presents problems not only in the appropriability of the returns involved, but also uncertainty and risk. Therefore performance depends critically on a variety of institutional factors, including government policies, firm and market structure, the links between business and higher education, and the availability of different kinds of finance. As “these are the background factors that are traditionally overlooked in much economic analysis, but to overlook them at the level of policy formation is to overlook the possibility that political and institutional reform can have a powerful effect on competitive success in research intensive activities.”

Thus, the law’s functional multiplicity, as well as the jurisprudential implications of that multiplicity, are regularly overlooked. The risks from a abstract theory based on general systems principle is the danger of losing contact with reality. A highly abstract theory will be difficult to translate into testable propositions. This way of analysis of economic policy, joint with a dogmatic definition of patents as monopoly or private property had led to extreme positions: to surrender to the conditions of patent owner, as holder of an absolute right to exclude, or to avoid recognizing intellectual property rights. Both positions hinder the creation of a bargaining framework in which both parties obtain profits as the increase in


1279 Errico at 46.


collaboration abilities promotes the expansion of productivity. This problems may be solved with a nonreductionist approach which tries to include all relevant variables, even though they are unbelievably different from each other, following the principle that “in law as in life, we sometimes do better by reconciling ourselves to complexity than by insisting upon an artificial simplicity” 1283.

The traditional perspective justification for a strong protection does not consider all relevant factors. Certainly strong protection contributes to the confidence of patent owners, however, on the other hand, it motivates them to monopolize the exploitation of the patent, that means, not granting licenses since. “a patentee is entitled to exact as high a price for the patented technology as the market will bear, i.e., to exercise “monopoly” power in the sense of setting a supracompetitive price, without restriction either under patent 1284 or antitrust law 1285. This situation promotes the patent owner to search for control and imposition, rather than creating a collaboration basis. The US case law had maintained, for example that “a patentee is sole judge of licensee he shall select to make, sell or use patented articles, and patentee’s reasons for selection are of no concern to others. Patentee may limit or deny patent licenses to those whom it does not desire to license, without assigning a reason 1286”. This position impedes the creation of a collaboration atmosphere between parties and hinders the development of networking in innovation. Therefore, a strong protection is not a sufficient requirement for license promotion.

Today, the main question is not whether protection should be granted to innovators. There is increasing consensus that the basic pace of innovation and diffusion in an industry or in a nation is dependent on the systemic nature of

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1283 See Smith at 109.

1284 See Brulotte v. Thus Co., 379 U.S. 29, 33 (1964). Courts considering allegations of misuse from excessive royalty rates have regarded this proposition as “far-fetched”. See Warner-Jenkinson Co. v. Allied Chem. Corp., 477 F.Supp. 371, 396 (S.D.N.Y. 1979), aff d mem., 633 F.2d 208 (2d Cir. 1980). A patentee has the right to exclude a competitor entirely, and “(a) royalty demand which is so high as to preclude acceptance of a license offer is, after all, not appreciably different from a refusal to license upon any terms. The right to refuse to license is the essence of the patent holder’s right under the patent law. X W.L. Gore & Assoc. v. Carlisle Corp., 529 F.2d 614, 623 (3d Cir. 1976).


innovation\textsuperscript{1287}. Therefore, the question is what type and extend of protection should be granted. The strong protection system aggravates the tendency for enterprises to avoid collaboration and monopolize their innovation. In fact, the licensing opportunities are overseen by patent holders. This problem has been described as follows: “The strategy role and income contribution of licensing in international operations not only vary greatly from one firm to the next, but there is considerable room in may companies for generating extra income by formally organizing to market their technologies abroad\textsuperscript{1288}.”

The promotion of technology negotiation can only be done by creating a climate where all parties can obtain profit. The way Thomas Blanchard defined a technology management for its US patent of woodworking machinery is an example or the possibilities of promoting technology diffusion and creation simultaneously through networking. Blanchard decided that his way to fortune lay not only through manufacturing the machines for sales himself, but also through the wide disseminating of his inventions. He accomplishes this goal through extensive licensing and assignment of rights. His strategy proves that financial success can be obtained by using patents for technology diffusion, rather to monopoly consolidation\textsuperscript{1289}.

Notwithstanding, the US Patent System tends to resist a reconsideration of the existing legal view of patents as monopoly or private property rights. It remains offering extreme solutions which are not suitable for harmonizing the interest of all parties. Example is the patent misuse doctrine. According to this doctrine, a court may, as a matter of equitable discretion, refuse to enjoin infringement of a patent as long as the patent is being “misused” to violate the antitrust laws or to otherwise act to the public interest\textsuperscript{1290}. Concerning licensing, some criteria has been defined with \textit{per se} norms, without considering the market position of the

\textsuperscript{1287} Cf. D’Andrea Tyson, who affirmed: “A general lesson suggested by this line of analysis is that there is no nature pace of innovation and diffusion in an industry or in a nation” at 38. However, the systemic nature of innovation provides a basic criteria to understand the “nature pace of innovation and diffusion”. Around this dynamic principle it is possible to construct a non-reductionist general theory of innovation. This framework explains the current consensus on the importance of policies to promote R&D and the diffusion of new commercial technology. \textit{Id.} at 40.


\textsuperscript{1289} See McLeod, C. The Paradoxes of Patenting: Invention and its Diffusion in 18\textsuperscript{th} and 19\textsuperscript{th} Century Britain, France and North America, 32 Technology and Culture 846, 907 (1991).

\textsuperscript{1290} Holmes at \S 1, 36.
In case of misuse, the patent is render unenforceable until the misuse is purged. The right to enforce the patent may be reinstated if the patentee proves that the improper practice has been abandoned and the consequences of the misuse of the patent have been dissipated. As a result, a finding of misuse is a difficult thing to overcome, with obviously harsh ramifications on the patent owner’s ability to enforce his patent against others. This doctrine has been reconsider and some specific practices which were regarded as per se unlawful have been questioned as not always anticompetitive. It has been considered that: “as long as patentees and licensees have equal bargaining power and engage in arms’ length negotiations, the agreements that they reach are likely to be coincident with he public interest. After all, the licensee will pay no more for the patented invention than it is worth...”

Thus, the system goes from one extreme position to the other, allowing the patentee to arbitrarily exclude others when acting within this monopoly right, or allowing licensees not the pay and thereby incur in unjust enrichment, when a per se rule is disregarded by the patentee.

The Western system has not succeeded to find a suitable institutional framework to harmonize the apparently contradictory interests in protecting free competition and public access to innovation and the need to provide incentives to innovation. In general, the argument that a strong protection is necessary to promote innovation has received renewed appreciation. An example of this is the body of provision and laws in antitrust legislation in the USA, which have been “designed to confine the operation of the patent system to its proper sphere”. This has retarded the movements for redefining the patent right towards the promotion of the commercial exploitation of patents through technology diffusion.

Another important problem hindering licensing in the USA is that patent holders often find that they don’t have sufficient protection to dissuade licensees to break

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1291 See Dreyfuss and Kwall at 781
1292 Id.
1294 Holmes at § 1, 38.
1295 Example are the tying sales, see Dreyfuss and Kwall at 781
1296 Id.
1297 Id. at 780.
1298 Id. at 781.
the agreements. Patentees are usually unsuccessful in court actions over counterfeit products and the punishment for misuse of a patent discourages most of the agreements between patentee and licensee. This fact reinforces the strong protection patent system to give priority to the protection function rather than to the diffusion function of patents.\footnote{Foray, Knowledge Distribution, at 108-109.}

This position generates a vicious circle: under a strong protection framework, the negotiation of technology transfer tends to reach agreements that do not harmonize the long term interest of parties. As a result, a harder protection is necessary to force licensees to submit to the conditions of patentees.

Thus, a sort of \textit{rule of reason} solutions, which allow for a non-reductionist framework for harmonizing interests is required. However, in order to provide of legal certainty, a \textit{rule of reason} system should be based on solid principles of law.\footnote{The rule of reason constitutes a principle of law. It can be defined under the following terms: “The unaccountable judge is still accountable to reason. A judge, it is said, must issue reasoned decisions. The judicial system as a whole is designed to promote reason as the paramount judicial virtue. To reason, moreover, is to reason from the received postulates of the law, not outside of them. Legal reason represents the process of applying impersonal principles of law to varying facts. Thus conceived, reason may chart the course between the subjective dangers of the pragmatic and the ideological. The great danger of pragmatic judging is that it is divorced from underlying legal principle; the danger of the ideologic, that it is severed from the subtleties of real life facts”. See Wilkinson, J. Harvie, The Role of Reason in the Rule of Law, 56U. Chi.L.Rev. 779, 792 (No. 1, 1989). The rule of reason test was developed for determining whether alleged acts connected with restraints of trade violated § 1 of the Sherman Antitrust Act [15 USCA § 1]. The legality of restraints on trade is determined by weighing all factors of the case such as the history of the restraint, the evil believed to exist, the reason for adopting the particular remedy and the purpose or end sought to be attained. See \textit{US v. National Soc. of Professional Engineers}, D.C.D.C., 404 F. Supp. 457, 463.} This solid principle of law should be defined taking into consideration the actual interests of participants, and the nature of the industry involved.

The systemic nature of innovation, within the current networking paradigm offers new opportunities to solve this dilemma. The existence of networks and a coherent institutional framework allows a collective behavior whereby all the parties are aware of the systemic nature of innovation and engage on the reciprocal and successive production and exploitation of complementary additions to the stock of knowledge. In this case rapid diffusion of knowledge is possible and the parties seek to create a mutual reinforcement and consolidation of innovative efforts. In Japan, all parties are aware that by making their own knowledge available through
licensing they will be rapidly able to benefit from reciprocal arrangements as they gain access to the knowledge or other parties.\textsuperscript{1302}

The promotion of licensing and other technology transfer agreements requires changing the patent culture from the mode of exclusion to the method of coordination. The new pattern of innovation based on networks offers optimal conditions for this. An adjustment of the institutional framework is required to favor networking. This framework should conceive the patent protection as a coordination method between users and creators of technology. The patent system’s main goal should be to allow parties to create a structure of jointly held and mutually consistent expectation about mutual exchange of information, disclosure of knowledge and mutual opportunities to participate in the innovation process.

The importance of the patent culture has been pointed out by the Royal Swedish Academy of Engineering Sciences, when lining patent activity to international competitiveness in comparing Japan and Swede. They concluded that: “It is our main belief that a large part of the difference may be due to a lack of patent culture in Swedish companies, while Japanese companies have consciously built up a patent culture... Differences in patent positions may indicate more substantial difficulties in the ability to generate and capture the returns on innovation. The failure to compete with companies at the frontier of development depends more on aback of technical competence rather than legal or information barriers.\textsuperscript{1303} While Swedish companies tend to emphasize the importance of superior marketing and production cost reductions, Japanese companies value more the advantages of patents in protecting both product and process technology. The advantages bestowed by patents are directed to use technology as an instrument of technology transfer, which include protecting proprietary product technology, protecting proprietary process technology, creating retaliatory power, enhancing the possibilities for selling licenses, and increasing the possibilities of accessing technology through cross-licensing.\textsuperscript{1304}

\textsuperscript{1302} Id. at 101.
The adjustment of the patent system should include not only isolate measures to limit the exclusion rights, a relaxed novelty requirement and a constraint of pre-grant disclosure, but also the integration of these measures in a patent culture consistent with a system of networking. Consequently, a suitable definition of the patent right that harmonizes the interests of the parties involved constitutes a key element for consolidating an efficient innovation system.

The need for a reform can be summarized in the following terms: “The time for examining a new approach, however, is at hand. The cause of innovation cannot be entrusted to yet another round of multilateral trade negotiations driven by oligopolies that would rather litigate than innovate. Innovation in an age when information has become the common medium of construction is unlike innovation in the past, and the nineteenth century’s legal paradigms will not solve twenty-first century problems. Intellectual property law cannot escape evolutionary pressures that require adaptation and innovation as the price of survival.”

2. Optimal Protection to Patent Entitlements Considering Transaction Costs of Technology Negotiation and Transfer

Because compulsory licensing requires a balance between the interests of the patent holder and those of the public, the reconsideration of the content and nature of the patent right could have important effects in framing this institution. In this section we explore the possibilities for framing compulsory licensing as a normal effect of the patent right, defined not as a monopoly or property right, but as a right to participate in the welfare generated by the commercial use of the patented technology.

a) Basic Differences between Property and Liability Rules

The kind of protection given to a patent entitlement defines the legal nature of that entitlement. Patents are considered private property because the kind of protection given to the patent entitlement is typical for property. The property rule is characterized by the maxim that no one can take the entitlement to private property away from the holder unless the holder willingly sells it and at the price at
which he subjectively values the property\textsuperscript{1306}. In addition, once the original entitlement is decided upon, the state does not try to decide its value. In this sense, the intervention of the state is normally reduced to the role of defining whom the entitlement is to be given\textsuperscript{1307} (granting a patent right). Intervention of the state for valuing entitlements is only common in cases of destruction or transfer of the entitlement, when the liability rule leads the judge to determine how much should be paid as compensation. Normally, this compensation is thought to be the value the original holder of the entitlement would have sold it for\textsuperscript{1308}.

The way an entitlement is protected can be regarded as a collective decision based on the need for minimizing the administrative cost of enforcing it, taking into consideration that the entitlement should offer a suitable protection to the social interests that justify its creation. Since patent the entitlement is given in order to promote the development of innovation, the enforcement rule should be adjusted to correspond to this objective.

It is possible to criticize the application of a property rule to enforce patents, because the value of a patent also depends on the additional value coming from other economic agents who open or enable alternative ways of exploitation. The property rule does not conform with the systemic nature of innovation. In order to determine the proper value of a patent and the need to license it to other network members, the additional value provided by subservient patents along with the opportunities generated by the situation of the industry need be taken into account. The fact that property rule invites the owner of the entitlement to appropriate all the fruits of the collective innovation process and disregard the opportunities coming from sharing the entitlement makes evident the need for better enforcement measures.

\textit{b) Economic Policy Criteria for Granting Entitlements}

Following an economic efficiency criteria, the set of entitlement should be in accordance with a \textit{pareto} optimal arrangement. In this case, the entitlement should

\textsuperscript{1305} Reichman, J. H., Legal Hybrids Between the Patents and Copyright Paradigms at 2558.
\textsuperscript{1307} Id. at 1092.
lead to a position where no a additional reallocation of it could increase the benefits of one sector without affecting the benefits of another. A pareto optimal allocation is, “that allocation of resources which could not be improved in the sense that a further change would not so improve the conditions of those who gained by it, that they could compensate those who lost from it and still be better off that before”\textsuperscript{1309}. This can also be defined as that form of entitlement, private or communal “which leads to the highest product for the effort of producing”\textsuperscript{1310}.

Concerning patents, pareto optimum implies that an additional transfer of technology will not improve the global welfare of society without negatively affecting the holder of the right. Since through licensing, not only the social use of technology, but also the innovation process is promoted, the enforcement entitlement should propitiate technology transfer. The main problem of enforcing the entitlement is to define how to assure the holder of a patent that his royalties would be larger than the profit which may be created by the exploitation of this patent under normal conditions. The property rule and the consequent monopolyright are traditionally regarded as the only solution to allow a private enterprise to exploit his invention in a free market-system\textsuperscript{1311}. The monopoly right is considered the necessary basis upon which the inventor may contract for transfer of technology\textsuperscript{1312}.

It is also questionable whether the rent that patent holders may obtain when acting as monopolist should be included in the determination of the normal profit. This question, and in general, the whole patent system depends on economic assumption\textsuperscript{1313}. The definition of patent as private property and monopoly right induce patent holders to consider his normal profit the rent of a monopolist. This high expectation level of patentees leads to conflict of interest in the negotiations of technology transfer.

This situation creates cognitive positions of patentees that lead them to consider any price lower than the corresponding monopolist rent a loss. A high protection

\textsuperscript{1308} Id. at 1092.
\textsuperscript{1309} Id. at 1094.
\textsuperscript{1310} Id. at 1094.
\textsuperscript{1311} Ulmer, Rechtsvergleichung, at 7.
\textsuperscript{1312} Id. at 6.
\textsuperscript{1313} Id.
standard leads that the patentee have overconfidence about the concessions the opposing negotiator will make. This is aggravated when the legal system motivates the parties to have low concern for one another’s welfare\footnote{See Pruitt and Carnevale, Negotiation in Social Conflict, Open University Press, Buckingham, 1993. 90-91.}, because the patent protection is regarded as an absolute protection of the will of the holder, which is independent of the legitimate interests of technology users. Under the property or monopoly theories of patents, the legitimate interests of technology users are disregarded, and only very important social interests could limit the absolute right of patentees.

The nature and level of patent protection define the gain and loss framework of parties. This framework have a very important influence in the negotiation outcomes. This phenomenon have been described as loss aversion\footnote{Id. at 96.}. Looses have greater impact than gains. The negative reaction to losing a certain amount of money or power is stronger than the positive reaction to gaining them\footnote{Id. at 96-98.}. Consequently, an entitlement that leads patentees to frame their profit and bargaining power as the one of a monopolist hampers the achievement of fair solutions in technology transfer, an thus, the consolidation of technology markets and networks. On the other side, moving away from an individualistic negotiation framework (for example the property rule), to a cooperative one (quasi-contract of unjust enrichment) leads that loss frame had no effect on the likelihood of agreement. Instead, a loss frame produced an improvement in the likelihood of a win-win agreement\footnote{Id. at 98-99.}.

Therefore, variables affecting the will to negotiate are an important factor in considering the allocation of entitlements. Another example of this is the wealth difference between parties. Wealthy parties tend to value higher their unique goods. In fact parties will value less any additional amount of money, the wealthier they are\footnote{Calabresi and Melamed, “Property Rules, Liability Rules, and Inalienability: One View of the Cathedral” at 1095.}. In this case, the patentees decision to transfer technology is not only based on increasing short term profits but also on controlling the competition. A large enterprise that holds a patent will not have interest in obtaining an extra
profit by licensing smaller enterprises, although this firm knows that licensing may generate a reasonable positive profit. Patentees may be more interested in restricting competition by impeding the growth of other firms, or in maintaining a higher technology competitiveness in order to debilitate or to take over other firms. These kinds of interests should not be covered by the entitlement protection. This makes difficult to negotiate with MNE’s protected by an individualistic framework like the property rule. The most important problem of the property rule is that it invites the holder of the right to define a strong negotiation position, this often hinders the negotiation of license contracts.

Concerning the property rule, the protection of the entitlement is done exclusively by taking into consideration the interests of the entitlement holder, without valuing the relevance of those interests. The protection of the interest of the patent holder to appropriate an economic rent, or to block his competitors, or just, to avoid any negotiation process impedes mutually profitable negotiations. As a result, the property rule protection has been an important obstacle to an efficient use of the patent system. The efficiency costs of the property rule are notably increased in the present global economy, where the systemic nature of innovation presents a central role in the industrial development.

Because the property rule hinders the negotiation of technology, it prevents the increase in the volume of transaction and the development of technology markets. This vicious circle contributes to maintain the existing high negotiation costs of technology transfer because transaction costs are also a function of the volume of transactions. When the volume of transactions increases, the efficiency of the market in transmitting information and generating institutions correspondingly increases. For this reason, property rule protection is not very efficient in promoting creation and diffusion of technology. The definition of an enforcement rule that promotes the diffusion of technology though licensing would not only facilitate the negotiation of technology, but also, if succeeds in actually increasing the volume of licensing and reducing the transaction costs, it would increase the profit coming from these negotiations. An increase in social welfare is thus expected.
c) Liability Rule as Optimal Protection to Patent Entitlements

The following rules to define the set of entitlements for patents are proposed\textsuperscript{1319}.

1.- The set of entitlements should promote relevant interests, including economic efficiency and welfare. Since innovation has a systemic nature and the promotion of networks in society requires the promotion of technology diffusion, the best set of entitlements would promote simultaneously technology research and diffusion. Consequently, patent rights should assure the holder of the patent a proper incentive for his work but at the same time they should hinder him from seeking a rent through anticompetitive measures at the expense of other innovators. In addition, other members of the systemic network should also receive an entitlement which allow them to obtain profit for their contributions, even in the cases that this contributions are relevant improvements of new applications of existing technologies.

2.- Entitlements should be fixed keeping in mind “whether market transactions or collective fiat will be most likely to bring us closer to the \textit{pareto} optimal result the “perfect” market would reach”\textsuperscript{1320}. Because technology markets are not so developed and markets do not work perfectly - due to transaction costs-, there is an argument in favor of intervention. This argument states that “there are many situations in which we can assume fairly confidently that the market will do better than a collective decider and there are situations in which we can assume the opposite to be true”\textsuperscript{1321}. The imperfections in the market of technology are aggravated because holders of patent entitlements are invited through the property rule to use them to appropriate as monopolists from the wealth generated by the innovation system and networks. An intervention of the market is recommended in order to promote the diffusion of technology, the negotiation of licenses.

The use of a liability rules better accommodates all interests. This rule is generally used when there is a contradiction between public interests and the interests of the property holder. For example, society finds promoting the transfer of the entitlement with compensation to the rightholder important. For this reason, the entitlement is protected only by a liability rule, at the same time an external

\textsuperscript{1319} \textit{Id.} at 1095.

\textsuperscript{1320} \textit{Id.} at 1097.

\textsuperscript{1321} \textit{Id.} at 1097.
objective standard of value is used to facilitate the transfer of the entitlement. Liability rules have also been used to solve conflicts in which the price of the entitlement could not be easily determined. In these cases the cost of establishing this value by negotiation are so great that, notwithstanding the transfer of the entitlement would benefit all concerned, such a transfer will not occur. A collective determination of this value will permit that the beneficial transfer come about quickly.

Another situation that justifies granting liability rules rather than property rules is the coincidence of two public interests that apparently are in contradiction. A typical case is when there is a public interest in granting an entitlement and simultaneously a public interest that the entitlement would be transferred (for example, the interest of recognizing private property over some parcels and at the same time the public interest that this parcels would be transferred to create a park). In such cases, these two interests may appear to be in contradiction, when both parties tend to use their bargaining power to obtain a rent.

An example of this is the sale of a rare or unique item, such as a specialized technology. There is no reason to believe that a decentralized system of valuing, such as a market, will cause parties to express their true valuation, and hence yield results that all parties would in fact agree are desirable. The problem is aggravated when there is not a developed market which can determine a price with efficiency, or at least give good approximation of the possible valuation of parties and facilitate the necessary exchange of information required for finding a reasonable solution. In such a case, society should intervene to promote the creation of such market and, meanwhile, grant a liability rule instead a property rule to admit the possibility of a collective determination of the price.

In contrast, the property rule promotes the consolidation of a vicious circle in the system of innovation. It hinders technology negotiation, which hampers the

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1322 This rule has been applied in cases where the court has considered avoiding injunctions conditioned on payment of permanent damages to plaintiffs. See e.g. Boomer v. Atlantic Cement Co., 26 N.Y. 2d 219, 309 N.Y. 2d 312, 257 N.E. 2d 870 (1970).
1323 Calabresi and Melamed, "Property Rules, Liability Rules, and Inalienability: One View of the Cathedral" at 1106.
1324 Id. at 1106-7.
1325 Id. at 1107.
1326 Id. at 1107.
development of networks and technology markets. The development of networks and technology markets is necessary to motivate and facilitate the transfer of technology. As a result, the creation of a system that facilitates the exploitation of technology through technology transfer is encumbered. Changing the property rule protection of the patent entitlement to a liability entitlement is an important step in making parties conscious of the mutual gains opportunities coming from technology transfer. It also helps parties to take into consideration the importance of protecting the weaker party from the abuses of the exclusion right in order to develop a sound networking system based on stable agreements.

On the other hand, the liability rule protection helps parties to view their exclusion rights as an instrument for participating and benefiting from the networks rather than a means of excluding others in order to monopolize. It can help parties reconsider the possibility of a collective valuation of the right in cases when normally there is no agreement. The use of the liability rule as normal protection can rule out the regard of compulsory licensing as an expropriation or a violation of the patent right. Within this framework, parties keep in mind that the transfer of technology is also a protected interest. This leads to the view that the promotion of technology transfer is concomitant with the protection of technology. The liability rule allows for the definition of a coherent system of technology promotion, which grants reasonable protection to all participants in the innovation system. It allow for a patent protection that combines the promotion of efficiency and distribution results, which would be difficult to achieve under a property rule.\footnote{Id. at 1110.}

These reasons justify the use of the liability rule rather than the property rule to define the patent institution. Furthermore, the liability rule is consistent with the promotion of a networking system of innovation. The creation of a national system of information and the development of the networking between economic factors constitutes a very important tool to facilitate the development of technology markets. This system should create a negotiation culture which makes parties conscious of the importance of reaching a mutual beneficial agreement by technology transfer. It should lead parties to have a long term perspective of the innovation process. Such a system is expected to create decentralized mechanisms
of patent negotiation allowing parties to reach agreement without a legal contend and an imposed definition of the transaction value.

To summarize, the systemic nature of innovation requires an institutional framework that permits a dynamic integration of the processes of technology creation and diffusion. As a result, a protection of patent rights under liability rules is a suitable way for promoting the negotiation of technology in an innovation system. The liability rule is a suitable instrument for promoting the use of the patent entitlement to obtain a share in the wealth generated by the exploitation of their technology, and for simultaneously ruling out the monopolistic interests of patent holders.

d) Problems of the Use of Liability Rule

The use of the liability has traditionally been associated with political dirigism, particularly with the socialistic economic systems, where the inventor was compelled to transfer to a central public administration the control of his inventions. This public administrator would transfer the technology to public users and pay the inventor an arbitrary reward\textsuperscript{1328}. Under this framework there is no room for private initiative. The inventor has no possibility to administrate his innovation and therefore has less incentives. Thus, one important objection to the liability rule is that it may lead to a paternalistic system. In this case, the monopoly right is transferred to the government, whereby its negative effects for networking instead of being removed, could increase. Within a market economy, the use of the liability rule present similar problems. Ad hoc decision making, such as compulsory licensing, may be troublesome. This could lead to acute the use of settlement of conflicts between parties as the normal way to solve widespread distribution problems\textsuperscript{1329}. A centralize system would thereby impose his distributional rules.

\textsuperscript{1328} See Ulmer, Eugen, Rechtsvergleichung, at 6-7.

\textsuperscript{1329} Even though, ad hoc decisions could be a better second alternative than property right in some cases. Specially, when systematic distributional programs may cause greater misallocation of resources than ad hoc decisions. See Ackerman, Regulating Slum Housing Markets on Behalf of the Poor: Of Housing Codes, Housing Subsidies and Income Redistribution Policy, 80 Yale L.J. 1093, 1157-97 (1971).
From the legal perspective, the liability rule is normally associated with the quasi-contract of torts, which regulates the situations where damages of others’ patrimony have occurred or are expected. As a result, the liability rule is regarded as the right to collect damages caused by the other party’s encroachment\(^{1330}\). In this cases, court are supposed to intervene in order to determine the existence of damage, the responsibility of the offender and the valuation of the damages. Courts should normally consider the specialized nature of the assets, the uniqueness of each asset and the varied and complex business environments in which they are deployed. Consequently, court litigation implies that high transaction costs are to be expected since courts called on to set the terms of the exchange would normally not be able to do it so quickly and cheaply. In addition, because liability entitlement are normally originated in a tort, \textit{i.e.}, other party’s encroachment, there is a danger that the use of liability rule as norm may generate more damages to the creation of networking as the transactions costs originated by misuse of the property rule. The appropriate regulation of the mater should encourage parties to make their own deal, which is precisely the main advantaged ascribed to the property rule.

This situation generates a paradox. The liability rule alone is not enough to create a system for technology transfer. The liability rule could be used as an instrument to force licensing, giving the users of technology a strong position in prejudice of patent holders. In this case the costs of coercion cannot be defined and may be infinite. At least, since it implies the intervention of tribunals, the procedure costs are significantly higher. In addition, coercion, when used as a rule and not an exception, implies a deterioration of the freedom and trust that constitutes an essential element in the development and well functioning of networks. This is particularly important in the case of cross-licensing of technology, which is generally based on a “co-operative inter-organizational relationships” framework\(^{1331}\).

On the other side, in a world of imperfect information, the market places a limit on the size of possible loss: the cost of establishing a market. The creation of technology markets and networking is required to allow the liability rule protection

\(^{1330}\) \textit{Merges}, Robert, Of Property Rules, Coarse, and Intellectual Property, at 2664.

to facilitate negotiation and avoid conflict. Ruling out the property rule in order to apply the liability rule seems suitable for promoting the negotiation of technology only when integrated into a system that seeks to harmonize the interest of both, patent holders and technology users. Both measures can only be effective when applied under a systemic context which integrates all essential variables and promotes a networking “patent culture”.

Another objection to the liability rule is that, when extremely applied, it could force patent holders to license without having the opportunity to consider the costs and benefits of each license. This could take away from the innovator all options to define a strategy how to use his invention. Using this perspective, some foundation literature argues that liability rule can be defined as an instrument for avoiding negotiation. Property rule is regarded as a promoter of negotiation, because it defines as a legal entitlement that can only be infringed upon after bargaining with the entitlement holder, and because of that the holder can set the price for infringing ex ante. In contrast, under liability rule, one may infringe first and a tribunal will determine the appropriate compensation in an ex post proceeding. So interpreted, a liability rule protection to patents constitutes a clear invitation to infringement and would encourage conflict instead of conciliating it. The patent holder right to define a strategy as to how his technology would be used is an important element of free enterprise. Therefore, the liability rule should be applied only as an instrument to hinder patent holders from consolidating monopolies and excluding arbitrarily other technology users. The optimal patent protection should combine elements form the property and the liability rule. Instead of be originated by a right of torts of unfair competition, the liability rule should be regarded as originated on the quasi contract of unjust enrichment, which is analogous to a co-property situation.

e) Possibilities of a Convergence between Liability and Property Rules

The increased use of networking in technology exploitation has led to cooperative agreements between patent holders in order to facilitate the joint exploitation of their patents. These cooperative agreements have been designed to reduce the normally high transaction costs of technology negotiation. Therefore, there is a
tendency towards the modification of the strong property rule baseline of intellectual property law by contracting into liability rules\textsuperscript{1333}. The convergence of property rule to the liability rule implies that the property interest would become less relevant for his holder. This is the case in institutions such as the US Society of Composers, Authors and Publishers, a private organization which collects composers’ performance rights for licensing to radio stations and nightclubs. Through copyright collectives and the centralized administration of copyrights, there are lower collection costs which ultimately permit a greater number of transactions to occur\textsuperscript{1334}. This type of organizations are developing in Copyrights to the extreme that there are more than seventy-two music related collective rights organizations operating in some 182 countries\textsuperscript{1335}.

A similar tendency can be found in patent rights. An example are the patent pools, which are often accompanied by administrative structures and centralize all firms’ patents for automatic out-licensing or to cross-license each other’s patents. The existence of such structures can be used as an argument for property rules, in the sense that property rules promote flexible voluntary institutions that are formed to overcome the costs faced by transactors, while statutory liability rules work against them\textsuperscript{1336}.

This objection to the liability rule disregards that patent pools were created precisely to rule out the property rule between members. However, this points out that the liability rule can only work when parties are aware of the mutual gains opportunities of networking and are willing to negotiate. The converging of property rule and liability rule would take place if the property interests given to patent holder are no longer relevant for him. A prerequisite for this is that the development of markets for technology and networking so that the holder of the property right becomes aware of the opportunities coming through networking and prefers to integrate into the network rather than maintaining a monopolistic exploitation. The convenience of liability rule is summarized in the following

\textsuperscript{1332} Merges, Robert, Of Property Rules, Coarse, and Intellectual Property at 2655.

\textsuperscript{1333} Id. at 2662.


\textsuperscript{1335} See Sinacore-Guinn, David, Collective Administration of Copyrights and Neighboring Rights, Boston, 1993, 5.

\textsuperscript{1336} See Merges, Robert, Of Property Rules, Coarse, and Intellectual Property at 2662.
terms: “Because the technical communities’ long term interests are dynamic rather than static, they cannot afford to leave all the regulations they need adopted, or even all the legal machinery they need to implement an off-the-rack liability regime, to the distracted supervision of legislators and administrative agencies. Rather, the task of maintaining optimal relations between innovators and borrowers over time, in the absence of effective trade secret protection, will require the different technical communities operating under an off-the-rack liability regime to establish agencies of their own that are empowered to take collective action on behalf of innovators and borrowers alike”\textsuperscript{1337}.

To summarize, the creation of new institutions based on the liability rule seems a valuable instrument, which creates a conscience among parties that the main interest protected by the patent entitlement is not the exclusion right but the right to participate in the profit generated by the collective use of the invention. The use of liability rule constitutes a valuable instrument to move the patent system away from its monopolistic perspective to a diffusion one. Even in the case of copyrights, which do not allow a monopolistic exploitation like patents, the use of liability rules has been necessary to solve the problems of transaction costs and promote the creation of copyright markets. Furthermore, in respect to copyrights, there is no evidence that the use of liability rules like compulsory license, if abolished, would be replaced with market transactions\textsuperscript{1338}. This leads to the conclusion that the optimal patent protection should combine elements of the property and liability rules. It should grant the patent holder the right to administer the exploitation of his invention, however, this should not be an absolute right, but as a relative right whose application should also take into consideration the legitimate interest of the technology users.


Chapter 4

3. Problems of Misappropriation in New Forms of Innovation The Creation of an Antimisappropriation Statue

a) General Aspects

The problems of misappropriation of intellectual rights are generally caused by market failures that impede the creator on an innovation to profit from his results. Because new technologies present and generate new forms of market failures, the traditional patent legislation have been unsuitable for protecting new forms of innovation, such as software, biotechnology, etc. As a result it has been suggested that new intellectual property rights and new objects of protection be created. In order to provide the intellectual rights protection enough flexibility, the creation of specifically legal hybrids between patents and copyrights has been recommended.\(^{1339}\)

The trend puts emphasis in the need of protect valuable “seat of the brow” works like nonselective databases and digitally formatted public domain texts. This has also taken importance in the protection of computer programs or program algorithms through copyrights. In the field of protected technology, misappropriation problems are found in new technologies like semiconductor chips, program design elements, or DNA-sequence information whereby a skilled competitor may be able to undercut price through relatively cheap and rapid copying.

The central problem of misappropriation is not the lacking of a legal definition of other nature of intellectual rights, i.e., the definition of new objects of protection. Concerning patents, the problem comes from the well-founded reluctance to protect facts under intellectual rights, particularly functionality outside of patents. An example of this problem is the protection of “program algorithms”, which runs the risk of covering unpatented functionality, independently of the method by which the algorithm is taken from the program.\(^{1340}\)

Therefore, the solution of this kind is problem is not the definition new objects of protection which creates the risk that courts would expand the scope of protection to cover otherwise unprotected elements of the works, such as facts. The solution

\(^{1339}\) Reichman, Legal Hybrids Between the Patents and Copyright Paradigms at 2432-2558.

\(^{1340}\) Karjala at 2605.
should be found by defining general principles suitable for providing specific solution for “market failures”. Market failure threats to erode the incentive granted by the patent right and constitutes a disincentive to the creation of these kinds of technologies. These institutions should define general criteria for identifying and providing a solution to those situations where cheap and easy copying are presented, which allow for a “trivial acquisition of behavioral equivalence”.

Following this perspective, general principles of law are required to solve the problem of “free riders” that can appropriate from the efforts of inventors without paying. In order to solve this problem, the institutional framework could chose two main strategies. The first (traditional one) focuses on the exclusion right as a mechanism for preventing other people from “using” the invention. That is a hard protection system. The second one emphasizes guaranteeing the right of the inventor to participate in the social profits of his work. In this case the exclusion right is not a goal by itself, but a instrument designed to empower the inventor to require thirds to give him a participation. It centers on the solution in the definition of general principles of law that provides criteria for solving each problem. This position corresponds more with a soft protection system.

The fist position had led to recommend the creation of an General Anti-Misappropriation Statute. This Anti-Misappropriation Statute should allow the court to apply the standard of a case-by-case basis, defining which methods of copying are unlawful.

\[b\) Disadvantages of the Hard Protection for the Inventor: Exclusion of Protection through Filtration Analyze and Building Criteria in Copyright Law\]

The main problem of exclusion rights as a mechanism to protect against misappropriation is the danger that the protection of a vital discovery can block the development of the industry and create a monopoly. The recognition of this problem, particularly in the computer program field, have led to the “filtration analyze”, developed in the late 1980s and early 1990s by several US courts of appeals and proposed by the Altai Court. This precept states that “intellectual property law must not sweep so broadly that it removes material from the public

\[\text{Samuelson, Pamela at 2341.}\]
\[\text{Karjala at 2601.}\]
domain needed by others to perform their own creative acts. This principle is developed by the realization that the justification for copyrights is to reward new contributions, not merely to increase the revenue for old contributors, which implies that protection should be extended to the value-added elements. The filtration technique have been employed by the US courts to enable a systematic method for determining the protectable elements of computer programs. Courts prove for every level of abstraction, beginning from the most general idea or algorithm level, how many alternatives there are. At the level in which there is only one approach, that particular level of abstraction constitutes an idea or a procedure or process and is unprotectable. The argument is that protecting the only alternative takes it away from everyone else. An example of this is the spreadsheet format for presenting numerical information, only a particular arrangement of spreadsheet is protectable, abstract considered, the spreadsheet format is unprotectable. The filtration method should confront the fact that in some cases a specific arrangement could constitute a standard in the market, which pressure competitor to follow it in order to place their product. In addition, the settlement of the standard in the industry could be of general interest in order to facilitate the creation of networks between enterprises. This had led to the criteria of “building”, in the contexts of methods of operation, whereby “building” requires the use of the precise method of operation already employed; otherwise “building” would require dismantling, too. This principle can be applied in the case of a basic format, as in the case of the Spreadsheet. That is the case when “methods of operating” become standards, like the buttons labeled “Record, Play, Reverse, Fast forward, Pause, Stop/Eject”. The commercial value of a standard resides not only on its inherent advantages, but also this value increases from the investments

\[1345\] Id. at 423.
\[1347\] Lotus Dev. Corp. v. Borland, Inc., 49 F.3d 807 (1st Cir. 1995)
\[1348\] See Perrit at 424.
made by its users: After time, the public will get used to the standard and build their own application in reliance to it\textsuperscript{1349}.

The method of filtration and the criteria of building pointed out the inconsistency of the “proprietary” and the “monopolistic” approach to protect innovation. Within this approach, the patent right is incompatible with the need to leave a space in which others could build up their innovative acts. As a result, the “proprietary” approach of the hard protection system may lead to totally exclude an innovator, even in case that his contribution constitutes a key element of further innovations. This inconsistency is solved by the hard protection system by leaving the original idea without protection to allow it to remain accessible to “building”. In contrast, a liability rule would solve the contradiction between protecting the inventor and impeding a blockage of further innovation in a way that the inventor could still obtain protection and profit through licensing, because his eventual interest in blocking others would not be protected.

c) Interrelations between Legal Nature of Patent Entitlement and its Protection Rule

An important argument for the application of the liability rule comes from the consideration of the legal nature of the entitlement. The rule of protection determines the main interests protected. In a coherent legal system, the interests protected should be interrelated to the nature of the entitlement granted, the protection should also be consistent with the foundation or reason that originated the entitlement. As a result, the legal nature of the entitlement and its protection should present a coherent unity.

Liability rules have been proposed as the solution to cope with the paradox of simultaneously promoting technology creation and diffusion, in the following terms: “The choice seems clear. Either the developed market economies will formulate a workable set of ancillary liability rules to replace the crippled regimes of trade secret protection, with particular regard to protecting applied scientific know-how, or they will founder in a tidal wave of ill-considered protectionist measures. On hopes that those who believe in competitive markets will intervene

\textsuperscript{1349} Lotus Dev. Corp. v. Borland, Inc., 49 F.3d 807, 819 (1st Cir. 1995), specifically, Circuit Judge Boudin, who recognized that “ a new menu may be a creative work, but over time its importance may
in time to restore order and to rescue a wayward intellectual property system from itself before that system, and the free market it indirectly sustains, collapses under its own protectionist weigh\textsuperscript{1350}.

However, by integrating the quasi-contract relation into the figure of unjust enrichment we can obtain similar results to the property rule without loosing the advantage of the liability rule. First, the entitlement is given because one individual, the inventor had found a new production resource: a new technology, but this resource alone is not sufficient for generating wealth. Wealth is generated by the exploitation of this technology in a market. The exploitation process requires the contribution of other participants and because of that a problem of co-property may be generated. This is the normal case of the benchmark remedy of patent infringement: in this case a reasonable royalty is calculated on the basis of a “hypothetical negotiation” between patentee and infringer, conducted prior to the commencement of infringement\textsuperscript{1351}. This solution clearly envisions giving the patentee a share of the value added by the infringer and is totally coherent with the application of the liability rule of unjust enrichment which is equivalent to the property rule in the case of co-ownership.

The norm of unjust enrichment also applies to solve the problem of joint exploitation of patents to generate a new product, which includes the case of original and subservient patents. The exploitation of the device that requires simultaneous use of several patents generates a problem similar to co-ownership. Co-owners have the right and the obligation to negotiate the joint exploitation of their goods. No one has the right to hinder others from using their property, in cases in which this use do not objectively damage the others. But in any case they have to find a way to distribute the profit generated by their common property. Only when parties do not reach agreement a decision from the court is available. This theoretical framework solves the problems of patent abuses. As a result, the best definition of the legal nature of the entitlement is still an “unjust enrichment” entitlement. The definition of patent right that correspond to this framework is not a mere property right over an “intellectual good” but a special right to exploit the

\textsuperscript{1350} Reichman, Legal Hybrids Between the Patents and Copyright Paradigms at 2558.
\textsuperscript{1351} Merges, Robert, Patent Law and Policy: Cases and Materials at 786-88.
invention in a determinate market created by the protected technology. In the case of original and independent patents, there is in fact a co-ownership of those markets because the product that serves that market can only be produced using simultaneously diverse patent rights.

Finally, the proposed definition of the patent entitlement as an “unjust enrichment”, presents a suitable institutional framework for the systemic nature of innovation. Patents conceived as a protection originated on a quasi-contractual situation, which defines a right over the exploitation of the market defined by the protected technology. The systemic nature of innovation claims that each innovation is produced with the further exploitation of precedent technologies and it is at the same time source of further innovation. The innovation process is a collective process. The entitlement is granted to allow the patent holder to participate in the profit generated by the exploitation of the technology. The hypothesis of unjust enrichment is analogous to the hypothesis of co-property, i.e., the case when determined wealth is product of the participation of the resources belonging to different persons. In this case, negotiation between co-owners constitutes a prerequisite to the application of the liability rule. The holder of the entitlement is supposed to define in first instance the way his patent should be exploited in the market, but his decision power is limited to the extend of his title. His is obliged to negotiate the exploitation of the common property with his co-owners and the bargaining power of each participant is reduced to the definition of objective fair distribution of the wealth generated by this exploitation.

D. Patent Rights under a Quasi-Contractual Institutional Framework

1. Definition of a Quasi-Contractual Institutional Framework to Protect Innovation

The fact that the monopoly theory of patents and the private property theory coexist as a dogmatic explanation of the nature of patent rights suggests that each theory by itself is not enough to provide a complete theoretical framework of the patent institution. Each of them attempts to reduce the complex institution of patents to a form in which important elements remain excluded.

The problems of the hard protection system show how complicated it is within the proprietary and monopolistic approach of patents to harmonize the interests
involved in the patent institute. The problems caused by the absolute control of the patentee over his invention brought about by that system encumbers the concession of rights in the cases where the patent holder could use his right to block an important industrial development. The principle that a holder entitled with a property right should obtain all profit excluding the others contradicts the systematic nature of innovation and promotes arbitrary decisions from courts in order to impede the damages of the monopolistic use of patents. On the other hand, the appropriability problems or innovators creates continuously situations that can be considered unjust or unfair, as imitators impede innovators from enjoying the fruits of their work results.

In this part we suggest that the solution to these problems can be achieved through changing the traditional definition of patents. Patents should be regarded as instruments to favor the distribution of the profit generated by the social use of a specific innovation between all the participants in the innovation process. This leads to a new dogmatic framework of patents, to the redefinition of patents as originated by quasi-contracts instead of property or monopoly rights.

In order to construct a quasi-contract institutional framework, innovation protection can be regarded as a problem of harmonizing interests. The basic elements of the patent institution can be defined as the objective elements of the right and the interests involved. The objective elements are the invention itself, considered a work result of inventors, and the market where the invention should be exploited. The invention as a work result, and the market where it can be exploited can be defined as the parts of the exterior objective reality which are directly affected by the right of innovators. The principal interest involved and protected by the patent institution is the interest of the inventor in administrating the exploitation of his invention in the market. This interest can be considered absolute: an absolute interest to exclude, or relative to a legitimate goal, \( i.e. \), as granted in order to assure a profit for the work results of inventors, and also to protect the social goal of promoting the creation and diffusion of technology.

On the other hand, the promotion of innovation under a systemic framework should protect the interest of technology users, who grant value to the invention when they find new uses and applications. In this way, technology users contribute not only to the diffusion but also to the continual development of innovation. The
relevant interest of the users of technology are: the access to the technology and the right to profit from the improvement and new applications of existing technologies that they may develop. All these elements form a system. As a result, the patent system should take into account the relationship between the invention and the market in order to harmonize the legitimate interests of inventors, technology users and consumers. The legal nature of the patent right should integrate all these elements. Therefore, the patent institute should be considered a complex and dynamic system.


   a) **US Protection of Trademarks**

   The common law system has utilized quasi-contractual institutions to complement intellectual property rights protection. These institutions have been designed to prevent competition which seeks to make unfair use of another trader’s efforts\(^ {1352} \). These institutions were originally introduced to protect trademarks users from unfair competition and unfair trade practices, under the institution of passing off. The US law pertaining to trade identity unfair competition finds its origins in the common law of England. However, there was little reported on the general unfair competition law prior to 1850 in both countries\(^ {1353} \). An example of this English case law related to passing off is this pronouncement of Chitty J: “there is such a thing as just and fair competition - the Court never acts to prevent that - but there is such a thing as unfair competition, and by artful wiles to take away a portion of man’s reputation, which is part of his fortune when it is embarked in a trade...(W)hen the Court finds that in substance, notwithstanding there are many things which the Defendant could do which are legitimate and within his rights, yet he is so contriving them as to take away something which belongs to another man, it is the duty of the Court to interfere.”\(^ {1354} \) In this way a trend to frame intellectual

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1354 *Hundley and Palmer v. Reading Biscuit Co. Ltd.* (1893) 10 RPC 277, 280. See also *Drysdale* and *Silverleaf* at 2.
property rights as an institutional framework to prevent unfair competition have developed piecemeal\textsuperscript{1355}. The tort of passing of constitutes an example of this quasi-contractual development. Passing off consists essentially of a representation that a person’s goods or business are or are connected with the goods or business of someone else\textsuperscript{1356}. It takes the form of an implied representation made by the use of a name, mark or some other distinctive of someone else’s business or goods\textsuperscript{1357}.

This may explain why first statutes required the existent of torts in order to grant protection. The original framework of the law of torts required the intent to defraud for any trade identity cause of action\textsuperscript{1358}.

This early position of common law, however, was changed by courts of equity in England. In 1838, the Lord Cottenham LC stated that “It does not appear to me that there was any fraudulent intention in the use of the marks. That circumstance, however, does not deprive the Plaintiffs of their right to the exclusive use of those names”\textsuperscript{1359}. This position prevailed in England after the Judicature Acts of 1873 and fraud ceased altogether to be an essential element in passing off. Nevertheless it was not possible to recover any monetary compensation from a person who innocently passed off his goods or services as the plaintiff’s\textsuperscript{1360}. The quasi-contract of unjust enrichment was no longer available.

The first United States trademark statutes also liberalized the interpretation of the requirement of fraud for a cause of action. This requirement upon the patent and trademark was gradually relaxed and eventually disappeared. The simple test of likelihood of deception as to the source of goods or services of prior user became the criterion for relief\textsuperscript{1361}. However, the act of 1870 was declared unconstitutional because Congress based the original trademark statute upon the patent and

\textsuperscript{1355} See Drysdale and Silverleaf at 1-2
\textsuperscript{1356} Id. at 3.
\textsuperscript{1357} Per Lord Parker in Spalding & Bros v.A.W. Gamage Ltd (1915) 32 RPC 273 at 284. See Drysdale and Silverleaf at 3.
\textsuperscript{1358} See Privy Council (the highest British court in Domain Names), Standard Sanitary Manufacturing Co. v. Standard Ideal Co. A.C. 78, (1911); quoted by Jsay, Hermann, Der Kampf um § 1 UWG, 1928 GRUR 245, 248. See also Drysdale and Silverleaf at 9.
\textsuperscript{1359} Millington v.Fox (1838), My & Cr 338 at 352. See also Drysdale and Silverleaf at 9.
\textsuperscript{1360} See Slazenger v.Spalding (1910) 1 Ch 257. See also Drysdale and Silverleaf at 10.
\textsuperscript{1361} See Pattishall at 3.
copyright clause of the United States\textsuperscript{1362}. The distinction between trade identity rights with patent rights was necessary for allowing a wider protection to intellectual property rights, but there was a tendency for judges, lawyers and businessmen to confuse trade identity rights with patent rights\textsuperscript{1363}. As a result, the US system considered all trademark cases to be cases of unfair competition. These cases were regulated by the principle that “no one has any right to represent his goods as the goods of another and this is merely the duty to abstain from fraud” \textsuperscript{1364}. The unjust enrichment framework was abandoned.

In 1879, the US Supreme Court stated that the right to adopt and use a symbol or a device to identify one’s merchandise with oneself and distinguish it from that of others was property right long recognized by the common law. Specifically the Court stated\textsuperscript{1365}:

“The right to a trade-mark is a property right, because in case of the violation, the damages may be recovered in an action at law and the continued violation of it will be enjoined by a court of equity. This property and the exclusive right to its use were not created by Act of Congress and are not dependent upon that Act for their enforcement. The whole system of trade-mark property and the civil remedies for its protection existed long anterior to the Act of Congress and remain in full force since its passage”. In addition, the Court stated that: “The ordinary trade-mark has no necessary relation to invention or discovery. At common law the exclusive right to it grows out of its use and not is mere adoption.

The Acts of 1870 and of 1876 with regard to trademarks-marks are neither valid nor constitutional”\textsuperscript{1366}.

The definition of trademarks as property by the Court has another significance as in the continental European legal system which has protected not the trademark as it, but the use of it to identify a product. In the US case, all the other interests connected with this use, \textit{i.e.}, avoid unfair competition, misappropriation of fame, etc. may be automatically included.

\textsuperscript{1362} Id. at 4.
\textsuperscript{1363} Id.
\textsuperscript{1364} See \textit{Hannover Star Milling Co. v. Metcalf}, 240 U.S. 403, 413 (1916), and \textit{Pattishall and Hilliard} at 5.
The use of property rights to define trademarks cannot be easily translated in the dogmatic of the European continental law system, which has a very elaborate and well defined conception of property, as an absolute right over its object, that includes in principle all finalities and uses that the owner’s will define. In the English legal tradition, the term property has been use to harmonize the strong protection granted by the passing off institution with the interest of protecting competition. It has been declared that, in order to safeguard competition, there is a necessity for the plaintiff to prove that he has built up an intangible property right before the court will intervene to restrain a competitor’s activities\textsuperscript{1367}, such as in the specific provisions in the case of patents and registered designs.

The use of property rights presented the advantage of allowing the protection of interests other than those strictly related to unfair competition. The original setting of trademarks under unfair competition had been criticized because of the reduced scope of this principle. This failure may be described as follows: “It is unfortunate that the body of law termed unfair competition was christened with that title. It is a misnomer. It is misleading because, except in those jurisdiction where absence of competition is recognized as a defense to a charge of unfair competition, these rules cover cases in which there is no competition between the parties. To describe it with any accuracy is very difficult; for, though the common law of unfair competition may be a ‘limited concept’, the acts to which these rules have been found to apply are ever changing in character as social and business conditions change. It applies to misappropriation as well as misrepresentation; to the selling of other’s goods as one’s own, to misappropriation of what equitably belongs to competition; to acts which lie outside the ordinary course of business and are tainted by fraud, coercion, or conduct otherwise prohibited by law. Most courts continue to confine it to acts which result in the passing of goods of one Mann for those of another, but this limitation is not universally accepted. The English name, ‘Passing Off’, or its equivalent, ‘Palming Off’, is hardly more satisfactory than our name ‘Unfair Competition’. The term ‘intellectual property right’ appeared to be the right solution.”\textsuperscript{1368}

\textsuperscript{1366} Id.


However, the definition of trademarks as property presents more inconsistencies as in the case of patents and copyrights. Trademarks like “Chicago” “Supreme” may acquire strong source-indicating significance but cannot be legally regarded as any particular party’s property. Because of this, the doctrine in the USA tends to merge somewhat illogically, the concept of invasion of property rights with the fundamental tort concept, based upon a merchant’s interest in being protected from deceptions as to source or identity\textsuperscript{1369}.

An example of this contradiction is the case \textit{Hanover Star Milling Co. v. Metcalf}\textsuperscript{1370}. In this case, the court states that trademarks are to be classed among property rights “but only in the sense that a man’s right to the continued enjoyment of his trade reputation and the good-will that flows from it, free from unwarranted interference by others, is a property right, for the protection of which a trademark is an instrument”. This decision also referred to English cases, which asserted that “This court has taken upon itself to protect a man using a certain trade-mark as applied to a particular description of article. He has no property in that mark per se, any more than in any other fanciful denomination he may assume for his own private use, otherwise than with reference to his trade. If he does not carry on a trade in iron, but carries on a trade in linen and stamps a lion on his linen, another person may stamp a lion on iron; but when he has appropriated a mark to a particular species of goods and causes his goods to circulate with this mark upon them, the court has said that no one shall be at liberty to defraud that man by using that mark and passing off goods of his manufacture as being the goods of the owner of that mark”\textsuperscript{1371}. As a result, trademarks protect not only a private interest or a public interest, but in principle both at the same time. It protects a private interest as it is relevant for the functioning of public systems. In the precedent English decision it was affirmed: “We agree with the court below (208 Fed Rep. 519) that “Since it is the trade and not the mark, that is to be protected, a trademark acknowledges no territorial boundaries of municipalities or states or nations, but extends to every market in which the trader’s goods have become known and identified by his use of the mark. But the mark itself, cannot travel to markets in which there is no article to wear the badge and no trader to

\textsuperscript{1369} See \textit{Pattishall} and \textit{Hilliard} at 8.

\textsuperscript{1370} See 240 U.S. 403 (1916).

\textsuperscript{1371} As said by Vice Chancellor Sir Wm. Page Wood in \textit{Ainsworth v. Walmsley}, L.R. 1 Eq. Cas. 518, 524.
offer the article”. Following this line of reasoning, the US Supreme Court in the case *DuPont v. Masland*\(^{1372}\) states: “The word property as applied to trade-marks and trade secrets is an unanalyzed expression of certain secondary consequences of the primary fact that the law makes some rudimentary requirements of good faith”.

Thus, the definition of the US Supreme Court can be better translated as a private right originating in general principles of law, *i.e.*, the protection of parties affected by a quasi-contractual situation, which originates in the use or exploitation of a trade-mark, developed by the affected party to identify a product, which is used by a third party in order to appropriate from the benefits generated by acceptance of the trademark in that market. This quasi-contractual situation includes protection against unfair competition as well as the protection of unjust enrichment, *i.e.*, the misappropriation of the advantages that the trademark’s use granted, specifically, its fame. Other connected interests are to be consider. This framework is also suitable for the continental legal tradition. The term property refers to the creation of an intellectual good, the trademark, more that the existence of a traditional property right in that good. The term property has been used to describe the object of protection. However, the legal framework which fits is not a property right but the quasi-contract of unfair competition, since the trademark’s main finality is to identify the products of a particular firm. However, the quasi-contract of unjust enrichment is also present, since for the illegitimate user of the trademark, the principal goal is to obtain thereby an economic profit.

Thus, the quasi-contractual framework is suitable for trademarks. Thereby, trademarks are considered rights over an intellectual good. This right originate in quasi-contractual situation, which describes its legal nature, *i.e.*, the need to grant the developer of that intellectual good protection against unfair competition and unjust enrichment. The private right is originated in the legal recognition of the relationship between the creator of the trademark and the market, which claims protection against unfair competition and unjust enrichment from third parties intending to use it. Since the main goal of the trademark is the identification of a product, the protection of this right claims to exclude third parties from using it without the authorization of the rightholder.

\(^{1372}\) See 244 U.S. 100, 102 (1917).
b) Patent Infringement. From the Application of the Quasi-Contract of Damages Towards an Application centered on the Quasi-contract of Unjust Enrichment

(1) Former Refusal of German Courts to Apply Unjust Enrichment

The application of the quasi-contract of unjust enrichment as a definition of the nature of the patent right has also been very controversial. Germany offers a suitable example of the problems generated by the traditional framing of patents as granting strong private property or monopoly rights. The discussion of the application of the quasi-contract of unjust enrichment in the case of unauthorized use of patent brings some light to the importance of this quasi-contract. The concentration of the patent right on the static aspects of property rights rather than on the dynamic aspects related to the definition of a fair remuneration to the inventor, caused the following dilemma in the German patent system. Patent law was able to grant a property right over a patented technology and define an unauthorized use of this technology contrary to law. Paradoxically, however, it was not able to support the claim of the patentee to participate in the gains obtained by the unauthorized user with the patented technology\textsuperscript{1373}.

The German Jurisprudence initially denied the application of the quasi-contract institution of unjust enrichment\textsuperscript{1374} for unauthorized use of patented technology or protected utility models. Remedy was available only for cases where the defendant had acted with fault. Under Sec. 47(2) Patent Act and Sec. 15(2) Utility Model Act, the infringer is liable to pay damages to the owner of the industrial property right, if the infringing act was committed willfully or negligently. The German legislation has always required a higher degree of negligence than the normal tort provisions of the Civil Code in order to establish the liability of the infringer. For example under the Sec. 35 of the Patent Act of April 7, 1981 and Sec. 9 of the Utility Model Act of June 1, 1891, only the willful and grossly negligent user of the property right could be held liable for damages, whereas under the Patent Act of May 25, 1877 (Sec. 34) the owner of an industrial property right could only sue the willful infringer for damages.

This decision was based on the consideration that the Patent Act and the Utility Model Act excluded the application of unjust enrichment. Even though the

\textsuperscript{1373} Fernández-Novoa y Rodríguez at 10.

\textsuperscript{1374} The unjust enrichment is regulated in the Secs. 812 et. seq. of the German Civil Code.
existence of a right of equity in the case of unjust enrichment is a general principle of law, the exclusion of this principle was justified because of the existence of an exhaustive regulation of the claims of an owner of such rights. It was argued that Sec. 48 of the Patent Act and Sec. 15(3) not only contained a statute of limitations for damage claims but granted the owner of the industrial property right after the expiration of the three-year period of limitation a residual damage claim calculated according to the rules of unjust enrichment (Sec. 28, sent. 2, Patent Act, Sec. 15(3) sent. 2, Utility Model Act).

Because of this reference to the provisions of the law of unjust enrichment, German scholars presumed that the application of the enrichment rules of the Civil Code were in principle excluded. They considered that that provision would be superfluous if liability likewise existed under Secs. 812 et seq. Civil Code. This interpretation conforms to the normal tendency of the Patent System in Europe and the USA to restrict the monopolistic effects of patents not by redefining the institution, but by interpreting its regulations in a very formalistic and restrictive way. The provision of unjust enrichment is a general civil law provision which is of general application. No express indication concerning the applicability of this provision is required. Because of that, a compensation of the patent owner to the extent of the enrichment of the patent infringer could only be excluded if the law said so expressly.

This position of the German Jurisprudence has changed to allow the application of unjust enrichment. In the decision of November 30, 1976, the BGH admitted the possibility of applying general principles of law in the interpretation of the patent right. The decision is founded on the distinction between the indemnification claim and the unjust enrichment claim. The regulation on the patent law that establishes the indemnification regulates the way the general principle of torts will be applied in cases where patents are involved, i.e., provides a ceiling for the indemnification claim. In this decision, the BGH delineates the particularities of unjust enrichment that differentiate this figure from the indemnification claim.

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1375 See BGH, case XZR 81/72, Otto Anschütz v. Heinrich W. Peters (decision of Nov. 30, 1976), 9 IIC 156, 159 (1978). In addition, Klaer & Möhring, ann. 27 to Sec. 47.
1377 See BGH, case XZR 81/72, Otto Anschütz v. Heinrich W. Peters, supra nota at 156.
The indemnification claim defines the obligation of the infringer to pay the damages he caused, regardless of whether the benefits derived from the illicit use of the protected patent or industrial model still remain the property of the infringer\textsuperscript{1378}. On the other hand, the application of the provision of unjust enrichment refers to another situation, not the loss of the creditor, but the advantageous change in the property of the debtor and, because of that, only the benefits gained must be transferred by the debtor. Another important difference between the indemnification and the unjust enrichment claim is found in the prerequisites for the claim: the recipient of the enrichment who participated in the unlawful act is liable, even if he did not receive the benefits directly from the injured party\textsuperscript{1379}. Consequently, the German Federal Supreme Court concluded that unjust enrichment could not be equated with the indemnification claim and because of that, this hypothesis was not already regulated by the special normative of the indemnification claim in the patent law. In its decision XZR 81/72 the Federal Supreme Court summarized its position in the followings terms: “... it is incompatible with law and equity that the infringer should with impunity retain what he has gained by an unlawful act of infringement. The patent and utility model law confers the commercial use solely upon the owner of the industrial property right. Anyone who uses an industrial property right, without the consent of its owner, commits an illicit act and is obliged to refund the enrichment gained by the infringing act under Secs. 812 \textit{et seq.} Civil Code\textsuperscript{1380a}.

It is interesting to observe how the German jurisprudence originally considered the patent institution in very formalistic terms. Not only was the general legislation that regulates the figure of unjust enrichment excluded but also, as the same BGH declared, the general principles of law and equity. Notwithstanding that unjust enrichment claims were already advocated in the field of infringement of trademarks\textsuperscript{1381} as well as in copyright\textsuperscript{1382}, the tribunals of justice made an exception for the case of patent and utility modes. Once again, the sources of the problem are the monopolistic and proprietary framework of patent rights, which

\begin{footnotes}
\item \textsuperscript{1378} See Klauer & Möhring, supra, ann. 41 to Sec. 47; Möller, 1968 GRUR 221, 227.
\item \textsuperscript{1379} See Sec. 852(2) of the German Civil Code, und BGH, 1965 NJW 1914 \textit{et seq.}
\item \textsuperscript{1380} See BGH, case XZR 81/72, \textit{Otto Anschütz v. Heinrich W. Peters}, supra nota at 161.
\item \textsuperscript{1380a} See Baumbach and Hefermehl, Wettbewerbsrecht, Munich, 1993, UWG§ 1, (annot.) 563 \textit{et seq.}, 610.
\item \textsuperscript{1381} Ulmer, Eugen, Urheber- und Verlagsrecht at 406 ff.
\item \textsuperscript{1382} Ulmer, Eugen, Urheber- und Verlagsrecht at 406 ff.
\end{footnotes}
moves the center of the system away from its principal goal, which is that to allow the patentee to obtain a profit from his invention, to focus on the absolute right to exclude. As a result, the need to restrict the negative effects of the proprietary or monopolistic definition of patents have moved the tribunals of justice to define rules which contradict the general principles of law in order to create an equilibrium of interests.

On the mentioned case XZR 81/72 the BGH analyzed some historical considerations that moved the Reichsgericht (RG) to expressly restrict indemnification to the special statutory rules of damage. The RG assumed its faculty to “fill the gaps of this special law” by following the concerns of the draft of the Patent Act of 1877\textsuperscript{1383}. According to the official notes of the Patent Act of 1877: “commerce must be protected against the harassment and uncertainty to which it would be exposed if the people and especially the public involved in commerce and industry were forced to keep themselves informed at all times of the content and scope of protection of existing patents in order to avoid the danger of a far-reaching responsibility under civil law”\textsuperscript{1384}.

As the BGH pointed out, this reaction corresponds to the very strict indemnification law established in Germany in the 19th Century, influenced by the individualist and liberal law, which protected private property by defining an indemnification as patrimonial punishment to the infringer, rather than a compensation for the damage\textsuperscript{1385}. In addition to the fact that the diligence required from the infringer of an industrial property right was often interpreted by the courts so severely that it can be criticized, as the liability based on fault in this legal field comes close to an absolute or strict liability\textsuperscript{1386}. This situation is an example of the negative effects for the rightholder caused by a protection framework which, instead of harmonizing the interests of all participants, is too inflexible and severe. The rediscovery of the liability based on unjust enrichment by the BGH offered a valuable instrument for ensuring that in the evaluation of tortious acts in

\textsuperscript{1383} See 21 RGZ 68, 72 (Apr. 5, 1909) and 7 RGZ 258, 261 (Sept. 21, 1882).
\textsuperscript{1384} Notes on Secs. 31-37 Patent Act, 1 Collection of Parliament Prints of the Deutsche Reichstag 35 (No. 8, 1877).
\textsuperscript{1385} Spengler, Albrecht, Ist das Verschuldensprinzip nicht mehr zeitgemäß?, 1958 GRUR 212, 213.
\textsuperscript{1386} Spengler at 213, and BGH, case XZR 81/72, Otto Anschütz v. Heinrich W. Peters, supra nota at 161.
the field of industrial property law, the degree of care required does not go beyond that which is usually expected in everyday life.

Another argument against the application of unfair enrichment analyzed by the BGH are the “practical reasons” mentioned by Isay\textsuperscript{1387}, summarized as “the fears that the patentee could misuse the claim for unjust enrichment by silently watching how someone else draws benefits out of his invention, which he then demands for himself”. The Court proposed the solution that in the decision of each case the court should take into account the misuse principles. These “practical reasons” reflect how at the beginning of the century patents were still not considered to be an instrument for guaranteeing the inventor a share in the benefits others received from the use of his technology. In principle, the fear of Isay could be pertinent only to the case that tribunals determine that all the benefits from the use of the patented inventions correspond to the patentee, so that the user on good faith would have no right to retain any part of the benefit jointly created by the use of the invention in his enterprise. This situation shows the importance of defining fair criteria to limit the patentee’s participation in the social use of his technology. This opens the question as to whether the claim should be calculated on the basis of the gains the infringer obtained or according to the usual and fair licensee fee.

(2) The Case of the US

Similar situation is presented in US case law. The Patent Acts of 1790, 1793 and 1800 mentioned only a remedy of damages enforceable by an action at law “on the case”. The power to order an equitable accounting of the infringer’s illicit profits arise with the express conferral of equity jurisdiction to issue injunctions in patent cases on the federal courts in 1819\textsuperscript{1388}. However, a patent owner could recover neither profits in an action at law nor damages in a suit in equity\textsuperscript{1389}. The possibility to use the quasi-contract of unjust enrichment in case of infringement of copyright and patent rights infringement was admitted in the US Supreme Court in 1855. The Supreme Court admitted that a Court of Equity granted the patent holder an accounting of the infringer’s illicit profits, \textit{i.e.}, the defendant is entitled

\textsuperscript{1387} Isay at 561.

\textsuperscript{1388} See Chisum, Donald, 7 Chisum on Patents, Santa Clara, California, (Rel. 46-5/93), § 20.02, 9.

\textsuperscript{1389} Id.
to a decree for an account of the profits received by defendant (from sales of the map). The court stated: “And the only equitable jurisdiction, as to copyright, conferred upon the courts of the United States, is by the Act of February 15, 1819, which gives original cognizance to the courts of the United States, as well in equity as at law, of cases arising under any law of the United States granting to authors or inventors the exclusive right to their respective writings, inventions and discoverers; and upon any bill in equity filed by any party aggrieved in any such case, shall have authority to grant injunctions according to the course and principles of courts of equity, to prevent the violation of the right of any authors or inventors secured to them by any laws of the United States, on such terms as the said may deem fit an reasonable.... The right to an account for profits is incident to the right to an injunction in copyright and patent right cases. The accounting of profits principle was enacted with the 1870 Patent Law, however, it was not included in law of 1 August of 1946 and of 1952, because the difficulties of the tribunals by determining the participation in the profits which may correspond to the patent holder and the infringer. However, finding suitable legal criteria for determining the participation in the profit of patent holders and users of technology is an ineluctable task of the patent system.

The price of a license had early in 1793 been used to determine damages. The Patent Act of 1793 provided that the offender as to pay to the patentee “a sum, that shall be at least equal to three times the price, for which the patentee has usually sold or licensed to other persons, the use of the said invention".

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1391 See Chisum, § 20 at 9.

1392 Id. at 26-27. See also Cincinnati Car Co. v. New York Rapid Transit Corp, 19 USPQ 40, 40 (2d. Cir, 1933). The terms of this decision are resumed as follow: “Invention is not of article as a whole but of small detail; it is generally impossible to allocate quantitatively shares of old and new, and party on whom that duty falls will generally lose; burden of proof is key to the result; burden is on defendant when either it must be confined to seizure of plaintiff’s market, in which case it is properly relevant only to damages, or it must be limited to cases where there is no close substitute; here burden is not on defendant and plaintiff has no established case for recovery of profits; there was no proof of damages; there was no established royalty and no showing that defendant would have bought from plaintiff although there had been prior negotiations; non infringing device subsequently devised by defendant is not standard of comparison to limit profits; case is one for reasonable royalty, which is a device in aid of justice by which that which is really incalculable shall be approximated rather than that patentee who has suffered indubitable wrong shall be dismissed with empty hands; testimony of experts is competent but is of small help; reasonable royalty fixed and interest allowed from date of first infringement.”

1393 Act of Feb. 21, 1793, Ch. 11, § 5, 1 Statutes at Large 318. See Chisum, § 20 at 11.
However, the reliance on a license measure for damages proved unsatisfactory, as stated in 1854 by the Supreme Court:\textsuperscript{1394} “Here the price of a license is assumed to be a just measure of single damages, and the forfeiture by way of penalty is fixed at treble that sum. But as experience began to show that some inventions or discoverers had their chief value in a monopoly of use by the inventor, and not in a sale of licenses, the value of a license could not be made a universal rule, as a measure of damages”. As a result, the Act of 1800 returned to the general damage measure of the first US Patent Act of 1790 adding to it the trebling feature of the 1793 act\textsuperscript{1395}.

In the end, the difficult in finding an appropriate measure for the accounting of profits principle when a patent owner could prove neither lost profits nor an established royalty measure, was resolved by recognizing the reasonable royalty measure, which was thereafter codified in the 1922 and 1946 acts\textsuperscript{1396}. However, courts never succeeded in developing a fully satisfactory approach to the apportionment difficulty, particularly in cases where the infringer’s profits were clearly not all attributable to the patented invention\textsuperscript{1397}. Therefore, in 1946, Congress eliminated any reference to an accounting for the infringer’s profits, thereby substantially altering the patent monetary remedy statute.

Today, the US patent statutes provide that a patent owner “shall have a remedy by civil action for infringement of his patent”\textsuperscript{1398}. The patent statutes provide for the recovery of compensatory damages as the primary monetary remedy for patent infringement\textsuperscript{1399}. However, there is no clear distinction between the use of the quasi-contract of damages\textsuperscript{1400} and the quasi-contract of unfair enrichment. Both

\textsuperscript{1394} See Seymour v. McCormick, 57 U.S. 480, 488, 14 L. Ed. 1024 (1853). See also Chisum, § 20 at 11.
\textsuperscript{1395} Chisum, § 20 at 12.
\textsuperscript{1396} Id.at 9.
\textsuperscript{1397} Id.
\textsuperscript{1398} 35 U.S.C. § 281.
\textsuperscript{1399} Chisum at § 20, 77. See also 35 U.S.C. § 284: “Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court. When the damages are not found by a jury, the court shall assess them. In either event the court may increase the damages up to three times the amount found or assessed. The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances”.
\textsuperscript{1400} Black’s Law Dictionary, 1990 at 389 defines damages as follows: “Damages are defined as a pecuniary compensation or indemnity, which may be recovered in the courts by any person who has suffered loss, detriment, or injury, whether to his person, property, or rights, through the unlawful act or omission or negligence of another. Restatement, Second, Torts, § 12A.”
aspects are mixed, since in fact, the problem to solve is the distribution of the wealth generated by the use of the protected technology. This wealth is not created by the infringer exclusively by taking away the profit of the patent holder may have obtained with his undertaking (damages). Sometimes, this wealth is created by opening new markets or by increasing the resources dedicated to the exploitation of the protected technology. In these situations, patent holder suffer damages not because he has lost in his business, but because he has not attained a fair participation in the weath created by the infringer. In this situation, following a strict dogmatic approach, there are no damages because of the characteristics of technology of non-rival and non destructive good, the object of the right has not been damaged. Also, the business of the rightholder should not always been negatively affected. This specific situation is regulated by a more precise legal concept, \textit{i.e.}, unjust enrichment\textsuperscript{1401}. This problem may explain the existing US rule for compensatory damages. The appropriate measure of compensatory damages may be (1) lost profits, (2) an established royalty, or (3) a reasonable royalty, depending on the circumstances of the case\textsuperscript{1402}. In determining a reasonable royalty, the “willing buyer-willing seller rule” is applied. This rule consists of assuming a hypothetical negotiation where the patentee and the user of the technology consent to distribue\textsuperscript{1403}, at the time when the defendant began infringing\textsuperscript{1404}. Paradoxically, this principle leads to similar results as thosed obtained under an hypothetical compulsory licensing. In both cases, the solution is reach framing patents as quasi-contracts resolving an appropriability problem causing unjust enrichment. It corresponds to a win/win approach.

The US Patent Act provides a solution to infringement giving patentees the right to prevent future infringements and to receive a monetary award equivalent to what the infringer would have paid if she had received authorization. This solution

\textsuperscript{1402} \textit{Chisum at§} 20, 77. See also \textit{Smithkline Diagnostics, Inc. v. Helena Laboratories Corp.}, 926 F.2d 1161, 1163, 17 USPQ2d 1922, 1924 (Fed. Cir. 1991).
\textsuperscript{1403} See \textit{Chisum at§} 20, 160. See \textit{Faulker v. Gibbs}, 199 F.2d 635, 639, 95 U.S.P.Q. 400 (9th Cir. 1952), where the court considered: “A reasonable royalty is an amount which a person, desiring to use a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to use the patented article at a reasonable profit. The primary inquiry, often complicated by secondary ones, is what the parties would have agreed upon, if both were reasonably trying to reach an agreement”.
\textsuperscript{1404} See \textit{Chisum at§} 20, 161. See also \textit{Panduit Corp. v. Stahlin Bros. Fibre Works}, 575 F.2d 1152, 197 USPQ 726 (6th Cir. 1978).
is not sufficient to protect patent holders since there would be many situation were there would be little reason not to infringe: the infringer would be no worse off than if she had bargained for a license. Because of difficulties of proof, she may even be better off.\footnote{Id. at 786} In order to provide a stronger disincentive to infringement, the US Patent Act gives the court power to award up to treble damages and to shift the costs of litigation to the losing side.\footnote{Id. See also §§ 284, 285 of the US Patent Act.} US Courts award enhanced damages as a penalty for an infringer’s increased culpability, namely willful infringement or bad faith.\footnote{Damages may be enhanced up to three times the compensatory award under the discretion of trial courts enacted at Section 284 of Title 35 of the Patent Act. See Chisum at § 20, 309. See also Beatrice Foods Co. v. New England Printing & Lithographing Co., 923 F. 2d 1576, 17 USPQ2d 1553 (Fed. Cir. 1991) and Read v. Portec, Inc., 970 F.2d 816, 23 USPQ2d (Fed. Cir. 1992). Damages may be increased taking into consideration: (1) whether the infringer deliberately copied the ideas or designs of another; (2) whether the infringer, when he knew of the other’s patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed; (3) the infringer behavior as a part to the litigation. See Bott v. Four Star Corp., 807 F.2d 1567, 1572 (Fed. Cir. 1986) and Polaroid Corp. v. Eastman Kodak Co., 16 USPQ2d 1481, 1481-82. Other circumstances such as the defendant’s size and financial condition may be taken into account. See St. Regis Paper Co. v. Winchester Carton Corp., 410 F. Supp. 1304 , 1309 (D. Mass. 1976).} Injunctive relief has been also considered a key remedial device in cases where it is not easy to determine the amount of compensation the patentee deserves. It has also been regarded as the suitable instrument to protect right to prevent others from dealing in the invention.\footnote{See Dreyfuss and Kwall at 785.} However, injunction pose important economic ans social problems. For example, an injunction cannot compensate for infringements that occurred before the suit was commenced. Furthermore, injunctive relief can impose high costs not only to the infringer but also to society: That is to say, the investment that the infringer sunk into production may be lost, particularly in cases where the production line that makes the patented product cannot be put to other use and thus, must stand idle or be dismantled.\footnote{Id.} For society this implies the destruction of productive assets that are detrimental to consumers, in cases where the patentee cannot fully meet consumer demand.\footnote{Id.} Since an injunction is an equitable remedy, courts must balance the interests of the patentee in injunctive relief against the social
costs entailed\textsuperscript{1411}. For these cases, the institutional framework should provide strong disincentives to infringement\textsuperscript{1412}.

(3) Japan, Germany and TRIPS

The German and the Japanese system contain several similarities. In Japan, it is possible to obtain restitution for unjust enrichment, as regulated in Article 703 of the Civil Code. This Article provides that when a person who has gained profits, without any legal cause, by means of the property and/or service belonging to another person and has, in gaining such profits, caused damages to another, such person shall be liable for restitution of the profits to the extent that such person actually possesses such profits\textsuperscript{1413}. It is interesting to observe that the quasi-contract of unjust enrichment and damages are mixed, since the existence of damages is required to constitute unjust enrichment. The framework of unjust enrichment defined in Japanese law provides the patent holder the only advantage that he is not required to prove the existence of either willfulness or negligence on the part of the infringer, however there is the disadvantage for the patentee of a certain limit being set on the amount recoverable\textsuperscript{1414}. When the patentee can prove the existence of willfulness on the part of the infringer, the amount recoverable in action claiming unjust enrichment is not substantially different from the amount recoverable in an action for recovery of damages (Article 704 Civil Code)\textsuperscript{1415}.

Article 102 of the Japanese Patent Law provided an action for damages in case of infringement. Under the framework of damages, patent holders traditionally obtain protection only when they can prove the existence of willfulness on the part of the infringer. Therefore, within the framework of damages, once again, the patent holder’s demand will be recognized only if the damage he incurred was caused by either willful or negligent acts of the infringer. Moreover, the amount of damage must be proved by the patentee and is limited to the amount of damages actually

\textsuperscript{1411} Id.
\textsuperscript{1412} Id.
\textsuperscript{1413} See Takeda, Masahiko, Remedy for Patent Infringement in Japan, in Group of AIPPI, 2 International Problems of Industrial Property, Commemorative Publication in Memory of the Late Kannosuke Nakamatsu, Japan, 1976, at 327, 336.
\textsuperscript{1414} Id.
\textsuperscript{1415} Id. at 337.
suffered by the patentee insofar as there is a causality nexus between the act of infringement and the damage\textsuperscript{1416}. In principle, no additional amount can be demanded in a punitive sense\textsuperscript{1417}.

Framing infringement within the quasi-contract of damages is a common characteristic of the patent system. Article 45.1 TRIPS follows this trend, when stating that the judicial authorities shall have the authority to order the infringer to pay the rightholder damages adequate to compensate for the injury the rightholder has suffered because of an infringement of that person’s intellectual property right by an infringer who knowingly, or with reasonable grounds to know, engaged in infringing activity. This is also the case in the Japanese and the German systems.

German patent law frames infringement in the general rules of the Civil Code (BGB) concerning damages. The German Civil Code prescribes actual damages for intentional and negligent infringement\textsuperscript{1418}. Within this framework, the sole fact of profiting from a work-result of another is not enough to constitute the obligation of restitution (compensation). This constitutes one of the principal inconsistencies of the patent system, since the profit obtained by user of the technology does not necessarily imply a loss or damage for the patentee. The main goal of the patent system is to allow the patentee to participate on the profit generated by the use of his invention. However, the unjust enrichment framework has traditionally been disregarded. The damages framework, suitable to protect private property, is not suitable to solve unjust enrichment problems. It places upon the patentee an unjustifiable burden. Additionally, often there are difficulties in proving the existence of causal sequences between the patent infringement and the occurrence of damages\textsuperscript{1419}.

In general, the current framework is not suitable for the protection of intellectual work-results and the creation of solid patent culture. It does not focus on the central problem of this institute, which is precisely the protection of the interest of creators and inventors by allowing to participate in the profits others obtain from their work results. This central aspect is relegated to a position of secondary

\textsuperscript{1416} Id. 334.
\textsuperscript{1417} Id. 334.
\textsuperscript{1418} Karnell, Gunnar, Computation of Damages for Patent Infringement in Particular as Related to Extensions Outside the Scope of Patented Matter: A Comparative Law Overview, 1997 I.P.Q. 92, 103.
importance. Thus, the use of the patented invention by a third party should not always generate damages, since under the systemic nature of innovation, it is possible that users create new markets or find new applications for the invention. In these cases, the user of the technology has increased the value of the principal patent in the market, he has not generated damages, but he has been unjustly enriched, because he has not compensate the patentee for the services obtained from his invention. This is the case where the patent holder, previous to the infringement, has not been capable of obtaining profits with his patent, or simply is not making use of it\textsuperscript{1420}.

Framing infringement as damages, as opposed to unjust enrichment, is not appropriate. This framework is not in accordance with the characteristics of technology. Technology is a non rival and a non destructive good by itself\textsuperscript{1421}, moreover, under the systemic nature of innovation it is possible to find new applications and improvements, increasing the wealth generated by the prior technology. Therefore, it is more coherent to frame infringement primarily as an missapropriation problem, whereby the infringer default the right of the patent holder to obtain a reward, \textit{i.e.}, he has and retains the dividends or benefits which in justice and equity belong to the patent holder\textsuperscript{1422}. Patent law reinforces, and does not abolish the quasi-contract of unjust enrichment. It makes clear to the public that the invention has all the characteristics to justify the need to reward the inventor, whereby the sole act of obtaining economic profit from the patented invention without rewarding the patentee constitutes unjust enrichment. Thus, infringement does not only involved frustration of equity (unjust enrichment) but also violation of the specific law protecting the patentee against misappropriation. Framing infringement within unjust enrichment harmonizes all the elements involved, the legal framework (patent law) and the framework behind it, \textit{i.e.}, the need to protect inventors against misappropriation, the characteristics of technology as immaterial good and the systemic nature of innovation. Damages are not a primary but a secondary effect of infringement.

\textsuperscript{1419} \textit{Id.} at 334.

\textsuperscript{1420} \textit{Id.} who refers to a judgement of Tokyo District Court of September 22, 1962 (contrary decisim, Tokyo District Court, August 16, 1960).

\textsuperscript{1421} See Chapter 1, referring to the characteristics of technology that create appropriability problems.

\textsuperscript{1422} For general aspects of this institution see \textit{L & A Drywall, Inc. v. Whitmore Const. Co., Inc.}, Utah, 608 P.2d 626, 630.
Article 45.2 TRIPS solves the inconsistency of the damages framework by extending the application of damages in cases where there is no negligence. This Article states: “The judicial authorities shall also have the authority to order the infringer to pay the rightholder expenses, which may include appropriate attorney’s fees. In appropriate cases, Members may authorize the judicial authorities to order recovery of profits and/or payment of pre-established damages even where the infringer did not knowingly, or with reasonable grounds to know, engage in infringing activity.” Unjust enrichment is the suitable framework authorizing judicial authorities to order restitution. The evolution of case law in US and the German and Japanese patent laws show the importance of keeping the framework of unjust enrichment as the basic point of reference, even in cases of infringement, particularly in cases where the infringer did not knowingly, or with reasonable grounds to know, engage in infringing activity. However, they have also tried to solve the inconsistencies of the “damages” framework by encompassing the unjust enrichment framework within the damages framework, instead of centering on unjust enrichment and considering damages as supplementary.

An example is Article 103 of the Japanese Patent Law stating that the infringer shall be presumed to have been negligent\textsuperscript{1423}. However, the use of the unjust enrichment framework can be inferred. The obligation to make restitution of unjust enrichment is defined in Article 102.2 of the Japanese Patent Law. According to this rule, the patentee may, regardless of the circumstances, \textit{i.e.}, that he has previously obtained profit of not with his invention, demand any person who has intentionally or by negligence infringed his patent right or exclusive license, an indemnification corresponding to a sum equal to the amount of money normally obtainable for the working of such patented invention as the amount of damages sustained by him\textsuperscript{1424}. Thus, an amount of damages equal to the amount of a reasonable royalty is assumed to be the minimum damage suffered by the patentee, and the infringer cannot be exempted from his liability for said damage even though he proves that the damage actually suffered by the patentee is less\textsuperscript{1425}. The Japanese system also regards the problem of infringement as a damages problem

\begin{footnotes}
\item[1423] \textit{Karnell} at 333.
\item[1424] \textit{Id.} at 334.
\item[1425] \textit{Id.}
\end{footnotes}
and does not expressly distinguish between unjust enrichment and damages. However, there is an implicit use of the quasi-contract of unfair enrichment, since it refers to a sum equal to the amount of money normally obtainable for the working of such patented. The infringer has unjustly enrich when using a factor of production -the patented invention- without paying for that service, the amount of money normally obtainable for the working of such patented.

There is an implicit tendency to reframe the existing framework based on damages. Today, intellectual property rights and unfair competition law assume damages as the profit obtained by the infringer, following thereby the quasi-contract of unjust enrichment. Therefore, it is more coherent to define a general rule ordering the restitution of unjust enrichment, independently of intentionality or negligence.

The quasi-contract of damages shall be of supplementary application, in case of negligence or willfulness, to impede that the infringer obtains profits while the patentee is suffering additional damages and expenses, and also to discourage infringement. This is not only the tendency of the US system. This is the case in the Japanese and the German systems. This framework is also coherent with a holistic interpretation of TRIPS.

Article 45 TRIPS as well as Article 44 regulating injunction and 46 allowing for the destruction without compensation of good infringing intellectual property rights, are intended to create an effective deterrent to infringement. However, Article 46 states that in considering such requests, the need for proportionality between the seriousness of infringement and the remedies ordered as well as the interests of third parties shall be taken into account.

A holistic interpretation of TRIPS leads to the conclusion that the patent right defined in TRIPS is centered on the protection of the right of the patent holder to obtain a reasonable reward from the use of his invention. Therefore, infringement of this right must be framed primarily as a frustration of the right of the patent holder to obtain this reward, i.e., unjust enrichment. Aside from unjust enrichment, damages may be occasioned because infringement is also frustration of the right of the patent holder to administrate the exploitation of the patent to obtain profit, and

1426 Heath, Erlangung und Durchsetzung von Patentrechten in Japan at 557-568.
1427 See Chapter 5, particular the section related to “Integration of the Principle of Territoriality with the Implicit Quasi-Contractual Definition of Patent Rights in the TRIPS Agreement”.

TRIPS is also intended to effectively deter infringement\textsuperscript{1428}. Therefore the primary function of an infringement suit should be the restitution of unjust enrichment, and damages should be a complementary institute. The quasi-contract of damages, is intended to solve different kind of problems, \textit{i.e.,} to compensate injury and expensed occasioned by infringement, and to create an effective deterrent to infringement.

This solution can be inferred from the Japanese system, which allows for a complementary indemnification. According to Article 102.3 of the Japanese patent law, the amount of indemnification for the unjust enrichment (Article 102.2) may be increased, if the patentee proves that the damage actually suffered exceeds the amount of the reasonable royalty. However, in this case, the court may take into consideration the amount of willfulness or negligence on the part of the infringer\textsuperscript{1429}.

In Japan, the enforcement of a US punitive damages decision is considered contrary to the public order\textsuperscript{1430}. However, the amendments to Japanese patent law of 1988 stringhened criminal punishment (Sections 196 and 201). A person who had intentionally infringed the patent right and the corporate employer was before 1988 subject to a criminal fine up to 5 million yen ($41,666) or imprisonment (for individuals only) for up to five years. The criminal punishment is strengthened: the maximum amount of the criminal fined is raised to 150 million yen\textsuperscript{1431}. In addition, Sections 197 and 198 of the Japanese patent law provides a fine on corporations that have obtained profits of acquiring patent rights or other rights or benefits through fraudulent acts or by attaching false indications to products. The amendment of 1988 rised the fine from up to 3 million to up to 100 milion yen\textsuperscript{1432}.

Other measure to determine damages are the profit gained by the act of infringement. Article 102.1 of the Japanese Patent Law states: “In case if a

\textsuperscript{1428} See Article 46 TRIPS.
\textsuperscript{1429} Article 102.3 states: “the provisions of the preceding paragraph shall not preclude form demanding indemnification of damages exceeding such amount as prescribed in said paragraph. In this case if there is no intention or gross negligence on the part of the person who has infringed a patent right or an exclusive license, the court may take it into account with respect to fixing the amount of indemnification of damages”.
\textsuperscript{1430} Heath, Erlangung und Durchsetzung von Patentrechten in Japan, at 568, quoting the Supreme Court decision of July 11, 1997, Saibanshô Jihô 1199 at 3 (1997).
patentee or any exclusive licensee demands any person who has intentionally or by negligence infringed his patent right or exclusive license the indemnification of damages incurred by such infringement, *such person is gaining profit by the act of infringement*, the amount of such profit shall be presumed to be the amount of damages sustained by the patentee or exclusive licensee. Here the point of reference for computing damages is the profit obtained by the infringer. This amount is calculated by multiplying the amount of profit (of the plaintiff) per each product by the number of infringing goods assigned. From a theoretical point of view, this may considered exceeding the amount of unjust enrichment (reasonable royalty), since the profit is obtained not only by the using of the infringed invention (which is the basis of unjust enrichment), but also with the enterpreneurial efforts and resources of the infringer. The amount exceeding a reasonably royalty may be justified as restitution of damages.

The German Patent Law allows for a better differentiation between unjust enrichment and damages. According to 139.2 of the German Patent Law, in case of *small* negligence, the court is allowed to fix as indemnification (*Entschädigung*) instead of damages (*Schadenersatz*) an amount between on the one hand the value of damages suffered by the patentee, and on the other hand the amount of the infringer’s advantage. This advantage normally consists of not having paid a reasonable license fee (unjust enrichment). This solution also uses also as point of reference the unjust enrichment framework. In case of willfulness or negligence, damages should be compensated.

Damages correspond to the comparison between the situation without infringement and after infringement. German jurisprudence uses similar methods to assess damages as those defined in Article 102 of the Japanese Patent Law.

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1432 *Id.*

1433 This presumptive clause is, however, difficult to apply in cases where the patentee is not working the patent. See *Takeda* at 334.

1434 See *Ishimura* at 12. This method has already applied for calculating lost profits in tort cases under Article 709 of the Japanese Civil Code. *Id.*

1435 This situation is taken into consideration in the German system. See *Mes* at 546.


1437 *Id.* at 104.

1438 See *Mes*, Peter, Patentgesetz, Gebrauchsmustergesetz, Munich, 1997, 543. See also *Karnell* at 104.

1439 *Mes* at 543. See also *Karnell* at 104.
law, i.e., (1) the gaining profit by the act of infringement, i.e., connected with the use of the infringed patent (2) according to an hypothetical reasonable license fee without any penal character; and (3) damages exceeding the precedent paragraphs, i.e., according to §§ 249, 252 BGB, the damages directly produced (damnun emergens), including the reduction in profits (lucrum cessans).

These are not considered different claim basis or sources, but different methods to assess damages, which may be freely chosen but not combined or mixed for the same damage suffered. When framed as damages, the obligation of the infringer is to restore the situation to that which would have existed had the infringement not occurred. In this case, the additional payment of a reasonable royalty does not proceed. That will entail charging twice for the same damage, since there are important correlations among these methods of assessment. However, it is possible to adjust the result obtained with each method in order to assess the actual damages occasioned.

Thus, the analysis of both the Japanese and the German patent system allow for an inference of a tendency to distinguish between unjust enrichment as the basic point of reference and supplementary damages. Similarly to the Japanese Patent Law, German jurisprudence has allowed for claiming a particular compensation for continuous unfair enrichment (Bereicherungsanspruch according § 812, 818 and 819 BGB). In addition, in case of using the damages framework of Article 139 of the Patent Law, the choice of a notional license fee (which is connected with unjust enrichment) may be supplemented by compensation in accordance with another mode of compensation further damage suffered, including the protection for market disturbance and discredit. This position is explicitly regulated in Japan, where in addition to Article 102.3, Article 106 of the Patent Law allows

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1440 The calculation of this sum presents the problem that the infringer is generally not willing to present the documents necessary for the Court to determine his actual profit. In addition sometimes is difficult to determine the causality between infringement and profits. Mes at 544.
1441 In this case the existence of a damage should be proved, as well as the causality between it and the infringement. Mes at 546.
1442 This sum constitutes also the minimal amount of damages, since it is considered that the infringer should not have a better situation that the one who negotiated a license. Mes at 544.
1443 Id. at 543.
1444 Kornell at 104. See also Mes at 547.
1445 Kornell at 104.
1446 Mes at 544-545.
1447 Kornell at 104.
the court to order necessary measures to recover the business credit of the patentee or exclusive licensee instead of indemnification of damages or together with it.

(4) Advantages of the Unjust Enrichment Framework

The framework of unjust enrichment is a suitable point of reference, since it allows for the integration of the different methods for assessing damages. In determining the fair royalty, all factors influencing reasonable contracting parties in the negotiation of a license should be taken into account. Thus, there is a connection between a fair royalty (unjust enrichment) and the eventual reduction of profits (damages), since licensing may allow for competition, and thereby, if the competition does not succeeded in increasing the market, it may result in a distribution of the existent market among patent holder and his competitors, and thereby a reduction in profits. This is particularly important when the infringer’s strategy is to sell cheaper that the patent holder. Infringement as well as licensing presents an opportunity cost: the maximum alternative profit that the patentee could have been obtained if the productive good, service or capacity (the patent) had not been used by a competitor, i.e., a licensee or an infringer. On the side of the patentee, the profit obtained by licensing is expected to be equal or greater than the profit obtained by exclusively using the patented technology. In this sense, the fair royalty should also include the opportunity costs due to a potential reduction of the profits coming from sales.

Framing infringement as damages requires the determination of loss profit. The measures of damages according to loss of profit of the patentee and the profit of the infringer are also correlated, since the profit of the infringer may be partially obtained at the expenses of profit of the patent holder. Both, the lost profits of the patentee and the profit of the infringer are correlated, since both are connected with the opportunity cost of the patent holder. The criteria of unjust enrichment

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1448 Id.
1449 Mes at 544.
1450 Id.
1451 In fact this “objective measure of damages” under the German jurisprudence is based on the presumption that the profit of the infringer is connected with the exclusion of a correspondent
is however necessary to define the contribution and costs of both enterprises in the

1452 Patent holder

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is however necessary to define the contribution and costs of both enterprises in the
gaining profit by the act of infringement. A suitable estimation of the lost profit has
been defined in US case law. According to US case law, to determine lost profits,
it is also necessary to take into account the market capability of a patentee to make
his sales combined with infringer’s sales, adequate distribution system and sales
personnel, consumer loyalty to infringer’s brand name, etc. Patent holder
should show not only his theoretical technical and physical potential but also his
forecasting and decision making skills, thereby establishing what it, with its unique
corporate personality, could have achieved in sales without the infringer.

According to the German and Japanese systems, lost profits (damages) may be
estimated (or presumed) according to the profit obtained by the infringer.

1454 Id. See also BGH in 1967 GRUR 655, 659 (Altix) and BGH in 1993 GRUR 897, 898, 899
(Mogul-Anlage).

1455 Id. at 546. See also 34 BGHZ 320, 323.

1456 Id. 545. See also BGH in 1967 GRUR 655, 659 (Altix) and BGH in 1993 GRUR 897, 898, 899
(Mogul-Anlage).

1457 Id.

According to the German jurisprudence, however, only the profit generated by the
used of the patent should be taken into consideration. This criteria defines again
unjust enrichment as the point of reference. In this case, it should be taken into
consideration that the actual profit is also the result of other factors, such as the
marketing, distribution and entrepreneurial efforts of the infringer, as well as
the using of his own patents, etc.

It is questionable if the cost of opportunity originated in a monopolistic position of
the patent holder should be included, as normally admitted in the German
jurisprudence in determining a fair royalty. This factor, as well as the existence
of alternative technologies certainly increase the value of the patent and should
be taken into consideration in the assessment of the opportunity costs of the patent
holder. However, the patent holder should not obtain a full protection of his
interest in using the patent to consolidate a monopoly rent, since this interest is not
legitimate under the goals sanctioned at the TRIPS Agreement and contradicts the
systemic nature of innovation.

opportunity of profit on the part of the patent holder. See Mes at 546, and BGH in 1995 GRUR 349,
351.

1452 See Polaroid Corp. v. Eastman Kodak Co., 16 USPQ2d, 1481.
1453 Id.
1454 Id. See also BGH in 1991 GRUR 60, 63; BGH in 1993 GRUR 55, 59, both referred to “Rolex-
Imitation”.
1455 Mes at 546. See also 34 BGHZ 320, 323.
1456 Id. 545. See also BGH in 1967 GRUR 655, 659 (Altix) and BGH in 1993 GRUR 897, 898, 899
(Mogul-Anlage).
1457 Id.
Thus, a suitable framework should make the difference between unjust enrichment, i.e., the requirement to pay the patent holder a reward for the use of his invention, and supplementary damages caused not by the mere use of the patented technology, but by the way the infringer uses it when avoiding previous negotiation, e.g., creating unfair competition to patentees and other exclusive licensors, injuring business credit, etc., and forcing the patentee to incur additional costs, e.g., judicial expenditures, to obtain his fair participation.

Creating strong disincentives to infringement alone is not sufficient to achieve the goals of the patent system and protect inventors. Often the patentee does not wish to grant a license\textsuperscript{1458}, thereby creating incentives to infringement. Therefore, a suitable balance of interests requires the use of the unjust enrichment framework as point of reference. Within the damages framework, infringer and patent holder are influenced to frame the payment of the fictitious royalty as a payment of damages instead of a payment based on equity to solve an unjust enrichment. This framework system does not favor a networking culture among innovators, and does not invite parties to balance the legitimate interests of rightholders and technology users. The US presents an extreme contradictory position, where in one side, considers that infringement should be resolved by balancing interests with the “willing buyer-willing seller rule”, and on the other side allows for extreme punitive damages. Punitive damages, when rigorously applied, do not seek to balance the interests of patentee and the technology user. It allows the patent holder to obtain an additional unjust enrichment at the expenses of the infringer, as punishment. This system does not encourage a networking culture based on fair payments among participants. Consequently, in case of infringement, the patent holder may better off than when seeking negotiation, and therefore, the system may encourage him not to negotiate a license. This position presents the same mistake than the one that refuses to recognized and reimbursement the sum of unjust enrichment in cases where the patent holder has not infringed with negligence or willfulness. Therefore it is more convenient to have as reference the basis of unjust enrichment, and to allow for the adjustment of the compensation with damages occasioned, taking into consideration the negligence or willfulness of the infringer.

\textsuperscript{1458} Dreyfuss and Kwall at 796.
This principle is in accordance with the general principles of the patent system. Since the patent system is also intended to favor diffusion of technology (as mentioned in Article 7 TRIPS), it should motivate parties to a continuous exchange of information and negotiation about the allotment of the wealth generated by their participation in the innovation system. This may explain the general tendency towards a framework based on unjust enrichment, whereby damages constitute a complementary source of indemnification. This tendency can be inferred in the existing framework in the US, Japan and German patent systems.

(5) Disadvantages of the Damages Framework

Framing infringement mainly as a problem of damages moved German Jurisprudence and US case law to refuse the application of the quasi-contract of unjust enrichment in cases where the infringement was not willful or negligent. Thus, framing infringement within the quasi-contract of damages has lead the main goal of the patent system being overlooked, which is to allow inventors to participate in the social profit generated by the use of their inventions. Framing the payment of a reasonable royalty as an indemnification for damages also creates contradictions. Patentees have problems obtaining adequate recoupment of infringement damages because courts frame the restitution of “unjust enrichment” as compensation for damages and thereby tend to refuse ordering adequate compensation of “other damages”. This may be also connected with the awareness of courts that patentees do not always wish to grant a license, thereby abusing their rights. Courts tend to protect technology users by considering the amount corresponding to unjust enrichment as giving the infringement enough punishment and the patent holder enough compensation. When the reasonable license is not regarded as a “compensation of damages”, tribunals may be predisposed to require additional indemnification for the additional damages generated by the negligence or willfulness of the infringer, particularly in cases when he did not attempt to obtain a license. This will be particularly clear in systems which allow compulsory licensing as a normal measure to prevent the patent holder to abuse his right, so that technology users may no have excuse of not having previously negotiated a license.
The problem of tribunals not granting enough protection to rightholders in case of infringement was realized in the US system, leading to the creation of the Court of Appeals for the Federal Circuit in 1982.\textsuperscript{1460} German courts have also been criticized for granting indemnification of damages only in the form of a reasonable royalty, which amount to that or a little more of what a faithful licensee would pay.\textsuperscript{1461} In the end, there is only indemnification for unjust enrichment but not for damages. Technology users have thereby incentives to infringe, since after a long invalidation suit (8 years), they will pay, in the worst scenario, the same royalty they would have negotiate with the patent holder, and obtain, additionally, tax advantages. This situation creates the paradox that the patent system may be infringed, whereby there are no risks of loosing and probabilities to obtain profit.\textsuperscript{1462} In the long run, all actors of the innovation system loose from the lack of fair principles of law, which allow for a balance of interests between patentees and technology users. This constitutes an important disadvantages in the hard protection system. Due to framing patents as a kind of as monopoly or property right, technology users may incur a higher risk of infringement, since patentees are allowed to refuse any reasonable licensing offer. This influences courts to balance by requiring infringers to restitute only the unjust enrichment and not indemnify other damages.

(6) Creation of a Balanced Protection Against Infringement Through the Unjust Enrichment Framework

In conclusion, unjust enrichment offers a basic point of reference for the indemnification in case of infringement. This framework, when accompanied with compulsory licensing and a system ordering indemnification of supplementary damages according to the intentionality or negligence of the infringer, offers a suitable mechanism to deter infringement and harmonize all interests involved.

\textsuperscript{1459} \textit{Id.}

\textsuperscript{1460} See \textit{Mowery and Rosenberg} at 59-60. See also \textit{Merges}, Patent Law and Policy at 12, and \textit{Hall}, Bronwyn and \textit{Ham}, Rose Marie at 6.


\textsuperscript{1462} \textit{Id.} at 54.
Framing of patents as monopoly or property rights has prevented the patent system from differentiating between unjust enrichment and damages when regulating infringement. However, the unjust enrichment framework has been indispensable. Courts have tended to use the term willing licensee/licenser as a means of arriving at reasonable compensation in case of infringement\textsuperscript{1463}, thereby using the unjust enrichment framework as the point of reference. Supplementary damages may be indemnified according to the negligence or willingness of the infringer. This solution harmonizes with the goals of the patent system and the requirements of the innovation system. Thus, the interests involved in patent protection are connected to the creation and exploitation of a market from the protected technology, \textit{i.e.}, the creation of profits through the participation of different actors in the market. The appropriability problem of inventors, and the need for settling a fair solution for unfair enrichment are the key elements of patent rights, and therefore, for the regulation of infringement.

Patents as rights enacted to provide a solution to misappropriation, therefore it is more suitable to frame patent law as defining supplementary rules for the quasi-contract created by unjust enrichment at the expenses of inventors, rather than to frame patent law as enacting monopoly or a property rights. In this case, the problems created by the absolute character of patents would be solved, and the \textit{willing buyer-willing seller rule} would not be an instrument applied only in case of infringement, but a general rule derived from the legal nature of patent rights under a quasi-contractual framework. Under this framework, compulsory license constitute the counterbalance of patent infringement, which protects technology users and society against the abuse of the exclusion rights of patentees.

Within this framework, the system is balanced and technology users are motivated to negotiate and pay a fair reward for the use of the patent. Additionally to the retribution of unjust enrichment, negligent or intentionally infringers must indemnify for the damages occasioned when using the technology, since they have frustrated their obligation to previously negotiated with the patentee a license, or in case that the patentee has legitimately refused to grant the license and compulsory license is not available, to refrain from using the patent. Within a framework of patents defined as a remedy against unjust enrichment framework,

\textsuperscript{1463} See\textit{ Hanson v. Alpine Valle Ski Area, Inc.} 718, F.2d 1075, 1081.
compulsory license would not be available only when the patentee proves that licensing does not allow him to recover his R&D costs and obtain a reasonable profit. Within this framework, infringement of the patent with gross negligence or intentionality constitutes an attack to the networking culture behind the innovation system, which must be effectively deterred. Since in this case, the patentee is allow to refuse licensing only in qualified cases, when this alternative is unsuitable to provide him a fair reward for his R&D, it is expected that technology users, even when having a minimal notion of ethics, would refrain from infringement.

3. Use of Quasi-Contract of Unfair Competition to Protect Innovation

Alternatively to property and monopoly rights, unfair competitions has been used to protect innovation. Thus, unjust enrichment can also generate further damages. This is the case when the infringer creates unfair competition, causing damages to the innovator, who is thereby hindered to obtain a fair profit from his undertaking. The following sections are dedicated to the relation between unjust enrichment and unfair competition.

a) Legalistic Approach of Intellectual Property Rights and Need to Extend Protection of Innovators: Protection of Know-How under US Case Law

The evolution of the jurisprudence shows how the principles of torts and equity (quasi-contracts) can offer a suitable protection to the main interest which traditionally are included as “Intellectual Property Rights”. This is the case of trademarks, where the principle of unfair competition constitutes the source of the right to exclude others from using the trademark. This is also the case of know-how, where the principle of unfair competition hinders third parties from using the know-how acquired by illegitimate methods, or the use of know-how transmitted in confidence, without the authorization of the its original possessor. This is also be the case of patent rights.

The hard protection system of the USA has been characterized by a legalistic interpretation of patents. This is a consequence of the contradictions caused by the conception of patents as monopoly and private property rights designed to exclude competition. US case law interpreted the application of principles of law to extend
the protection granted by federal patent or copyright as having the effect of prohibiting any kind of competition around new products in an unlimited way. As a result, it disallowed the application of the principle of unfair competition law to impose liability for or prohibit the copying of an article. The negative preempted rule restricting protection of inventions through other mechanism alternative to patent law is one of the instruments intended to reduce the anti-competitive effects of patents. This rule was sustained by the Supreme Court in 1964 in the case *Sears, Roebuck & Co. v. Stiffel Co.*\(^{1464}\) The basis of the discussion was not the right that the creator of the lamps may have to obtain a remuneration for the use others make of his work results, or more generally, the interest of the State in promoting progress of science and useful arts giving incentives to inventors. The discussion was centered on the interest of the innovator in not having competition with respect to the product he introduced. The protection of the interest to absolutely exclude competition was originally justified as a remedy to the problem that customers might be confused about the manufacturer of the lamp (passing off), not as a means to create a monopoly of the production of a determined good.

The appropriability problem of innovators is connected with the protection of know-how. The common law system had used quasi-contracts to protected know-how, which implies a sort of protection of invention through other mechanism alternative to patent law. Know-how protection had been developed by English case law using general principles of law. Like Trademark protection, know-how protection emerged as a particular case of unfair competition. It is considered confidential information and restrictions are placed on its unauthorized communication. The main object of know-how regulations is to protect this information from being unloyally disclosed by workers and third parties who have had contact with its possessor. English courts have developed the “springboard doctrine” to prevent the unauthorized incorporation of confidential information in innovations. A person who has obtained information in confidence is not allowed to use it as a “spring-board” for activities detrimental to the person who made the confidential communication. That person is obliged to pay damages for the privilege in case he wishes to make use of the confidential information\(^{1465}\).


\(^{1465}\) See *Seager v. Copydex Ltd* (1967) 1 WLR 923, 931, per Lord Denning MR, quoted by Blakeny at 14.
The US case law finally followed this trend allowing other cases of protection of intellectual goods and innovation, different to those provided by intellectual property law. The negative preempted rule restricting protection of an invention through other mechanism alternative to patent law, sustained by the Supreme Court in 1964 was partially changed in the decision Kewanee Oil Co. v. Bicron of 1974\textsuperscript{1466}. In this decision, the Supreme Court recognized the need to grant protection of trade secrets as an alternative to patent protection. The Kewanee Oil case also applies to the extension of patent like effects to an unpatented object as the Sears case did. In both cases, the invention could have been patented, but for different reasons it was not. Particularly, in the case of Kewanee Oil, the main reason of unpatentability was that the invention failed to meet the novelty standard because it had been in commercial use for one year. In this case, the Supreme Court recognized the possibility that another form of incentive to inventions can coexist with the patent system, so long as the two systems are not in conflict.

The principle of unfair competition is not intended to give incentives to inventors. Its main objective is to declare unfair the introduction into the market of similar trademarks because of the confusion that this may create for customers. The interests the “unfair competition principle” protects are related to unfair practices in commerce, that is avoiding any kind of confusion in the market about the origin of a product\textsuperscript{1467}, or restricting unfair practices in appropriating secrets of other enterprises. The application of this principle to the copy of products and inventions leads, however, to protection of the interest in absolutely excluding competition on the own products, as is the case of trademarks\textsuperscript{1468}. The predominant application of the quasi-contract of unjust enrichment in trademarks is consistent with trademarks being an instrument to identify and distinguish the products of a firm. In case of innovation, the main interest are different, since the main goal of the intellectual good is not to distinguish a product but to obtain a profit from its commercialization. Contrary to trademarks, the systemic nature of innovation requires the accumulative use of inventions. However, case law have neglected the


\textsuperscript{1467} This principle have been reaffirmed in the Paris Convention for the Protection of Industrial Property of 1883. In its Art. 10, revised by the Art. 3.3 of the Lisbon Agreement for the Protection of Appellations of Origin, the Member Nations are obliged to guarantee effective protection against unfair competition, including acts that create confusion about the origin, manufacturer, or a mistake about the nature, manufacturing method or characteristics of a product.

\textsuperscript{1468} See 376 U.S 667.
use of the quasi-contract of unjust enrichment and have tended to frame the problem as unfair competition, applying the same principles of trademark protection. This contradiction may explain why the US case law tended to consider that the protection of inventors is necessarily linked to the restriction of competition. Notwithstanding, unjust enrichment offers an alternative way to protect innovation that does not necessarily imply a restriction of competition, and is consistent with the systemic nature of innovation.

b) Distinction between Intellectual Property Law and Competition Law: Comparison between USA and Europe

This distinction between intellectual property law protection and competition law protection constitutes a coherent framework which harmonizes with the definition of intellectual property rights around the property right as an objective right. This distinction is also in agreement with the legalistic regulation of this institution. This position has been followed closely by the US case law. Copy and imitation by competitors is authorized in principle, unless specific exclusion rights created by law protects innovators against imitation\textsuperscript{1469}. This principle is based on the recognition of the systemic nature of innovation. Each man, no matter which area he is working in, is building upon the work results that others previously achieved. It is precisely through the imitation of the work results of competitors that the innovation from others is diffused in the society, becoming a public good and allowing for the social progress\textsuperscript{1470}. As a result, exclusion rights, designed to hinder others from building on the work result of the original inventor should be granted only for very special cases.

The recognition of the importance of the imitation process to promote innovation and development also advise for restricting patent rights. Therefore it is generally accepted that the utilization of a technical idea or an immaterial resource, which is the product of the effort of a third person remains, when not protected by a specific intellectual property right, totally free from the obligation to compensate him, and the US case law has stated that patent rights can only be defined by

\textsuperscript{1469} Id. See also Baumbach und Hefermehl, UWG § 1, (annot.) 438 at 556.

\textsuperscript{1470} See Baumbach und Hefermehl, UWG § 1, (annot.) 438 at 556.
Patent rights are not totally consistent with the systemic nature of innovation and the need to promote private initiatives. This situation can be attributed to the contradictions generated by the definition of patents as monopolies protecting the interest of the inventor to exclude thirds parties from the use of their invention, which are granted in a legal order that had as a principle the prohibition of monopolies. Because of the negative effects of monopolization and restriction of free competition of patent rights, its concession is only admitted when authorized by law. Consequently, free imitation is in principle allowed and can only be restricted by law, this is the rule of the case *Kewanee Oil Co. v. Bicron Corp.*

The legalistic construction of patent comes from two main characteristics of the patent system. The first being that property rights are absolute, this constitutes a subjective right which is protected without taking into consideration the specific position or position of third individuals (unjust enrichment or unfair competition), but the objective relationship between the holder of the right the object of property (absolute right to exclude others at will, to dispose of the object of property, which can be limited only by law). The second condition deals with the interest in restricting the monopolistic effects of intellectual property, which in turn ensures that the regulations authorizing this monopoly are interpreted restrictively. Both conditions create a contradiction, which has contributed to generate the definition of very legalistic principles in this field and the tendency to extend by analogy the protection granted by property rights to cases that are not specifically contemplated by law, creating new property right for innovation and excluding general principles of law like unjust enrichment and unfair competition.

Thus, the present framework, which considers patents as private property or monopoly rights solves the conflict of interest based on the doctrine that intellectual property right protection should only include the elements defined by law. The interests that are not expressly foreseen in the legislation cannot be incorporated by general principles of law in the Intellectual Property Rights institute. Intellectual property rights are considered to be an exclusive institutional framework which are excluded from the general principles of law in order to define

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1472 Fezer, Leistungsschutz im Wettbewerbsrecht, at 63.
special rules\textsuperscript{1473}. This rules out the dynamic elements in the interpretation of the right, which emerge from the entrepreneurial interests and center the analysis on the infringement of the specific defined object of protection, instead on the interests involved. This contradiction would not be as marked if patents are considered rights enacted not to create property or monopoly rights, but rights defined according to quasi-contractual relationships, specially, to protect the legitimate interests innovators according the quasi-contract of unjust enrichment.

Contrary to the original position of the US case law\textsuperscript{1474}, the European Continental legal system has retained the use of the quasi-contract unfair competition to complement the protection of intellectual property rights in very specific cases, including technical innovation. Alternative to intellectual property rights, complementary protection to innovative work results of enterprises has traditionally been circumscribed to the competition law. This trend is found in Germany and in France. The French legal system has maintained the traditional position that the protection of trademarks is based on the quasi-contract of unfair competition\textsuperscript{1475}. French courts have also protected know-how by the general principles of unfair competition. French jurisprudence has declared the unauthorized appropriation of knowledge onerously acquired by another firm with the intention of benefiting gratuitously as unfair competition\textsuperscript{1476}.

The German doctrine makes the distinction between the intellectual property law protection and the protection of general entrepreneurial innovation efforts through quasi-contractual institutions framed under competition law. This distinction is constructed in the following statement: intellectual property law protects only the results of the innovation efforts of the enterprises, \textit{i.e.}, the immaterial good that constitutes the trademark, the creation or the invention\textsuperscript{1477}, while competition law protects the free market competition from the hindering of abusive acts.

\textsuperscript{1473} Id. at 64. See also Baumbach und Hefermehl, UWG§ 1, (annot.) 439 at 557.
\textsuperscript{1474} See Kewanee Oil Co. v. Bicron Corp. 181 U.S.P.Q. 673, 678 (1974)
\textsuperscript{1476} Gaudin at 13. He makes reference between others, to the sentence of the Commercial Tribunal of Seine, 29 July 1943, Soc. Timken.
\textsuperscript{1477} Fezer, Karl-Heinz, Leistungsschutz im Wettbewerbsrecht, in WRP 1993, No. 2 at 63 at 63-64.
c) Case Law Development of Competition Law to Protect Entrepreneurial Efforts Related to Intellectual Property

Following general principles of the law of loyal competition the European jurisprudence has developed a specific protection for traditional unprotected small entrepreneurial innovation efforts and investments. The need to improve the legal framework to protect innovation efforts of enterprises is not controversial. What is controversial is which institutional framework is suitable: the use of competition law or the creation of special intellectual property rights. The final acceptance of other forms of protection for innovation such as know-how in the USA, as well as final the recognition of the possibility of applying unjust enrichment in Germany are examples or the need for creating a flexible legal framework to protect innovation, and the possibilities created by using the quasi-contractual framework. This trend to complement the intellectual property protection with the general principles of law connected with the quasi-contractual institutions has been accentuated in the 1980s. Jurisprudence has allowed for the application of the general principles of law, specifically the principle of unfair competition, to extend the protection of innovation. Following this line of reasoning, competition law has been regarded as a source of law that allows for the legal evaluation of other interests that are traditionally excluded or not incorporated in the legalistic approach of intellectual property rights. Contrary to intellectual property rights, which protect the result of the innovation effort, competition law centers its protection on the way and circumstances in which this innovation effort is exploited by competitors. In sum, the protection of competition law does not cover the result of the effort of an individual, but the separation among fair and unfair exploitation activities by competitors. This protection is intended to promote a constructive competition climate based on quality and innovation. In this case subjective structures become the focus of the legal analysis.

1478 Id. at 64.
1479 Baumbach und Hefermehl, UWG § 1, (annot.) 439 at 557-558.
The application of competition law to complement intellectual law protection has been originally developed for trademarks, and is therefore related to the tort of passing off. This institution presents similarities to the institution of passing off.

This distinction between intellectual property rights and competition law is not indisputable, the protection of innovative work results can also be considered an original task of competition law, i.e., as contained in the general protection granted by the quasi-contract of unfair competition. However, the thesis of the legitimacy of the protection of the work results of innovators has contradicted the traditional German doctrine and jurisprudence. The opposition to a general application of the quasi-contractual framework of unfair competition as protecting innovation work results is based on the recognition that imitation is the base of progress, and therefore, on the need to settle limits to the prohibition of imitation by competitors. Nevertheless, there is a general tendency to use competition law to protect innovation from imitation.

The origin of the passing off claim goes back in to the common law system as least as far as 1580, related to a case reported by Doderidge J in 1618. Considerations connected with the quasi-contract of unjust enrichment were relevant. However, trademark protection has been later restricted to the protection of the identification function of a good or a service, and thereby circumscribed arroung the quasi-contract of unfair competition and damages. As a result, the protection of other pecuniary interests like fame has not been traditionally included as a function of the trademark law. This position can be

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1482 Id. at 63.

1483 Id.


1485 Southern v. How (1618) Poph 143 at 144. This decision states: “An action upon the case was brought in the common Pleas by a clothier, that whereas he had gained great reputation for his making of his cloth, and based whereof he had great utterance to his great benefit and profit, and that he used to set his mark to the cloth, whereby it should be known to be his cloth, and another clothier perceiving it, used the same mark to his ill-made cloth on purpose to deceive him, it was resolved that an action will lie”. See also Drysdale and Silverleaf at 6.
clarified with the following British case law of 1911\(^{1486}\), *Standard Sanitary Manufacturing Co. v Standard Ideal Co.*, referring the infringement upon the domain name “Standard”. In this case the defendant company made the same class of goods as the plaintiff company and had imitated some of the plaintiff’s designs and patterns. The case was dismissed because: “... although the defendant company has availed itself unscrupulously, if not unfairly, of the labor, ingenuity and expenditure of the plaintiff company in preparing the ground and educating the public on sanitary questions and bringing into notice the most fashionable and up-to-date articles of toilet use, it is impossible to come to the conclusion, that the trade designation adopted by the defendant company is calculated to deceive or to lead customers to believe that in buying its goods they are buying the goods of the plaintiff company...”. It is interesting to note that the court reached this conclusion based on the following fact: “The defendant company is protected by a high tariff and can afford to undersell the plaintiff company. There seems to be no reason why it should seek to pass off its goods as the goods of the plaintiff Company. Nor is there really any evidence tending to prove that it has ever done so”\(^{1487}\). In this case, other implications of the misappropriation of the fame of the plaintiff which may constitute unfair competition were ignored.

Thus, the distinction between the right over the trademark and the right to obtain protection against unfair competition is not that clear. This can be inferred when analyzing the following examples of English case law related to the legal nature of passing off: In the case *Reddaway v Banham*, the Per Lord Herschell stated: “The word “property” has been sometimes applied to what has been termed a trade mark at common law. I doubt myself whether it is accurate to speak of there being property in such a trade mark, though no doubt some of the rights which are incident to property may attach to it”\(^{1488}\). On the other hand, Per Parker J in *Burberrys v JC Cording & Co. Ltd*\(^{1489}\) stated: “If an injunction be granted restraining the use of a word or name, it is no doubt granted to protect property, but the property, to protect which it is granted, is no property in the word or

\(^{1486}\) See Privy Council (the highest British court in Domain Names), *Standard Sanitary Manufacturing Co. vs Standard Ideal Co. A.C. 78*, (1911); quoted by Jsay, Hermann, Der Kampf um § 1 UWG at 248.

\(^{1487}\) Id.

\(^{1488}\) (1896) AC 199 at 209, 13 RPC 218, 228. See Drysdale and Silverleaf at 8.

\(^{1489}\) (1909) 26 RPC 693, 701. See Drysdale and Silverleaf at 8.
name, but property in the trade or goodwill which will be injured by its use”. This goodwill is determined by the existence of a business and the fact that there is an exclusive association of the name mark of other indicia relied on with that business.\textsuperscript{1490} This position relates to the already quoted position of Chitty J, when affirming that: “when the Court finds that in substance, notwithstanding there are many things which the Defendant could do which are legitimate and within his rights, yet he is so contriving them as to take away something which belongs to another man, it is the duty of the Court to interfere”\textsuperscript{1491}. However, although the connection to the quasi-contractual framework has been evident, the common law system continued centering the passing off institution to the problem of tortious acts related only to misrepresentation of fact. In the action for passing off, the misrepresentation is actionable at the suit of the person whose business is injured by the misrepresentation, not (as in the action for deceit itself) the person deceived\textsuperscript{1492}.

On the contrary, the German competition law jurisprudence managed to give a broader protection against unjust enrichment. Protection was also granted in cases where it was possible to frame unjust enrichment as a problem of unfair competition, \textit{i.e.}, in the cases that a situation of unjust enrichment affects the principles of free competition based on work results, fairness and loyalty\textsuperscript{1493}. For example, a trademark that does not distort the identification function of another trademark but affects its fame can be charged as an unfair exploitation of its fame. This situation was evident in the decisions “Rolls-Royce”\textsuperscript{1494} and “Dimple”\textsuperscript{1495} in the beginning of the 1980s. The BGH declared that the promotion of a product using the fame of a third party’s trademark is contrary to law\textsuperscript{1496}. While the protection of trademarks was traditionally reduced in trademark law to secure the identification function between the commodity and its producer or its origin, this

\textsuperscript{1490} See Leahy, Kelly and Leahy v.Glover, (1893) 10 RPC 141, 144. See also Drysdale and Silverleaf at 11.
\textsuperscript{1491} Huntley and Palmer v.Reading Biscuit Co. Ltd, 10 RPC 277, 280 (1893). See Drysdale and Silverleaf at 2.
\textsuperscript{1492} See Drysdale and Silverleaf at 9.
\textsuperscript{1493} See Jsay, Hermann, Der Kampf um § 1 UWG at 245, 247, 248.
\textsuperscript{1494} 86 BGHZ 90, 90 ff. See 1983 GRUR 247, 247 ff.
\textsuperscript{1495} 93 BGHZ 96, 96 ff. See “Dimple” (Anm. v. Tilmann) in 1985 GRUR 550, 550 ff..
\textsuperscript{1496} See Baumbach und Hefermehl, UWG§ 1, (annot.) 541 et. seq., at 601- 614.
protection has been extended through competition law. Competition law protects trademarks by treating them like an entrepreneurial achievement.\footnote{Fezer, Karl-Heinz, Leistungsschutz im Wettbewerbsrecht, WRP 2/93 at 72.}

The German jurisprudence stated that the exclusive regime of intellectual property rights does not exclude the protection of entrepreneurial efforts and work results and concluded that “there does not seem to be justification to exclude other forms of entrepreneurial achievements from protection through general principles of law such as competition law”. Competition law appears to be an instrument for complementing and solving omissions of intellectual property law.\footnote{Id. at 64.}

\textbf{d) Criteria for Application of the Competition Law Protection}

\textbf{(1) Protecting Innovation through Competition Law in the late 1980s}

The European jurisprudence has managed to protect innovation from imitation using through competition law, specifically through the institution of unfair competition. This protection has extended from the protection of the fame of trademarks to other forms of innovation. The need to protect industrial and mode designs promoted the creation of unregistered Design Rights, which incorporate elements of unjust enrichment and unfair competition. However, this protection has traditionally appeared creating legal hybrids, \textit{i.e.}, rights integrating around the copyright protection. For example there is in France a long-discredited practice of protecting appearance designs in copyright law which has been judicially revived in the Benelux countries in the late 1980s.\footnote{Reichman, Legal Hybrids Between the Patents and Copyright Paradigms, at 2465.} The United Kingdom’s unregistered design right is available since 1989 and constitutes a copyright-like protection of unregistered functional or aesthetic designs for fifteen-years.\footnote{Reichman, J. H. Design Protection and the Legislative Agenda, 55 Law & Contemp. Pros. 281, 284-290 (1992), 1992 (heinafter Reichman, Designs and Legislative Agenda) Contrarily, US Congress failed to enact an innovative \textit{sui generis} design law built on modified copyright principles in 1975 and the federal appellate courts have treated product configurations as unregistered “appearance trade
“dress” protectable under the Lanham Act § 43(a) for an indefinite period of time\textsuperscript{1504}.

(2) \textit{The German Case: Distinction between Unjust Enrichment and Unfair Competition}

Contrarily to the trend for creating legal hybrids around copyrights, the German Jurisprudence, following the traditional distinction between intellectual property rights, unjust enrichment and unfair competition, grants protection to innovation applying exclusively the quasi-contract of unfair competition. In connection with this protection, it has been considered that the protection of the innovative work results of enterprises is an original task of competition law\textsuperscript{1505}. As a result, the need to grant complementary protection to innovators has been constructed on the framework of the German Competition Law (§ 1 UWG).

It is naturally discussed to which extent entrepreneurial innovation efforts should be protected, since this protection could lead to a blockade of free competition and the consolidation of competition advantages. Furthermore, the free imitation of innovative work results, created by competitors after incurring significant costs, is a common activity. As a result, determining in which cases imitation should be not authorized has been a difficult question for competition law\textsuperscript{1506}. Framing the protection of innovation under competition law as a case of unfair competition has granted the German doctrine criteria for defining with cases not contemplated by intellectual property rights should be protected.

German Jurisprudence has defined principles to define in which situations the innovation effort will be recognized and protected, and which circumstances the appropriation of such recognized innovation will be claimed as unfair\textsuperscript{1507}. These criteria have been developed and delimited upon the inquiry of following elements:

1. The goals of the corresponding legislation. It should be determined whether there is especial exclusion rights (intellectual property rights) which protect the

\textsuperscript{1504} Id.

\textsuperscript{1505} Fezer, Leistungsschutz im Wettbewerbsrecht at 63.

\textsuperscript{1506} Baumbach und Hefermehl, UWG§ 1, (annot.) 439 at 557.
work results that are imitated. These exclusion rights generate the legal prerogative to define exceptions to free competition. (2) Definition of the scope of protection of each intellectual property right; and (3) The consideration of the cases that may justify the copy of the innovation by third party enterprises, particularly, the criteria developed for the cases of unfairness of the exploitation of achievements of third parties.

Although the application of general principles of competition law to protect special situations of exploitation of innovation has been recognized for trademarks and fashion, its extension to other innovation areas has usually been rejected by jurisprudence. Concerning non patented products, the German Jurisprudence had recognized protection under competition law, only because of specific characteristics of the product, when there could be a confusion by the public that the product is coming from another manufacturer and the confusion could have been avoided through particular measures of the manufacturer. For example, protection time has been conceded in the case of furniture.

The quasi-contractual framework of unjust enrichment is suitable for the application of this criterion. It provides solid principles which harmonize the conflict of interests emerging from market or institutional failures, when one party is allowed to take advantage of other’s efforts without compensating him. On the other side, the unrestricted use of unjust enrichment protecting any kind of innovation, can lead to the granting of patent like protection to all kinds of innovation, especially when upon the finding of unjust enrichment, the correspondent private right is regarded as an absolute right to exclude others and not a rights not to obtain a compensation. In this case, the application of unjust enrichment brings similar effect than the application of competition law, i.e, unfair competition.

This explains why protection under the framework of unjust enrichment has been considered by the German jurisprudence a general framework which conflicts which the proprietary framework of intellectual property rights, in the end, it

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1507 See Jsay, Hermann, Der Kampf um § 1 UWG at 245, 247, 248.
1508 Emmerich, Das Recht des unlauteren Wettbewerbs, Munich, 1990, § 9, 2c at 152.
1509 Fezer, Leistungsschutz im Wettbewerbsrecht at 65.
1510 See decision of “Polsternmöble” OLG Düsseldorf of (December 16, 1976), WRP 1978, 378 ff. See also Schroeter at 232-233, Reimer at 99.
protects the same interests of the special normative. This may also explain the refusal to use unjust enrichment to frame intellectual property rights in order to guarantee that patent protection is restricted only to important inventions which fit the patentability requirements.

Before the decision XZR 81/72\textsuperscript{1511} German jurisprudence considered that the application of the general unjust enrichment framework was excluded by the specific patent legislation. This position was similar to the US case law\textsuperscript{1512}. The US case law concluded that the negative preempted rule restricted protection of invention through other mechanism alternative to those defined by patent law. As a result, the problem of defining a suitable framework to protect innovation has been solved through defining specific protection criteria which are not based on the quasi-contract of unjust enrichment but on the quasi-contract of unfair competition. This is the position followed by the German doctrine and jurisprudence. Although the unjust enrichment claim was already advocated in the field of the infringement of trademarks\textsuperscript{1513} as well as in copyright\textsuperscript{1514}, courts have tended to make an exception for the case of patent and utility models. Case law has framed these cases applying the general principles of the law of unfair competition. Therefore, it has been important to make a distinction between unfair competition, unjust enrichment and the special exclusion rights granted by intellectual property rights, particularly in the case of patents. As a result, the extension of patent protection can only be done under the perspective of unfair competition.

This may explain why the German doctrine has tended to assess the appropriability problem of inventors, which generates of unjust enrichment, exclusively under the framework of competition law, specifically § 1 UWG. The German competition law framework rejects the protection of inventions in cases where the appropriation of an invention, even though configuring unjust enrichment, does


\textsuperscript{1512} \textit{Sears, Roebuck & Co. v. Stifel Co.}, 376 U.S. 225,11 L.Ed. 2d 661 (1964). See also \textit{Compco Corp. v. Day-Brite Lighting, Inc.}, 376 U.S. 234, 11 L.ed. 2d 669 (1964)

\textsuperscript{1513} See \textit{Baumbach und Hefermehl}, Wettbewerbsrecht, Munich, 1993, UWG § 1, (annot.) 563 et seq. at 610.

\textsuperscript{1514} \textit{Ulmer}, Eugen, Urheber- und Verlagsrecht at 406 ff
not configure unfair competition\textsuperscript{1515}. Thus, unfair competition is configured only in specific cases, where imitation is done with the intention of hindering free competition, abusive imitation of the innovation work results of competitors in order to obtain a competitive advantage\textsuperscript{1516}. Unfair competition is generally configured in the cases where a serious hindering in the competition is caused\textsuperscript{1517}. Examples are when the damaging imitation was done although there was a previous warning of the affected party\textsuperscript{1518}, or is done following a recognizable system\textsuperscript{1519}. As a result, the distinction between unfair competition and unjust enrichment have constitute a key element to allow for alternative forms of protection of innovation different from intellectual property rights applying § 1 UWG.

Unfair competition is based on the assessment of an abusive act which causes damage, creating an indemnification claim. The indemnification claim defines the obligation of the infringer to pay the damages he caused, regardless of whether the benefits derived from the illicit use of the protected patent or industrial model still remain the property of the infringer. On the other hand, the application of the provision of unjust enrichment refers to other situations, not the loss of the creditor, but the advantageous change in the property of the debtor, and because of that, only the benefits gained must be transferred by the debtor. Another important difference between the indemnification and the unjust enrichment claim is found in the prerequisites for the claim: the recipient of the enrichment who participated in the unlawful act is liable, even if he did not directly receive the benefits from the injured party\textsuperscript{1520}.

It is a paradox that the BGH allowed the use of unjust enrichment to obligate the patent infringers to compensate the patent holder in the cases in which the special patent legislation leaves the patent holder unprotected, having based its decision specifically on the above mentioned distinction. The BGH concluded that unjust enrichment could not be equated with the indemnification claim defined on the patent legislation and because of that, this hypothesis was not already regulated by

\textsuperscript{1515}See Baumbach und Hefermehl, UWG § 1, (annot.) 539 at 558.

\textsuperscript{1516}Id. at (para.) 438 at 556.

\textsuperscript{1517}Fezer, Leistungsschutz im Wettbewerbsrecht, at 65.


\textsuperscript{1519}See Nordemann at 203-204.
that special normative. In its decision XZR 81/72 the BGH summarized its position in the followings terms: “... it is incompatible with law and equity that the infringer should with impunity retain what he has gained by an unlawful act of infringement. The patent and utility model law confers the commercial use solely upon the owner of the industrial property right. Anyone who uses an industrial property right, without the consent of its owner, commits an illicit act and is obliged to refund the enrichment gained by the infringing act under Secs. 812 et seq. Civil Code\textsuperscript{1521}. Thus, the distinction between the nature of protection granted in intellectual property rights and competition law is not that evident. Both institutions grant protection against infringement considering it a case of unfair competition which causes damages to the rightholder.

The traditional position of the German jurisprudence is changing. \textit{Fezer} has proposed the thesis that the protection of innovation through competition law is not a complementary function to intellectual property rights, but an original task of competition law that has not been properly assessed, and thereby, its potentialities have not been fully exploited\textsuperscript{1522}.

This thesis can be justified by the new trend of the German jurisprudence, which began with the decision \textit{Mantelmodell} of the BGH of 14 December 1954\textsuperscript{1523}. The court decided that the competition position of a firm that uses a subcontractor tailor is in danger, when a tailor sends to a competitor the same model of jacket made with cheaper material. In this case, competitor has saved on development costs of the new model and offers the same jacket with cheaper materials at a smaller price. Consequently, profit possibilities of the original innovator are reduced through competition, because the marketing position of this product is affected by the massive sale of other manufacturers in the same season\textsuperscript{1524}. This situation was regarded as a restriction of free competition, because a competitor obtains through unfair mechanism (copying without having to participate in the creation of the innovation) the advantage which his competitor has obtained as a

\textsuperscript{1520} See Sec. 852(2) of the German Civil Code, und BGH, 1965 NJW 1914 \textit{et seq.}
\textsuperscript{1522} \textit{Fezer}, Leistungsschutz im Wettbewerbsrecht, at 64-65.
\textsuperscript{1523} See 1995 GRUR 445, 16 BGHZ at 4. See also \textit{Fezer}, Leistungsschutz im Wettbewerbsrecht, at 65-66.
\textsuperscript{1524} \textit{Id}. at 65, and \textit{Emmerich}, § 9.2.c at 152.
result of his innovation efforts. The object of protection are the work results of an undertaken (unternehmerischen Leistungen). However, this protection is not granted in all cases, only when the protection of inovative work results is necessary to protect competition based on performance (Leistungswettbewerb), i.e., only when the copied innovation causes an important competitive advantage and the copy by competitors constitutes a hindrance for the creativity efforts of enterprises. As a result, the protection is still based on the protection against unfair competition, i.e., the imitation generates a quasi-contract of unfair competition (Rechtfertigungstatbestand), which is what finally distinguish the work results of the undertaken which are protected (schutzwürdige Innovationen). This leads Fezer to conclude that in this case, the protection of work results of the undertaken is primarily constituted by competition law (besteht originär). In these cases, nevertheless originating in the § 1 UWG, the protection is normally granted not to protect general interests (Allgemeininteressen), but the individual interests of the person whose inovative work results are ilegitimately imitated (Individualinteressen). The general interests may not always be affected in order to grant protection. General interests are affected only when the illegitimate imitation is also dishonest, i.e., it allows for the confusion on the side of consumers, of the origin of the product.

As typically for unfair competition, the protection is centered on granting the producer of innovation a grace period in which he can exploit his innovation without competition and thus, enabling him to increase the speed of amortization of his investment. The protection consists in prohibiting imitation for a certain

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1525 See Decision “Modenneuheit” of the BGH of January 19, 1973. This decision is considered by Fezer as the basic case law for the protection of fashion novelty through competition law. See also Fezer, Leistungsschutz im Wettbewerbsrecht, at 66.

1526 Fezer, Leistungsschutz im Wettbewerbsrecht, at 65.

1527 See decision “Hemdblusenkleid” from BGH of Nov. 10, 1983. See also Fezer, Leistungsschutz im Wettbewerbsrecht, at 65.

1528 Id. at 66. Se also the BGH decision “Modenneuheit” of January 19, 1973, 1973 GRUR 478, 60 BGHZ 168.

1529 Fezer, Leistungsschutz im Wettbewerbsrecht, at 66.

1530 Id. at 66-67.

1531 Id. at 67. See also the BGH decision “Finnischer Schmuck” of Oct. 18, 1990, 1991 GRUR 223. Third parties as dealers are legitimate to claim only when a general or public interest is affected.
period, for example, the season for mode, or 6 months to a year for video games.\textsuperscript{1532}

The protection of innovation through competition law is important as it recognizes the potential of using the quasi-contractual framework to protect innovation. However, it follows the tradition of focusing this protection on the right to exclude competitors in order to stop unfair competition, which cause negative effects for the diffusion of innovation. As a result, this kind of protection is restricted only to very important cases which hinder free competition.\textsuperscript{1533} In the end, the appropriability problem of innovators and the need to create a system which allows the promotion of innovation through the payment of technology users to innovators is not solved. This framework is not suitable for promoting networking among actors in innovation. On the contrary, the framework of unjust-enrichment is a more suitable institution to conciliate between the interests of granting protection against misappropriation, which is a basic condition to promote the creation of innovation, and the goal of promoting the diffusion of innovation. This framework promotes networking between innovators, and is therefore in conformity with the systemic nature of innovation as it favors the creation of synergy among innovators.

\textit{(3) Merger of Unfair Competition and Unjust Enrichment under initial German Competition Law Jurisprudence}

Due to the traditional distinction between competition law, unjust enrichment and intellectual property rights, the German jurisprudence used to reject the application of unjust enrichment even in the case of patent infringement, when the infringement was done without fault.\textsuperscript{1534} However, under the former perspective that unjust enrichment itself may configure an unfair and disloyal situation\textsuperscript{1535}, the traditional distinction between the intellectual property law as protecting against


\textsuperscript{1533} Baumbach und Hefermehl, UWG\textsuperscript{§} 1, (annot.) 438 at 556.


\textsuperscript{1535} See Privy Council (the highest British court in Domain Names), Standard Sanitary Manufacturing Co. vs Standard Ideal Co. A.C. 78, (1911); quoted by \textit{Jsay}, Hermann, Der Kampf um § 1 UWG at 248. See also Baumbach und Hefermehl, UWG\textsuperscript{§} 1, (annot.) 445 at 560.
misappropriation and competition law as protecting against disloyal competition may be considered arbitrary.\textsuperscript{1536} The inherent part of inventors rights is based on the recognition that inventors have the right to profit from their work, and that this right is considered a natural right, whose disregard is contrary to morality and equity. Consequently, when there is an innovative work result which is unique or above-average, or which has been achieved with significant costs, society would be unjustly enriched when refusing to give participation to the inventor in the profit it receives through the free imitation and use of that invention. This trend is to be seen in the jurisprudence of trade marks, when the protection of their fame is determined also taking consideration of the investment made in marketing and publicity.\textsuperscript{1537} On the same basis, protection based on unjust enrichment has been created for another kind of work results connected with innovation.\textsuperscript{1538} The traditional distinction between intellectual property rights, unfair competition and unjust enrichment is based on an analytical conceptual framework which ignores the interests at the basis or the exclusion right of patent. These interests may combine circumstances assessed by the quasi-contracts of unfair competition and unjust enrichment.

The definition of intellectual property rights as property rights that concentrate on protecting immaterial goods ignores the fact that the relationship between an individual and an immaterial good itself does not need protection, because no third person can disturb this relationship. This situation is different from that of material goods, whose possession can be disturbed by third parties. The protection of immaterial goods is functionally the protection of the interest of its creator or holder to control the way their work results (the invented or developed technical ideas) are imitated and exploited in the market by competitors and other technology users. Functionally it is the protection of interests related to the way an immaterial good is used by third parties.\textsuperscript{1539} When the work results are freely used

\textsuperscript{1536} See Callman, Rudolf, Sittenwidrige Ausbeutung fremder Arbeit, 1928 GRUR 251, 256-257.

\textsuperscript{1537} Callmann at 254-255, quoting the case “Uralt” published in 1927 JW 1564, concerning a the use of a famous trademark for tobacco by another wine producer. Even though there was no danger of confusion, it was clear that the intention of the imitator was to profit from the investments made in the trademark by the tobacco manufacturer. Callman maintains the thesis that the final goal of the court decision was to protect against an unjust enrichment from the economic success of the trademark, committed with the intention to obtain a competition advantage damaging the original trade mark holder.

\textsuperscript{1538} Id. at 255-257.

\textsuperscript{1539} For detailed discussion of this aspect, see Chapter 3.
and imitated by competitors, this situation configures an unjust enrichment which may generate unfair competition. When the work results are freely imitated and used by non competitors, which appropriate the intangible resources created by the innovative work results, the situation constitutes only unjust enrichment. In both cases, the equilibrium between parties can be reestablished by compensating the inventor. In both cases the unjust enrichment is generated only when the work results are above-average, that means, they require special assessments. In cases where the work results are average, the supposition that the innovator was a free disposal of similar work results of other imitators, and therefore no relevant unjust enrichment can be sustained. Consequently, a patent analogous evaluation of innovation is required to asses unjust enrichment.

The patent system has traditionally tended to protect inventors from their appropriability problem by concentrating on the protection of the interest of the patent holder to exclude competition and hold absolute control of the social use of his invention. In the end, patent legislation has been seen as granting an exceptional regime of competition law: while competition law seeks to promote free competition, patent law protects on a property basis the interest to exclude competition and create monopolies\footnote{See Fezer, Leistungsschutz im Wettbewerbsrecht, at 66.}. In both cases, the interest of exclude competitors have systematically prevail as mechanism to protect against misappropriation (unjust enrichment and unloyal competition) and thus, to promote innovation. In similar terms, the infringement of the patent is considered an abuse act which damages the patent holder maintaining an indemnification claim. Consequently, the protection of innovators has been achieved through special rights, which are not based on general principles of law, but on the framework of monopoly rights or property rights. General principles of law have been introduced primarily by unfair competition, to order the cessation of imitation acts which are considered damaging acts contrary to free competition, or trespassing property rights. Systematically, the figure of unjust enrichment as an instrument to equilibrate interests between technology creators and users has been neglected. Since this institute promotes the creation of networking and contrary to exclusion rights, is consistent with the systemic nature of innovation and the
framework created by the TRIPS Agreement. Thus, there are important reasons to reconsider its possibilities.

The central distinction between competition law and patent law is the way competition law has been constructed. Competition law has traditionally protected against imitation only in the cases where this imitation is done with the intention of abusing the work results of competitors in order to hinder the competition based on work results. Instead of seeking to protect from an unfair enrichment and assuring that innovators obtain a fair participation of profit created by the use and imitation of their inventions, competition law protects against unfair competition by ordering the cessation of imitation.

For our purposes, the main distinction between unjust enrichment and unfair competition resides not in the objective facts that generate them, but on the way each institution tries to reestablish a balance between parties. The distinction between the elements configuring unjust enrichment and unfair competition has not always been so precise. Analogously, the distinction between patent rights as centered on property interests on a technical-functional object and the neighboring interests protecting loyalty and work results competition is not that clear and has been a matter of controversy in Germany in the first half of this century. With time it has been recognized that there is a public interest in granting some protection on the work results of the privates. The unrestricted use by competitors of the work results of the others has been considered unfair, and thus, constituting unfair competition as the competition results in enrichment at the expense of the inventor. The free appropriation of the work result of third parties may oppose a current sense of morality and equity. It also opposes a

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1541 Id. at 192.
1542 Callmann, Rudolf, Sittenwidrige Ausbeutung, at 252. See also Baumbach und Hefermehl, UWG § 1, (annot.) 445 at 560.
1543 See Reimer at 99.
1544 Nordemann at 191.
1545 See Schroeter at 234-235.
1546 See Privy Council (the highest British court in Domain Names, Standard Sanitary Manufacturing Co. vs Standard Ideal Co. A.C. 78 (1911); quoted by Jsay, Hermann, Der Kampf um § 1 UWG at 248.
current sense of morality and equity that competitors appropriate the inventive efforts of other firms, incurred in important costs to enable the innovation\textsuperscript{1547}.

This situation may explain the modern trend for recognizing and applying some elements of the quasi-contract of unjust enrichment as a framework to complement intellectual property rights. The institution of unjust enrichment has also been proposed to define unfair competition based on the unfairness of imitating the innovation of competitors in order to obtain success through the appropriation of work results of others\textsuperscript{1548}.

However, unjust enrichment may not necessary imply unfair or disloyal competition. Moreover, not all imitating activities shall configure unjust enrichment. Both interests, imitating and seeking an advantage over competitors have been traditionally the base of free competition\textsuperscript{1549}. This includes improving other’s work results by understanding and incorporating the existing improvements in order to constantly offer better product. Imitation is the base of the social economic and cultural progress\textsuperscript{1550}.

The problems caused by the competition law framework may be illustrated in the following German jurisprudence: “the general liberty of actuation of the plaintiff to define at will the composition in which its merchandise is presented to the public, .... finds its constraint on the general obligation of respecting the interests of third parties, and abstaining, when there is no need, to intentionally damage others”\textsuperscript{1551}. Callman critizises this decision alleging that there is a contradiction in declaring that the base of unfair competition resides on the obligation to respect the interests of third parties, since it is not expected that competitors have the consideration and respect of competitors to the detriment of the own advantage\textsuperscript{1552}. The possibility of confusion has been in many cases used only as an excuse to protect the interests of the plaintiff in hindering competitors to imitate their innovative ideas and thereby preventing that his economical success

\textsuperscript{1547} See Schroeder at 235, and the decisions 73 RGZ 294, 297 (Apr. 7, 1910) and KG, case 7. U. 8226 21/18 of Oct. 7, 1929, in 1922 GRUR 35, 36, which considered contrary to morality the appropriation of work results that competitors obtained after incurring in important costs. See also Callmann at 251.

\textsuperscript{1548} See 79 RGZ 415, 417 (Jun. 18, 1912).

\textsuperscript{1549} Id.

\textsuperscript{1550} See Callmann at 252.

\textsuperscript{1551} RG, in MuW. XIII, 25, quoted by Callman at 252.
diminish through competition. This argument leads Callman to propose that the misappropriation of work results of others alone may be considered an infringement against § 1 UWG. He states that the German doctrine ignores this fact forcing each case to fit in the hypothesis the danger of confusion between different manufacturers. Therefore, Callman suggests that the protection of innovative work results through § 1 UWG can also be based on unjust enrichment alone, since unjust-enrichment alone may damage the patrimony of competitors and, therefore, it may cause unfair competition.

However, Callman suggests that the situation of unjust enrichment should be corrected through granting a monopoly right: “The protection is to be granted, when the work results incorporated on the invention are so notorious, that the monopolization for its creation constitutes a right of equity.” Once again, the most important element of unjust enrichment, which is the specific relationship between the parties as generating the unjust enrichment, is ignored, in order to fit the traditional protection framework of unfair competition. Unjust enrichment claims not the creation of a monopoly right, which may aggravate the imbalance between the parties, but the compensation by the party which obtains the advantage. Unjust enrichment constitutes a disloyal act when it is evident and the profit is significantly above average, and the party that was unjustly enriched refuses to counterbalance. Because of that, it is suitable that the intellectual property rights created as a remedy for a missapropriation problem be focused as based on unjust enrichment. In this case the remedy should be the compensation not of damages but of enrichment. As a result, imitation should be viewed not as a disloyal act, but as an activity which generates enrichment for inventors and imitators. This reasoning is consistent with the systematic nature of innovation.

Following the line of argumentation of Callman, it is not expected that

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1552 Callman at 252. See also 71RGZ 170, 173 (Mai 13, 1909).
1553 Id. Callman made reference to the following cases: 92 RGZ 111 (Jan. 29, 1918), which disallowed the imitation of the marketing strategy of a theater. In this case, the imitators granted the same discounts based on the presentation of the same marketing material (tickets of the public transportation system); and MuW. XXIV, 68, which disallowed the use of a catalog of competitors, since clients may think that the imitator could order all the merchandise included in the catalog. In both cases the court emphasized that there is an appropriation of work results created with important costs.
1554 Callmann at 252.
1555 Id. at 255-256.
1556 Id.
competitors have the consideration and respect of the interest of competitors to the detriment of the own advantage, but, it may be expected, that they pay for the services that they obtain through the work results of competitors in order to avoid unfair enrichment. Intellectual property rights provides for a specific case of this general rule, *i.e.* competitors are expected to give innovators participation in the enrichment generated by the use of protected technology, as well by the use of other work results connected with innovation (know-how, industrial designs, etc.). This line of reasoning may allow for a system of innovation rights which promotes networking among innovators, and thereby, simultaneously promotes the creation and transfer of technology.

Furthermore, the protection of new technologies and the need to protect innovation under a networking framework leads to another perspective to solve the problem of unfairness created by the free appropriation of important work results of innovators: the possibility of distinguishing between the quasi-contract of unfair competition and the quasi-contract of unjust enrichment. Within this framework, intellectual property rights are enacted to protect innovators from unjust enrichment. They are intended to assure innovators of a fair participation in the wealth generated by the diffusion of their work results. This trend may give quasi-contracts a central role for the protection of the legitimate interests of innovators.


The definition of patents as private property or monopoly rights seems not to be anymore suitable for the present global innovation systems. This framework presents theoretical inconsistencies. In addition, it is responsible for the traditional distinction between the intellectual property law as protecting against misappropriation and competition law as protecting against disloyal competition, which may be considered arbitrary. These inconsistencies may be resolved by focusing on the economic problem which is addressed by patent rights. Translated to the present circumstances, this problem may be defined as a misappropriation problem in the innovation system, which may be solved under a networking framework.

\[^{1557}\text{See Callman at 256-257.}\]
framework in order to be efficient. This economic perspective should be properly translated into the legal institutions. The consistent institution under basic Roman Law framework are quasi-contracts. In the evolution of the institutional framework for patent rights the quasi-contractual framework has systematically been overseen.

Quasi-contracts should not be limited to a complementary aspect of intellectual property law, created to solve omissions in the legislation. Quasi-contracts should uphold the basic definition of intellectual rights, and thus, they may constitute the general framework for the particular legislation in the field, offering general criteria for their interpretation. Within this framework, the traditional inconsistencies between intellectual property rights and competition law are finally resolved.

While the quasi-contractual nature offers a general framework, competition law has traditionally been applied to specific cases that do not include all possibilities. The quasi-contracts constitutes a valid framework, not only for the cases of disturbances on the competitive market, in order to stop or prohibit competitors from copying in extreme cases, but also in cases where there is an unjust enrichment that requires a compensation. The quasi-contractual framework offers solutions that do not necessarily affect free competition. This framework includes the institution of “unjust enrichment” which may be applied to allow innovative firms to profit from their innovations, and thus, to have the opportunity to amortize their innovation costs. In extreme cases, where unfair competition is also involved, and there is no possibility of finding a proper compensation, the networking may be interrupted, and a prohibition to copy may be granted. In order to avoid unjust enrichment, good faith requires that innovation users previously negotiate and obtain a consent of the rightholder, defining the terms how the unjust enrichment may be avoided granting the rightholder a proper payment or a participation in the profit generated by the exploitation of the protected innovation goods. Under this framework, intellectual property rights are created to define rules that provide a solution to unjust enrichment, taking into consideration the specific needs or the different intellectual work results connected with innovation, trademarks and copyrights. The unjust enrichment framework offers a smooth adjustment of the present legal framework of property rights, since it can be
adopted just by a legal interpretation of the legal nature of intellectual property rights. This interpretation is applied on a field, which traditionally has been obscure and conflictive. The existence of theoretical and practical inconsistency connected with the legal nature of intellectual property rights, particularly to patent rights have been generally admitted, and there is not a definitive solution within the traditional monopoly or private property framework.

Thus, it seems proper to define intellectual property rights as innovation rights rather than intellectual property rights. Innovation rights should be defined not as \textit{sui generis} rights, but as rights originated in quasi-contracts. Specific legislation - the present intellectual property rights - has enacted these rights in order to harmonize them to the current technological and economic needs. Within this framework, a general misappropriation statute shall be a suitable instrument for the definition of general part of innovation rights, which emphasizes the quasi-contractual nature of these rights. The present intellectual property rights can be considered the special part, which defines particular forms of protection. The special part may also define specific rules to incorporate elements of the industrial policy. These rules favor the adapting of the system to the particular needs of each sort of innovation and, through this, they increase the legal security of the parties. The general part allows jurisprudence to apply general principles of law in order to define new types of protection, or to adjust the application of specific norms to the needs of the innovation system. In this way, the legitimate interest of rightholders and the users of the protected innovation work-results may be harmonized under a win/win framework. This may be important when changes of the innovation process or its economic context require alternative forms of protection for innovators affected by new variations of unjust enrichment or unfair competition.

The quasi-contractual framework does not require a very detailed framework, because it is originated in general accepted principles of law. Thus, it offers more flexibility. The definition of patents as entitlements originated by the quasi-contract of unjust enrichment provides a coherent legal framework to this kind of “misappropriation” problems. Parties could bring to discussion in courts the existence of new or specific “market failures” which creates an unjust enrichment around a protected technology.
Market failures could be defined as particular circumstances which allow one party to obtain an unjust enrichment working on and exploiting the creation of an original inventor or creator and thus, appropriating the profits that should correspond to the first inventor. Also, they may be applied in cases when the first inventor appropriates of the enrichment generated by successive developments, by using his power to administer the basic patent for preventing improvers to obtain a fair share, or simple impedes the generation of this enrichment by refusing to grant licenses, illegitimately hindering competition.

The situation of unjust enrichment would be determined in all cases were a patent holder or an inventor can prove that his invention offers a significant contribution to the development of other technologies and their exploitation, and because of market failure, he is unable to appropriate a fair profit from his invention. The quasi-contract of unjust enrichment entitles him to participate in the profit generated by the exploitation of a technology that was development on grounds of his work.

An institutional framework for protection of innovation may contribute to the creation and development of networks between inventors, as long as it is consistent with the systemic nature of the innovation process and emphasizes the importance of assuring that all the individuals who have significantly contributed in the innovation process are able to obtain a fair participation in profits.

5. Definition of Patent Rights as Usufruct Rights Created by Law as a Remedy to Unjust Enrichment

a) Summary of the Arguments for Reconsidering the Legal Nature of Patent Rights as a Particular Case of “Unjust Enrichment”

The basic function of the patent right in the new systemic model of innovation is to give means to the individuals that have participated in the innovation process to profit from their work. Ownership has been traditionally considered a necessary condition for the creation of markets, because without ownership, at least in some form, there is no basis for exchange. Because the act of innovation production is separated by the act of innovation consumption, an exclusion right is totally
necessary to motivate technology consumers to pay for it. Without an exclusion right, a technology acquirer will tend to see technology as a public good that is abundant in the market. In such a case, a payment for the use of this technology would be for the acquirer nothing more or less than an act of pure charity. An exclusion right is absolutely necessary to protect the inventor, and his right to obtain a profit for his creation in the market. Therefore, the granting of certain exclusion entitlements constitutes a prerequisite of any system of promotion of innovation under market conditions.

The main problem of patent policy is not the approval of the exclusion right by itself, but the definition a suitable framework for that exclusion right. The main problem is to determine the legal nature and function of the exclusion right. The exclusion right constitutes a basic motivation for exchange, but perfect exclusion needs not be required for markets to function reasonably well. The costs of exclusion are not to be taken lightly. The definition of the property right can sometimes determine or increase the externalities or market failures existing in the market. For example, this can increase certain transaction costs.

Given the existing market failures, an institutional arrangement that allows a perfect market system for innovation has not yet been defined. The second best solution is the creation of an imperfect market system, whereby the intensity of utility that the consumers obtain from the acquired technology is at least partially revealed.

The patent right should be viewed as a right to participate in the benefits that these contributions may generate to society. This leads to the redefinition of the nature of the patent right from the actual “proprietary” nature to a “quasi-contractual”, particularly, a “unjust enrichment” one. Within this framework, a patent right grants the inventor the right to charge the users of his inventions a fee. He has the right to organize the way his invention may be used, taking into consideration the right is given to him, in order to obtain a fair participation in the wealth created by

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1559 Id. at 362.
1560 Id. at 367.
1561 Id. at 363.
1562 Id. at 367.
1563 Id. at 362.
his invention. It is not an absolute right to exclude other from using his invention or to decide without restriction the social use of the technology in order to create monopolies.

Within this framework, the exclusion right should not promote the consolidation of monopolies. It should legitimize the defense of the inventor in case that his invention is exploited without a previous agreement about his participation. This perspective is contrary to the traditional concept of exclusion rights which had regarded the patent law as creating monopoly rights. Within this framework, the restriction of the monopolistic effects of patents does not come from competition or antimonopoly law but are integrated into the definition of patents. In addition, the other forms of patent alike rights could be extended in relevant cases where innovators are affected by an important unfair enrichment or unfair competition situation.

This framework provides a dogmatic base for the current practice of Japanese patent system. Article 68 of the Japanese patent law states that “a patentee shall have an exclusive right to commercially work the patented invention”. This definition protects a broad use of the patent, because licensing is also a form of “commercially working” of the patented inventions. The original focus of the Japanese and the US systems has been “the use of an invention by another for commercial gain, through direct sales”\textsuperscript{1564}. The main distinction between those patent systems resides in the importance given to the direct use of the invention through direct sales. The Japanese system has evolved to stress the importance of the commercial gain obtained through technology transfer, while the US system stresses commercial gain through direct sales. As a result, there have been a tendency for considering other technology users as competitors which may be excluded. The Western system moved to a legalistic definition of patent rights as property rights and accepted a general assimilation of patents right to property rights.

Both definitions can be suitably conciliated if we define patent rights as entitlements with the same nature of the quasi-contract unjust enrichment. The hard protection system tends to maintain the property rule and harmonize the different interests by restricting the property rule protection of patents. However,

\textsuperscript{1564} Errico at 165.
the definition of property rule, under the modern networking system, i.e., cross licensing, outsourcing, commercialization of know-how, etc., may lead to a solution for the case of dependent patents and joint R&D which is equivalent or at least consistent with the quasi-contracts approach. Thus, specific technology markets generally require a combination of different technologies in order to fabricate the corresponding device. This may be regarded as a co-property situation between different patent holders. In the case that no settlement can be made among the different patent holders, the liability rule can be applied. Consequently, as the technology markets continue to integrate though networking, it is expected that the protection of patents will tend to be quasi-contractual.

Defining patents as quasi-contracts is a preferable solution to the further restriction of the property rule of patents through anti-monopolistic legislation. The limitation of the absolute exclusion right of patents constitutes an alternative for ruling out every monopolistic use of the patent right, although, this solution maintains the inconsistency in the system. The application of limitations to patent rights, including anti-monopolistic legislation deforms the nature of property right institution, and makes the framework for patents legalistic and complicate. Through the continual application of the special limitation, the property right is forced to achieve goals which it had not intend. The quasi-contractual of unjust enrichment offers a more suitable framework. Furthermore, redefining patents from the restricted property right to a quasi-contract of unjust enrichment is preferable because it favors the creation of an appropriate patent culture within a system of innovation.

b) Definition of Patents as Subjective Rights

(1) Definition of the Object of the Right: Patent Rights as Defining Specific Markets

The definition of the invention as the object of the patent right proposed by the property theory does not provide a coherent framework. The invention itself has no value for the patentee. Patent rights protect the patrimonial interest the inventor has over his invention. This patrimonial interest comes only from the exploitation of possibilities of the invention in a market. The fact of creating the invention is not enough to recognize for the inventor an inherent right to exclude other users.
The inherent right is born from the relationship (actual or potential) between the invention and a market of users, which allows the market to obtain profits without giving a share or participation to the inventor. The situation of unjust enrichment moves the legal order to protect the interest of the inventor to profit from the invention through its exploitation in the market, this interest can only be satisfied with a right that allows him to ask consumers and technology users in the market to pay for the exploitation of the invention. As a result, the object of the patent right is not the invention alone, as the property theory states, but precisely the specific potential market of users of the invention in which the patentee could obtain its utility. In order to recognize for the inventor a right over this market, he should prove that through his invention, he has rendered a service to the market and because of that, the market should grant him a reward or remuneration for his service to avoid unjust enrichment. This service has two elements: the first is the fact that he makes public his knowledge to the public, which increases community’s knowledge of the technology. The second is the fact that the market can obtain a profit from the use of that technology. The cause of consideration that moves the market, by equity, to recognize a patent right is the fact that it obtains a profit from the invention. As a result, the inventor has an inherent right to participate in the profit the market obtains from the exploitation of his invention.

The monopoly theory has also been criticized for not providing a coherent framework to define the object of the patent right. Originally a patent right was a privilege granted by the crown, at a time when inventions very rare and normally related to a unique product and when there were not developed markets as today. At that time we could have defined patents as a privilege given by the crown to constitute a monopoly. In the same terms that the crown had the authority to grant a right to charge taxes or to rule a county (privilege of a Count for example), it could grant a right to rule the market of a determined product.

The definition of the object of a patent right as a monopoly is not suitable for describing reality. First, a patented invention does not necessarily imply a monopoly as it is possible that it must compete with other alternative technologies. Furthermore, it is inconsistent with a sound theoretical framework of subjective rights, because a monopoly right does not define the object of the right. Its object - a monopoly- focuses again on the content of the right, that is the negative
element of the right, the right to exclude others, the right to be the only supplier of a product.

This theoretical problem can be solved by focusing on the positive elements of the right. The right defines a market of users. The invention refers to a determined product. The relationship between this product and the market can be described negatively focusing on the general prohibition to manufacture certain product (monopoly), or positively considering that the recognition of a right over a determinate product legally defines a specific market, which is separated in order to concede a right to the patentee to rule it as a monopolist. The object of the patent right was precisely the part of the market that the crown defined and separated in order to grant the patentee a right to exploit it. This offers a suitable dogmatic framework to explain why, since the very beginning in the patent statute of Elizabeth I of England, the obligation to actually produce the patented good and to offer it to the market was one of the requisites to maintaining this right.

Following this argument, we can conclude that the object of the patent right, i.e., the part of the external reality in which the patent right operates is precisely the market that potentially can use and benefit from the protected invention. This market is defined by the scope of protection given to the invention. It is constituted by all the actual and potential users of the protected technology.

(2) Content of Patent Rights as Rights to Exploit Specific Markets

When referring to a specific market, the content of private property and monopoly theory of the right are equivalent. Within the private property framework, the patented technical idea is an object of property and the content of the right is to exclude others from using the patented invention for commercial purposes. Within the framework of the monopoly theory, the object of protection is defined as a theoretical monopoly and the content of the right is the right to defend this monopoly by excluding others from exploiting the market defined by the patent. The original patent right defined by Elizabeth I of England could also be defined as a limited right to intervene in a market in order to create a restricted monopoly there. The main practical problem of the definitions of patents as private property
or as monopolies is that they do not take into consideration the social goals that justify its granting, that it, they disregard the cause or consideration of that right.

This situation reveals the need to find a nonreductionist approach to patents. This approach should provide for a theoretical definition of the patent right suitable for integrating all the relevant elements involved, without disregarding the dynamic and systematic relationship among all of them. The theory of private property and the theory of monopoly rights have proven themselves as insufficient for that purpose. This situation is exposed by the problem of protecting new technology and investments to create data bases. In this cases, the legal framework tends to avoid the problem of defining the nature of the right by defining then as “sui generis” rights. An alternative definition of the content of patent rights could be a right to participate in the benefits originated by the social exploitation of an invention by controlling the exploitation of that specific market, more specifically, the right to administer the social exploitation of an invention in a market in order to obtain participation or a share in the social profit generated by the use of the invention in that market. In order to be able to obtain his allotment, the patentee should be able to intervene in the market setting conditions on the production and commercialization of services and products which utilize the invention. Therefore, the patent right should include faculties to exclude competitors in order to force them to accept the conditions imposed by the patentee, which are required to allow him to profit from the invention. The exclusion right should be used to absolutely restrict competition only in extreme cases, when absolutely necessary to make the invention profitable. The normal content of the right should be the faculty to define the conditions and fees that any licensee of the patentee has to observe in order to exploit the invention. The main interest protected is the right to obtain a benefit from the contribution of creating and disclosing to the public the patented technology.

To summarize, the right of exclusion should not be an absolute right, it is a basic instrument to empower the patentee to constrain third parties to negotiate the conditions by which they can exploit the technology giving the patentee a fair

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The right to exclude others is not an absolute right because it should take into consideration the legitimate interest of technology users. A patentee can only use his exclusion right to consolidate a monopoly when he can prove that there is no alternative way to assure a reasonable profit from the exploitation of his invention in the market.

c) Patent Right as “Private Rights over Defined Markets” Recognized by Law as a Remedy for Unjust Enrichment

The main problem of the theory of Property and Monopoly is that, once the right is granted, these theories no longer integrate the cause of the exclusion right when interpreting the content of that right; they define an absolute right of exclusion. The cause of the exclusion right is settled by the Article 8 of the US Constitution: patent rights are given to promote the development of inventions. Another reason for this right can be found in general principles of law as based in equity, specifically the quasi-contractual figure of unjust enrichment.

Consequently, in addition to the theory of monopolies and private property, we could construct a theory that integrates these two sources of patent rights. The first source is equity, which moves to recognize that the patentee or inventor has contributed a useful invention to society. Equity views the invention as a result of the effort and creativity of the inventor. It also considers that the enrichment generated by the invention comes from the interaction of the invention with its exploitation in a market. This enrichment is created not only by the invention but also by its users which profit from it and find new improvement of applications of the original idea. This source is the quasi-contract of unjust enrichment. The second source is a public interest to promote innovation, mentioned for example in the Article 8 of the US Constitution. This source originates from the social interests protected by law. It refers to the development of innovation and the generation of general welfare. In order to determine the content of this norm, the systemic nature of innovation, i.e., the importance of technology diffusion not only in generating welfare, but also in the process of generating further innovation, should be taken into consideration. These two sources are integrated and form a unity in a quasi-contractual framework. Together, they take into consideration not only the interests of the inventor, but also the requirements of the market of users.
in which that invention is used, as defined by Article 7 of the TRIPS Agreement. This definition of the legal nature of patents achieves the goal of harmonizing the social and private interests that constitute the cause and source of patent rights. Patent rights are not only an instrument to achieve a public goal, the promotion of inventions, but also, its recognition is a matter of equity. The institution of quasi-contract is a suitable framework to harmonize all the elements involved in intellectual property rights.

Quasi-contracts are defined as source of obligation which present similar conditions to contracts, in the sense that the obligation is born from some relationship between the parties, or from a voluntary act of one of them, but not from an agreement. The source or cause of the obligation is not the express and free will of the parties, but principles of law which estimate the situation born among the parties involved in the quasi-contract as unfair, and thus, as creating an obligation on grounds of justice and equity, usually to prevent unjust enrichment. For this reason, quasi contracts can be defined as “a fiction of the law, adopted to achieve justice and enforce legal duties by means of an action \textit{ex contractu} where no true contract exists”\textsuperscript{1566}.

Applied to patents, the framework of quasi-contracts would settle that principles of law enacted in intellectual property rights enforces legal duties to the market members, in order to assure justice for inventors and achieve certain goals of common interests, specifically of political economics (promotion and diffusion of technology). Without the patent law framework, the free access and use of an invention by a market generates unjust enrichment and thus, the obligation of the market to compensate the inventor. Unjust enrichment is defined as “the circumstances which give rise to the obligation of restitution, \textit{i.e.}, the receiving and retention of property, money, or benefits which in justice and equity belong to another”\textsuperscript{1567}.

The concept of \textit{quasi-contracts} has been criticized as unsystematic because it is normally used to describe all the sources of obligations that are not defined by law


\textsuperscript{1567} \textit{Id.} at 1320. See also \textit{Herrman v. Geason} (CA6 Mich) 126 F2d 936; and \textit{Straube v.Bowling Green Gas Co.}, 360 No. 132, 227 SW2d 666, 18 ALR2d 1335.
or by private contracts\textsuperscript{1568}. Therefore, it has been recommended not to use it and instead, to use the concept of \textit{the general principle of law of unjust enrichment} to solve the equity problems occasioned by the enrichment of one party achieved by taking advantage of the resources of others without a consideration or legitimate cause. This situation generates a legal action known in Roman law as \textit{condictio sine cause}\textsuperscript{1569}. This objection is not valid for patent rights. In this case the concept of \textit{quasi-contract of unfair enrichment} fits perfectly to the factual relationship created by the misappropriation problem of inventions. This framework offers the advantage of not only defining the principle of law which constitutes its source (unjust enrichment) but also allows the construction of a structure which describes the relationship between the inventor and the market composed of users of that invention. The institution of quasi-contracts favors the construction of legal concepts which allow the incorporation and integration of several elements in a dynamic and systematic way, since it allows the definition of a specific relationship between parties that should be considered globally, including the particular situation of each case.

Integrating in this framework traditional framework of quasi-contract of unjust enrichment certain elements of the theory of monopolies, (exclusion right) it is possible to construct a theoretical framework for patents which eliminates the contradiction between diffusion and promotion of technology. The right of exclusion is not a goal by itself, as the theory of monopoly defines, but an instrument to define and regulate the market in which the technology is exploited, in order to give the patentee the faculty to participate in the social benefit created with his contribution. The patent law and the right that it grants to the patentee can be reframed as an institution created to regulate and prevent a potential situation of unjust enrichment due to the natural appropriability problem of inventors. In order to define the potential unjust enrichment, the protected technology should be previously determined, as well of the scope of protection.

The definition of the invention and the scope of protection delimit the potential uses of that technology which generates an unjust enrichment situation. In order to protect the patentee from the “potential unjust enrichment” of the market, the law

\textsuperscript{1568} Lasarte Alvares, Carlos, 2 Principios de Derecho Civil, Derecho de Obligaciones, 1994, Madrid., 300-301.

\textsuperscript{1569} Id. at 317-318.
defines a sort of private right over the patent market. This right can be defined in negative terms as the right and the corresponding obligation of the market to address to the patentee and negotiate with him the condition in which they will reward him for the use of his technology. Since the enrichment situation comes from the benefit the market obtains by using the technology, the aim of the law is to ensure that the inventor is able to obtain a revenue from the users of his technology. This reward is obtained as a part of the sale price of the products that incorporated the technology and is paid to the patentee directly by the market, when he manufactures and sells, or indirectly by the licensees who directly sell to the market the product.

This definition of the legal nature of patents constitutes an alternative framework that fits with the doctrine which reconsidered patent rights as rights created by law to ensure the inventor of an adequate profit. However, in this case, the inclusion of the protected interest in the legal definition of the right accentuates the difference between property and monopoly rights. The protected interest is not the interest of the inventor to take possession of his invention, doing with it what he wants without taking into consideration the social interests as defined in private property, nor the interest in controlling the market in order to exploit it as a monopolist. The exclusion right is an instrument created to allow the patentee to exploit the market defined by his invention in order to obtain a fair participation in the social benefits generated by the invention. This theory of quasi-contracts integrates into the content of the patent right the source or cause of it, i.e., the remedy of unjust enrichment. This framework eliminates the contradictions between the monopoly theory and the fundamental principles of liberty of enterprise and competition which characterize the modern legal orders, because a monopolistic exploitation of the market is no longer the center of the institution.

d) Integration of the Quasi-Contractual Theory with the Theory of Usufruct Rights over Markets

The term monopoly right has been used to define the existence of a right over a market. Reconsidering the historical development of the patent institution, we can conclude that the monopoly right may have been a valid definition of the patent right during the reign of Elizabeth I of England, but not today. Furthermore, it

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1570 See Renouard, Agustin-Charles, 1 Traité des Droit d’Auteurs de la Littérature, les Sciences et les Beaux Arts, Paris, 1838, pag. 6, mentioned by Baylos Corroza at 436.
seems that the figure of monopoly right has never been the best one to describe patent rights. The original monopoly right has evolved into a sort of right which is no longer consistent with monopolies. This evolution can be detected in the Statute of Monopolies of 1623, which is one of the first attempts to balance the interests of the patentee and the interest of the market. The Statute of Monopolies Act., 21 Jac I, c3 of 1623, declared all monopolies to be “contrary to the Laws of this Realm” and “utterly void and of non Effect”. But even then, the Statute of Monopolies in Section IV, excluded patents of 14 years to “the true and first Inventor and Inventors” of “new Manufactures”, so long as they were “not contrary to the Law, nor mischievous to the State, by raising Prices of Commodities at home, or Hurt of Trade, or generally inconvenient.”

The text presents a contradiction because monopolies are precisely contrary to the competition law, mischievous to the state, they raise the price of commodities at home, they hurt trade and are generally inconvenient. As a result, the law defines a “monopoly right” without the negative effects of monopolies which is a contradiction. The dogmatic problem created by the monopoly right framework is inconsistent, but was seemly the best solution available at that time.

Under the perspective of continental law, there are alternative figures that offer a better framework, for example, the usufruct right, which was normally used to define a right over material goods but can consistently be used for immaterial goods like markets.

The right defined by the Statute of Monopolies fits better with the figure of usufruct rights. Usufructs are defined as “The right to the use, enjoyment, profits and avails of property belonging to another.” As a result, usufruct rights are similar to private rights whose content is not anymore an absolute right because it is confined to the purposes of the usufruct. The theoretical framework of this right is well developed in the European legal tradition. This right can have as object any kind of goods, including rights and can be determined by law or by contract.

In this case, this right can be considered recognized by law, in consideration that the interest of the inventor is an equitable right (quasi-contract of unjust

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1572 Ballentine’s Law Dictionary at 1328.
enrichment). The relationship between the inventor and the market constitutes a “quasi-contract of unjust enrichment” and the patent institution its legal remedy. Consequently, patent rights may be defined as usufruct right over a specific market, whose content is an exclusion right created by law to protect the interest of the inventor to participate in the profit that market obtains from the use of the technology.

The institution of “usufruct” present the same advantage of the figure of “private property” to construct subjective rights, as it is constructed as a right over a commodity or real property. Additionally, as a relative right, confined to the aims of the usufruct, it allows an incorporation of the interest of the “market” or the society, represented by the state. The patentee is not the owner of the market, the market belongs to the community. The usufruct right is by definition a right that harmonizes both, the interest of the rightholder with those of the “owner” of the object of the right, \textit{i.e.}, the social interests including the legitimate interests of the users of the technology (the market).

Another characteristic of usufruct rights is that, contrary to property, they have a limited duration. This corresponds to the fact the object of usufruct belongs to others, who have a legitimate interest in recovering the total possession of his property. To conclude, patent right might be defined as “usufruct” rights over a market, whose source is a quasi-contract of unjust enrichment and the law. This right is recognized by law and defined for a period of time in order to allow the patentee to obtain profits from his invention and recover the innovation costs incurred. Other social interests like the promotion of innovation are included. The redefinition of the right as an “usufruct” instead of an monopoly right renders coherent framework to understand the function of the exclusion right and the limitations imposed on the right, including the time limitation.
6. **Definition of Legal Nature of Patent Rights According to International Conventions**

**a) Differentiation of Property Rights and Inventors Rights in International Conventions: Patents as an Instrument to Protect the “Vital Interests” of Inventors**

The rights of inventors fall under the General Declaration of Human Rights. However, these rights are not considered property rights. Article 17 of the General Declaration of Human Rights referring to property rights states: “each man has by itself or in society with others a right to property”\(^\text{1574}\). Nevertheless the declaration does not go so far as to define Inventors Rights as property. Inventors’ rights refers to the protection of the vital interests of every creator of intellectual goods. Article 27, No. 2 states: “Every man has the right of protection of his moral and material interest that results from every scientific, literary or artistic production that he creates”.

This convention is not binding as public law but offers a good idea of the general consensus regarding this theme. The intellectual rights should not be equated to private property. The Pact of Economic, Social and cultural Rights from 19 December 1966 recognized intellectual rights in a similar way: “The Member States recognize the right of an individual.. to enjoy the protection of intellectual and material interest that arise from his scientific, literary and artistic works” (Article 15, paragraph 1. inc. c).

This convention does not consider inventor rights absolute or unlimited property rights over their creation. This convention does not make a precise definition of the content or object of the inventors’ rights. It regards the content of these rights as concentrated on the recognition and protection of the fundamental interests of creators. The legitimate interest of inventors could be inferred from the Paris Convention and the TRIPS Agreement.

TRIPS’ Definition of the Content and Object of Patent Right

The content of the Patent right is regulated in Article 28 of the TRIPS Agreement, which defines the rights conferred by the patent right on very precise terms. This article states that a patent shall confer on its owner the following exclusive rights:

a) Where the subject matter of a patent is a product, to prevent third parties not having the owner’s consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product.

b) Where the subject matter of a patent is a process, to prevent third parties not having the owner’s consent from the act of using the process and from the acts of: using, offering for sale, selling, or importing for these purposes a product directly obtained by that process.

c) Patent owners shall also have the right to assign, or transfer by succession, the patent and to conclude licensing contracts.

It is important to note that these articles refer to the “owner of a patent right” rather than to the owner of a patented technology or process. In this way the TRIPS Agreement avoids a definition of patents as property rights. The content of the patent right constitutes the possibility of preventing third parties, when not having the consent of the owner of the patent right, from the commercial exploitation of the patent. The content of the patent right is related to the legitimate interests of the patent holder, because it is precisely the legal instrument granted for protecting these interests. In order to define the content of the right it is necessary to define the dogmatic construction of its legal nature. The legal nature of the patent right defines the limits on the control the patent holder has over his patented inventions and consequently over the market. The framework of the interests that are recognized and protected constitutes a vital element in distinguishing between legitimate and illegitimate ways of using the exclusion right granted by patents.
(1) Legal Nature of Patent Rights According TRIPS

The nature of the patent rights is not explicitly defined by the TRIPS Agreement. However, a definition of the legal nature of patents may be inferred from the TRIPS regulations referring to patent rights.

The use of the term “Trade Related Intellectual Property Rights (TRIPS)” should not lead to the conclusion that the TRIPS Agreement regards patent rights as property rights. The term TRIPS includes trademarks and undisclosed information (know-how). It is questionable whether know-how can be considered a property right over undisclosed information. The foundation of the protection of know-how and trademarks have traditionally resided on an equity right, which is derived from the right of torts and equity of unfair competition, i.e., from a quasi-contract\(^{1575}\).

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) “Intellectual Property Rights” seems to confuse the term property right with the general concept of private rights. The introduction of the agreement limits recognition of intellectual property rights as private rights. It does not define intellectual property rights as property rights. Private rights are “rights which a person is entitled to exercise as an individual, such as ownership and enjoyment of property, the right to travel, to communicate, privacy, etc.”\(^{1576}\). Therefore, it can be concluded that the agreement interprets Intellectual Property Rights as private rights that are not necessary private property rights.

Furthermore, intellectual property rights are conceived not as absolute, but as relative private rights, whose protection should be done taking into consideration the developmental and technological objectives of the Member States. Article 7 offers some elements to define the legal nature of the right. This article states that patent rights “should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare and to a balance of right and obligations”.

Within this framework, patent rights are not private property rights. They are closer to monopoly rights. But the TRIPS Agreement clearly defines that the right

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\(^{1575}\) As expressly recognized by the above mentioned Art. 39, which refers to Article 10bis of the Paris Convention, that means “In the course of ensuring effective protection against unfair competition”.

\(^{1576}\) Ballentine, James, Ballentine’s Law Dictionary at 994.
does not cover the interest in exploiting the patented technology under monopolistic conditions. The TRIPS agreement defines clearly that the exclusion right is not defined to protect “anti-competitive” practices. First, anticompetitive practices oppose the goals of the patent right (Article 7) and consequently, Article 30 allows Members to define remedies against anti-competitive practices. This implies that the patent right is constructed as a right to ensure the patentee a fair dividend for the social use of his invention. Patent rights are granted to protect the patentee’s normal exploitation of the patent under normal conditions. These normal conditions should be considered to the mutual advantage of producers and users of technological knowledge.

Therefore, we can consider patent rights not as monopoly or private property rights, but as *sui generis* institution. Patents are not absolute rights. The TRIPS Agreement defines a right whose content should create an equilibrium of interests between the inventor and the market that uses that invention. This interpretation is in harmony with Article 30, which defines the exemptions to the exclusive right of the patent in the following terms: “Members may provide limited exception to the exclusive rights conferred by a patent, provided that such exceptions does not unreasonably conflict with a normal exploitation of the patent and does not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interest of third parties ”.

The integration of the different norms of the TRIPS Agreement permits the interpretation of the patent right as a right to prevent third parties from making a patented product or using a patented process without the permission of the patentee. This right is conferred not as an absolute right, because the right should contribute to the “mutual advantage” of parties evolved. Consequently, the patent right is a right granted to favor the patentee, to enable him to obtain a profit from his invention. This profit is generated by the exploitation of the technology in a determined market. Therefore, patent rights are intended to permit inventors to exploit a technology in a market. Under this perspective, it is clear that the right to exclude is a right to prevent third parties from negatively affecting the “legitimate interest” of the patent holder, which are associated with the public’s exploitation of the patented technology and process. This leads to the conclusion that the object of protection of patent rights should be not the invention alone, but the
market of the protected device. Therefore, patents can be defined as private rights whose object is a potential market defined by the potential uses of the patented technology. The content of this right is an exclusion right granted with the objective of allowing the patentee to exploit this market.

As a result, even though the nature of this right is not expressly defined by TRIPS, the Agreement includes enough elements to outline it. The integration of these two principles, first, that patent rights should harmonize the interest of both, users and producers of technology, and second, that patents are not defined as protecting a monopolistic interest of the patent holder, leads to define the patent right as a quasi-contractual institution. This quasi-contract is underscored by the fact that inventions become valuable only through the exploitation on the market. The invention generates an “enrichment” only through the interaction between inventors and users of technology. The patent institution seeks to harmonize in equity the interests generated by the exploitation of technology markets. Consequently, a patent right under the TRIPS Agreement is defined as protecting the interest of the inventor to participate in the social exploitation of its technology and administering this exploitation.

The foundation of the patent private right can be found in the need to define a fair solution to the appropriability problem of inventors. This appropriability problem has two dimensions. First, the existence of a legitimate interest of inventors to profit from the invention. Society would be unjustly enriched if it did not allow the inventor to ensure a participation from the benefit it obtains from the exploitation of inventions. This is the foundation of the recognition of a private right of inventors. The second dimension is the need to define a framework to promote production and diffusion of technology by harmonizing the interests of producers and users of technology. In this case, patents are an instrument of industrial policy. These two dimensions constitute the essential criteria for defining and interpreting both, the “legitimate interest of the patent owner” and the concept of “normal exploitation of the patent” mentioned in the Article 30 of the TRIPS Agreement.

The definition of patent rights as “usufruct rights defined on the market for the patented invention” is also in harmony with the TRIPS Agreement. This construction can be sustained by the integration of the following articles. The existence of a “potential market of users of the technology” is one of the
prerequisites for granting a patent. Article 27 of the Agreement requires the invention to be “capable of industrial application”. This prerequisite could also be defined as being “exploitable in an industrial market”\footnote{This requirement should not be interpreted as demanding economic or commercial feasibility of the invention, but only the potentiality of rendering a technological service to the market.}. Article 30 refers to the “normal exploitation of the patent”, which is done through the activities described in Article 28, \textit{i.e.}, the making or using of the patented product or process, offering for sale the products made with the patented technology, selling them or importing them to the local market. The normal exploitation is an exploitation of a market of users of the patented technology, done directly by the patentee or by the enterprises which he has authorized through license contracts or other mechanisms which are supposed to provide benefit to the patentee.

In conclusion, notwithstanding the fact that the right over a “market” is not expressly mentioned, the market constitutes an implicit element, essential for a clear understanding of the nature of the patent right. From the framework given by the TRIPS Agreement it is possible to conclude that the requirement that the invention be capable of industrial application, \textit{i.e.}, utility requirement, may be considered as proof that the invention can render a service to the market.

To summarize, the legal nature of patent rights is suitably described by the quasi-contract of unjust enrichment. As a result, the legal nature of patents can be regarded as based on quasi-contracts. This framework explains the interests protected by patent the right, and the way these interests should be protected. They provide the basic criteria for the interpretation of the content of the exclusion right of patents. As a private right, patents could be considered usufruct rights defined over the market where the patented invention is exploited. The usufruct right is a right to exploit and administer this market. The sources of this right are the quasi-contract of unjust enrichment as its general framework, and the law which recognizes the quasi-contractual relationship between technology creators and users, and defines some objectives of industrial policy regarding technology promotion. The exclusion right of patentees is the instrument provided by law to solve the problem of unjust enrichment. With the goal of protection from unjust enrichment, the law includes other specific goals of industrial policy in order to promote technological progress.
E. Summary and General Conclusions

1. The Importance of a Systemic Framework for Promoting Innovation

The systemic nature of innovation opens a new paradigm for reconsidering the institutional framework of technology promotion and protection. Innovation is an accumulative process characterized by the combining and recombining of information. Cooperation between innovators is a key factor in taking advantage of all the opportunities of the innovation process. Firms that work under a networking framework acquire more flexibility and increase their capacities to create and absorb new technologies. Consequently, they increase their competitiveness. Interdependence among industrial sectors and firms increases under this type of framework.

The Japanese experience in exploiting the systemic nature of innovation constitutes an important example of the importance of a collaborative learning process to promote innovation. Elaborate inter-firm networks enable the inter-firm coordination in Japan. They are fundamentally flexible internal organizations which allow that innovation in technologies and its concomitant social and economic processes to be organized in a decentralized and dispersed manner. The system is coordinated through multilateral networks, including inter-firm, inter industry, inter-industries, government organizations and universities. The development and continual adjustment and control of this system is the result of a coordination process between the private and the public sector.

The Japanese government has played a crucial role in creating the institutional framework that allows the interconnection and coordination among economic actors and the functioning of “micro-macro information loops”\textsuperscript{1578}. One of the characteristics of the Japanese public intervention in the economy is the systemic interaction among the parties, based on a continual learning process and the will to create the necessary structural changes through continual adaptation. It has allowed the Japanese industrial system to confront adverse external conditions like the oil crisis, external trade imbalance, or the yen appreciation. Thus, Japan

succeed in taking advantage of the global changes in technology to maintain a high international competitiveness.

This new paradigm, reinforced by the opportunities generated by the globalization process, makes a new conception of patents possible. It creates a new framework whereby the costs of hindering the diffusion of technology can be higher than otherwise expected and where an inventor does not normally require an absolute right to exclude any more (a monopoly right) in order to obtain a reasonable profit from this work. Within a networking context, the patent system can no longer be regarded as an instrument to absolutely exclude other innovators and users of technology. It should be conceived as a mechanism to distribute profits between the participants in the innovation process. The Japanese trend is also followed in Western countries. Europe, for example, has a positive experience trying to create a networking system to promote innovation. As Western countries follow Japan's systemic model of innovation, it is expected that Japan would lose its comparative advantages and extreme competitiveness. This would promote a convergence process among global economies.

2. **Legal Instruments for Optimizing the Patent System**

The exploitation of the systemic nature of innovation promotes technology improvements and the finding of new applications. The accumulation of improvements leads to a continuous development of new technologies. Technology improvements and the finding of new applications normally take the form of inventions related to an already patented technology, *i.e.*, improvement or dependent patents.

Improvement or dependent patents give its holder at least two principal advantages. First, he has some bargaining leverage to reach an agreement with the dominant patent. Second, in the case of infringement actions, the holder of a dependent patent would have the right to keep part of the sales arguing that these sales were based, at least in part, on his improved feature. He can argue that the loss in profits suffered by the holder of the dominant patent will not include those profits resulting from sales of the infringing device to purchasers who selected the
infringing device because of its supposed superiority\textsuperscript{1579}. However, these advantages cannot assure the holder of a dependent patent a reasonable profit when negotiating with the owner of the principal patent, and in many cases, cannot even assure him even a profit at all, \textit{i.e.}, that the holder of the principal patent refuses licensing. The principal problems confronted by the holder of a dependent patent are blocking patents and the use of patents as a “hold up” right.

In order to promote these dependent inventions, an appropriate protection regime is required. Thus the actual regime should be reformed. The reform should include an assessment of the legal nature of patent rights in order to make the patent system a suitable instrument for exchanging information and revenues under a networking system.

\textit{a) Definition of Scope of Protection by Jurisprudence}

The definition of the scope of protection constitutes an important instrument to determine whether the invention of a new application or improvement constitutes a new invention, a dependent invention or no relevant improvement of existing technology. In the first case the inventor obtains an independent patent; in the second case a dependent patent and in the third case, the former patent holder takes advantage of the invention and incorporates it to its domain. In the last case, the inventor of improvements or new applications remains without any kind of incentive for his work. Consequently the system does not encourage innovation activities directed to find improvements and new applications of patented technologies. This is a paradox because the area which lacks incentives is precisely the one which generates profits and increases the commercial success of the R&D investments, since it is where new products are developed or improved.

Courts have ample discretionary power in the application of patent law, they can either grant flexibility to the patent system increasing the overall benefits of it\textsuperscript{1580} or hamper it. An example of this is the case \textit{Dawson Chemical Co. v. Rohm & Haas Co}\textsuperscript{1581}. Process patents can be used to protect a newly discovered use for a


\textsuperscript{1580} \textit{Merges and Nelson} at 852.

known compound. In this case the US Supreme Court allowed the patenting of a new application of a chemical which had been held to be unpatentable over the prior art. The patent protected the process of applying Propanil as a fungicide.

The Jurisprudence has assumed an important role adjusting the patent system to harmonize the interests of creators of pioneer technologies and improvers of existing technology. It has tended to protect pioneer inventions though infringement doctrines, however, in cases in which the value of the improvement or new application are extremely important it has designed solutions to grant independent patents. For that purpose, the Reverse Equivalent Doctrine, the theory of Disclosure and Enablement and the “as a whole” Test of Equivalents have been developed. Notwithstanding, these theories are seldom used. Courts can only grant a full protection of improvements and new applications as an exception to the general principles of strong protection. This protection is granted only in exceptional cases. Consequently, there is great insecurity for those who invest finding improvements and new applications, since they have a high probability of obtaining no or insufficient protection. This protection, when granted, is normally received only after long discussions in Court, where the expectations of winning are relative small. In the end, US courts normally resolve the problem of granting protection to improvements and new applications by the issuance of improvement or subservient patents.

On the contrary, the Japanese regimen of patent protection, based on the protection of small patents offers the flexibility of protecting both large and small inventions.

The doctrines developed by jurisprudence to protect very important improvements are unsufficient for adapting the patent system to the needs of an innovation system. The Jurisprudence has no legal and technical competence to define general rules or principles concerning industrial policy. However, jurisprudence can help to adapt the patent system to the challenges of the present globalization process through a reconsideration of the legal nature of patents under equity principles. Therefore, it is convenient that the legislation incorporates some express principles regarding these aspects of industrial policy, particularly in the field of dependent patents.

\[\text{Merges and Nelson, at 864-865.}\]
This situation illustrates the importance of regarding the patent system as a whole. Not only the existence of a patent protection should be taken into consideration, but also the actual possibilities to obtain profit from the protected invention, given the current economic conditions. Judges are not supposed to define the industrial policy. Jurisprudence cannot define general rules regarding the structure of the patent system, as it is restricted by the general framework given by legislation. Therefore, it is necessary to adjust the legal institutions to the systemic nature of innovation and to the needs of the industrialization process. The jurisprudence has enough elements, especially under the principles incorporated on the TRIPS Agreement, to contribute with a reinterpretation of the legal nature and content of patent rights adjusting the patent system to the needs of the systemic nature of innovation. A suitable definition of the legal nature of patents constitutes the foundation up which the system of innovation should be constructed.

b) Required Changes in Legislation

Changes in the legislation are motivated by two main reasons: First, since the development of new technologies depends on the incentives of research for new applications and improvements, the constitutional rule ordering the promotion of technology also requires the adjustment of legislation towards the protection of these kinds of innovation. Second, legislation should take into consideration the requirements of industrialization. The development of many technology-intensive industries required the use of a myriad of technologies whose patents are owned by separate firms. The phenomenon has been gaining importance since the early twentieth century and has been accentuated by the development of networking in Japan and its subsequent diffusion in the global markets.

Finally, a strong protection does not constitute a suitable protection for the misappropriation problems of original inventors, it increases legal insecurity, as only very important inventions obtain protection in the hard protection system. The solution of this problem requires the creation of a misappropriation statute which takes into consideration the existence of appropriability problems and market failures, allowing courts to balance the interest of inventors and improvers.
This misappropriation statute should be again based on a suitable definition of the legal nature of patents based on principles of equity.

c) **Compulsory Licensing**

Compulsory licensing constitutes a suitable mechanism to promote technology transfer. However, if conceived and applied as a punishment or an expropriation, the positive effects are weakened as the collaboration atmosphere deteriorates. It has been stated the compulsory licensing is almost not used, since the technology transfer is only viable under a cooperation framework. Therefore, the only positive effect of compulsory licensing is the pressure put on patentees to negotiate. Certainly, the most important effect of compulsory licensing resides in its contribution to dissuade patentees to frame patent rights as absolute rights giving a legal authorization to monopolize their technology, not in the possibility it finally gives to impose a licensing contract. Compulsory licensing should only be applied when the negotiation between parties has not succeeded and the interested parties can prove that the patentee would obtain a fair profit by licensing. The most important element is to define which concept of patent rights corresponds to a compulsory licensing framework. This definition is important for deciding under which conditions a compulsory license should be granted. For example, should compulsory licensing be granted only in cases of extreme social interests (this is the case in Germany), or should it be also granted taking into consideration the interest of technology users and dependent patent holders. Within a networking system, the “fair profit” and thus the fair royalty, should not be defined using as a reference the possibilities of the patentee to obtain a monopolistic rent, but the possibilities of redeeming his R&D costs and obtaining a reasonable participation on the profit generated by the exploitation of the patented technology.

The property rule creates a framework in which the will of the patentee to define the price taking into consideration only his convenience is protected. Patentees are invited to disregard the needs of the technology users. The property interests of patentees and their search for excluding competition (to create monopolies) are regarded as the normal object of protection of the system. This generates important cognitive problems which hinder the patentee to objectively value the opportunities coming from licensing. For example, if the patentee expected as his
normal profit the rent of a monopolist, any offer under these expectations is regarded as a lost, even though licensing can generate important revenues. This hinders the creation of networking and technology markets. As a result a vicious circle is created: because there are no technology markets, patentees tend to disregard the opportunities in obtaining profit through licensing. Correspondingly, because patentees disregard the opportunities of licensing, the volume of transactions is too low, and the abilities to exploit technology through licensing are not developed and the transaction costs remain to high. This hinders the creation of markets for technology. The protection of inventors is a necessary condition to promote technology and technology transfer. However, the property rule does not seem to be the best option for achieving this goal. The property rule hampers the system to escape this vicious circle.

Consequently, it is not appropriate to maintain the property rule and its correspondent compulsory licensing framework which regarded this institution as an expropriation. This creates a framework which intensifies conflicts. It is more appropriate to consider compulsory licensing a consequence of the legal nature of patents rather than as an exceptional expropriation measure. This is the case when patents are not regarded as absolute rights to exclude, \textit{i.e.}, when they are not protected with property rule entitlements but with entitlements that approximate liability rule entitlements.

When patents are regarded as right to obtain participation or allotment in the social enrichment generated by the invention, compulsory licensing does not contradict the legal nature of patents or constitute an exceptional regime to the property rule. Furthermore, the use of the liability rule increases the protection of dependent patents and thereby reduces the need to grant independent patents to important improvements. As a result, both, the holder of the principal patent and the holder of the dependent patent could define a fair level of participation in the gains generated by the improvement. This permits an increase in the possibilities for distributing the profit generated by the innovation system among all participants.

Consequently, it seems appropriate to use the liability rule instead the property rule to protect patents. The liability rule, however, presents the problem of overprotecting patent users, who may abuse of an eventual right to force patentees
to license at any price. This may also hamper the creation of an atmosphere of collaboration and favor the use of tribunals instead negotiation to obtain a license, whereby the creation of networks is hampered. Furthermore, certain characteristics of the property rule should be maintained: the patentee should have the right to administer the exploitation of the patent with an adequate scope of freedom. Compulsory licensing should be the exception, not the rule. The system should be so designed that parties would normally reach a win/win agreement without the intervention of courts granting compulsory licensing. Therefore, the optimal protection of patents should combine elements of the liability and the property rule.

In order to assure a smooth working of the system under a framework of collaboration, the legal institutions should be accompanied by a networking framework. Within a networking framework, within a national innovation system, it is expected that patentees are no longer interested in their proprietary protection but on the use of the liability rule. That is, more than excluding others, they would be disposed to license whenever the price is acceptable. Thus, the interests of technology creators and users can be properly harmonized only under an innovation system which integrates legal and economic institutions.

3. *Integration of Definition of the Legal Nature of Patents with a System of Innovation*

Patents may be defined as originating in the quasi-contract of unjust enrichment. The inventor has developed with his effort a technical idea, an invention which benefits the market of users of the invention. Within a Quasi-contractual framework, there is no contradiction in simultaneously recognizing patents as inherent rights of inventors and as not as absolute but relative rights which should also take into consideration the legitimate interest of the market of users and the national industrial policy goals. Therefore, quasi-contracts offer a suitable synthesis between the liability and the property rule. Quasi-contracts are born between the inventor and the market, since the technical idea is attributed to the inventor, but the enrichment is generated by the utility the market obtains. The situation is analogous to the case of a farmer who, making a mistake, works
planting seeds in a field which does not belong to him. As a result, the owner of the field is enriched by the work of the first. The crop belongs to both parties, there is a situation of co-property because both, the work of the farmer, and the field owned by the third contributed to the generation of the wealth. The situation generates an appropriability problem, since the owner of the field can appropriate of the crop without paying him for his contribution. In this case, the farmer has an inherent right to participate in the crop, and his works constitutes the main source of value of the crop, he should obtain a higher participation in the enrichment. Therefore, he should administer the harvest and commercialization of the crop. Furthermore, society may be interested in promoting the use of uncultivated fields, and may be interested that farmers administer the harvest. Thus, it protects the interest of the farmer granting him a clear subjective right which facilitates the definition of the legal situation of the farmer. Consequently, based on the quasi-contract of unjust enrichment, as the law recognizes the private right of the farmer to administer the harvest and profit from it, the owner of the field should negotiate with the farmer concerning the quantity he may obtain and the price he should pay for it. The field owner has also a right to participate in the enrichment generated in his field. Therefore, the farmer does not have absolute right, because the farmer should also take into consideration the legitimate interests of the field owner. The field owner is co-proprietor of the enrichment generated in his field, but is subject to the administration faculties of the farmer.

Analogously, the patent law gives the inventor a right to participate in the enrichment the market obtains with his technology. This right originates from the quasi-contract of unjust enrichment, and it is regulated by law in order to incorporate other interests, the interest of promoting innovation and industry. The law has chosen to grant the inventor the administration right over the exploitation of the patent in the market. The patent right can be described as a usufruct right over the market defined by the scope of the patent. The patent holder has the right to exploit this market in order to obtain a reward for his invention and the disclosure of it. The exclusion right is not the final goal the patent right, but the instrument given to the patentee to allow him to intervene in the market and administer the exploitation of the invention. As any usufruct right, this right is limited to a certain period of time and to the goals of it, which are defined by law,
the general principles of equity and the agreement among parties. In addition, the holder of the usufruct right should take into consideration the legitimate interest of the owner of the object given in usufruct, in this case, the legitimate interest of society and the market of users. Consequently, the usufruct right and its correspondent exclusion right is not an absolute right. The interest protected is the interest of the inventor in obtaining a reward exploiting the market under normal conditions. The interest to obtain a monopolist rent or to hinder the diffusion of technology is not protected by the right. As a result, it is expected that the patentee will obtain his reward through licensing rather than by creating monopolies.

The quasi-contractual framework constitutes an alternative to monopoly or property rights to describe patents. It harmonizes all the interests described on the TRIPS Agreement. The implementation of this framework constitutes a suitable instrument to achieve the goals which the TRIPS Agreement has entrusted to the patent system. Furthermore, even though an explicit recognition by law of the legal nature of patents is recommended, this framework can be directly implemented by jurisprudence, when deciding upon the legal nature of the patent right and its content. Under the TRIPS Agreement, intellectual property rights are used to describe private rights. The term property rights should not be interpreted as rights strictly defining patents as private property. The interpretation of the legal nature of patents is left to jurisprudence and national law.

Furthermore, quasi-contracts have alternatively been used to describe intellectual property rights. Its use is spread in know-how and trademarks and has been implemented by recent jurisprudence to protect other innovation rights like fashion and data banks. Notwithstanding, the traditional form of quasi-contract which was been used to protect innovation rights is the quasi-contract of unfair competition, which stresses the need to exclude competition to permit the innovator to obtain a profit. The quasi-contract of unjust enrichment is suitable for conciliating the needs of both, technology creators and users, as it stresses not on the exclusion of competitors but on the obligation of competitors to pay for the use of the invention or innovation. As a result, both parties could integrate and benefit from the innovation process.
Article 7 of the TRIPS Agreement states that “the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare and to the balance of rights and obligations”.

In conclusion, quasi-contracts provide a flexible framework which allows for the protection of the legitimate interests of both, inventors and technology users. It permits technology users to participate in the innovation process with provide them with access to new technologies. As a result, quasi-contracts provide for a patent system based on principles of law which conciliate all interest without legalistic restrictions and interpretations. Its use under a networking system based on the systemic nature of innovation allows the conciliation of the traditional contradiction between the promotion of the creation of technology and the promotion of technology diffusion and transfer.
V. GLOBAL PROBLEMS OF TECHNOLOGY TRANSFER CONTRACTING

A. Problem of Territoriality of Patent Rights and International Trade

1. General Aspects

Parallel importing occurs when goods which were intended for sale in one national market are exported from their original destination to another country. From the economic view, parallel imports occur when there are important price differences between similar products in different markets. This differences may be occasioned by marketing strategies of companies which have a monopolistic or dominant position in those markets, or by the existence of important differences in production costs between these markets. In both cases, the existence of price differences offers exporters in “law price markets” profit margins to sale in “high price markets”. Consumers in “high price markets” and producers in “low price markets” would in principle benefit from parallel importation’s. In this sense, parallel importing encourages efficiency and breaks down trade barriers erected by the multinational enterprises themselves.

The problem of parallel imports points out the importance of determining a definition of the legal nature of the patent right suitable for harmonizing both the interests of technology promotion and technology diffusion. The parallel imports question focuses on the extent of the patent protection in order to determine in which cases the patent holder could impede the international commercialization or distribution of goods that incorporate the patented technology. The answer to this question has profound implications for the free movement of goods and services across national boundaries, and thus for international trade in general.

This problem may be summarized as follows: “to what extent should IPR holders within particular national/regional territories be entitled to restrict the importation of goods and services into those territories on the basis of local IPRs ownership,

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1584 Id. at 4.
1585 Id. at 4-5.
1587 Id. at 116.
when the subject goods and services have been placed on the market outside the territory of importation with their consent? This issue presents two main questions: 1.- How can the interests of a holder of a national patent be protected in international markets which are integrated. 2.- To what extend can the rightholder control the further circulation of the patented merchandise in those integrated markets.

2. Principle of Territoriality and International Protection of Patent Rights

The current system of protection of intellectual rights is not based on general principles of law commonly shared by different national legal orders. It remains strongly based on the traditional concept that considers patents mere “privileges” granted by each state and therefore as national rights which are circumscribed to the national territory. Initially, patents were intended to achieve only national goals, i.e., the promotion of the national economic system; therefore, only national patents were traditionally recognized. Under a regime of patents defined as monopoly or property rights, the territoriality principle may have been necessary to allow each country to manage its industrial policy and control the negative effects of patents. However, consequently trading with goods related to patent rights presents the problem that once these goods have left the national territory, in principle, their economic value and legal status are totally dependent on the specific legislation and market conditions of the transfer land. Consequently, patent holders fear to lose control over the exploitation of their invention when this exploitation involves exporting, because they receive a different and “autonomous” protection of their right in each national territory. As a result, the commercialization of patented goods presents uncertainties and the transaction costs are very high. Thereby the consolidation of international markets of technology is hampered.


1589 In contrast, the personalityright of a foreigner, like his name and fame, are automatically recognized by German law as human rights, according to Art. 2.1 GG (117 RGZ 215, 218 (Jun. 3, 1927), 8 BGHZ 319, 1971 GRUR 517). See Hubmann at 67.

1590 Hubmann at 67.
Regarding the international trade of material goods, the problem is solved by general principles of law; specifically, the principle that the possession of a material good constitutes by itself a legal title. That is to say that, a property or possession title is automatically recognized in all countries that recognize private property. However, this principle cannot be easily applied in international trade of technical ideas or inventions, since they lack an objective, corporeal substance. Inventions are protected by intellectual-based and not corporeal-based rights. Consequently, in contrast to the property of corporeal goods, a patent right needs to be registered to be recognized. Thus, the definition of an authorized register of patents, which records the technical ideas and attributes its protection to a determined individual, is absolutely necessary for the existence of these rights. Since the patent right is created by each national patent register, it is possible that different individuals are registered in different countries as holders of a right over the same technical idea. This problem reinforces the need of a territorial principle of patent rights.

The Paris Convention and the TRIPS Agreement are examples of the international interest in establishing an international framework for the transfer of technology and the protection of interests of inventors. But as long as these international conventions have not expressly given a definition of the legal nature of patent rights, the process of integration of markets is still hindered by the prevalence of the property or monopoly theories of patent rights where patents are considered as granting national monopolies for the exploitation of technology. Following Arts. 27 and 28 of the TRIPS Agreement, members countries are obligated to guarantee to a patent holder the exercise of the rights granted to him, within their national territory and at the conditions prevailing within that territory\textsuperscript{1591}. This obligation has been considered opposing the principle of parallel imports, since otherwise the patentee is not free to set the price of his goods taking into consideration the differences in purchasing power of the different national markets\textsuperscript{1592}.

The problem of parallel imports offers a propitious milieu for investigating which institutional framework is suitable for harmonizing the interests of promotion of innovation, diffusion of technology and economic development. The central question connected to parallel imports is to what extent patent rights are mere

\begin{footnotesize}
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\item[\textsuperscript{1591}] See \textit{Bernhardt}, Wolfgang and \textit{Krasser}, Rudolf, Lehrbuch des Patentrechts, Munich, 1986, 582.
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\end{footnotesize}
legal constructions defined in each state, and because of that, whether they are totally dependent on the territorial circumscription of national law\textsuperscript{1593}. In other words, to what extent can the interest of the inventor be protected only by specific legislation and not by generally recognized principles of law which could be regarded as a common institutional framework\textsuperscript{1594}. This question is closely related to the definition of the legal nature of patent rights as privileges, monopoly rights or mere property rights.

Under international trade, the principle of territoriality presents the problem of determining to what extent each national patent right should be considered totally autonomous and independent of the others. As long as patent rights are defined as special property rights which have to be expressly recognized by national law, a patent right is by its nature absolutely subject to the territoriality principle, meaning it is only valid in the territory of the state that recognizes it. The principle of territoriality may be regarded as defining many patent rights (considered as subjective or private rights) according to national territories, which are private rights are totally independent of one another, even if the same person is the patent holder of all those rights\textsuperscript{1595}.

On the international trade level, the problem of territoriality presents the problem of determining the legal nature of each contract that has as its object the transference of technology protected by patent rights. The traditional interpretation of territoriality principle leads to the conclusion that the object of a license contract corresponds to a specific national patent right, defined and valid only in a specific territory. Consequently, each license contract is, in principle, fully independent of another license contract connected with patent rights granted in another territory. This framework hampers, however, the possibility of taking into consideration the particular interests resulting from a global exploitation of technical ideas.

This problem is aggravated when patent rights are defined as monopolies granted by the state, since in this case, the privilege is circumscribed to the national territory and other countries are not required to respect that monopoly. Both

\textsuperscript{1593} See Yusuf and Moncayo von Hase at 130.

\textsuperscript{1594} Id. at 116.

\textsuperscript{1595} Beier, Friedrich-Karl, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, 1996 GRUR Int. 1, 1.
conceptions, the definition of patents as monopolies and as privileges granted by
the state, makes it impossible to conciliate the territory principle with global
protection of the interests of inventors in order to promote global technology
markets.

As a result, the traditional definition of patent rights as mere privileges or
monopolies enacted by law is not satisfactory for the integration of global markets
of technology, whereby technology should be regarded as a commodity which
should be globally protected and freely circulate among national territories.

3. Problems Defining Patent Holder’s Scope of Control of the over Circulation of
Patented Merchandise. National and the International Principles of
“Exhaustion”

The problem of the global protection of patents is related to the problem of
determining to what extent, once sold, the patent holder can control the social
exploitation of his merchandise, as it is subsequently sold\textsuperscript{1596}. This question is
particularly tangible regarding the internal market of each country.

There is no such controversy on the level of national internal markets, a patent
holder cannot impede the circulation of a patented commodity once it is legally
sold in the market. Under the principle of exhaustion, exclusive distribution rights
are automatically expended after the first distribution effected by or with the
consent of the title holder\textsuperscript{1597}. The principle of the automatic exhaustion of IPRs
was developed by case law in the United States and Europe as a means to
reconcile the exclusive rights arising from the protection of IPRs with the need to
promote the free movements of goods\textsuperscript{1598}. It was inspired by the free trade ideas
prevailing at the end of the nineteenth century\textsuperscript{1599}. Starting from 1873, US courts
consistently held that a product covered by an IPR may be freely distributed after

\textsuperscript{1596} See Yusuf and Moncayo von Hase at 116.

\textsuperscript{1597} Id. at 119.

\textsuperscript{1598} BGH “Fullplastverfahren”, decision of Sep. 24, 1979 case KZR 14/78 (OLG Mü), 1980 GRUR 38, 39.

\textsuperscript{1599} See Yusuf and Moncayo von Hase at 116.
the first sale made by its holder.\textsuperscript{1600} In Germany the principle was introduced to control the power of the enterprises which associated they products to trademarks.\textsuperscript{1601} Early in 1902, the principle of exhaustion was defined by the German “Reichsgericht” in the following terms: “if the patentee has marketed its products under the protection of a right that excludes others, he has enjoyed the benefits that a patent right confers on him and thereby consumed his right.”\textsuperscript{1602} The principle was viewed as implying that a patentee can only monopolize the first marketing of the patented product but not subsequent sales,\textsuperscript{1603} since the effect of the patent resides in the fact that domestically no one except the patentee (and persons authorized by him) may produce the product or place in the market.\textsuperscript{1604}

The principle of exhaustion has been traditionally applied subject to two limitations. The first limitation is that exhaustion is granted on a regional basis, \textit{i.e.}, to promote free trade only on domestic markets,\textsuperscript{1605} \textit{i.e.}, within the territory of the granting state, in view of the territorial character of IPRs.\textsuperscript{1606} The exhaustion principle cannot be easily transferred to international markets where each national market is defined and protected by different patent laws, because the legal nature and effects of each patent right may differ from the others. In addition, the interest in assuring free trade within a national territory is not transferable in a world ruled by barriers to free trade and protectionism of national markets. The second limitation is that only the exclusive distribution rights of corporeal goods are considered exhausted after the first distribution made or consented to by the IPRs-holder, so other rights like the moral rights recognized for authors are in principle not exhaustible.\textsuperscript{1607}

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\item Bier, Friedrich-Karl, Territorialität des Markenrechts und internationaler Wirtschaftsverkehr, 1968 GRUR Int. 1, 10.
\item See 51 RGZ 139 (Marz 26, 1902) “Duotal/Gujakolcarbonat”.
\item Heath, Christopher, Parallel Imports and International Trade, 5 IIC 623, 625 (1997).
\item See Yusuf and Moncayo von Hase at 117
\item Id. at 116.
\item Id. at 120.
\item Id.
\end{enumerate}
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The doctrine of exhaustion was established by the US Supreme Court in 1873 in the case *Adams v. Burke*[^1608]. In this case the Court estimated that once a profit for the patented articles has been obtained, any holder of rights under the patent could no longer control the movement of such articles within the territory of the United States[^1609]. This doctrine was also applied for parallel imports, based on the general rule of property in goods passing on sale, and treating a sale abroad as if it had been a sale in the United States[^1610]. However, the US Supreme Court denied the application of this principle in the case of parallel imports, *i.e.*, on the sale of patented articles outside the United States[^1611]. The decision was taken in the case *Boesch v. Gräff*[^1612], concerning parallel patents providing protection to the same product (burners). *Gräff*, the US title-holder legally authorized *Hecht* to sell the products in Germany. *Boesch*, who had lawfully purchased the products in Germany was sued by *Gräff* for selling the patented goods in the United States. The Court considered that “purchasers from Hecht could not be thereby authorized to sell the articles in the United States in defiance for the rights of patentees under a United States patent[^1613]”. The court followed the principle of independence of patents[^1614], so that “the grant of a foreign patent or the distribution of the product in the foreign country is irrelevant for the resale of the product, purchased abroad, in the United States[^1615]”, because “the sale of articles in the United States under a United States patent cannot be controlled by foreign laws[^1616]”. Therefore, the US Supreme Court considered that *Gräff* could block the sale of those burners in the United States on the basis of the US patent right, since the sale of a patented product in Germany or in any foreign country (where a

[^1608]: Id. at 125.


[^1610]: See *Holiday v. Mattheson*, 24 Fed. 185 (SDNY, 1885), 185-186.

[^1611]: Yusuf and Moncayo von Hase at 124.


[^1613]: Id. at 703.

[^1614]: Yusuf and Moncayo von Hase at 124.


parallel patent has been granted) cannot affect the exclusive rights of a patentee, or its exclusive licensee or distributor\textsuperscript{1617}.

The exclusion of the international exhaustion has been applied also for the case of the acquisition of a Daimler motor car in Germany by an authorized dealer. The car was imported by the acquirer in the US for his private use. In this case the Second Circuit stated that: “The sale by a German patentee of a patented article may take it out of the monopoly of the German patent, but how can it take it out of the monopoly of the American patentee who has not sold. The purchaser abroad could not get any greater rights than the patentee has from whom he buys”\textsuperscript{1618}. Also, it was applied in the case \textit{Griffin v. Keystone Muskshroom Farm, Inc.} \textsuperscript{1619}, where the court rejected the defendants argument that “plaintiff was not entitled to relief because it had already received the royalty from the Italian licensee for the sale of the product to defendant, and to allow a remedy for bringing the product into this country would result in a double recovery”. The court rejected this argument: “noting that plaintiff had two rights at stake, one under Italian patent law and the other under United States patent law, and that the sale or use of the patented product potentially infringed both sets of rights and therefore potentially constituted two separate torts upon which recovery could be based”\textsuperscript{1620}.

The position of the US case law is today not that extreme, and tends towards an international exhaustion principle, defined within a rule of reason. This evolution will be analyzed in the following sections, where a framework to analyze the \textit{Griffin v. Keystone Muschroom Farm, Inc.} decision would be proposed.

5. \textit{Exclusion of Principle of International Exhaustion by German Jurisprudence}

The principle of exhaustion on an international level may be justified by the following argument: “the patent holder, by the putting into circulation in one country, in which he wants to exploit his patent monopoly, has found a sufficient compensation for the enrichment, in reason of the development of technology that

\textsuperscript{1617} Yusuf and Moncayo von Hase at 124.


he has contributed. A new reclamation based on a patent that has the same content in another land has no justification”.  

Contrary to the case of trademarks, where general principles of law and the jurisprudence of interest has been applied to interpret the trademark institution, there is an inclination for a legalistic interpretation of the patent right legislation. The German Federal Supreme Court, following the principles set down by the Reichsgericht in 1902 had declared that German Patent Law grants no recognition to the exhaustion of patent rights as summarized above. The Court ruled out the argument for the international exhaustion of the patent right with the following arguments:

(1) In every country in which there is a successful application for a patent, the patentee is granted for his invention an independent exclusive right which ends at the borders of each country (principle of territoriality).

(2) Each patent issuing state grants the patentee an independent claim for compensation for disclosing his invention, which is wholly unrelated to advantages derived from other patents in other countries, even though identical.

(3) The abrogation of the principle of territoriality would largely divest the acquisition of parallel industrial property rights in different countries, promoted by international conventions such as the Paris Convention, of their economic and legal significance.

Consequently, the Court concluded that “a patented article which is marketed in one country of protection by the owner of several parallel patents at home and abroad can therefore not be imported without making use of the domestic patent, even if the sale abroad was made by the patentee or with his consent by a third party”.

This legalistic interpretation disregards that the interests at the base of each patent law are the same: the existence of an invention, the interest of rewarding the inventor, the interest that the invention be disclosed and the interest in promoting

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1621 Heath, Christopher, Parallel Imports and International Trade, at 625
1622 See Bier, Territorialität des Markenrechts und internationaler Wirtschaftsverkehr, at 1 und 9-10.
1624 Id.
the creation and diffusion of technology. In addition, the interest in promoting free trade and integration of markets and to control monopolistic abuses are also relevant at the international level. The consolidation of global markets of technology constitutes an essential element in the promotion of a system of innovation, hence in the promotion of technology creation and diffusion.

As a result, under the conception of patents defined by German jurisprudence, which is according to the traditional perspective of the hard protection system, patent rights can be used to separate markets. The patent holder can allege infringement when a commodity is introduced in his territory, notwithstanding its producer has a right or license to use the patent in the fabrication territory. Parallel imports of commodities protected by intellectual rights, which were lawfully sold in the country of origin and subsequently exported, are considered an infringement to the national patent right.

B. Principle of Territoriality Under Reconsideration of Legal Nature of Patents

The territorial regime of exhaustion is no longer justifiable. The basic scenario in which this principle was developed has changed. The increasing globalization of the world economy, the efforts for greater liberalization of international trade, the drive towards the establishment of international uniforms standards of intellectual property protection and their incorporation into a GATT-based international trading system create pressure for the recognition of an international exhaustion principle. The conclusions are sustained by the reconsideration of the legal nature of patent rights and the needs of promoting the global diffusion of technology in order take advantage at of the systemic nature of innovation a global level.

In this section legal and economic considerations are provided to show the suitably of the principle of international exhaustion to create a global order of technology transfer and promotion, under the existent legal framework.

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1625 See 84 RGZ 370, 375-376 (Apr. 4, 1914).
1626 Yusuf and Moncayo von Hase at 116.
1627 Id.
1. Definition of Territoriality Principle in the Paris Convention

The territoriality principle, as stated in Article 4bis of the Paris Convention constitutes the foundation of the argument against the principle of international exhaustion. Article 4bis (1) states that a patent granted in a Member country is to be independent of patents granted in other countries whether members of the Union or not. Article 4bis (2) states that the precedent disposition should be understood as *absolute*, particularly in the sense that the patents demanded during the priority are independent, regarding not only the causes of nullity or extinction but also the normal duration. This article has been interpreted as stating that each patent right should be considered absolutely autonomously, extending the territoriality principle not only to the legal status of the right and its content, but also to its economic function.

2. Different Application of the Principle to Trademarks and Patent Rights

a) Theoretical Differences

Before the definition of the regional exhaustion principle at the EU level\textsuperscript{1628}, the German doctrine had stated that with respect to trademarks and international trade, the principle of territoriality does not imply that national protection should take into consideration exclusively internal facts, and that facts which occurred abroad should be excluded\textsuperscript{1629}. In fact, imported products that use a trademark with the consent of the rightholder should be regarded as original merchandise which can be imported without infringing the national trademark. German doctrine is based on the consideration that the function of a trademark is precisely to protect consumers from errors regarding the origin and quality of a product\textsuperscript{1630}. Trademarks protect only the interest of the rightholder to be the exclusive user\textsuperscript{1631}.

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\textsuperscript{1628} First Council Directive of 21 December 1988 to Approximate the Laws of the Member States Relating to Trademarks 89/104/EEC, 1989 OJ EC, No. L 40/1. Even though this Directive does not define a rule for international exhaustion, the implementation of the principle of regional exhaustion has influenced the rejection of the international exhaustion principle. See Beckmann, Roland, Die Reichweite des Erschöpfungsgrundsatzes nach neuen Markenrecht, 1998 GRUR Int. 836, 838.

\textsuperscript{1629} Beier, Zur Zulässigkeit von Parallelimporten patentieter Erzeugnisse, at 5. This was also the case in Austria. See Beckmann at 839.

\textsuperscript{1630} Id. at 6. Beckmann at 837.

\textsuperscript{1631} Beier, Zur Zulässigkeit von Parallelimporten patentieter Erzeugnisse, at 8. See also Bier, Territorialität des Markenrechts und internationaler Wirtschaftsverkehr, at 1 und 9-10.
Therefore, parallel imports of original merchandise are not regarded hindering the function of the national trademark. Consequently, referring to trademarks, the territoriality principle does not imply that the different national markets should be considered autonomous and independent. Therefore, the conditions of exploitation of a trademark in the land of origin of the product should be considered when evaluating infringement. This interpretation has led to the conclusion that in principle trademarks should not be used to separate international markets. International Exhaustion of trademarks is considered to apply when the merchandise is legally brought into circulation abroad.

Contrary to trademarks, “international exhaustion” has been rejected for patent rights. The different treatment of both intellectual rights in the German Jurisprudence is based on the different nature attributed to both figures. This position is summarized in the following text: “The difference is in the nature of the right based in a trademark, because its issuing is not primarily justified by a meritorious intellectual effort of the rightholder, a right to use or work is not conferred, and the right of the trademark should only serve the trademark function protecting the origin and guarantee of the producer. In contrast, the patent right grants its holder only the right to exploit the invention and dispose of it.” Thus, the definition of the nature of a patent right as an exclusive and absolute right to dispose of an invention constituted the principal hindrance for the application of the international exhaustion principle. Property rights as absolute rights, once recognized, become independent from the cause or justification which has led society to their recognition. This conclusion is centered on the “exclusion” or defensive part of the right that is protected by each national law. Consequently, in regarding to national patent rights, German doctrine rejects the evaluation of facts connected with the use of the same patented technology abroad. This doctrine defines patent rights as exclusive rights to exploit, without any hindrance, the invention in the national market of the state that granted the right.

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1632 *Id.*

1633 See Bier, Territorialität des Markenrechts und internationaler Wirtschaftsverkehr, at 17, who through an analysis of the legal nature of trademarks proposes the thesis that the exclusion right of trademarks does not grant a monopoly of distribution, but an instrument to exclude unfair competition. Within this perspective, the author considers that it is possible to harmonise both, the legitimate interests of the trademark holder and the interests of international trade.

1634 See the “Maja” decision of January 25, 1964, 41 BGHZ 84; 1964 GRUR Int. 202.
However, the distinction between the legal nature of trademarks and patent rights is in practice not so radical. An argument in this direction is the hypothesis that parallel imports often undermine the attempts of rights owners to guarantee consistent qualities of products and to maintain pre-sale and after-sale services\footnote{See Horner at 6. There is no sufficient evidence of this hypothesis, even though it has an illustrative value of the complex interrelation of interests regarding the protection of trademarks. See Hilke, John, Free Trading or Free-Riding: An Examination of the Theories and Available Empirical Evidence on Gray Market Imports, 32 World Comp. 75, 1988.}. Furthermore, these attempts are often related to interest in protecting consumers from gray market goods. A trademark is also a marketing instrument to promote sales, and because of that it should also protect the interest of the holder to obtain a profit from his investment in promotion and service related to the exploitation of the trademark. As a result, in the protection of fair competition, not only the identification attributes of trademarks should be considered, but also, the investment made by its holder to obtain a presence and determine an image in the market. Parallel imports could also be considered a case of “free riding” meaning, a situation whereby a third takes advantage of the marketing investment done by the holder of the national trademark.

Thus, the central distinction in the application of the “exhaustion principle” between trademarks and patents can be seen in the legal definition of these rights. While the quasi-contractual nature of unfair competition was originally attributed as the base of trademarks, the nature of private property or monopoly right is traditionally attributed to patents. The international exhaustion was applied for trademarks in cases where it was evident for the court that the relevant interests protected by the trademark were already protected at the first act of commercialization, and the rightholder’s attempt to control the further commercialization was responding to objectives not protected by this intellectual property right. This situation is not that evident for patent law, where the scope of interests contemplated by the right is more complex and is generally regarded as an monopoly and property right.

The insufficiency of competition law to protect the interest of trademark holders influences the US definition of trademarks as private property, and in Europe to widen the protection of trademark though the application of competition law. As a consequence, there is a recent trend to deviate from the original application of the
principle of international exhaustion to trademarks, as illustrated by the Colored/Dyed Jeans decision.

An example of the complexity of interests in trademarks is the decision Colored/Dyed Jeans (Gefärbte Jeans)\(^{1636}\) of the German Federal Supreme Court. In this case, the imported goods did not present the standard of quality/durability of the trademark holding. The imported jeans had been modified by a bleached process that affected the quality. However, it can be sustained that there was no misuse of the trademark and there was no possibility for consumer deception. The jeans were marked with a notice that read “Used Levi’s 501 original USA”. These Second-Hand Jeans were not colored/dyed by the Levi Strauss Company”. A consequence of this decision is that the trademark holder is permitted to exercise control over the resale in the secondary market\(^{1637}\). This situation has let to the interpretation that doctrine of international exhaustion in trademarks is removed for Germany\(^{1638}\). On the other hand, it can be interpreted in the sense that the exhaustion of an intellectual property right should be also subject to the rule of reason, since some interest may be considered exhausted with the commercialization of the products incorporating them, but others do not. In the end, in order to determine the exhaustion of the right, the vital interest protected by these rights should be considered.

Thus, the function of a trademark cannot be reduced to mere identification or differentiation of products. Connected with a trademark is also a warranty and after sales service. There is also a need to protect of other interests related to the work-results of the enterprises. The wider the trademark protection, the more similar the issues of trademarks become in comparison to patents, since both are intended to protect of certain enterpreneurial work results. As analyzed in the former chapter, as early as 1876, the US case law had conceived trademarks as property in order to expand the scope of protection, arguing that what is protected is not the trademark itself, but the use of it to identify the product\(^{1639}\). European jurisprudence recently followed the same trend later. This situation was evident in

\(^{1636}\) BGH, decision of December 14, 1995 - 1 ZR 210/93 (Stuttgart), NJW 1996, Heft 15 at 994-97.

\(^{1637}\) Abbott, Federick, The Parallel Imports Questions in the Age of TRIPS at 16.

\(^{1638}\) Id.

the Rolls-Royce\textsuperscript{1640} and Dimple\textsuperscript{1641} decisions at the beginning of the 1980s. The German Federal Supreme Court declared that the use of the reputation of a third trademark to promote their own products was unlawful. As a result, the protection of trademarks was widened through the application of competition law, in order to allow trademarks to cover entrepreneurial achievements\textsuperscript{1642}.

The international exhaustion for trademark has been rejected by the European Court of Justice in the case of 96 Silhouette International Schmied & Co. KG v. Hartlauer Handelsgesellschaft mbH\textsuperscript{1643}. This case related to the reimportation from Bulgaria of sun glasses with the trademark “Silhouette”, which were sold at a lower price there. The ECJ did not pronounce about the legal nature of trademarks and the international exhaustion of this right itself. It simple stated the application of the international exhaustion doctrine in some of the EU Member countries was not compatible with the unification goals of the Trademark Directive. The Court stated that the goal of Trademark Directive 89/104 was to establish an unified trademark protection in the EU, therefore it is not consistent with this goal that Member states have the freedom to provide in their national territory international trademark exhaustion on merchandise placed in third markets\textsuperscript{1644}.

A lesson from the former German doctrine of international exhaustion for trademarks is that the principle of international exhaustion is correlated with the definition of the legal nature of this right. Regarding the Silhouette case, Mr. Justice Laddie has declared: “Silhouette has bestowed on a trade mark owner a parasitic right to interfere with the distribution of goods which bears little or no relationship to the proper function of the trade mark right”\textsuperscript{1645}.

\textsuperscript{1640} 86 BGHZ 90, 90 ff. See 1983 GRUR 247.
\textsuperscript{1641} 93 BGHZ 96, 96-97. See Dimple (Anm. v. Tilmann), 1985 GRUR 550, 550-551.
\textsuperscript{1642} Fezer, Karl-Heinz, Leistungsschutz im Wettbewerbsrecht, at 72.
\textsuperscript{1644} Id. at 1998 GRUR Int. 695, 697.
\textsuperscript{1645} See Zino Davidoff SA v. A & G Imports Limited, delivered on May 18, 1999 in the English High Court of Justice. See also Steele, Carl, Silhouette Put in the Shade: A Summary of the Recent Davidoff Case, 119 Trademark World 25 at 25 (August 1999). Mr. Justice Laddie states that a limited interpretation should be given to the ECJ decision in the Silhouette case, since this case meant that national laws could not impose the doctrine of international exhaustion on a trademark proprietor, in respect of goods sold by or with the consent of the proprietor outside the EEA. This did not mean that a trademark proprietor did not retain the right to consent to such importation into the EEA of goods initially sold by or with the consent of the proprietor outside the EEA. Id. at 26-27.
This principle can be extended to patent rights. Consequently, a suitable solution of the problem of parallel imports requires a keen analysis of the legal nature of these rights. The definition of patents as property and monopoly rights invites the protection of the interest of the rightholder through granting him an absolute control of each national market. The quasi-contractual framework of unjust enrichment favors the conciliation of interest through internal negotiation between the parties involved. The background involved in the “Silhouette” decision makes it clear that intellectual property rights and competition law are strongly related. Intellectual property rights are used to define marketing strategies based on the separation of national markets, therefore it is not possible within a common market, to allow for an international exhaustion of intellectual property rights at national basis. Within the EU member states, the principle of international exhaustion can only be implemented at a regional basis.

Within the unjust enrichment framework for patents, the international exhaustion of these rights is depending on the rule of reason, to determine if the interest of the patent holder to control the further commercialization of the patented product is legitimate, or contrarily, responds to other interests connected with the protection of a monopolistic of dominant position. An international exhaustion framework can only function within an institutional framework for intellectual property rights that includes suitable rules connected with the exploitation of these rights taking into consideration the different conditions of each market.

b) Aspects of Commercial Policy Regarding Integration of Markets

Parallel imports could be used not only to take advantage of exchange rate adjustment lags (i.e., product arbitrage) and discriminatory pricing among markets, but to indulge in free-riding on the promotional and service efforts of authorized local importers or manufacturers. In many cases, the parallel importer makes a parasitic competition, whereby the benefits gained by the importer are disproportionate to his contribution, and the full benefits of the

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1646 See Horner at 4.
1647 Abbott, Federick, The Parallel Imports Questions in the Age of TRIPS at 17.
1648 Horner at 5.
price differential will not be passed on the consumer. There are situations in which it is reasonable to grant enterprises certain scope of maneuver in defining their international business strategy. Less prosperous markets, e.g., may benefit from lower prices when international enterprises are allowed to set lower prices there. Notwithstanding, it is generally agreed that companies which have a monopolistic or dominant position in respect of a given product are likely to abuse that position. Therefore, parallel imports are used by the European Union as an internal mechanism for policing against potential abuses of vertical territorial restraints by trademark holders, by fighting against price discrimination and strengthens inter-brand competition.

In the USA as well as in the EU, the economic interest of the trademark holder to separate markets in order to protect his investments in promotion and service is not absolutely protected. Trademark holders have restricted faculties to separate markets through license contracting, subject to rules of reason analysis in the antitrust context.

An example of the EU treatment of vertical territorial restraints in trademarked products can be seen in the ECJ’s Benchmark 1966 decision in Consten and Grunding and the rules of some Commission Regulation authorizing certain vertical territorial restraints on the distribution of trademarked products. This authorization is restricted in cases where the vertical distribution constrains competition. This authorization is ruled by the EU Commission Regulation 1983/83 on the application of Article 85(3) to categories of exclusive distribution

1649 Id. at 6.
1650 By example, when initiating operations in a new market, to involve a promotional operation including discounts for an introductory period. See Horner at 5-6.
1651 Id. at 4-5.
1652 Id. at 4.
1653 Abbott, Federick, The Parallel Imports Questions in the Age of TRIPS at 20.
1654 See Business Electronics v. Sharp Electronics, 485 U.S. 717 (1988) (which emphasizes interbrand competition as a constraint on pernicious intrabrand behavior and promotion low prices) and Continental T.V. v. GTE Sylvania, 433 U.S. 36 (1977), which permitted manufacturers to exercise “non-price” control over its distribution chain up to the retail level, subject always to rule of reason contraints.
agreements\(^{1657}\), and EU Commission Regulation 1984/83 on the application of Article 85(3) to categories of exclusive purchasing agreements\(^{1658}\). These regulations prohibited vertical integration when users could only obtain the contract goods in the contract territory from the exclusive distributor and had no alternative source of supply outside the contract territories. Vertical territorial restraints in trademarked products are also not allowed when industrial property rights are used to prevent dealers or users from obtaining outside, or from selling in, the contract territory properly marked or otherwise properly marketed contract goods.

As a result, concerning trademarks, the territoriality principle of industrial property is not viewed as consolidating a separation of interests and markets among national territories, but as guaranteeing a certain scope of control and decision about the recognition and application of trademarks in each national state. There is no reason to exclude patent rights from this regime. It is not necessary to grant patentees absolute power to separate markets in order to protect their legitimate interest of obtaining a fair profit by taking into consideration the differences of each national or local market.

The principle of regional exhaustion has been recognized in the First Council Directive of 21 December 1988 to Approximate the Laws of the Member States Relating to Trademarks\(^{1659}\). Article 7(1) provides: “The trademark shall not entitle the proprietor to prohibit its use in relation to goods which have been put on the market in the Community under that trademark by the proprietor or with his consent”. The German Federal Supreme Court in the \textit{Colored/Dyed Jeans}\(^{1660}\) case also interpreted the EC Trademark Directive as restricting the principle of exhaustion to inter-community trade and eliminating the possibility of international exhaustion in the field of trademarks outside of the European Union., \textit{i.e.}, for international trade.

Both the EU and the USA have excluded the application of the exhaustion principle regarding trademarks at the international level. In the USA parallel importation of trademarked goods may be blocked pursuant to statutory

\(^{1657}\) OJ EC L 173/1, June 30, 1983.
\(^{1658}\) OJ EC L 173/5, June 30, 1983.
\(^{1660}\) BGH, decision of December 14, 1995-1 ZR 210/93 (Stuggart), NJW 1996, No. 15 at 994-97.
authority\textsuperscript{1661}, except when the imported goods are manufactured by an entity under the common control of the US trademark holder\textsuperscript{1662}.

3. Analysis of the Interests Protected by the Principle of Territoriality

a) Principle of Territoriality as Defining Autonomous National Patent Rights and Technology Markets

Fundamental here is to define the “legal and economic” significance of the principle of territoriality. A legalistic definition such as that constructed by German Jurisprudence leads to regard Article 4\textit{bis} of the Paris Convention referring to the territoriality principle as defining a particular protection of the interest of patent holders and national states in separating national markets. This interpretation may lead to affirm that the Paris Union states that the interests referring to the process of promotion and diffusion of technology should be territorially or nationally separated. This can only be inferred when the territoriality principle is integrated into a conception of patent rights that regards them as a mechanism to protect the interest of the patent holder in obtaining the maximum profit from his invention when deciding how to exploit it in each market\textsuperscript{1663}. This argumentation leads to the interpretation that the main interest protected by the patent right is the interest of the patent holder to exploit the patent under monopoly conditions. Consequently, as long as the market conditions are different in each country, the patent holder should have the right to decide how to take advantage of these differences\textsuperscript{1664}. Thereby, the principle of territoriality should be interpreted as protecting the interest of the patent holder in separating each national market. Following this perspective, the principle of territoriality is interpreted as reaffirming the right of the holder of each national patent right to consolidate a separation of each national market in order to create monopolies.

The traditional interpretation of the territoriality principle is based on the presupposition that the protected interest of the patent holder is the interest in maximizing profit, even by creating monopolies. This presupposition is normally

\textsuperscript{1661} 19 U.S.C.A. § 1526(a) and Treasury Regulation 19 C.F.R. § 133.21 (b) (1987)
\textsuperscript{1663} \textit{Beier}, Friedrich-Karl, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 6.
\textsuperscript{1664} \textit{Id.}
justified with economic argumentation. The patent holder had incurred huge costs to develop the invention. Thus, the patent holder should be authorized to restrict foreign licenses in order to avoid competition from abroad, particularly when the costs abroad are significantly cheaper. This argument justifies the traditional position that parallel imports should not be allowed because they would hinder or make it impossible for the patent holder to obtain an amortization from his costs and a reasonable profit. However, this perspective disregards the new opportunities to exploit an invention through global markets and networking.

An example of this position is German doctrine. It regards the territoriality principle as a principle created to protect the interest of the patent holder to exploit as proprietor or monopolist each national market. This interpretation is based on the legal fiction that each national patent right is absolutely autonomous and independent of the others. This position can only be legally sustained when considering that the interests involved in each patent application and each national patent concession are totally independent. Furthermore, it should be presumed that the subject matter of patents, the inventions, could be conceived as fully independent identities. The main goal of this interpretation is to justify the thesis that each national exploitation of a national patent right is totally independent and autonomous of the exploitation of the same invention in another national market. Each national market should be regarded as totally separated from the others, and each exploitation of a patent right should be conceived as being performed with complete autonomy and independence in each market. Following this criteria, the territoriality principle implies a prohibition, when deciding upon a national patent right, on considering of extraterritorial circumstances, like the fact that the imported product was manufactured and sold in the original land with the authorization of the patent holder, because this may restrict the exclusive exploitation right of the invention in the national market.

This position constitutes a legal fiction which contradicts the globalization of markets and the creation of trade unions. It is difficult to believe that this was the goal of the Paris Convention, which simultaneously created a Union for the protection of intellectual property rights and stated the principle of territoriality.

See Reimer, Dietrich, Der Erschöpfungsgrundsatz im Urheberrecht und gewerblichen Rechtsschutz unter Berücksichtigung der Rechtsprechung des Europäischen Gerichtshofs, 1972 GRUR Int. 221, 228-229.
The main problem of the German doctrine of territoriality is that it confuses the legal protection of the interest of the patent holder to exploit his invention in a national market (national patent rights), with the interest to create monopolies (definition of patents as monopoly rights). The patent right protects an interest in exploiting the invention, but it does not necessarily imply the right of separating the exploitation of the invention in each market. That is, it does not define that the actual exploitation of the right in each market should necessarily be considered an autonomous and independent phenomenon. According to the territoriality principle, the protection of each national market should be granted by national law, meaning that a national patent right regulates internal protection in each market. Each national patent right protects the interest of the patent holder to obtain participation in any patented device commercialized in the national market. But this does not necessarily imply that each national patent protects the interest of a separation of markets to create a monopolistic exploitation in each one.

b) Fiction of Absolute Autonomy of Patent Rights as Contradicting the Paris Union

The interpretation of the territoriality principle as creating the legal fiction of a total separation of interests for protection in each national territorial contradicts the spirit of the Paris Convention, which results from a holistic interpretation of it. Several provisions of the Paris Convention indicate an underlying agreement on the recognition of intellectual property rights granted in other jurisdictions, i.e., an international recognition of certain legal effects of the intellectual property rights granted under domestic laws. The contradiction between the traditional territoriality principle and the Paris Convention appears when analyzing the following thesis.

(1) Paris Union Recognizes Certain Interdependence Among National Patent Rights

Article 1 of the Paris Convention expressly declares that the Member country members constitute themselves into a Union for the protection of industrial

property. The mere existence of a Union declares that there are common background interests that Member States protect through the convention. It put emphasis on the fact that there are common principles to regulate the protection of intellectual rights.

The first article of the Convention stated that the Paris Convention should facilitate for citizens of Member Countries the process of recognition of patent rights in the Union created by the convention, in order to avoid discrimination due to nationality, against patent applicants. The main interest of the Paris Convention is precisely that inventors have global access to the protection of their works in the Union created by the Member Countries.

In similar terms, the reasons to grant a patent are similar in every country: to have a record of the invention though disclosure and to create a proper atmosphere to promote technology creation and diffusion. It is in the interest of all members that inventors obtain an incentive for their work and that the diffusion of technology among the countries be facilitated through the recognition of the rights of the inventors in order to favor the exploitation of the technology in all national markets.

The creation of a Union for the protection of inventors is consolidated through the definition of a “priority right” for applicants in one Member country. This right, defined in Article 4, grants priority to the applicant for a patent of an invention which was first filed in another convention country. In this way, the convention protects the interest of the inventor to simultaneously obtain protection in all Member Countries. The existence of a priority right reaffirms the recognition of the fact that an invention, as an objective element of a patent right can be considered a unique event, that should be recognized and protected by all Member Countries. Consequently, a certain interdependence of the different rights granted to the same invention in different countries is implicitly recognized.

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1667 Id. at 68.
1668 Articles *quinquies*, *sexies*, and 8 of the Paris Convention state that industrial designs and trademarks shall be protected in all countries of the Union. This constitutes evidence of the international status of intellectual property rights. This principle is also found in the Draft International Code of Conduct on the Transfer of Technology, Section vii of paragraph 2.2, referring to the recognition of the protection of industrial property rights granted under national law. See Cabanellas, The Extraterritorial Effects of Antitrust Law at 69.
1669 *Cabanellas*, The Extraterritorial Effects of Antitrust Law, at 68-69.
The existence of a certain interdependence among patents is reaffirmed not only by the existence of some common interests in the Union. Different national patent laws take into consideration elements coming from abroad which may influence the way the national law protects the inventor. There are many precedents of legislation that take into consideration the existence of patent rights granted by other countries in order to determine the validity and conditions granted to the patent right that they issue. For example, the existence of a French patent right obtained under the priority of a foreign patent right depends upon the existence of the latter. In similar terms, other countries have refused to grant a subsequently filed patent a longer term of protection than that of the original one (Brazil, France, the USA, Belgium, Italy and Spain).

(2) Paris Union as Recognizing Integration of National Markets

There are some practical reasons that hinder considering each national patent right as totally autonomous from the others. That is, the existence of invention constitutes a common element in each national patent right. In similar terms, the invention should be attributed to the individual that proves it to be the result of his efforts. Furthermore, due to the increasing integration of markets, the interests in promoting inventive activities globally becomes more relevant, since the opportunities to obtain reward increases as the number of protected markets increases.

Thus, the fiction of separation of national markets runs counter to the fact that through globalization national markets are increasingly integrated and because of that, interdependent. In addition new economic developments, such as the consolidation of networks make the markets more transparent worldwide, this conflicts with the expectation of the patent holder to have sole and autonomous exploitation of an invention in each national market. The possibility of obtaining profit from exploiting a patent in networks invalidates the economic presumption that only under monopolistic exploitation can the patent holder obtain a reasonable profit and incentive for his invention. The territoriality principle cannot be an

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1671 Heath, Parallel Imports and International Trade at 628.
instrument to deny the fact that international trade is carried out not only at the level of finished products but also at the level of components and services. Consequently, as the networking among markets increases, the factual exploitation of a patent can no longer be considered an autonomous exploitation of an invention in an isolated market.

Parallel imports constitute an example of this integration of markets: a product can be fabricated in one land and sold in other countries. But the sole act of fabrication does not imply exploitation of the national market. This exploitation is only effective when the product is sold. And when the product is sold in another land, in fact, the exploitation of the invention occurs effectively done in the land in which the product was exported. That is, the exploitation effected not done only in the market in which the patent and the license were granted, but principally in a third market in which the product is sold. In a world that promotes international trade, it is expected that enterprises search for global exploitation of their production through parallel imports. Markets suffer an integration process.

The integration of the markets of the Union can be deduced from Article 5 of the Paris Convention. Article 5A (1) of the Paris Convention can be interpreted as creating a union for the exploitation of the patent right. This article reads: “The importation by the patentee into the country where the patent has been granted of articles manufactured in any of the other countries of the Union shall not entail forfeiture of the patent”.

This article points out the problem of the division of trade in the Union: patent holders produce in one country and export to others. It controls the interest of member countries to condition the granting of a patent right on the prerequisite that the invention be manufactured in their national territory. This is a hypothesis of separation of markets, in the sense that each member country would like the invention to be produced in its territory rather than its being imported. Article 5A (1) of the Paris Convention can be interpreted as a restriction on the intention of certain Member States to make the granting of patent rights dependent on the industrial exploitation of the invention in the country. Parallel imports can be considered a particular case of this hypothesis of protection of the national production of the patented device, as imports constitute competition against the national production of the patented article.
According to Article 5A (1) of the Paris Convention, a Member Country should consider the manufacturing of an invention in one of the Member States and its exporting to others as a valid exploitation of the invention. The exploitation of the patent by manufacturing in other Union Members should not be considered “irrelevant” by the others. That is, the manufacturing in another country should not be regarded as an absolute “autonomous” fact when deciding about the administration and control of the national patent right, particularly on the grounds of failure to work or insufficient working in the national territory.

(3) Monopoly or Property Rights Do not Correspond to the Implicit Nature of Patent Rights Defined by the Paris Convention

Article 5A can be interpreted in accordance with the hypothesis that the Paris Convention creates not only a union of interest regarding the protection of intellectual rights. This article implicitly establishes some principles regarding the nature of the patent right and the exploitation of the invention in the Union. The territoriality principle should be interpreted as granting a scope of freedom regarding the particular definition of conditions and effects of national rights, not as creating a separation of markets for the creation and exploitation of the technology protected.

The proprietary and monopolistic definition of patents leads one to accept the use of patents to separate markets as it equates the territoriality principle with the principle to separate markets. Notwithstanding, the Paris Convention presents enough elements for reaching a definition of the legal nature of the patent right that is different from the proprietary and monopolistic one, and thus, opposes to the separation of markets.

From Article 5A some principles about the legal nature of the patent right in the Union can be defined:

(1) The core of the patent right is protecting the interest of the patent holder to obtain a profit from the patented technology. It does not constitute an absolute right to exploit as a monopoly. Due to that, in the case of abuse of patent rights a
forfeiture should not be prescribed except in cases where the grant of a compulsory license would not have been sufficient for preventing such abuses.

(2) The patent holder should have freedom to organize by himself the exploitation of his invention. This liberty can only be restricted when the patent holder refuses to exploit his patent rights in harmony with the social interests involved. Consequently, an application for a compulsory license may be made after a period of four years from the date of filing and a period of three years from the date the patent is granted, whichever period expires last. In addition, the application of a compulsory license should be refused if the patentee justifies his inaction with legitimate reasons.

Consequently, the monopolistic exploitation of patents is not viewed as the normal exploitation of this right. Patent rights are not regarded as absolute rights to create monopolies or to exploit the patent in a way that contradicts the social interests involved. The Paris Convention in Article 5 considers the fundamental right of a patent is the right to participate in the social exploitation of the invention and to administer this social exploitation. It is however not a right to exploit the market as a monopolist or as a private owner. Thus, Union members can limit the exclusive right of the patentee after making efforts to obtain a negotiated solution from the patent holder. In addition, they should assure that the patent holder obtains an adequate profit according to the normal exploitation of the patent.

As a result, the problem of parallel imports can be regarded as the problem of how to harmonize the interest of the patent holder to administer the exploitation of his invention in each national market with common interests of the member countries to promote a Union for the exploitation of inventions through free trade. It is also the problem of harmonizing those interests originated from the particularities of each national market. This particularities are based not only on factual economic and social differences in each country, but also in the different levels of protection, originated from the right each country reserves to define by national law the patent granting requirements and the effects that national patent rights will have in their territory. Therefore, the creation of a Union for the protection of inventors should be harmonized with the right of Union member to define their national industrial policies.
These interests should not necessarily be in contradiction: the territoriality principle does not imply an absolute separation of national markets; it grants each land a certain scope of freedom to determine the conditions under which the patent right would be normally exploited in their territory.

On similar terms, Article 10bis (1) of the Paris Convention reads: “The countries of the Union are bound to assure to persons entitled to the benefits of the Union effective protection against unfair competition”\textsuperscript{1673}.

These arguments lead to the conclusion that the traditional doctrine of the territoriality principle is reductionistic as it is constructed considering only the wording of Article 4, without taking into consideration the Paris Convention as a whole. This interpretation has led to a disregard of the constellation of interests involved in the patent right and its legal and economic nature, and function. As a result, it is in contradiction to the general goals of creating a union of the Paris Convention; the territoriality principle defined by the Convention has been interpreted by the some German doctrine as intending to define patent rights as absolute rights suitable for separating markets in order to consolidate monopolies in each of those markets.

\textit{(4) The Territoriality Principle Should Be Interpreted as Granting State Members a Scope to Define their Industrial Policy}

It is the goal of case law and jurisprudence to find ways to harmonize legal institutions with reality. The territoriality principle can also be interpreted in the sense that the legal conditions of patent granting as well as the content of rights and duties connected there with, can differ from country to country, meaning that each country reserves for itself the right to define the elements of the patent right, and the scope of rights that a patent should include. Consequently, each Union member reserves certain faculties to recognize patent rights and to modify the terms of protection. Accordingly, the territoriality principle can be interpreted as not establishing a prohibition to analyze and take into consideration the constellation of interests behind the granting of the patent right and its exploitation.

\textsuperscript{1673} See Cabanellas, The Extraterritorial Effects of Antitrust Law at 69. See also Fikentscher, Wettbewerbsrecht im TRIPS, at 529.
by the patentee. Precisely, the common interest of Union members in promoting
the patent right as an instrument to encourage technical development and diffusion
constitutes the basis of the agreement. The territoriality principle secures the
interest of each country to maintain a certain scope of freedom in defining how
industrial property will be protected in each territory. It seeks to grant a scope of
freedom whilst harmonizing the common interest of the Union with
particularities of each of its members.

4. **TRIPS and Parallel Importation**

a) **TRIPS’ Goal of Harmonizing the Interests in Protecting Innovation with the
Integration of Global Markets defined in GATT**

The Paris Convention has been criticized for its incapacity to introduce a set of
minimum standards of protections worldwide\(^{1674}\). The differences between
countries in the level of protection and enforcement have accentuated the need to
maintain the territoriality principle in order to protect each domestic level of
protection. They have caused trade distortions since domestic IPR regimes operate
as a non tariff barrier to trade\(^{1675}\). However, Article XX(d) of GATT 1947 made
its rules inapplicable to “measures necessary to secure compliance with laws or
regulations --- relating to ---- the protection of patents, trademarks and copyright,
and the prevention of deceptive practices”, provided that those “are not
inconsistent with the provisions of this Agreement”. The application of territorial
exhaustion and the consequent ban of parallel imports was regarded as consistent
with GATT since it was generally believed that substantive laws on IPRs were, as
such, not subject to the basic GATT regime\(^{1676}\).

With the introduction of TRIPS, a comprehensive and overall level of protection
worldwide is created, which includes new international standards -both substantive

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\(^{1674}\) See Einhorn, Talia, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of
See also WO/INF/29 WIPO- Geneva, Existence, Scope and Form of Generally Internationally
Accepted and Applied Standards/Norms for the Protection of Intellectual Property, September 1988,
in Beier and Schricker (eds.) GATT or WIPO?, New Ways in the International Protection of

\(^{1675}\) Einhorn, The Impact of the WTO Agreement on TRIPS, at 1071.

\(^{1676}\) Yusuf and Moncayo von Hase at 127. See also Reichman, J.H., Intellectual Property in International
Trade: Opportunities and Risks of a GATT Connection, 22 Vand.J.Transnat’tL. 747, 828-836
(1989).
and procedural- for the availability, scope and use of IPRs\textsuperscript{1677}. Within this new framework, the existing territorial regime of exhaustion as a general rule is no longer justifiable\textsuperscript{1678}, and the negative effects of allowing IPR holders to stop parallel imports as a general rule overweighs the need to grant rightholders protection against differences between the national levels of protection and enforcement\textsuperscript{1679}. A regime of territorial exhaustion may lead to the exercise of IPRs in a manner which would constitute an arbitrary discrimination or a disguised restriction on international trade and competition\textsuperscript{1680}. This amounts to discrimination since it allows a patentee who enjoys a parallel patent in another country to oppose the import of a product that he has first marketed (directly or through a licensee) in that other Member States, while he is not allowed to control the marketing of a product after its first sale in the national territory\textsuperscript{1681}. Within this framework, IPRs would tend to conclude exclusive licensing agreements aimed at partitioning markets, leaving consumers at the mercy of the title-holder’s distribution policies and restricting competition\textsuperscript{1682}.

TRIPS should be interpreted within its GATT framework, particularly Articles XI and XX(d) of the GATT Agreement. The basic interest of the World Trade Organization is the elimination of barriers to the movement of goods and services across and within national boundaries. The WTO responds to the idea that free trade is beneficial to global economic welfare because it encourages specialization and efficiency in production and distribution, which results in an increased global output of goods and services. Free trade increases the global productivity and production opportunities. Referring to intellectual goods like patents, WTO is interested in promoting technology transfer through the consolidation of global technology markets. Due to the systemic nature of innovation and the importance of networking in the creation and diffusion of technology, the goals of the WTO require the creation of conditions for the harmonization of the interests of the technology creators and users.

\textsuperscript{1677} Einhorn, The Impact of the WTO Agreement on TRIPS, at 1071.
\textsuperscript{1678} Yusuf and Moncayo von Hase at 116.
\textsuperscript{1679} Id. at 128.
\textsuperscript{1680} Id. at 125.
\textsuperscript{1682} Yusuf and Moncayo von Hase at 125.
Both the Paris Union for the Protection of Intellectual Rights Convention and the TRIPS Agreement have the principal goal of providing IPR holders with global protection. This protection is intended to allow them to profit from their patented inventions in countries different from those in which their creative activity and their original patent protection may have taken place. These conventions favor a global exploitation of inventions through the consolidation of global rights of exploitation and remuneration\textsuperscript{1683}. Thus, an integrative interpretation of both treaties should lead to a reinterpretation of the territoriality principle in regard to a patent protection, which harmonizes the interest of technology protection and diffusion, as well as the interest in promoting free trade. This conclusion is also obtainable from the analysis of the text of the TRIPS Agreement.

The preamble of the TRIPS Agreement defines that the interests of patent holders should harmonize with the need to “ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade”\textsuperscript{1684}.

Article 27 of the TRIPS Agreement also refers to the same interest, \textit{i.e.}, to promote the trade of patented goods in the global markets, which are produced in one territory and commercialized in the others. This article rules that:“patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced”. In this sense, the fact that a product has been, or will be continue to be, manufactured abroad and not in the national state should not be used as an argument to discriminate in favor or against the concession of a national patent and its further administration\textsuperscript{1685}.

Within a TRIPS context, which is characterized by the adoption of uniform standards of protection by all countries, a regime of territorial exhaustion contradicts the non-discrimination principle of the General Agreement. Since this

\textsuperscript{1683} Abbott, Federick, The Parallel Imports Questions in the Age of TRIPS at 4.

\textsuperscript{1684} See Heinemann, Andreas, Das Kartellrecht des geistigen Eigentums im TRIPS-Übereinkommen der Welthandelsorganisation, in 1995 GRUR Int. 535, 535-36.

\textsuperscript{1685} In this sense § 337 of the US Tariff Act of 1930 may be considered contrary to these principles, since it does not grant patenkees protection against infringement in cases where the patented invention has not been used in the US. This contradiction could have been resolved by allowing parallel imports in cases when the patentee has obtained a reasonable reward from the importer or the manufacturer, \textit{i.e.}, the patentee has a right to claim a reward, not to stop parallel imports. See the section “Prevention of Importation of Infringing Products According Section 337 of the US Tariff Act of 1930”. 
regime would have an effect equivalent to a quantitative restriction, it is contrary to Article X(1) of GATT\textsuperscript{1686}. The title-holder is entitled to discriminate between domestic and imported products, since he is allowed to oppose the importation of a product he first marketed in another country, while he is not entitled to control the subsequent distribution of the product after its first sale in the domestic market. As a result, in the case of imported products, the title holder is allowed to exercise his rights twice\textsuperscript{1687}. The discrimination between domestic and imported products is inconsistent with Article III(4) of the General Agreement. This Article establishes: “The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favorable than that accorded to like products of national origin in respect of all laws, regulations, requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use”.\textsuperscript{1688} Territorial exhaustion has a protectionist effect since it would encourage distribution and manufacturing activities in the national territory, while avoiding price competition from abroad\textsuperscript{1689}. As a result, it is difficult to see how a territorial regime of exhaustion could be justified under Article XX(d) of GATT which allows some degree of discrimination, when “necessary” to secure the compliance of enforcement of IPR laws. The “necessity” test of this provision is not met, since precisely the principle of exhaustion is based on the argument that the function of the IPRs is considered having been fulfilled, once the title-holder puts the product into the market\textsuperscript{1690}. Under a global level of protection recognizing sufficient minimum standards of IPRs, it can be presumed that by selling or consenting to the distribution of a product in a foreign country, the title-holder is also likely to obtain reasonable earnings from the parallel IPR protection it enjoys in that country. As a result, the international exhaustion principle is consistent with the principle that IPRs should allow title-holders to obtain reasonable return on their investments or creations through direct sales or licensing agreements and also with the principle that consumers should be allowed to benefit from lower prices offered by parallel

\begin{footnotes}
\footnotetext{1686} Yusuf and Moncayo von Hase at 128.
\footnotetext{1687} Id.
\footnotetext{1688} Id.
\footnotetext{1689} Id.
\footnotetext{1690} Id. at 128-129.
\end{footnotes}
imports and passive competition among licensees\textsuperscript{1691}. This interpretation is consistent with the conception of exhaustion defined by the German Federal Supreme Court when declaring that “the exhaustion of patent rights doctrine ... is intended to secure a reasonable return for the title-holder on the one hand, and to prevent him from reaping excessive benefits on the other”\textsuperscript{1692}.

In conclusion, Article XX(d) of GATT 1947 - specifically, the consistence of the territoriality exhaustion with the provisions of the GATT Agreement under the new WTO order -, must be reconsidered. It should be interpreted in an holistic way, under the rule of reason, taking into consideration the nature of patent rights implicitly defined in the TRIPS Agreement, which is discussed in the following sections. That is, national or regional authorities may enact measures connected with the protection of intellectual property, particularly patents. These measures should, however, be tested according to the principle of reason, balancing the interest of the patent holder in separating national markets with the general principles that illegitimate barriers of trade are not allowed. The legitimate interests of patent holders are dependent on the definition of the legal nature of patents. A holistic analysis of TRIPS and GATT’s Articles XI and XX(d) are based on rule of reason. They allow for the conclusion that patent protection is principally the protection of the interest of the patent holder in obtaining a fair retribution for the use of his invention, and not the interest in exploiting markets with a monopolistic basis, keeping consumers from the gains of international trade. Restriction of parallel imports may be only allowed when, due to significant differences among markets, an efficient administration of the patent right requires certain separation of their exploitation. This is not the case when parallel imports are per se not allowed. The rule of reason developed in competition law may be an efficient instrument to determine in which cases parallel imports should be restricted in order to safeguard legitimate interests of the rightholder. Moreover, integrating this principle with Article XI GATT, good faith imposes member countries to chose the mechanisms to allow separation of markets that minimize the negative effects of discrimination between national and foreign merchandise.

At the end of this Chapter, a solution suitable for harmonizing all interests involved is proposed.

\textsuperscript{1691} Id. at 129.
b) **TRIPS Requirement to Harmonize Not Only Interest in Promoting International Trade but Also Legitimate Interest of Patent Users**

Since the main goal of the GATT/WTO Agreement is removing rather than erecting trade barriers, it may be inferred that the protection of intellectual property rights should be done in terms that minimize trade barriers. In other words, an interpretation which succeeds in protecting the legitimate interests of patent holders without affecting free trade should be preferred to that which grants the patent holder the right to consolidate monopolistic positions through erecting trade barriers.

Two vital principles of the TRIPS Agreement are the “National Treatment” (Article 3) and “Most Favored Nation Clause”\(^\text{1693}\) (Article 4). These principles apply to nationals of Member countries, and in particular to IPR holders, as IPRs falls under private rights\(^\text{1694}\). The inclusion of the “Most Favored Nation” principle constitutes the novelty of TRIPS. It could affect bilateral and regional, including intra-regional agreements such as the EU, which were permitted as “special agreements” under the previous IPR Conventions\(^\text{1695}\). Excepted are only international agreements related to the protection of IPRs which entered into force prior to the entry into force of the WTO Agreement\(^\text{1696}\). Article 3 TRIPS makes TRIPS national treatment subject to the exceptions already provided in the Paris Convention\(^\text{1697}\). Under the Paris Convention, the only kind of reciprocity required is based on the mutual commitments of each Member of the Union to grant national treatment to the nationals of the other, and to grant minimum protection.

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\(^{1693}\) This clause provides that the citizens or subjects of the contracting nations may enjoy the privileges accorded by either party to those of the most favored nations. The general design of such clauses is to establish the principle of equality of international treatment. See Black’s Law Dictionary, 1990 at 1013.

\(^{1694}\) See Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1071-72.

\(^{1695}\) Id. at 1073-1076. See also Dhanjee, Boisson de Chazournes, TRIPS: Objectives, Approaches and Basic Principles of the GATT and of Intellectual Property Conventions, 24 JWT 5, 12-13 (No. 5, 1990). Cf. Whitney v. Roberston, 124 US 190, 8 S.Ct. 456, 31 L.Ed. 386. The US has generally taken the stand that reciprocal commercial concessions are given for a specific reasons which are not within the scope of this clause.

\(^{1696}\) Article 4(d).

\(^{1697}\) Id. at 1072. See also Govaere, Convergence, Divergence and Interaction of Regional Trade Agreements and the Agreement on TRIPS, in Demaret, Bellis, García Jiménez (eds.), Regionalism
where prescribed\textsuperscript{1698}. However, since the TRIPS Agreement does not include a provision whereby WTO Members, may exceptionally, substitute national treatment for a reciprocity requirement if this is in conformity with TRIPS, TRIPS members comply with the obligations in a context of minimum protection and not under the context of substantive reciprocity\textsuperscript{1699}. In accordance, footnote 3 of the Agreement clarifies that “for the purpose of Articles 3 and 4, ‘protection’ shall include matters affecting the availability, acquisition, scope, maintenance and enforcement of IPRs as well as those matters affecting the use of IPRs specifically addressed in this Agreement”. This leads to the conclusion that: “it is not only the rights of the proprietors that are guaranteed, but also those of licensees, parallel importers, distributors of goods with an IPR content, and even IPRs pirates (regarding, e.g., rules of enforcement).”\textsuperscript{1700} As a result, the national treatment clause may thus serve not only to enhance IPR protection, but also, perhaps paradoxically, to lower the standards\textsuperscript{1701}, for harmonizing the interests of IPRs holders and IPRs users.

This conclusion is in conformity with Article 7 of the TRIPS Agreement. This Article states that the TRIPS Agreement is meant to promote “the mutual advantage of producers and users of technological knowledge in a manner conducive to social and economic welfare and to a balance of rights and obligations”.

Article 7 states that “the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare and to a balance of rights and obligations”.

\textsuperscript{1698} Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1072. See also Katzenberger, General Principles of the Berne and the Universal Copyright Conventions, in Beier and Schricker (eds.), GATT or WIPO?, New Ways in the International Protection of Intellectual Property, Weinheim, 1989, 45-46.

\textsuperscript{1699} See Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1072.

\textsuperscript{1700} Id. at 1073.

\textsuperscript{1701} Id.
Article 8.2 establishes that “Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by rightholders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology”\(^{1702}\).

These two norms state that patent rights should also be an instrument to promote global interest, such as the international trade and transfer of technology. The interests protected by patents should harmonize with the interest of consumers to profit from free trade. In particular, patents should not contradict the interest of consumers to profit from the positive effects of international competition. They should not be used as an instrument to hold back the positive effects of competition in controlling the monopolistic abuses of producers, who, without an integration of international markets, would be able to define higher prices and lower their quality to increase their economic rent. This constellation of interests contradicts the thesis that each national patent right should be regarded as protecting “autonomous interests” in each territory, and that the exploitation of each national patent right should be considered an “autonomous economic fact”. The protection of international trade and transfer of technology defines global interests that should be taken into consideration when judging the exploitation of technology in a national market.

c) Integration of the Principle of Territoriality with the Implicit Quasi-Contractual Definition of Patent Rights in the TRIPS Agreement

In order to determine the content and goals of the principle of territoriality under the TRIPS Agreement, it is necessary to define the legal nature of patent rights which results from the integration of the TRIPS and the Paris Convention. Article 5 of the Paris Convention and Articles 30 and 31 of the TRIPS Agreement can be integrated to define the legal nature of a patent right. The quasi-contractual nature presents a more coherent dogmatic framework, not only to interpret Article 7, but also Articles 8, 30 and 31. These articles do not define an absolute patent right. Under Article 8, the limitations to the right of the patent holder to administer the exploitation of the patent should not be considered exceptional restrictions upon

\(^{1702}\) See Heinemann, Andreas, Das Kartellrecht des geistigen Eigentums im TRIPS, at 536-37.
an absolute right, but a necessary mechanism to define the limited and relative content of this right. These limitations are necessary to prevent the patent holder from using his exclusion right to protect interests that are not included in the nucleus of the patent right. The limitations are intended to prevent that patents are used as an absolute right to exclude others.

The nucleus of the patent right can be defined as follows:

(1) A right to ensure the patent holder a “participation” in the benefits created by the social use of the technology; the interests of the users of technology are also included in the nucleus of the right. As a result, the rent of a monopolist should not be the normal and legitimate remuneration of the patent holder. Article 31 (h) defines the nucleus of the patent right in the following terms: “the rightholder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization”.

(2) A right ensuring the patent holder the administration of the social exploitation of the patent right, though production, licensing, etc. (in accordance with Article 28). Consequently, Article 31 (b) authorizes compulsory licensing, i.e., licensing without the free authorization of the patent holder, only when the proposed user can prove that the patent holder had abused this administration right. For this reason it is required that the proposed user of a compulsory license should have previously “made efforts to obtain authorization from the rightholder on reasonable commercial terms and conditions, and that such effort has not been successful within a reasonable period of time. Additionally, the compulsory license should include only the minimal authorization to protect the interest of the proposed user (Article 31, c and d ). It can be concluded that Article 31 (f) safeguards the right of the patent holder to define a global administration of his right, when defining that the compulsory license “shall be authorized predominantly for the supply of the domestic market of the Member authorizing such use”.

In this sense, this article does not establish a prohibition to export, only a prohibition to use the compulsory license mainly to export. As a result, parallel importation is in principle authorized; what is not authorized is the use of a
national license, granted on the basis of a compulsory license, predominately to produce for exportation.

d) Patent Rights as Not Protecting Anticompetitive Interest of Patent Holders

The previous sections lead to the conclusion that it is difficult to affirm that the TRIPS Agreement defines a protection of patent rights as a right to “maximize the profit obtained from the exploitation of the invention by separating national markets in order to exploit as a monopolist the particular conditions of each market” as may be inferred by the doctrine that considers patent rights absolute rights analogous to private property and monopolies. It is hard to believe that the TRIPS Agreement is intended to protect the interest of patent holders in obtaining a monopolistic rent from their inventions. The TRIPS Agreement declares the interest of the patent holder to restrict the competition through international trade in order to maximize his rent as a monopolist as not legitimate.

The “anti-competitive” interest and practices of the patent holder are not protected by the TRIPS patent right, and, in fact, particularly sanctioned. Article 31 k) establishes that “Members are not obliged to apply the conditions set forth in subparagraphs b) and f) where such use is permitted to remedy a practice determined after judicial or administrative process to be anti-competitive. The need to correct anti-competitive practices may be taken into account in determining the amount of remuneration in such cases.” That is, the right to administer the social exploitation of the patent does not include the right to consolidate anti-competitive barriers to international trade. Additionally, the right to obtain a profit does not include the right to claim rent as a monopolist, i.e., rent originated in the “monopoly power” which allow for the exclusion of competitors in order to control the market and fix excessive higher prices.\textsuperscript{1703}

\textsuperscript{1703} For a definition of monopoly power, see \textit{ALW, Inc. v. United Air Lines, Inc.}, C.A.Nev., 510 F.2d 52, 56.
e) TRIPS as Allowing Parallel Imports

(1) The Article 6 of TRIPS

Although the TRIPS Agreement was expected to cover all aspects of intellectual property rights related to trade, it was not possible to find a solution that harmonizes the concern of developing countries regarding the monopolistic exploitation of patent rights with the interest of industrial countries regarding the protection of patents as instruments to maintain their technological superiority and competitiveness. As a result, notwithstanding the fact that parallel importation is an important topic related to the GATT objective to promote international free trade, it was not possible to reach an agreement to generally allow for parallel importation\footnote{Heath, Parallel Imports and International Trade, at 629.}. Developing countries largely favored a rule of international exhaustion in order to facilitate the access to markets of industrialized countries and take advantage of the relative advantage given by their lower production costs.\footnote{See Chard, J.S. and Mellor, C.J., Intellectual Property Rights and Parallel Importation, 12 WORLD ECON. 69 (1989).} The European Union and the United States largely favored rules restricting parallel imports based in their protectionist regulations regarding their regional markets.\footnote{Abbott, Frederick, GATT and the European Community: A Formula for Peaceful Coexistence, 12 MICH. J. INT’L L. 1, 9 (1990).} As a result, Article 6 of the TRIPS Agreement declared that “nothing in this Agreement shall be used to address the issue of the exhaustion of intellectual property rights”. This leads to the application of a territoriality principle: each WTO member reserves the right to regulate parallel imports in a manner it considers appropriate.

Article 6 does not necessary mean that the TRIPS Agreement is without effect on the subject of parallel imports. Article 6 of the TRIPS Agreement provides that “for the purposes of dispute settlement under this Agreement [... nothing[... shall be used to address the issue of exhaustion of intellectual property rights”\footnote{Heath, Parallel Imports and International Trade, at 629.}. This implies that state members are not allowed to bring an action against another member country with the argument international exhaustion is not recognized, there is an insufficient compliance with the principles of the GATT/WTO Agreement in general.\footnote{Heath, Parallel Imports and International Trade, at 629.} A holistic interpretation of this article can lead to the
conclusion that Article 6 only offers a standby possibility, it simply prevents the Agreement from being employed to impose on member states the obligation of accepting parallel imports. In other words, Article 6 seems to tolerate that a member state deviate from the general principles and prohibit parallel imports. Since regulation of parallel imports involves very complex interest, and the suitable mechanism to harmonize them were at the time not available, the TRIPS Agreement evades taking a definitive position regarding “exhaustion”, but only for the purpose of dispute settlement. Consequently, the Agreement cannot be used to make a member country subject of sanction when deciding for or against international exhaustion. GATT negotiations are characterized for a continuous search for consensus. In this sense, a definite solution of the problem should be settled through further negotiation among the member nations; but and until this solution would be ratified by the members, it cannot be used to impose sanctions.

The fact that Article 28(1), when enumerating the exclusive rights of the patent owners includes the right to prevent third parties from importing without their consent, has been utilized as an argument for the thesis that the Agreement expressly admits that patent rights may be normally utilized to impede parallel imports and therefore represent barrier to international exhaustion. However, the distinction between this specific right to import and the exclusive right of production and sale granted by a patent should not necessarily imply that the specific right to import should be subject to different rules from the rights of production and sale. The specific right to import can be considered an instrument of economic exploitation just as much as production and sale.

The right to import may be interpreted in connection to the right of the patentee to organize the exploitation of his invention according to the particular characteristics of each market. This includes the right to claim his licensees and distributors an extra fee, when necessary to adjust his reward to the characteristics of each market.

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1709 See Bronckers, The Impact of TRIPS, at 1267; see also Straus, Implications of the TRIPS Agreement in the Field of Patent Law, at 191, and Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law, at 1083.

1710 See Bronckers, The Impact of TRIPS, at 1267; also see Straus, Implications of the TRIPS Agreement in the Field of Patent Law, at 191.

1711 Heath, Parallel Imports and International Trade, at 629.
were they operate. Also, it includes to right to negotiate with those users of technology clauses related to the importation or exportation of patented merchandise. In addition, the importation right may constitute an important instrument to preventing counterfeit products entering the country, because the patentee should not have to wait until the counterfeit products are put on the market in order to obtain relief\textsuperscript{1712}.

Moreover, it can be interpreted that the exhaustion right may be related to all aspects of the exploitation of the patent, including importation, therefore, the existence of a specific importation right does not contradict in itself the principle of exhaustion. This principle is summarized in the following terms: “If a patentee is granted a bundle of rights under his patent, such as production, sale and importation, then upon the act of first sale, the whole bundle becomes “exhausted” once and for all. Consequently, no importation right can be invoked later on for the very article that has already been marketed previously”\textsuperscript{1713}. This situation is particularly obvious in the case of re-imports of an article that was exported into another country with the consent of the patentee. In such a case, the right to re-import should be considered as concerning a further act of sale and distribution, \textit{i.e.}, comparable with other acts of economic exploitation, which are no longer under the control of the patentee, and therefore exhausted\textsuperscript{1714}. Moreover, the right of exportation is particularly subject to purpose interests of the GATT and the TRIPS Agreement to promote trade by removing trade barriers, anticompetitive measures and discrimination as to the place of invention and as to whether the products are imported or locally produced.

\textbf{(2) Parallel Imports as Allowed When Not Prohibited by National Legislation}

The Agreement itself does not seems to take a position regarding parallel imports, at least, in regarding to trademarks. The special requirements related to border measures, defined in the Part III Section 4 of the Agreement constitute another argument for an interpretation in favor of parallel imports. The interest of the rightholder to hinder the release into a free circulation of goods that infringe his

\textsuperscript{1712} \textit{Id.}
\textsuperscript{1713} \textit{Id.} at 630.
\textsuperscript{1714} \textit{Id.}
right is protected by Article 51. This article refers to the hypothesis of counterfeit trademark or pirated goods, meaning goods produce without the consent of the rightholder or person duly authorized by the rightholder in the country of production.1715 Article 52 requires the rightholder to initiate a procedure whereby it is necessary to provide adequate evidence that, under the laws of the country of importation, there is prima facie an infringement of the rights holder’s intellectual property right. Analogue principles are to be followed as in the case of patent rights, since Article 51 in fine expressly states: “Members may enable such an application to be made respect of goods which involve other infringements of intellectual property rights, provided that the requirements of this Section are met. Members may also provide for corresponding procedures concerning the suspension by the customs authorities of the release of infringing goods destined for exportation from their territories”. As a result, Section 4 expressly remits to the simultaneous consideration of the legal situation of the intellectual right in the country of importation and exportation in order to define a problem of parallel imports. That is, in principle parallel imports does not infringe the TRIPS Agreement, so long as in the country of fabrication and export, the rights of the patent holder are not infringed (so that the imported merchandise does not consist of counterfeit trademark goods and pirated copyright goods) and in the country of importation parallel imports are not considered an infringement of the rightholder’s intellectual property rights.

These considerations lead to the conclusion that an implicit solution in favor of Parallel Imports can be obtained from a holistic interpretation of the TRIPS Agreement, parallel import is allowed as long it is not prohibited by the national legislation.

5. **Quasi-Contractual Framework for Harmonizing the Private International Law Regime of Patents with Competition Law**

Conflicts of law in intellectual property rights are generally solved by applying “the principle of the state that grants the right (lex loci protectionis)”1716. The applicable

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law is the law of the place where the protection is claimed\textsuperscript{1717}. This is according to the principle of territoriality of intellectual property rights which implies that the acquisition, scope and termination of these rights are governed by the law of the protecting country\textsuperscript{1718}. This may lead to the inference that industrial property rights exercised within the territory of the protecting country must be respected as such by foreign jurisdictions, as a rule of international law\textsuperscript{1719}. It has been frequently stated that intellectual property law, as well as antitrust law, has no extraterritorial effects, and the \textit{ordre public} of the territory where the technology is imported or protected should exclusively be consider national law\textsuperscript{1720}. In contrast is the situation for property rights over tangible objects, where other countries agree to recognize property rights granted abroad. However, the national patent right can originate in an international exploitation of the invention on the basis of its international protection in other countries, by means of licensing or of the assignment of such rights. As a result, transactions may take place not only in a national but also in an international setting. This principle has been essentially taken from the law of tangible goods\textsuperscript{1721}.

The solution of private international law for intellectual property rights is similar to that originally set up for torts committed in a country where national law attaches no liability to the defendant’s act. In these cases, the applicable law may be not the \textit{lex fori}\textsuperscript{1722} but the law of the country where the damaged is produced, the \textit{lex loci delicti}\textsuperscript{1723}. Such a position was taken as early as 1918 by the New York Court of Appeals in \textit{Lucks v Standard Oil Co. of New York}, which ruled that \textit{lex loci delicti} was the sole determinant of tort liability subject only to the public policy of the

\textsuperscript{1717} See for example Arts. 5.2, 10bis 1, 14 and 18 of the Berne Convention. See also Carrascosa González, Javier, La Propiedad Intelectal en el Derecho International Privado Español, Granada 1994, 68-70.


\textsuperscript{1719} \textit{Id.} at 66.

\textsuperscript{1720} \textit{Id.} at 2. Example is the version of the International Code of Conduct on the Transfer or Technology drafted by the Group of 77 (UNCTAD document TD/CODE TOT/9, Appendix G.1) which stated that “the law applicable to matters relating to public policy (\textit{ordre public}) and to sovereignty shall be the law of the acquiring country”. See Cabanellas, The Extraterritorial Effects of Antitrust Law, at 2-3.

\textsuperscript{1721} \textit{Id.} at 70. See also Fikentscher, Wolfgang, 1 Wirtschaftsrecht, Munich, 1983, 275-276.

\textsuperscript{1722} That is the law of the forum, or court where the suit is brought or remedy is sought in an integral part.

\textsuperscript{1723} See Morse, C.G.J., 2 Torts in Private International Law, Amsterdam, 1978, 6-7, referring to Wächter.
The *lex loci delicti* doctrine is also followed in the European Continent. *Lex loci delicti* should also be the general framework for patents, when patents are framed upon the quasi-contract of unjust enrichment. In this case the applicable law should be the law of the country where the protection against unjust enrichment is claimed. This framework is consistent with the *territoriality* and *lex loci protectionis* principles universally recognized for intellectual property rights.

The quasi-contractual framework is also consistent which that of private international law for foreign conduct causing antitrusts effects. Such conduct can also be considered torts or violations of duties imposed by the general laws protecting fair competition. The law where the effects are produced is increasingly used in order to determine the applicable anti-monopolistic legislation. This implies the recognition of general extraterritorial effects of antitrust law.

An example for this is the case when country A imposes a restraint on competition, by means of a patent, and this restraint has an effect in country B. The law of the place where the anti-competitive effects occur allows the restriction of the economic effects and value of the rights granted by one country by means of the antitrust laws of a different jurisdiction. These kind of restrictions should also be inherent in the rights of patents, when considering their origin as quasi-contracts. They are also coherent within a legal framework that recognizes an international status of industrial property, in which the mutual recognition of national intellectual property rights, and their international effects, is garantined in an underlying agreement. This is the case of the Paris Convention.

By contrast, under a monopolistic or proprietary framework, restrictions originating in antitrust law are regarded as frustration of the intellectual property

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1724 *Id.* at 13.
1725 See *Strömholm*, Stig, Torts in the Conflict of Laws, a Comparative Study, Stockholm, 1961, 27-29. Also see *Cabanellas*, The Extraterritorial Effects of Antitrust Law, at 63. For the case of Spain, see Carrascosa González, at 93-97. Art. 10.4 of the Spanish Civil Code does not require considerable effects within the territory of the country in order to apply Spanish law to grant protection against a tortious intrusion upon intellectual property rights.
1726 See Kunz at 142-143. See also RefE 93, IPRax 95, 132.
1727 See *Cabanellas*, The Extraterritorial Effects of Antitrust Law, at 6.
1728 *Id.* at 68.
1729 *Id.* at 66-67.
1730 *Id.* at 68-69. *Cabanellas* sustained this thesis considering among others, Article 1(1), 4 and 12(1) of the Paris Convention.
laws of different states\textsuperscript{1731}, even though Article 10\textit{bis} of the Paris Convention statues that the countries of the Union are bound to assure to persons entitled to the benefits of the Union effective protection against unfair competition\textsuperscript{1732}. As a result, the authorities in charge of the enforcement of competition law face a task of conciliating foreign industrial property rights with local competition law\textsuperscript{1733}. The conflict between the expected protection of patent rights under a proprietary framework and the balancing effects of competition law generates uncertainty in regard to the rights of patentees. This legal uncertainty for patentee as to licensing increases when there must be integration with antitrust rules, whose purposes and concepts have traditionally been very different from those on which licensing is based\textsuperscript{1734}.

Within a quasi-contractual framework of patents, an integration between patent and competition law is possible. For the application of antitrust law, the same as for torts, the relevant criteria is not the subjective territoriality, but the objective territoriality, \textit{i.e.}, the place where the object and the effect of the foreign conduct is located (effects doctrine)\textsuperscript{1735}. The effects test doctrine requires evidence that “the challenged restraint has, or is intended to have, any anticompetitive effect upon the commerce of the territory, either commerce within that territory or export commerce”\textsuperscript{1736}.

The \textit{effects doctrine} was introduced by the US Supreme Court in the \textit{Alcoa Decision}\textsuperscript{1737}. The goal of this doctrine is to allow the control of anti-competitive

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\bibitem{1731} \textit{Id.} at 66-67
\bibitem{1732} \textit{Id.} at 69.
\bibitem{1733} \textit{Id.} at 70.
\bibitem{1734} \textit{Id.} at 57.
\bibitem{1735} Basedow, Jürgen, Weltkartellrecht, Tübingen, 1998, 12-13. See also Basedow at 18-19, who mentioned the decision ECJ of September 27, 1988, related to case 89/85 (Zellstoff), Collection 1988, 5193, 5243, considerants 16-18. This decision defines that the relevant criteria for applying Art. 85 of the EC Treaty is the place where a Cartel produces its effects.
\bibitem{1737} \textit{US v. Aluminum Co. of America}, 148 F.2d 416, 416-420 (2d Cir. 1945). See also Cabanellas, The Extraterritorial Effects of Antitrust Law, at 16-18. The \textit{mechanical effects test} of the Alcoa decision was modified by a \textit{balancing test} in the Timberlane Lumber Co. \textit{v. Bank of America, N.T. & S.A.}, 749 F.2d 1378 (9\textsuperscript{th} Cir. 1984), on the basis that the test must evaluate if the restraint directly or substantially affects the flow of commerce into or out of the United States, depending on when such application would not violate the principle of comity, conflicts of law or international law. Both the balancing and the effects test coexist in US case law. See Cabanellas, The Extraterritorial Effects of Antitrust Law at 20. The Alcoa effects doctrine was reaffirmed by the US Supreme Court in the decision \textit{Hartford Fire Insurance Co. v. California}, 113 S.Ct. 2891, 125 L. Ed. 2d. 612, 638 (1993),
\end{thebibliography}
acts accorded abroad which produce anticompetitive effects in the national territory. This principle has also been incorporated in several European countries, the European Union and in MERCOSUR. The importance of the acceptance of the extraterritorial effects of competition law is increasing with the globalization and economic interdependence which characterizes world economic development. The definition of an international framework for technology transfer constitutes a priority, particularly for competition law, since the economic interdependence “implies that antitrust policies only become effective when applied within an international framework, and that the economic policies individually pursued by specific countries are increasingly subject to the effects of foreign antitrust laws, even if the rules on the extraterritorial effects of these laws remain unchanged”.

by the statement “well established by now that the Sherman Act applies to foreign conduct that was meant to produce and did in fact produce some substantial effect in the United States”. See also Basedow at 19-23.

The doctrine of effects has been usually utilized for the extraterritorial application of Penal Law. Cabanellas, The Extraterritorial Effects of Antitrust Law at 12-13 mentioned the following variants of this doctrine: The Strict Territorial Principle, which forms the core of any national criminal law system, attributes prescriptive jurisdiction to acts taking place within the territory of the country attaching criminal law consequences to them. Under the Mechanical Effects Principle, a conduct is subject to the criminal law of a given country if it has substantial effects within the territory of that country, regardless of the legal status of these effects under the law of such country. This doctrine has been considered valid under international law rules on criminal law jurisdiction. Under the Constituent Elements Principle, a conduct is subject to the penal laws of a given country if the elements of such conduct or its effects, taking place in that country, are constituent elements of a crime. This variant has been followed by French law. The Protective Principle gives jurisdiction to the offended nation, in cases that such offenses threaten the political and economic foundation of the state or injure its prestige. The validity of this principle under international law is universally recognized. Specifically for antitrust law, the balance test was introduced in the Timberlane Mills case (Timberlane Lumber Co. v. Bank of America, N.T. & S.A., 749 F.2d 1378, 9th Cir. 1984 ). This decision established a three-prolonged analysis to determine the appropriateness of the exercise of extraterritorial jurisdiction. First, there should be some effect - actual or intended. Second, the effect should be sufficiently large to present a cognizably injury to the plaintiffs and, therefore, a civil violation of the antitrust laws. Third, the interest liked to the affected state should be sufficiently strong, vis-à-vis those of other nations, to justify an assertion of extraterritorial authority, which includes weighing the degree of conflict with foreign law or policy, location of parties, etc. See Cabanellas, The Extraterritorial Effects of Antitrust Law, at 16-17 and 60-61. The applications of these rules to antitrust law has been explained by the penal nature of the principal antitrust rules, see Cabanellas, The Extraterritorial Effects of Antitrust Law, at 11. The quasi-contractual framework, regarded as an institution intended to provide a remedy to restore equity, seems, however, to be more suitable to justify the introduction of this principle in antitrust and in intellectual property law.

See Schwartz and Basedow, Restrictions on Competition, in David, René and Egawa, Hidebumi (eds.), 3 International Encyclopedia of Comparative Law, ch. 35, Tübingen, 1995 at 134, sec. 67-73 (Spain, Greece, Norway (before the reform of 1993), Sweden, Austria, Italy, Poland, etc.


Schwart and Basedow at 134, sect. 37. See also Cabanellas, The Extraterritorial Effects of Antitrust Law, at 23-26.

Cabanellas, The Extraterritorial Effects of Antitrust Law at 5.
Globalization requires the definition of an international regime which harmonizes the rules of competition law with those of intellectual property rights. This task has been difficult to achieve under the traditional framework by which patent rights are considered property or monopoly rights, which are defined exclusively by national law and circumscribed in a specific territory by national law. Thus, under the new developments from a private international law perspective, the principle of territoriality does not necessarily lead to the creation of an absolute separation of national patent rights and the corresponding markets. The effects of national intellectual property rights in other countries are relevant for private international law concerning competition law. The quasi-contract framework for intellectual property rights offers a suitable framework for harmonizing the principle of territoriality of patents with the need, through considering elements of equity and torts, to impede patent rights from being used to avoid competition law at an international level. Within a quasi-contractual framework, the regime of competition law and intellectual property is harmonized. In both cases, what is relevant is the law of the place where the wrong or illegitimate conduct takes place, and therefore, where remedy or protection is granted. In the case of intellectual property, where the unjust enrichment is generated and protection is granted (lex loci protectionis) and in the case of competition law, the market where the effects of the anticompetitive measure are (effects doctrine). Both are particular cases falling under the general framework of quasi-contracts, ruled by the law of the place where the unjust or illegitimate conduct is committed, i.e., where tortious or anticompetitive conduct takes place injuring protected rights (lex loci delicti commissi).

1743 The harmonization between competition law and intellectual property rights has been regarded a difficult task, since both systems have traditionally used divergent and frequently contradictory approaches to reach their specific goals, to the extreme that the patent system is clearly in collision with antitrust, and neither of these systems fit the work of integration and compromise, which is the highest function of analysis when two elements of public policy threaten to collide. See Cabanellas, The Extraterritorial Effects of Antitrust Law, at 55-56, who also quoted Sullivan, L.A., Antitrust 197 at 505, 527. The application of a rule of reason has been considered the only possible approach in this area. See Cabanellas, The Extraterritorial Effects of Antitrust Law at 58.

1744 Basedow at 20.

1745 Lex loci delicti commissi or “place of the wrong”, is defined by Black’s Law Dictionary, 1990, at 911, “the state where the last event necessary to make an actor liable for an alleged tort takes place”. See also Sestito v. Knop, C.A. Ws., 297 F.2 33, 34. According to German law, the place of the wrong is every place of the performance or the place where the act should has taken place in case of omission, and every place where the act succeeded to illegitimately damage the rights of third parties. See Kunz at 142-143, who reached this conclusion based on the proposal for a completion of the
The harmonization of the principle *lex loci protectionis* and the doctrine of effects has implications for the territoriality principle of patent rights so that there is no absolute exclusion of extra-territorial effects of the pertinent national legislation. Thus, the applicable law is the law of the territory where the relevant interests are touched, which does not necessarily imply a prohibition for considering relevant effects or interests that originate in other national territories. Moreover, the quasi-contractual framework allows consideration of the public policy of the forum when necessary for balancing the legitimate interests of parties.

C. Principal Positions on Parallel Imports

1. *Japanese Inference of “Exhaustion Principle” from Local Patent Law*

Japan followed the European position regarding trademarks, as expressed in the case *Constructa Werke GmbH v De Geus en Uitenbogerd N.V.* Referring to this case in the decision *Brunswick Corp. v. Orion Kōgyō K.K.*, the court held: “Many of the arguments which deny infringement point out that the purpose of the trademark system lies in the protection of the consuming public through the function of trademarks to distinguish products, and, from this starting point, they conclude that the territoriality principle of trademarks should stay one step behind international free trade in the age of integration of domestic markets of various countries. It is not right to apply this theory to patents which have an entirely different purpose and nature from trademarks”. The court decision favored the strict territoriality principle of patent protection.

However, discussing the territorial nature of patent protection and the possible abuse of national patent systems by multinational corporations, the last paragraph of this decision held: “The industrial property system is founded on the historical, social and economic basis of each country and, therefore, has characteristics

German Private International Law (Referentenentwurf eines Gesetzes für Ergänzung des IPR = RefE, December 1, 1993), Art. 40. See also *v. Hoffman*, 96 IPRax 1, 1ff, and 95 IPRax 132.

1746 Morse at 13.


1749 *Id.* at 291.
according to the special circumstances of each country. Since international integration of markets has been in progress along with the expansion of international commerce and trade, strict adherence to the territoriality principle of patent rights or the principle of the independence of patents might lead to a harmful result of suppressing free competition in view of the emergence in the international market of world enterprises which have patent rights in numerous countries on the same inventions. However, if we pay less attention to the protection of domestic patents of such enterprises, in a hasty effort at preventing the abuse of monopoly rights, we might bring about a result that does not conform with the fundamental purpose of the patent system.  

Japan succeeded in finding a solution to this paradox, that is, a solution which harmonizes the fundamental purpose of the patent system and the need for protection against abuse of monopoly rights. It seems to be the first country to expressly adjust to the general principle of international exhaustion in the case of parallel imports. The Japanese Supreme Court established in the decision of 23 March 1995 (*BBS Wheels II*) that parallel imports of devices protected by patents, which the patent holder had put into circulation in another country, would not infringe the local patent right. In order to reach this decision, the Japanese Supreme Court constructs an argument that is theoretically diverse from the “international exhaustion” principle, but yields however the same final effects.

This decision constitutes an example how the TRIPS Agreement and the Paris Convention can be interpreted as allowing each member country to adopt the “exhaustion” principle in order to promote free trade and competition in their national territory.

The Supreme Court interpreted the Art. 4 (2) of the Paris Convention in the sense that the scope of application, as well as the effects of a patent right, is circumscribed to the territory in which the patent right was granted. Because of that, the Supreme Court does not accept that the effects “exhaustion” of a patent right due to the commercialization of a patented device in one territory can be

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1750 *Id.* at 293. This lead *Doi* to maintain the thesis that in Japan, an exception to the territoriality principle must be made under the Antimonopoly Act rather than by interpreting the patent system.

1751 See Decision of the Japanese Supreme Court of March 23, 1995, reference: Hei 6 (ne) Nr. 3272, 1995 GRUR Int. 417; 27 IIC 550 (1996). The plaintiff was the German BBS Kraftfahrzeugtechnik AG. See also *Einhorn*, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law, at 1078-79.
transferred to and automatically imposed on another territory. Instead, they took recourse to the interpretation of the national patent law to determine whether the Japanese patent also protected the interest of the patent holder in stopping the importation of devices produced with an identical patent abroad. The point to be decided is if a parallel import constitutes an infringement of the national patent law. This situation constitutes a problem of the interpretation of the effects of the Japanese Patent Law in Japan. The Japanese Supreme Court based its decision on the following criteria:

a) According to Japanese law, a patent holder has the exclusive right to a commercial exploitation of the patented invention\textsuperscript{1752}. Additionally, the commercialization of patented devices is also considered an exploitation of the invention\textsuperscript{1753}.

b) The principle of independence of national patents (territoriality principle) does not prohibit a national from considering circumstances that have occurred abroad for determining the effects of a national patent. This is the case of Art. 29.1 (3) of the Japanese Patent Law, which considers circumstances occurring abroad, such as publication of the invention requested, as a legal impediment to granting a patent.

c) The goal of a patent right is defined as “the promotion of invention through its protection and exploitation, in order to contribute to economic development”\textsuperscript{1754}. The Supreme Court interpreted this basic goal of the Patent Law in a dynamic and global context, when affirming that the patent law is intended to achieve a harmonization of interests of the inventor and the protection of the social and general interests in economic development. The basic protected interest of the patent holder is defined as the one of receiving a reward for the disclosure of the invention.

As a result, the Japanese Supreme Court interprets the content of the patent law in such a way that the goal of a Japanese patent right should be considered

\textsuperscript{1752} § 68 of the Japanese Patent Law.
\textsuperscript{1753} § 2. 3.1 of the Japanese Patent Law.
\textsuperscript{1754} § 1 of the Japanese Patent Law.
“exhausted” in the case of parallel imports. In the cited case, the Supreme Court denied the protection of parallel imports for the following reasons:

(1) In this case, the invention as well as the patent in Germany, where the device was imported, and the patent in Japan, whose infringement was alleged, were identical.

(2) The patent holder had already obtained the opportunity to receive a fair compensation for the disclosure of the invention.

(3) The possibility of assuring a profit has not been reduced or restricted in the exporting country (in this case Germany). An example of these restrictions is price control of or compulsory licensing. In this case, the reward for the disclosure of the invention has already been obtained in the country of exportation, and is included in the price of sale of the device.

(4) There is no sensible reason for granting the patent holder the possibility of using the same patent twice in order to seek twice a reward for the disclosure of his invention. In this case, the patent holder has already obtained an ample reward for the disclosure of the invention. According to these circumstances, he has already obtained legal protection and because of that there is already a harmonization of the interests of the patent holder with those of society in regard to the economic development, and both should be considered relevant. This criteria supports the concept of national “exhaustion”, which prevents patent holders from looking for double payment.

(5) The Japanese Supreme Court considers that the patent holder would be extremely mighty if he receives protection for his interest in extending the effects of the national patent right to lawful importation of patented products lawfully produced abroad. This situation is considered to infringe the basic harmonization of the social interests with the interests of the patent holder.

(6) Specifically, concerning the local public interest of Japan’s economic development, it is not proved that parallel imports promote the consolidation of monopolies of large enterprises and prejudice the creation of enterprises’ licensing and developing technology especially adapted for the Japanese market. That is, it

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is not proved that parallel imports constitute a hindrance for technology importation to Japan and that they prejudice the upsurge of diverse technologies in the country.

(7) Finally, the Japanese Supreme Court pointed out that, notwithstanding trademarks and patent rights presenting different functions, there is no reason to treat trademarks and patent rights differently, particularly if we consider the importance of the harmonization of intellectual rights and the importance of giving protection to public interests related to the economic development and protection of free trade in the commodity markets.

On the other hand, the court takes into consideration that there are no international conventions and contracts that pursue the harmonization of the legal system referring to intellectual rights, specifically patent rights. Therefore, the decision of the Japanese Court has taken into consideration the particular economic situation of Japan.

The Japanese Supreme Court did not pretend to make a general doctrine for the patent right. With this decision, it tended to reduce the patent right to a reward for the disclosure. However, this judgment pointed out a dynamic concept of the patent rights, where it is stressed that this institution pursues the achievement of a harmonization of the interest of the patent holder to obtain a profit for the disclosure of the invention and the social interest in promoting economic development. As a result, an institutional framework is created that permits a continuous search for solutions that are economically efficient for all parties. In contrast, the traditional conception in Western countries is disposed to reach solutions that ignore the economic elements and are based on legal evaluation of a dogmatic definition of patent rights as monopolies or private property. The Japanese decision evades the interpretation of the territoriality principle when declaring that it is not based on an “international exhaustion” principle. However, the effects of this judgment are precisely to state that Japanese patent law recognizes that the “international exhaustion” principle does not stem from the interpretation of international agreements like TRIPS or the Paris Convention, but exclusively from the definition of the Japanese patent right, as defined by national law.
In similar terms, the Supreme Court does not make a precise statement about the legal nature of the patent right. Both German and the Japanese doctrine converge when declaring that the core of patent protection is exclusively the formal act of disclosure in each territory. This position is not sustainable today as the only justification of each national patent right because of the enormous facilities of transmission of information among countries, which makes the disclosure in one country accessible to the others. Putting emphasis on formalistic acts realized in one territory, as the core of patent protection, creates the basis for a legalistic interpretation of the nature of the patent right. That is the case of the “reward” theory. The reward theory constitutes one of the justifications for patent protection. However, the justification for patent protection cannot be only reduced to this element. It is necessary to continue the legal analysis defining the cause of this reward. When the cause of that reward is the mere fact of the disclosure in a specific territory, it is possible to construct the argument that the reward is exclusively for a specific territorial patent. Therefore, this reward cannot simultaneously be applied to another parallel patent granted by another country. This leads to the thesis that each national patent right is absolutely independent of the others. This is the justification of the German doctrine that excludes the principle of exhaustion at the international level.

Another outcome may be obtained when each country bases patent protection on a quasi-contractual situation for the just recognition of the inventor. The national patent right is precisely the legal instrument created to allow the inventor to obtain participation in the profit that each national market obtains from his invention. Disclosure is not the core of the justification of the patent protection, but an essential requirement to assure that society can fully take advantage of the invention.

The Japanese judgment was based on a definition of what is not a patent right and what is not the territoriality principle. It states that the exclusion right is not a right to create monopolies, but the right to oblige users of technology to recognize his share or participation. Regarding the territoriality principle, the Japanese

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1757 Cf. Reimer, Dietrich, 1972 GRUR Int. 221, 228-229. He questioned the international exhaustion of patent rights with the argument that a patent right is not only a right to dispose, but also a right to exclude and prohibit. Specifically, the patent holder has the right to restrict the license to produce and sale only in one national territory.
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judgment declared that this principle does not prohibit a national law taking into consideration facts that have occurred abroad, in order to determine the conditions and scope of patent protection. Finally, the court determined that a patent right is not an absolute right, but a relative right, which is subject to other interests, like national progress.

A similar perspective of the economic policy of innovation, but in the field of “Copyright and Neighboring Rights” is found in the report related to an inquiry into book prices in Australia\textsuperscript{1758}. Of the books on sale in Australia whether domestically published or imported, most have been written by foreign authors\textsuperscript{1759}. The market was controlled by British publishers, and compared to prices in a New York book shop, the book prices in Australia were far too high and they had to wait far too long for new titles to appear in their bookstores\textsuperscript{1760}. The Copyright Act 1968, which made it an infringing act to import into Australia and deal commercially with works protected by copyright unless the copyright owner has consented to the importation. In this case, the Australian Prices Surveillance Authority took into consideration the problems of market definition, substitutability of distribution and potential social gains and losses from eliminating restriction on parallel importation in the Australian market for books. It recommended the elimination of existing legislation that blocked parallel importation of books copyrighted in Australia in order to eliminate price distortions occasioned by significantly higher prices for books exported to the Australian market as compared with books sold in other markets\textsuperscript{1761}.

In Japan, the principle of international exhaustion of rights was confirmed on July 1, 1997 by the Japanese Supreme Court, subject however to a qualification that exhaustion will not occur if the Japanese patent holder has prohibited patent holders in other countries from exporting the patented goods to Japan, and the goods have been marked accordingly\textsuperscript{1762}. This position offers an interesting


\textsuperscript{1759} Rothnie at 527.

\textsuperscript{1760} Id., quoting an article of Haupt, Robert, “Bound for Botany Bay: Why Britain Still Decides What You Can Read”, Sydney Morning Herald, Saturday, November 5, 1988, at 86-87.

\textsuperscript{1761} Abbott, Federick, The Parallel Imports Questions in the Age of TRIPS at 13.

\textsuperscript{1762} Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1079. See also Ikeuchi, Urteil des japanischen Obersten Gerichtshofs:
harmonization between the EU international exhaustion principle and the doctrine of implied license developed by the common law system, which will be analyzed in this chapter\textsuperscript{1763}.

2. \textit{Continental Law Exhaustion Principle}

The application of the principle of exhaustion to trademarks, developed by jurisprudence, is consolidated through specific EU regulations. Some German doctrine suggested as early as 1965 the principle of Community exhaustion. This doctrine considered it to be inconsistent with the EC Treaty if the owner of parallel patents in two or more Member States would be allowed to market a patented product in one Member State and still retain the right to oppose the importation of that product into a second Member State\textsuperscript{1764}. In addition, since there is a similar level of protection in each state, the faculty to determine how the same product would be distributed in each market was considered an excessive double benefit\textsuperscript{1765}.

The EU principles of free circulation of merchandise and services, as well as free competition and prohibition of monopolies, are also applicable to intellectual property rights\textsuperscript{1766}. The interpretation of IPRs as granting their-holders a right to separate markets can be considered granting a faculty which is equivalent to a measure preventing the free movement of goods. Such a faculty is contrary to Article 30 of the EC Treaty which prohibits quantitative restrictions on imports and all measures having equivalent effects\textsuperscript{1767}. On the other hand, Article 222 of the Treaty prevents Community law from interfering with the status or ownership of industrial and commercial property rights. However, referring the use of IPRs to separate markets in contradiction to the above mentioned Article 30, Article 36 allows Member States to apply their domestic legislation for the protection of

\textsuperscript{1763} Cf. Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1079.

\textsuperscript{1764} See Koch and Froschmaier, Patentgesetze und Territorialitätsprinzip im Gemeinsamen Markt, 1965 GRUR Int. 121, 121.

\textsuperscript{1765} \textit{Id.} See also Yusuf and Moncayo von Hase at 120.

\textsuperscript{1766} Carrascosa González at 145-154. See also Schricker, G, En torno a la harmonización del Derecho de autor en la CEE, 558 Revista General de Derecho 1419, Valencia, Spain, 1419-1435.
industrial and commercial property provided that such legislation is not used as a “means of arbitrary discrimination” or as a “disguised restriction of trade between Member States”\footnote{Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1080.}.

In the decision \textit{Costen and Grunding v. EC Commission} of 1966\footnote{See [1966]CMLR 418.}, the ECJ developed the dichotomy between the existence of IPRs which are determined by the domestic law of the Member States and the exercise of such rights (which must be consistent with the EEC Treaty)\footnote{See Carrascosa Gonzáles at 143 and Friden, G., Recent Developments in EEC Intellectual Property Law: The Distinction between Existence and Exercise Revisited, 26 CMLR 193, 193 (1989).}. This dichotomy is intended to be a flexible analytical tool to scrutinize the exercise of IPRs under competition law\footnote{Yusuf and Moncayo von Hase at 126-67.}, however, it is artificial\footnote{See Massaguier Fuentes, J., Mercado común y patente nacional (Agotamiento comunitario y protección territorial absoluta), Barcelona, 1989, 138-144, and Carrascosa Gonzáles at 145.} and does not fit with the text of EU law\footnote{See Bercovitz, A, La propiedad industrial e intelectual en el Derecho comunitario, in García de Enterría, E, et al. (eds.), Tratado de Derecho comunitario europeo, Madrid, 1986, at 517, 522 and Carrascosa Gonzáles at 144.}.

In the \textit{Grunding} case, a German electrical goods manufacturer appointed the French company Costen as its exclusive distributor in other countries of the Common Market and elsewhere. In order to support this exclusivity, Grunding would label its products with its name, adding the name “Gint” and Consten would apply for the registration in France. The case originated when Consten sued a parallel importer which imported Grunding products into France for unfair competition and trademark infringement. The agreement between Grunding and Consten was declared void by the ECJ under Article 85 of the Treaty, because the agreement was intended to make it possible to keep imports under surveillance and to place an obstacle in the way of parallel imports, tending to restrict competition\footnote{See Cornish W.R., (ed.), Materials on Intellectual Property, Oxford, 1989, 428-529. See also Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1081.}. In this sense, the ECJ confirmed the European Commission’s decision which considered it distortive of competition since it was designed to insulate national markets within the Community for a widespread kind of products.
The incompatibility between the right of excluding parallel imports granted by patents under the territoriality principle and the goals of promoting fair competition and the integration of the European markets was finally resolved through the modification of the content of patent rights. In *Deutsche Grammophon v. Metro* decision, the ECJ established the exhaustion of IPRs to incorporate the principle of automatic exhaustion on a regional, rather than territorial, basis for the EU market. In this case the ECJ held that: “If a right related to copyright is relied upon to prevent the marketing in a Member State of products distributed by the holder of the right or with his consent on the territory of another Member State on the sole ground that such distribution did not take place on the national territory, such a prohibition, which would legitimize the isolation of national markets, would be repugnant to the essential purpose of the Treaty, which is to unite national markets into a single market... That purpose could no be attained if, under the various legal systems of the Member States, nationals of those States were able to partition the market and bring about arbitrary discrimination or disguised restriction on trade between Member States.”

The application of the international principle of exhaustion to patent rights always constitutes a controversial topic in the EU. The traditional position of considering the principle of territoriality as incompatible with the principle of “exhaustion” for patent rights entered into crisis with the consolidation of the European Common Market. The ECJ held in 1974: “It cannot be reconciled with the principles of free movement of goods under the provisions of the Treaty of Rome if a patentee exercises his rights under the legal provisions of one Member State to prevent marketing of a patented product in said state when the patented product has been brought into circulation in another Member State by the patentee or with his consent.” As a result, the Court conclusively established contrary to the provision of the EC Treaty on the free movement of goods the exercise of national

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1776 *Id.*
trademarks (or patent rights) in order to prevent parallel importation of genuine goods from other member States. In order to solve the contradiction between the free movements of goods and the principle of territoriality, it is necessary to reconsider the legal nature of a patent right, leaving the definition of patents as a mere “property” or “monopoly” right to accentuate the function and the cause that justifies the recognition of this right. The ECJ has declared, when pursuing its justification of the application of the exhaustion doctrine to patent rights, that “the substance of a patent right should basically confer the exclusive right on the inventor to the first marketing of the patented product in order to permit a remuneration for the inventive activity”. Following this argument, a prerequisite for exhaustion is that in the country of production and first sale a patent right is awarded to the same patent holder, who must have consented to the production in the other country. This principle should be applied not only within the EU but at the international level.

However, the ECJ does not center its decision on a deep analysis of the nature and content of the patent right. The ECJ decision was centered on the need to assure the free movement of goods. The main intention of the ECJ was to give the European Union market the same status as the national market making it free from any barrier founded on patent rights. The ECJ follows the same principle of exhaustion that is applied by traditional German doctrine, which defines the principle of exhaustion only for the domestic market. However, the extension of the German doctrine to the European market is questionable. In the case of the domestic German market, the interests of the patent holder are protected by a unique patent right, while in the European Market, the protection can be different in each national territory. Due to this, the judgment of the ECJ not only refrains from taking into consideration the legal nature of a patent right, but even contradicts it, since it allows parallel imports from territories where there is no patent protection into territories where this protection is granted. In the Merck v. Stephar case, the ECJ allowed parallel imports from Merck’s hypertension drug

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1778 Yusuf and Moncayo von Hase at 121.
1781 Yusuf and Moncayo von Hase at 121.
“Moduretic” from Luxembourg and Italy where those products were excluded from patent protection to the other EC States were protection was available.\footnote{1782} The plaintiff Merck maintained that “the purpose of the patent, which is to reward the inventor, is not safeguarded if, owing to the fact that the patent right is not recognized by law in the country in which the proprietor of the patent has marketed his product, he is unable to collect the reward for his creative effort because he does not enjoy a monopoly in the first placing of the product on the market.”\footnote{1783} The court ruled that the exhaustion of distribution rights could even take place if the first sale of a pharmaceutical product occurred in an EC Member State in which no patent protection was available for such goods.\footnote{1784} The ECJ justified his decision in the following terms: “That the right of first placing a product on the market enables the inventor, by allowing him a monopoly in exploiting his product, to obtain the reward for his creative effort without, however, guaranteeing that he will obtain such a reward in all circumstances ... it is for the proprietor of the patent to decide, in the light of all the circumstances, under what conditions he will market his product, including the possibility of marketing it in a Member State where the law does not provide patent protection for the product in question. If he decides to do so he must then accept the consequences of his choice as regards the free movement of the product within the Common Market, which is a fundamental principle forming part of the legal and economic circumstances which must be taken into account by the proprietor of the patent in determining the manner in which his exclusive right will be exercised.”\footnote{1785} The ECJ has thereby reduced the content of the concept “reward the creative effort of the inventor” and focuses only on the question whether the goods were first placed in the market with the patentee’s consent.\footnote{1786}

The ECJ assumed exhaustion in cases where the first marketing of a product was made in a country like Portugal and Spain, which at the time did not recognize patent rights for pharmaceutical products and therefore did not permit a remuneration for this inventive activity, as stated in the decision Merck v.

\footnote{1786}{Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1081.}
Primecrown\textsuperscript{1787}. As a result, an inventor would lack mechanisms to obtain a fair share in the social profits generated by the invention. The ECJ declared that a patentee, in order to receive remuneration under an exclusive right, should obtain a patent in all Member States of the EU or else refrain from circulating the goods in these countries himself or with his consent\textsuperscript{1788}.

The European decision failed to harmonize the interests between patent holders and the principle of free movement of goods, as it solved the issue in very legalistic terms. It does not define principles of law that could take into consideration all interests involved and does not enter into a deep analysis of the legal nature of patent rights. In addition, it does not take into consideration the differences in patent protection throughout the world and other factors whereby markets differ widely, such as the specific needs of each market, differences in the cost of living, the price of production and marketing, state regulations affecting prices, etc.\textsuperscript{1789}

The decision of the ECJ does not define mechanisms that allow an inventor to obtain profit or a compensation when its patented device is exported from a member state where there is no patent protection to another where there is a patent. The fact that once granted an authorization to produce in a market it is impossible to assume any kind of control over those products prevents the patent holder from manufacturing in a market where he does not already have a patent. Any authorization to produce and sell in such a country automatically implies the authorization to sell in the other countries where there is already patent protection. In order to obtain protection, a patent holder must apply for a patent long before the market potential of patented products has become clear. This decision can affect negatively the will of a patent holder to negotiate licenses abroad, because he cannot define terms of negotiation that harmonize his interests in the global exploitation of this patent\textsuperscript{1790}. Therefore, the European decision is impracticable and should not become a worldwide model of exhaustion\textsuperscript{1791}.

The definition of a global standard of exhaustion requires a framework that conciliates the interests of patent holders and users. This framework should allow

\textsuperscript{1787} See Merck v. Primecrown (1997), 1 CMLR 83, also published in 28 IIC 184 (1997).

\textsuperscript{1788} Heath, Parallel Imports and International Trade, at 627.

\textsuperscript{1789} Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1082.

\textsuperscript{1790} Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 6.

\textsuperscript{1791} Heath, Parallel Imports and International Trade, at 631.
the patent holder to administer the exploitation of the patent taking into consideration the differences in production costs and quality that comes from each national market in a way that does not imply the consolidation of national monopolies.\textsuperscript{1792}

As long as the patent right is regarded as a monopoly right rather than a right to participate in the social profit originated in the exploration of the patent, the protection of this monopolistic interest remains totally incompatible with the principle of free trade. Consequently, the patent holder would normally obtain either full protection of his monopolistic interests, or no protection at all. As the ECJ court states in the \textit{Merck v. Stephar} case, patent rights are defined as mere monopoly rights, and not as rights to obtain a reward, which claim the protection of the interest to obtain a reward in all circumstances. Within this framework it is impossible to conciliate between the interests of the holders of this monopoly right and the EU interest in consolidating a common market. Both the ECJ and German jurisprudence based the exhaustion principle only on the public interest of promoting the integration of their internal market, without integrating it with a compatible theory of patent rights. Since this solution does not harmonize all interests, and is not coherent with the legal nature of patents, it is understandable that the principle of exhaustion has been excluded in relation to third countries. The need to take into consideration disparities among national legislation of EC Members requires another solution. This problem has been taken into consideration with respect to the other rights arising from intellectual property such as the exclusive right to perform or rental rights.\textsuperscript{1793} In cases when differences in national laws were held significant, the Community exhaustion principle was not applied.\textsuperscript{1794}

The EEC Directive for the harmonization of Trademarks of 1988\textsuperscript{1795} and the Community Trademark Regulation (Ordinance about the Constitution of a Common Trademark of 1993)\textsuperscript{1796}, formally declared the exhaustion of the trademark right by the first commercialization in the Common Market. These

\textsuperscript{1792} Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 6.
\textsuperscript{1793} Yusuf and Moncayo von Hase at 122.
\textsuperscript{1795} See 1989 GRUR Int. 294, (Art. 7).
\textsuperscript{1796} See 1994 GRUR Int. 402 (Art. 13).
regulations offer a basis for a further consolidation of an international principle of exhaustion for the case of trademarks\textsuperscript{1797}, however, the extension of this principle outside the EU could be hindered by the EU tendency toward protectionism\textsuperscript{1798}, even in cases when there is a free trade agreement\textsuperscript{1799}. An example of this is the case \textit{EMI Records v. CBS UK}, in which the ECJ maintained: “... [t]he exercise of a trade-mark right in order to prevent the marketing of products coming from a third country under an identical mark, even if this is a measure having the effect equivalent to a quantitative restriction, does not affect the free movement of goods between Member States and thus does not come under the provision set out in Article 30 \textit{et seq.} of the Treaty”\textsuperscript{1800}. In general terms, the ECJ has maintained the thesis that the goal of the Treaty of Rome, which is to establish a single market, is different from the goal of the free trade agreements\textsuperscript{1801}. Following this trend, several proposals to introduce the international exhaustion of trademarks in a Council Directive in order to approximate the trademark law of Community Members States have been abandoned\textsuperscript{1802}. On the other hand, allowing for international exhaustion in some member countries with exclusion of others is not coherent with the creation of a single market, as decided in the \textit{Silhouette} case\textsuperscript{1803}.

3. \textit{Obstacles for Application of a General Principle of International Exhaustion at GATT/WTO}

The exclusion of the application of the exhaustion principle for parallel imports of third countries constitutes both a political measure intended to hinder international competition, and a necessary measure to grant a suitable protection to rightholders. In general, the exclusion of a \textit{per se} international exhaustion is justified by the need of providing IPRs holders the possibility to administer their

\textsuperscript{1797} Beier, Gewerblicher Rechtsschutz und freier Warenverkehr im Europäischen Binnenmarkt und im Verkehr mit Drittstaaten, 1989 GRUR Int. 603, 614-15.
\textsuperscript{1798} Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 8-9.
\textsuperscript{1799} Yusuf and Moncayo von Hase at 123.
patent rights worldwide taking into consideration the legal and economic differences of national markets\textsuperscript{1804}. Therefore, it is important to define legal instruments that allow for the separation of the protection of the legitimate interest of rightholders from the mere protectionistic or monopolistic interests, \textit{i.e.}, the interest in using the patent right to protect the national market from the importation of commodities produced in other countries, particularly in countries where the costs of production are smaller, such as in developing countries\textsuperscript{1805}. An important reason for opposing the rule of international exhaustion in the field of patents is that it would benefit developing countries at the expense of the industrialized countries\textsuperscript{1806}. It is a paradox that both German and EU jurisprudence, based on their decisions on the consideration of patent right as an instrument of economic policy, subject to the economic interest of each country. This contradicts the traditional position of countries within the hard protection system, which had tended to regard patents as mere private property. This situation points out the relevance of economic aspects in the interpretation of patent rights.

Although the definition of an international exhaustion principle constitutes a priority for the integration of global markets, the principle of “exhaustion” developed by the EU cannot be automatically applied to global markets defined by the WTO. Important differences between EU and the WTO hamper the application of the EU principle of exhaustion at the international level\textsuperscript{1807}, since a mechanism to protect rights holders is absolutely necessary.

Both the EU and the WTO have the maintenance of the territoriality principle within a context of minimum common protection standards in common. Moreover, the WTO in opposition to the EU, does not strive for a perfect integration of markets. Its main objective is to lower trade barriers. The WTO does not have the institutional framework of the EU to reach a convergence of development among the different national markets, which is a prerequisite for securing fair competition conditions by a total liberalization of markets. The huge salary and social cost

\textsuperscript{1804} See Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1082.

\textsuperscript{1805} Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 8.

\textsuperscript{1806} Abbott, Federick, The Parallel Imports Questions in the Age of TRIPS, at 12.

\textsuperscript{1807} Id. at 9-12.
differences between industrialized and developing countries constitutes an example of the convergence problem. Contrary to the EU, the WTO does not have governmental organs with the power to eliminate trade distortion based upon variation in the social policies of its members, except for few limited cases, where a negative rule such as the national treatment standard may be applied.

Additionally, further harmonization of national legislation is required in order to create fair competition conditions in the global markets. Through Commission regulations, the EU has slowly developed common programs for the promotion of technology creation and diffusion, which can lead to a further convergence in the protection of patent rights. The WTO does not pursue an industrial policy in the field of research and development and thus cannot assume the responsibility of achieving complete harmonization in the field of patent rights.

A typical case to illustrate the problems caused by the great difference in the economic policy and economic conditions among WTO members can be summarized as follows.

Pharmaceutical Manufacturer A sells Drug X in the US wholesale market for $1. There are no government price controls over pharmaceuticals in the US market. Manufacturer A sells Drug X in the Xanadu market for $0.60 as a consequence of Xanadu price controls. Wholesalers in Xanadu buy Drug X for $0.60 and ship it to the USA, where they resell it for $0.95. Manufacturer A loses a high margin of sale in the USA to a low sale in Xanadu. Another example is the manufacturing of high intensive labor products in Germany, which must compete with cheaply made exports produced in developing countries, where salaries and social protection are substantially lower. Cases like these justified the creation of exemptions to the international parallel importation rule, when specific protection policies of a member state generate important distortions in international trade.

When the differences between national and foreign prices are important, the absolute exclusion of any kind of control over the exportation of licensed products may cause greater prejudices than benefits to patent holders. This may justify the statement that the EU international exhaustion of rights is contrary to TRIPS since

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1808 *Id.* at 9.
1809 *Id.* at 11.
1810 *Id.*
it reduces technology transfer\textsuperscript{1811}. This statement is based on the premise that introducing international exhaustion would yield the result that no patentee in his right mind would choose to place a product on the market of a developing country\textsuperscript{1812}. However, the absolute exclusion of an international exhaustion principle also reduces technology transfer since it favors the monopolistic use of patents. An absolute exclusion of an international exhaustion principle constitutes an invitation for patent holders to expect a monopolist rent from any licensing contract, and to disdain any kind of negotiation which reduces this expectation, even when obtaining an important profit. In addition, the lack of an international exhaustion principle invites patent holders to reap the benefits of international price discrimination and to suppress transnational competition by producing and marketing such goods on the basis of exclusivity for each national territory\textsuperscript{1813}. The results are that consumers in all countries will be deprived of full benefit from increased global competition in innovative products and, especially, recipients of technology in developing and emerging markets may be blocked in their domestic markets by their licensors\textsuperscript{1814}.

Under these circumstances, the only satisfactory conclusion is that a sort of international exhaustion principle is necessary to prevent intellectual property rights from remaining insulated from the rigors of free trade and antitrust law. However, when defining an acceptable international exhaustion principle, the territoriality principle should be more intensively applied in the WTO system than in the EU. Consequently, the WTO should find a formula to harmonize the territoriality principle with the promotion of free trade, as the European Union did, but thus requires a more flexible institutional framework. This framework can only be constructed by a clear definition of principles that permit the conciliation of all interests involved in a flexible and dynamic way, for example, through conceiving patents originated on a quasi-contract situation. This general framework should be complemented by more sophisticated rules that permit fair harmonization of interests among the different national users of technology, leading a broad scope for industrial policy to each member country. This objective can be achieved

\textsuperscript{1811} Einhorn, The Impact of the WTO, at 1084.
\textsuperscript{1812} Id. at 1083.
\textsuperscript{1813} Soltysinski, Stanislaw, International Exhaustion of Intellectual Property Rights under the TRIPS at 317.
\textsuperscript{1814} Id. at 318.
through the definition of contractual norms that allow an internal system of compensation between the patent holder and the different national licensees, complemented by a set of exemptions for cases of significant distortions in international trade. This system can be constructed upon the rules regulating exclusive licensing contracts within domestic markets.

Article 6 of TRIPS is enacted under specific circumstances, i.e., suitable solutions for granting protection to rightholders and simultaneously promoting the integration of markets were not available at the time. Once suitable rules to harmonize the legitimate interests of patent holders with those related with the integration of global markets are found and tested, the principle of good faith may compell state members to abandon the existent mechanisms prohibiting parallel imports in order to adopt those that fit better with TRIPS and GATT.

4. Common Law’s Doctrine of Implied License

a) General Aspects - The Case of UK

The legal analysis of the patent legislation should be centered on the protection of its main goal, which is allowing the inventor to participate in the social benefits of the use of his inventions. Concerning parallel imports, the main problem is how to harmonize this interest in the contractual relationships involving this commercial activity. Accordingly, in the case of parallel imports, the fact that the patent holder has granted a license should be interpreted as a decision not to directly exploit his invention in a specific market, but to participate in the licensee’s exploitation of it. Consequently, the problem of parallel imports can be viewed as an internal problem between the patentee and the licensee, i.e., a problem of determining if the economic conditions of the license contract should be modified, because the economic exploitation of the patent is different to that originally conceived by the contracting parties.

It is important to take into consideration the differences of the common law and continental law framework for analyzing the problem of parallel imports. Common law regards the problem of parallel imports as commercial activity involving

\(^{1815}\) See Horner at 18.
contractual relationships\textsuperscript{1816}. Parallel importers shall be seen as third parties, which according to the general principle known as privity of contract, cannot be bound to the terms agreed by the contracting parties\textsuperscript{1817}. Conditions do not run with the goods and cannot be imposed upon them. In principle, later purchasers are not obliged to adhere to conditions set out in a contract to which they are not parties, even in cases where such conditions are attached to each packet used to sell that merchandise\textsuperscript{1818}. Moreover, over five hundred years ago, common law has developed a doctrine stating that contracts in restraint of trade are unlawful. Therefore, contracts preventing future parallel imports are regarded as being in restraint of trade. They will be \textit{prima facie} treated in law as void\textsuperscript{1819}, unless they do not fail the reasonableness test. This test, developed by \textit{Lord Macnaghten} states that a restriction is reasonable when: “... reasonable, that is in reference to the interests of the parties concerned and reasonable in reference to the interests of the public, so framed and so guarded as to afford adequate protection to the party in whose favour it is imposed, while at the same time it is in no way injurious to the public”\textsuperscript{1820}.

Goods incorporating inventions and other intellectual results protected by intellectual property law present however a different situation. In this case, the general principle of privity of contract does not apply, since the rightholder is given the power to control the further commercialization of this goods\textsuperscript{1821}. United Kingdom has regarded patent rights as monopoly rights. There was no notion of exhaustion of right and the patent holder could therefore erect barriers or specify conditions in the path of the parallel importer\textsuperscript{1822}. Restrictions to patentee are defined by imposing restrictions to his monopoly faculties\textsuperscript{1823}. This is the case of the Resale Prices Act 1964, under which patent rights no longer extend to resale

\textsuperscript{1816} Id.
\textsuperscript{1817} Id. at 19.
\textsuperscript{1818} See McGruther v. Pitcher (1904) 2 Ch 306, quoted by Horner at 19.
\textsuperscript{1819} Horner at 20-21.
\textsuperscript{1820} Nordenfelt v. Maxim-Nordenfeil (1894) AC 535, 565 quoted by Horner at 21.
\textsuperscript{1821} Hoerner at 78.
\textsuperscript{1822} Id. at 46.
\textsuperscript{1823} Rothinie, Warwick, Parallel Imports, London, 1993, 120. He states that this doctrine was defined by Lord Shaw in National Photograph Company of Australia Ltd. v. Menck (1911) AC 347, 353, who instead of using the exhaustion doctrine, chose to resolve the issue by reference to the rules of the passing of title and the incidents thereto, an approach which began to emerge as the “doctrine of leave and licence” in Betts v. Willmont (1871) LR 6 Ch. App. 239.
price maintenance and a seller of patent-protected goods may charge what he likes or the 1977 Patents Act at 48(1) authorizing the Comptroller to grant compulsory licenses under a patent\footnote{Hoerner at 48.}. An important restriction is the doctrine of the “implied license”\footnote{Id. at 47.}.

The implied license doctrine states that an intellectual property owner’s sale of goods carries with it an implied license that the purchaser may use the goods for reasonable contemplated purposes\footnote{Yusuf and Moncayo von Hase at 118.}. Consequently, by the acquisition of commodities from the patent holder or from a licensee acting in the scope of his license, an “implied license” for the further distribution and use of the patented devices is also transferred\footnote{Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 4.}. On the other hand, if the title-holder imposes strict conditions with regard to the use and distribution of the product in a sale contract or in a restrictive licensing agreement, no exhaustion of exclusive rights takes place\footnote{See Yusuf and Moncayo von Hase at 118.}. This situation affects third parties, because in principle, the acquirer, importer or second distributor could not acquire any better right than the original licensee\footnote{Id. at. 118-119. See Beecham Group v. International Products Ltd., decision of the High Court of Kenya, quoted by Gladwell, D., The Exhaustion of Intellectual Property Rights, in 12 EIPR 368, 368 (1986)}. However, the imposition of restrictive conditions is not presumed. Thus, the acquirer is limited only if he has the knowledge of the conditions imposed, by the patentee or those representing the patentee, at the time of sale\footnote{See Rothinie, quoting Lord Shaw at (1911) National Photograph Company of Australia Ltd. v. Menck AC 347, 353.}. Since it affects third parties, this theory has the practical effect of extending or ensuring the exercise of exclusive rights of title-holders through the whole distribution process\footnote{Yusuf and Moncayo von Hase at 118.}. The implied license theory is mainly applied in most of the common-law countries including Australia, Canada, New Zealand and the United Kingdom\footnote{Yusuf and Moncayo von Hase at 118.}. 

\begin{footnotes}
\footnotetext{Hoerner at 48.}{Hoerner at 48.}
\footnotetext{Id. at 47.}{Id. at 47.}
\footnotetext{Yusuf and Moncayo von Hase at 118.}{Yusuf and Moncayo von Hase at 118.}
\footnotetext{Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 4.}{Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 4.}
\footnotetext{See Yusuf and Moncayo von Hase at 118.}{See Yusuf and Moncayo von Hase at 118.}
\footnotetext{Id. at. 118-119.}{Id. at. 118-119. See Beecham Group v. International Products Ltd., decision of the High Court of Kenya, quoted by Gladwell, D., The Exhaustion of Intellectual Property Rights, in 12 EIPR 368, 368 (1986).}
\footnotetext{See Rothinie, quoting Lord Shaw at (1911) National Photograph Company of Australia Ltd. v. Menck AC 347, 353.}{See Rothinie, quoting Lord Shaw at (1911) National Photograph Company of Australia Ltd. v. Menck AC 347, 353.}
\footnotetext{Yusuf and Moncayo von Hase at 118.}{Yusuf and Moncayo von Hase at 118.}
\footnotetext{See also Castell, B. L’épuisement du droit intellectual en droit allemand, français et communautaire, Paris, P.U.F., 1989, 34.}{See also Castell, B. L’épuisement du droit intellectual en droit allemand, français et communautaire, Paris, P.U.F., 1989, 34.}
\footnotetext{Yusuf and Moncayo von Hase at 118.}{Yusuf and Moncayo von Hase at 118.}
The English Patents Court in the *Deltamethrin* decision\(^{1833}\) pointed out that the term “parallel importation” refers to goods produced and sold legally and subsequently exported. The problem of parallel imports is conceived as a contractual problem between licensor and licensee, which specifically refers to the existence of limited conditions upon selling imposed by the patentee on the licensee. The court defined that “it is open to the patentee, by virtue of his statutory monopoly, to make a sale, *sub modo*, or accompanied by restrictive conditions which would not apply in the case of ordinary chattels;... the imposition of these conditions in the case of a sale is not presumed, but on the contrary, a sale having occurred, the presumption is that the full right of ownership was meant to be vested in the purchaser while... the owner’s right in a patented chattel would be limited, if there is brought home to him the knowledge of conditions imposed, by the patentee or those representing the patentee, upon him at the same of sale”\(^{1834}\). These limitations would affect third persons, only when they have notice of them\(^{1835}\). As a result, limited licenses require that notice be brought to the attention of every person down the chain in order to stop the free movement of this product\(^{1836}\). Once the goods are sold without a limited license, then the purchaser buys them without any patent restriction\(^{1837}\).

**b) Disadvantages of this Theory**

This solution avoids the examination of the legal nature of patent rights\(^{1838}\). It burdens the patentee with the duty to give proper notice to all re-sellers involved

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\(^{1833}\) See Roussel Uclaf S.A. v. Hockley International Ltd., decision of October 9, 1995, 28 IIC 744 (1997), “*Deltamethrin*”.


\(^{1835}\) Beier, Zur Zulässigkeit von Parallelimporten patentierter Erzeugnisse, at 5.

\(^{1836}\) See *Deltamethrin*, 28 IIC 744 (1997).

\(^{1837}\) *Id.* at 747. See also Yusuf and Moncayo von Hase at 118.

\(^{1838}\) The position of the Court of Common Pleas is different when confronted with an assignor’s attempt to undermine the assignment in Walton v. Laater 8 CB (NS) 162, 185-186. In 141 ER 1127, 1137, Erle CJ held: “but it appears to me to be clearly the intention of the Crown in granting letters-patent for a new invention, to prohibit and prevent third persons from using the patented article for the purpose of profit by selling. The object is to give to the inventor the profit of his invention; and the most effectual way of defeating that object would be the permitting others to derive from the sale of the patented article the profit which it was intended to secure to the patentee. It seems to me, therefore, that proof that a party has sold the patented article, without proof of his having made it or procured it to be made, would be good evidence to warrant a jury in finding that he has been guilty of an infringement”. The court’s focus on the profit to be derived from a patent suggests an approach based on an exhaustion theory. See Rothnie at 126.
in order to protect his interest in stopping parallel imports. One way of doing this is through notices printed in the package or similar ways. This burden is impractical and constitutes a legalistic solution to the case, which requires only the proof of the existence of an official notice to all re-sellers for recognizing the right of the patent holder to prohibit parallel imports. It does not consider the goals of the patents system, the interests concerning the promotion of free trade and the need to control monopolistic abuses of the patentee.

As a result, the implied license theory does not offer criteria for conciliating all the interests involved. It has been criticized as impractical as a world wide model of exhaustion. The theory of implied license generates uncertainty because of the extension of contractual restriction to purchasers not parties to the contract. There is uncertainty as to which third purchasers - likely to be bound by restrictions imposed by the title-holder in contracts to which they are not parties - are subjected. In addition, the discretionary character of the doctrine which leaves exhaustion of IPRs at the exclusive title-holder’s mercy was found to be incompatible with the principle of exhaustion developed in France and Germany. On the other hand, today it is easier through software to define methods to advise acquirers of the existence of exclusive licenses imposing certain limitations, or to control the circulation of merchandise with codes printed in packages. However, the right of the patent holder to impose limitation should be controlled by a rule of reason in order to balance his legitimate interests with those of users of technology.

Thus, the implied license doctrine may be harmonized with the exhaustion principle in order to offer a suitable framework for the problem of parallel imports. The main contribution of the implied license doctrine is its focusing on the contractual relationship between patent holder and his licensees. It considers the prohibition of parallel imports not as a necessary consequence of the territoriality principle of patents, but as an internal contractual problem between parties. The right of patent holders to prevent parallel imports is therefore not an absolute right, but a relative one subject to the control of the rule of reason.

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1839 Heath, Parallel Imports and International Trade, at 631.
1840 Yusuf and Moncayo von Hase at 119.
1841 Id.
The definition of the legitimate interest of the parties, and the effects of such measures in the development of trade and technology markets should be included in the construction of a final solution of parallel imports. Consequently, when considering the contractual restrictions for parallel imports, the implied license theory can be complemented with the definition of the legal nature of patents. Thus, the justification of the theory of implied license can be constructed taking into consideration that the goal of the patent right is to provide that patentees obtain a fair participation or share in the social exploitation of their inventions.

5. Patent’s Right to Control Parallel Imports and Commercialization of Patented Products Within the Rule of Reason -The Case of the US

The rule of reason constitutes a principle of law. It can be defined under the following terms: “The unaccountable judge is still accountable to reason. A judge, it is said, must issue reasoned decisions. The judicial system as a whole is designed to promote reason as the paramount judicial virtue. To reason, moreover, is to reason from the received postulates of the law, not outside of them. Legal reason represents the process of applying impersonal principles of law to varying facts. Thus conceived, reason may chart the course between the subjective dangers of the pragmatic and the ideological. The great danger of pragmatic judging is that it is divorced from underlying legal principle; the danger of the ideologic, that it is severed from the subtleties of real life facts”1842.

In the US, the rule of reason test was developed for determining whether alleged acts connected with restraints of trade violated § 1 of the Sherman Anti-Trust Act [15 USCA § 1]. The legality of restraints on trade is determined by weighing all factors of the case such as the history of the restraint, the evil believed to exist, the reason for adopting the particular remedy and the purpose or end sought to be attained1843.

With regard to parallel imports, the US patent system has tended towards using use of rule of reason principles in order to harmonize the interest involved. This will be analyzed in the next sections.

a) **Implied License Doctrine**

The imply license theory has also been used in the US. An example is the case of *Dickerson v. Matheson*\(^\text{1844}\). In this case a distinction was made between sales by the patent holder or a licensee, who may have rights in both a foreign country and the US or only in the foreign country. The Court stated that in this case the licensee can not authorize importation in the US freely, however, if the acquirer buys without restriction, he would have been free to import. The printing of the condition “strong for export” on the invoice was held to incorporate it into the terms of the sale. This restriction prevents the importation\(^\text{1845}\). The US case law offers a suitable framework to analyze the interrelation among the international exhaustion theory, the implied license doctrine and the domestic regulations connected with the protection of local industry.

The implied license doctrine has been used to recognized a certain international exhaustion in cases the the rightholder in the US and the foreign country is the same person. An example is Section 526 of the US Tariff Act of 1930, which prohibits the importation of certain gray-market goods. Gray-market goods are defined as “certain foreign-manufactured goods that bear a valid United States trademark and are imported without the consent of the U.S. trademark owner”\(^\text{1846}\). Section 526 of the US Tariff Act of 1930 required that US trademark owners expressly consent to the importation of identically trademarked goods before those goods may enter the United States\(^\text{1847}\). Section 526 prohibits importing “into the United States any merchandise of foreign manufacture if such merchandise...] bears a trademark owned by a citizen of, or by a corporation or association created or organized within the United States, and registered in the Patent and Trademark

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\(^{1844}\) *Dickerson v. Matheson*, 57 Fed. 254 (2d Cir. 1893).

\(^{1845}\) Id. at 257 to 258.


\(^{1847}\) 19 U.S.C. § 126(a).
Office by a person domiciled in the United States[ ... unless written consent of the owner of such trademark is produced at the time of making entry”\(^\text{1848}\).

This importation prohibition is not considered an embargo but a governmental restriction created as a mechanism by which a private party might, at its own option, enlist the government’s aid in restricting the quantity of imports in order to enforce a private right\(^\text{1849}\). Specifically, the Supreme Court considered that “the trademark owner has sole authority to decide that all products bearing its trademark will enter or that none will, and to decide what entity may import them, under what conditions, and for what purpose”\(^\text{1850}\).

Although not contemplated in the Tariff Act, the regulations of the US Customs Services, promulgated pursuant to the Tariff Act, have created a “common control exception”\(^\text{1851}\) allowing a sort of international exhaustion. This regulation states at §133.21 (c), that the restriction is not applicable when “(1) both the foreign and the U.S. trademark or trade name are owned by the same person or business entity; (2) The foreign and domestic trademark or trade name owners are parent and subsidiary companies or are otherwise subject to common ownership or control”. In addition, “(3) of that regulation creates the “authorized use exception” so that the restriction is not applicable when “the articles of foreign manufacture bear a recorded trademark or trade name applied under authorization of the US owner”\(^\text{1852}\).

These exceptions were challenged by COPIAT, the Coalition to Preserve the Integrity of US Trademarks, a trade association created in 1984 by 40 manufacturers and distributors of trademarked goods\(^\text{1853}\). The case was decided in


\(^{1850}\) Id.

\(^{1851}\) Yusuf and Moncayo von Hase at 123. See also 19 CFR § 133,21(c) (1987) as cited in the opinion of the Supreme Court regarding trademark imports, 56 LW 4219, at 4220.

\(^{1852}\) See 19 CFR § 133,21(c) (1987) as cited in the opinion of the Supreme Court No. 86-495 regarding Trademarks imports, 56 LW 4219, at 4220. See also Weicher, M., K. Mart Corporation v. Cartier, Inc.: A Black Decision for the Gray Market, 22 Intellectual Property Review 399 (1990), 399-401.

\(^{1853}\) Yusuf and Moncayo von Hase, at 123. See also Opinion of the Supreme Court No. 86-495 regarding Trademarks imports, 56 LW 4219, at 4221
1988 by the US Supreme Court\textsuperscript{1854} which held that the Customs’ common control exception does not violate the Tariff Act since the terms “owned by” and “manufactured in a foreign country” are ambiguous\textsuperscript{1855}. The Court decided that there is an inability to discern, which entity is said to “own” the trademark in the case that the domestic subsidiary is wholly owned by its foreign parent, since the goods are manufactured abroad by the “same person” who holds the US trademark or by a person who is “subject to common .... control” with the US trademark holder. Furthermore, the term “manufactured in a foreign country” can be applied to a foreign company in a foreign country. The Court held that only the authorized use exception violated the Tariff Act, since under no reasonable construction of the statutory language can goods made in a foreign country by an independent foreign manufacturer be removed from the purview of the statute\textsuperscript{1856}.

As a result, the US Supreme Court implied that parallel imports of goods placed in a foreign market by a licensee of the owner of a US trademark would, from then on, be prohibited according to the Tariff Act\textsuperscript{1857}. Following this decision, it is possible to maintain that US Supreme Court position that “the trademark owner has sole authority to decide that all products bearing its trademark will enter or that none will, and to decide what entity may import them, under what conditions, and for what purpose”\textsuperscript{1858} is not that radical. Thus, the US legal system has allowed the imposition of certain restrictions on the faculty of intellectual property rights holders to stop parallel imports, and thereby, a certain international exhaustion principle is permitted.

\textit{b) Prevention of Importation of Infringing Products According Section 337 of the US Tariff Act of 1930}

Unauthorized importation into the US and use or sale of an article patented in the US infringes US patent. However, prior to 23 February 1989, it was not an infringement of the US patent to import into US a product made abroad according

\textsuperscript{1854} See Opinion of the Supreme Court regarding Trademarks imports, 56 LW 4219, at 4220.


\textsuperscript{1856} \textit{Id.} at 4481.

\textsuperscript{1857} \textit{Yusuf and Moncayo von Hase}, at 123.

\textsuperscript{1858} \textit{Id.}
to a process which was patented in the US\textsuperscript{1859}. The subject has been regulated by the Tariff Act of 1930 (19 USC), particularly Sections 337 and 1337. Section 337 of the Tariff Act of 1930 establishes the remedy against unfair importation, which formerly only “interested parties” such as US manufacturers and producers may petition. It grants the International Trade Commission (ITC) the authorization to prevent importation of a product manufactured abroad by means of a process covered by a US process patent. Article 19 USC § 1337 states that: “Unfair methods of competition and unfair acts in the importation of articles into the United States, or in their sale by the owner, importer, consignee or agent of either, the affect or tendency of which is to destroy or substantially injure an industry efficiently and economically operated, in the United States, or to prevent the establishment of such an industry, or to restrain or monopolize trade and commerce in the United States, are declared unlawful.” According to 19 USC 1337(a) importation of products processed by a process patent shall have the same status as the importation of any product covered by any unexpired valid US patent. In this case, this importation is considered an act of unfair competition\textsuperscript{1860}. In Frischer & Co. v. Bakelite Corp.\textsuperscript{1861}, the Court of Customs and Patent Appeals held that imports of goods which infringed the patent and trademark rights of Complainant constituted unfair methods of competition and deprived Complainant of the “privileges and rights which the laws of this country gave it”\textsuperscript{1862}. However according to 337 of the Trade Act, the ITC should bar the importation of goods made abroad by US process but only if there is unfair competition against an efficiently and economically operated US industry, i.e., that the patent owner or its US licensees are actually practicing the patented invention in the US. According to the domestic industry requirement, if a patent is not being worked in this country, then there is no injury to US economic interests of jobs\textsuperscript{1863}.

The remedy against unfair methods or competition and unfair acts in the importation created by Section 337 was “in addition to” all other remedies at

\textsuperscript{1859} Rothnie at 142-143. See also Astra-Sjuco AB v. ITC 207 USPQ 1, 8 (CCPA 1980).


\textsuperscript{1861} 39 F.2d 247 (C.C.P.A. 1930).

\textsuperscript{1862} Id. at 260.

\textsuperscript{1863} Id. at 135.
law. However, Section 337 can be framed as incorporating into the US legal system a rule of reason connected to international trade. It has been interpreted to mean that the Commission is to balance both the public interest that is served by protecting intellectual property rights and that served by the entrepreneurial activity which results from a patent’s exploitation. This may explain that a Federal court that is confronted with a ITC determination on an intellectual property right might just decide for itself whether to try the dispute anew or to accept the ITC determination. In the last case, a patent owner who received an unfavorable patent ruling at the ITC could have found the district court will apply the ITC ruling.

That holders of process patents were left without relief in Federal court in case of infringement constituted a contradiction to the US patent system. Patent holders were forced to use their patent in the US to obtain protection. These kind of inconsistencies are frequent in patent law, whereby the hard protection is unsuitable to harmonize all the interests involved. It is interesting to observe that this norm applied in cases where there was an infringement of the patent. Parallel imports refer to the case where the patent holder had already obtained a reward in the market of fabrication. In case of parallel imports, the interest of the inventor has been already, totally or at least to some extent satisfied. The hypothesis of unfair competition or unfair act of importation in case of parallel imports is not that evident, when compared with the case of infringement. Therefore, parallel imports should not be considered per se unfair competition. A rule of reason should be applied in these cases. Moreover, the hypothesis of unfair competition should be excluded when the rightholder is obtaining a reasonable reward in the production market, and there are no objective reasons justifying this interest in creating trade barriers. The former Section 337 of the Tariff Act can be considered contrary to Article 5 of the Paris Convention and Article 27 TRIPS, since it makes the enjoyability of patent protection subject to existence of a US

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1865 Id. at 3.

1866 Id.

1867 Id. at 6.
industry, *i.e.*, the local exploitation of the patent. GATT also considered that section 337 violated the GATT national treatment obligation\textsuperscript{1868}.

On the other hand, giving patent holders a *per se* right to stop any importation, also in the case the have granted a license and obtained a fair royalty, just to protect their interest to restrain or monopolize trade and commerce in the United States equals to go from one extreme to the other\textsuperscript{1869}. A rule of reason under the unjust enrichment framework is more suitable. The amendment of Section 337 was influenced by the urge to “protect US inventors from unfair competition by foreign manufacturers who are taking a free ride on US research and development”\textsuperscript{1870}.

There was concern about the competition coming from Japanese enterprises connected with high technology breakthrough in the US. This concern was elucidated with the following case. Japanese firms, 1 year after the patent application for this technology was filed in Japan, began producing the product. Seven years after the patent was applied for in Japan, and was still not granted, these enterprises were effectively competing with the newly developed US markets. In this case, the ITC ruled in favor of US companies, but in the meantime, the company was considered to have lost millions of dollars in sales\textsuperscript{1871}.

Section 337 of the Tariff Act was latter amended by the Omnibus Trade and Competitiveness Act of 1988, the pre- 1988 language, with its strict injury requirement, applies only to common law trademarks, trade secrets and other


\textsuperscript{1869} Regarding this matter, Dr. \textit{Stern} stated: “The absence of a domestic industry requirement could leave the Commission arbitrating among importers jockeying for market share in the United States with no appreciable impact on production capability or workers’ jobs in the United States. Eliminating the industry requirement would likely lead to a substantial increase in the use of Section 337 by foreign companies. The New York Times recently noted that 43 percent of all U.S. patents issued in 1984 were issued to foreign companies”. \textit{Id.}

\textsuperscript{1870} See position of representative \textit{Moorhead}, on February 19, 1986 at Hearings Before the Subcommittee on Courts, Civil Liberties, and the Administration of Justice of the Committee on the Judiciary House of Representatives, 99th Congress, February-May 1986, Washington, 1986 at 3. 2. It is important to note the existence of important extra-territorial effects of this kind of patents, caused by the fact that overseas infringement of a process patent cannot always be determined from examining the accused product. Proof of infringement may be within the exclusive control of foreign manufacturers who are unwilling to comply with US discovery procedures. See position of Dr. \textit{Stern}, Paula, \textit{Id.} at 3, 7. This problem can be solved creating a rebuttable presumption of infringement in cases involving process patents, if there is substantial likelihood that the product was produced by the patented process, and through a rebuttable presumption of infringement, when the claimant was unable to determine the process actually used to make the product after making reasonable effort to determine the process actually used to make the product, providing process patent owners with an effective mechanism for obtaining relief against accused overseas infringers who refuse to comply with discovery requests. \textit{Id.}

\textsuperscript{1871} \textit{Id.}
tees of processes have the power to sue for the importation of products made abroad according to the patent. Section 337 applies per se to articles that infringe a valid and enforceable US patent or a registered copyright or trademarks.

The right of the patent holder to claim a participation for the use of his invention, and to reasonable administrate the global exploitation of his patent constitute the essence of the patent right, not the right to per se exclude third parties. However, US legislation and case law has not already defined clear rules for international exhaustion of intellectual property rights. Regarding gray market parallel importation, in Certain Alkaline Batteries the Commission has determined that parallel importation of batteries produced under a Belgian registered trademark owned by Complainant’s Belgian subsidiary violated Section 337, notwithstanding the US Custom Service’s regulations enforcing 19 USC Section 1526 would deny relief because the degree or ownership and control between Complainant and its Belgian subsidiary. The commission based her decision on the argument that the common law of trademarks afforded a remedy for the infringement of a trademark holder’s territorial rights. This decision has been declared contrary to 19 USC §156 and invalid by the US Court of Appeals of the District of Columbia. However, the Court of Appeals for the Federal Circuit upheld the regulations.

The rule of reason may be reintroduced, however, through the analysis of the legal nature of the patent law in regard to parallel imports. An unjust enrichment approach may lead to the conclusion that the prohibition of parallel imports, when based on the interest of the rightholder to restrain or monopolize trade and commerce in the United States constitutes also an abuse of the patent right, and therefore and unfair act, e.g., conspiracy to monopolize, refusal to deal or sell, or collusive binding. The discussion under this terms is however difficult, since

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1873 Id. at 10.

1874 This is the case of Section 110 (5) of the Tariff Act regarding copyrights. See Rose at 316-317.


1876 See Coalition to Preserve the Integrity of American Trademarks v. United States, No. 84-5890 (May 6, 1986).

1877 See Vivitar Corp. v. United States, 761 F.2d 1552, 255 USPQ. See also Adduci at 31.
concerning the antitrust-type violation, the frequency of such actions has declined and as result these areas of Section 337 have not been fully developed.\textsuperscript{1878} Thus, there is an important connection between intellectual property protection and trade. The interests in hindering parallel imports are not only related to the protection of inventors, it is also related to the interest in protecting national industries. This protection can be done through a rule of reason searching to harmonize relevant interest, \textit{i.e.}, protecting national industries from unfair competition or misappropriation (unjust enrichment), or under a \textit{per se} rule, granting strong patent protection under a property rule, and allowing the patent holder to stop any kind of competition coming from abroad, without considering the interest behind this restriction of trade. The refusal to recognize \textit{per se} an international exhaustion of patent right is related to the second alternative.

The rule of reason offers a suitable alternative to allow the patent holder, when necessary, to control the further commercialization of the patented good. Once again, the central question is the definition of the scope of the “privileges and rights which the laws of this country gave to the patent holder”. The right to stop importation should be in accordance to legitimate interests of rightholders. In this case the rule of reason is applied to balance the legitimate interest of the patent holder, the users of technology and the market.\textsuperscript{1879} Rightholders should have the right to stop commercialization of the patented goods (including importation) when it is necessary to protect their interest in obtaining a reasonable profit from the utilization of their protected work results in the market, but they should not obtain protection when their refusal to allow importation is intended to restrain or monopolize trade and commerce in the United States. This solution has been developed in the US, but only to be applied within its national market, allowing the patent holder to create certain vertical territorial restraints in connection with licensing. The discussion of the extension of this principle to international trade can be opened.

\textsuperscript{1878} See Adduci at 24-27.

\textsuperscript{1879} It is interesting to observe that concerning copyrights, the US trade policy favors a wide interpretation of Article 7 of TRIPS, to the extreme that: “… TRIPS appears to recognize the need to balance the rights of intellectual property rights owners with those of a wider society, which the U.S. Government might want to suggest gives it the authority to provide for relatively wide exemptions to exclusive rights granted to copyright owners under its own copyright legislation. See Rose at 317.
c) Integration of International Exhaustion and Implied License Doctrines in US Case Law

US case law had also introduced certain criteria to allow for international exhaustion of patents. It has sometimes considered the “double recovery” theory to allow parallel imports, contradicting the theory of independent territorial nature of foreign and domestic patents directly\textsuperscript{1880}. Case law had in some cases avoid analyzing why the territorial nature of patent rights did not prevent acts under a foreign patent from exhausting the US rights and raised the choice between the exhaustion theory and the independent territorial nature of foreign and domestic patents\textsuperscript{1881}. For these cases, court have focused on the fact that the holder of the foreign and national patent right is the same person, and have analyzed the conditions upon which the sell contract is done. Courts have taken into account the fact that the patent holder has participated in the sale of the products, has obtained a profit in the country of sale, and had sold unconditionally\textsuperscript{1882}, in order to allow parallel imports. The contractual background constitutes therefore an important element to decide this matter. It has allow for the introduction of a rule of reason suitable to balance the interests involved.

An example is the case \textit{Curtiss Aeroplane and Motor Corporation v. United Aircraft Engineering Corporation} \textsuperscript{1883}, related to the sell of JN-4 aeroplanes and spare parts. \textit{Curtiss Aeroplane and Motor Corporation} gave the British Government’s Imperial Munitions Board in Canada the exclusive right and license under its Canadian patent to manufacture within the Dominion of Canada, for the use by the British government or the government of any of its possessions, but not for manufacture, use or sale otherwise. The Aeroplanes and motors would become and be the absolute property of the British government. After the war the Board was disbanded. The Board sold United aeroplanes and engines, without any restraint about their use or sale in the United States, knowing that the intention of United was to sale in the US. The US Court determined that since \textit{Curtiss} searched in vain for any restriction or condition as to the right to use or to vend, the British Government obtained a full an unqualified right to use and sell the

\textsuperscript{1880} See Rothnie at 178.
\textsuperscript{1881} Id.
\textsuperscript{1883} Curtiss Aeroplane and Motor Corporation v. United Aircraft Engineering Corporation, 266 Fed. 71 (2d. Cir. 1920).
planes and engines which it could pass on to subsequent purchasers. In addition, the very from the nature of the products and the reason or the purchase indicated that they were intended to be use anywhere throughout the world, included the US. Judge Rogers, following the rule developed in Adams v. Burke and Keeler, stated the following general theory of exhaustion, for the cases where the products were put in the market with the participation by the patentee in the US: “If a patentee or his assignee sells a patented article, that article is free from the monopoly of any patents which the vendor may possess. If the thing sold contains inventions of several United States patents owned by the vendor, the article is free from each and all of them; and if the vendor has divided his monopoly into different territorial monopolies, his sale frees the article from them all. If the vendor’s patent monopoly consists of foreign and domestic patents, the sale frees the article from the monopoly of both his foreign and his domestic patents, and where there is no restriction in the contract of sale the purchaser acquired the complete title and full right to use and sell the article in any and every country.”

The cases Sanofi SA v. Med-Tech Veteriarian Products Inc. discussed both in the District Courts of New Jersey and Kansas are a good example of the application of both, the international exhaustion principle and the territorial nature of patent rights. The plaintiff are Sanofi SA and her exclusive licensee American Home Products Corporation. In New Jersey, the Court decided the case Sanofi SA v. Med-Tech Veteriarian Products Inc. denying the patentee’s application and granted the licensee’s application. It denied the patentee’s application using the principle of international exhaustion. In this case the court ruled: “Here, however, it was the patentee that made and profited from the initial sale abroad, and despite having had the opportunity to do so, it placed no restriction in the sales contract

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1884 Id. at 75, 77, 79. See also Rothnie at 177, who comments that these facts have been relied on to suggest that the contract of sale between the parties expressly contemplated the Board acquiring unfettered title to the aeroplanes and parts.
1885 Adams v. Burke 84 US (17 Wall) 453 (1874).
1887 See Curtiss Aeroplane and Motor Corporation v. United Aircraft Engineering Corporation, at 71, 72. See also Rothnie at 177.
upon further disposition of the product by the purchaser. The court states that the *Boesch* precedent is distinguishable from this case, since in that case “the patentee neither received compensation for the use of his invention, nor consented to its importation into this country”. The court also distinguish this case from *Griffin* because here the sale abroad was made by the patent holder itself without restriction. The Court states that: “Therefore, assuming that Sanofi had a right to enjoin the reselling of the goods in the country, it waived that right by not placing any written restrictions upon the purchaser at the time of the sale.” The court found strong analogy for this result in *Holiday v. Mattheson*, particularly its holding: “when the owner sells an article without any reservation respecting its use, or the title which is to pass, the purchaser acquires the whole right of the vendor in the thing sold: the right to use it, to repair it, and to sell it to others; and second purchasers acquire the rights of the seller, and may do with the article whatever the first purchaser could have lawfully done if he had no parted with it”.

On the other hand, the court granted the licensee’s application stating that patentee has no more right to practice his patent in field of use where exclusive licensee has been given than does a stranger; therefore, if exclusive license has been violated by patentee, patentee may be sued for infringement. The court stated that according to *Curtiss Aeroplane* “exhaustion doctrine applied where seller abroad had contractual authority to sell in the United States”, and according to *Boesch*, “no exhaustion where seller abroad had no authority to sell in the United States”. The court confirmed that in *Curtiss*, Plaintiff owned 83%

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1889 *Id.* at 938. See also *Rothnie* at 178. It is important to notice that in this case a broker bought the drug in France, where it was not patented, from one of Sanofi’s subsidiaries. The subsidiary sold the drug to the broker with the fraudulent understanding that the drug were intend for sale in South America and on condition that it not be imported into the US. The court dismissed fraud because Med-Tech was not party of it and bought the drugs without notice of fraud, and the plaintiff, Sanofi’s subsidiary, did not publicise its condition in the US although it did advertise its products there, whereby the first factor ignores the separate legal personality of Sanofi and the subsidiary which actually made and sold the drugs. See *Rothnie* at 180.

1890 565 F. Supp. 931, 938.

1891 *Id.*

1892 *Holiday v. Mattheson* 24 F. 185 (C.C.N.Y.1885).

1893 *Id.* at 185.

1894 565 F. Supp. 931 at 933.

1895 *Id.* at 938.

1896 *Id.*
of its subsidiary, which entered into a contract to sell the patented planes to the government of Great Britain\textsuperscript{1897}.

Thus, the international exhaustion doctrine should not overrule the legitimate interest of exclusive licensors, which in opposition to non-exclusive licensors, have an legitimate interest in the patent monopoly (exclusion right)\textsuperscript{1898}. The international exhaustion theory should not allow for a damage of the company’s business by defendants activities, \textit{e.g.}, that the company’s sales declined and other related product lines of the company are affected\textsuperscript{1899}. Therefore, the court states: “To credit defendant’s arguments would require this court to conclude that \textit{Sanofi} could make an unrestricted sale abroad of goods destined for this country without violating the patent laws, yet could not lawfully initiate that same sale within United States border. Such an anomalous result would discourage the assignment and licensing of patent rights by making those rights less valuable and more susceptible to circumvention through transaction initialed in foreign countries by United States patentees who have previously transferred rights under their patents”\textsuperscript{1900}. Moreover, the court admitted the possibility of validity of the defendant argument that the sale by \textit{Sanofi} created an implied license. However, where two license conflict, the first prevails “even though the taker of the second had no notice of the existence of the first”\textsuperscript{1901}.

Under this framework, the \textit{Griff} case can be seen as incorporating to the mere territoriality principle of patents, which \textit{per se} is not sufficient to exclude the international exhaustion principle, other connected relevant interests. That is, the existence of legitimate interests of exclusive licensees, who may suffer irreparable injury. This position is also evident in decision of the District Court of Kansas, which was satisfied that all of the requirement for the granting of a preliminary injunction have been established. The Court ruled that: “A licensing agreement in international patent situation such as this, however, requires more than just the possession of the patented article.][ In this case, for example, if the defendants had bought the acepromazine maleate from a European licensee of Sanofi,

\textsuperscript{1897} \textit{Id.} at 941.
\textsuperscript{1898} \textit{Id.} at 936.
\textsuperscript{1899} \textit{Id.} at 942.
\textsuperscript{1900} \textit{Id.} at 941.
\textsuperscript{1901} \textit{Id.} The court quoted 4 Deller’s Walker on Patents § 401 (2d. ed) and \textit{New York Phonograph Co. v. Edison}, 136 F. 600 (S.D.N.Y. 1905), aff’d, 144 F. 404 (2d. Cir.1906).
defendants contend that they would have an implied license to sell the drug in the United States. This situation would make the United States licensing agreement worthless”. However, this Court made the confusion between the interests of the patentee and its licensee, mixing both when stating: “The potential market diversion, the invasion of the rights of Sanofi and American Home to exploit their rights in the patent, and the taking advantage of the research and promotional activities performed by Sanofi before the expiration of the patent protection is sufficient irreparable harm ]...[ Furthermore, American Home contends that the competing product marketed by the defendants will lead to confusion among customers ]...[ The integrity of the product and reputation of the plaintiffs American Home and Sanofi outweighs any potential economic loss that defendants may suffer as a result of our enjoining the sales of their product”\(^{1902}\).

The international exhaustion doctrine defined by the District Court of New Jersey in the Sanofi shows the marked shift in favor of the application of the domestic exhaustion rule to foreign trade in the US\(^{1903}\). This has been confirmed in the case Kabushiki Kaisha Hattori Seiko v. Refac Technology Development Corporation\(^{1904}\). In this case Judge Cerdarbaum resolved that Hattori was licensed to sell within the US and abroad, there being no geographical restriction on the right to sale granted. The court, quoting the Sanofi decision at New Jersey, stated the following exhaustion doctrine: “In general, the first sale of a product by a patentee or licensee exhaust the patent monopoly, and deprives the holder of patent rights of any further control over resale of the product. This principle applies to an authorized first sale abroad by a patentee or licensee who also has the right to sell in the United States. Following such a sale, the holder of United States patent right is barred from preventing resale in the United States or from collecting a royalty when the foreign customer resells the article here”\(^{1905}\).

In comparison with U.K, US courts have relied on the contrary presumption when using the implied license doctrine to resolve parallel imports: a licence to import will not be implied, and the territorial limitations of patents have predominated.


\(^{1903}\) Rothnie at 183.


\(^{1905}\) Id. at 1342.
Consequently, the common law system presents a contradiction, which has been described as follows: “For one class of cases, the discrete territorial existence of patents is presumed irrelevant; while for the other, it is presumed overriding. No adequate explanation has been offered in either system about why the general policy of commercial convenience dictates contrary results”1906.

However, it is possible to define a framework to conciliate both positions. Courts have tried to balance the interests behind the patent system. The *per se* rule of territoriality of patent rights is changing in favor of a *rule of reason* which move Courts to see the relevant interests behind parallel imports. The first important mechanism to incorporate this rule of reason is the willingness to penetrate the corporate veil of “corporate separateness”1907. The international exhaustion doctrine applies when the same corporation owns the national and the foreign patent, and it is not applied when necessary to protect legitimate interests of exclusive licensees.

The interest of the patentee to separate markets, when he has already reaped the reward claimed for the patent is dubious. However, the patentee requires certain possibility to separate markets, due to the economic and legal differences among markets, and the need to have certain freedom to organize the global exploitation of the invention. This paradox may explain why the international exhaustion doctrine has not received widespread acceptance in either stream1908. The legitimate interests of the patent holder can not be reduced to his obtaining of a reward. The patentee has the right to administrate the social exploitation of the patent in order to obtain a reasonable reward, which should take into account the conditions of each market. Thus, the patent right should give the patent holder the right to administrate the exploitation of the patent, but under a rule of reason.

There are cases where the interest of the patent holder to separate markets is legitimate, even within a domestic market. Court should balance the legitimate interest of the acquirer of the patented good in a foreign market with the legitimate interest of the patentee or exclusive licensee to obtain a reasonable profit.

The extension of this rule of reason to proof the interest of exclusive licensees to stop parallel imports is opened. The hard system of protection in the US has stated

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1906 Rothnie at 184.
1907 Id.
1908 Id.
in *Eli Lilly & Co.* that: “Congress granted monopolies on inventions to encourage research and development of new products, even though competition might be sacrificed in the short-run”\(^{1909}\). Here is still to discuss, if the rule of reason under which the international exhaustion has been applied, may favor the application of rules which protect the legitimate interest in separating markets of exclusive licensee of the patent holder himself suitable to simultaneously control anti-competitive interests. The EU and the US have gained experience in the development of such mechanisms. An example of this kind of rules was § 377 of the Tariff Act of 1930 already analyzed. Other example is the rules developed in the US to allow market division with the United States. The application of the principle of domestic exhaustion to international exhaustion may implied the use of similar mechanism to balance the legitimate interests of patentees, licensees and technology users.

6. *Rule of Reason in the Recent Davidoff Case in UK*

The recent decision of the English High Court of Justice in the case *Zino Davidoff SA v. A & G Imports Limited*\(^{1910}\) offers a good example for the “rule of reason” doctrine for international exhaustion. Davidoff in its distribution agreement with its distributor in Singapore and other East Asian countries, specifically requires an undertaking on the part of the distributor not to sell any Dadidoff products supplied to it outside Singapore and the other Eastern Asian countries. Moreover, the distributor was required to undertake to oblige its subdistributors, sub-agents and/or retailers to also refrain from such sales\(^{1911}\).

Defendant argued with the traditional implied license doctrine. That is, that there was no requirement on the distributor to notify such purchasers that they could not sell the Davidoff products they bought from it wherever and to whomsoever they might think fit. Davidoff’s contract with the distributor did no require the distributor to incorporate “self-perpetuating contractual terms on everyone further down the chain of distribution limiting where the goods may be sold”. In addition,

\(^{1909}\) *Eli Lilly & Co. v. Premon Pharmaceutical Labs*, 630 F.2d. 120, 137; 207 USPQ 719, 735 (3d. Cir. 1980).

\(^{1910}\) Delivered on May 18, 1999, in the English High Court of Justice. See Steele at 25.

\(^{1911}\) *Id.* at 26.
it was argued that the products sold by Davidoff to the distributor do not carry any making or notice that there was a restriction on where they could be subsequently sold.

Davidoff argued that the consent to its goods being imported from outside the EEA into the EEA had to be explicit and not implied. Mr. Justice Laddie resolved the case with a restrictive interpretation of the Silhouette decision and Community law: “existing Community law, particularly Article 7(1) of the Trademark Directive did not create a presumption that a trademark proprietor had to expressly consent to such further distribution within the EEA\footnote{Id.}. The decision was based on the following principles\footnote{Id.}:

(1) Within the EEA applies the exhaustion of trademarks, as a consequence a rightholder having put, or agreed to having puts, goods onto the market. (2) Concerning the international exhaustion principle, certain rule of reason may be applied, since this principles is not “indefeasible” and member states cannot introduce it by the back door. The international exhaustion principle is limited by the right of the trademark holder to choose to retain its right to object to importation into the EEA. The rule of reason may be resumed as following: “In deciding whether a third party has been granted such (to import into the EEA), regard must be had to all relevant circumstances, including the nature of the goods, the terms of any contracts for sale and the provisions of any applicable law”. However, the decision was based primarily on the provisions of the applicable law, \textit{i.e.}, the English law. Under English law: (1) the proprietor of a trademark cannot use it to prevent authorized goods from entering into the EEA if he has agreed, expressly or otherwise, to such entry or he has, directly or otherwise, placed the goods in the hands of a third party under conditions which give the third party a right to distribute and onward-sell them without restrictions; (2) the right of the third party can be determined by the law of the contract of supply to that customer or the law of the non-EEA country in which the sale to the third party takes place.

In particular, consideration should be given to the fact that under English law, the doctrine of exhaustion, whilst it makes some sort of sense in patents and
Copyright, is inimical to the very nature of trademark. In addition, there is a rebuttable presumption that, in the absence of full and explicit restrictions being imposed on purchasers at the time of purchase, a trademark proprietor is to be treated as having consented to the goods being imported into and sold in the EEA, because full and explicit restrictions had not been imposed in this case.

The problem of this decision is it is based on the consideration that the only function of trademarks is to define the origin of the products. This conclusion was based on the following argument: “‘Kodak’ means that goods of the Kodak company wherever the goods were made. When you import Kodak film the name Kodak still tells the truth that this is Kodak’s film. No rational trademark law would allow any other result”1914. However, other relevant interests of a rightholder have been ignored. Mr. Justice Laddie decision interprets Article 7(2) of the Directive not under a rule of reason but restrictively. He concluded that “legitimate reasons” existed if either the ‘physical conditions’ or the ‘mental conditions’ of the goods had been substantially adversely modified. Davidoff argued that A & G fell foul of Article 7(2) when removing or partially obliterating the code numbers on the goods, since such action prevented Davidoff from identifying or recalling faulty goods and resulted in damage to the packaging of the goods which lowered its image1915. Mr. Justice Laddie applied in this case a restrictive interpretation of this Article when stating that A & G’s action of removing or partially obliterating the codes or partially obliterating the codes on the Davidoff goods did not constitutes an actionable right under Article 7(2), since an eventual adverse effect on the “mental condition” of the goods (i.e., hindering a recall of goods) would not “substantially” affect the reputation of the trademark, and significant damage had not been cause to the physical condition of the goods, since the appearance of the goods was not impaired (the marking of the goods was slight and virtually invisible). Therefore, Davidoff was not enabled to object to the importation of the goods into the EEA.

This decision is an example of the tendency of using the rule of reason and the analysis of the legal nature of the right, the solve problems of international exhaustion. The risk of using the rule of reason is that all relevant interests may

1914 Id.
1915 Id. at 27.
not be considered, and therefore, the solution is not suitable to harmonize all relevant interests. Thus, Article 8 of the Directive allows for the application of the rule of reason concerning regional exhaustion, and therefore, this principle should be also applied regarding international exhaustion. The definition of the “legitimate interests” in opposing parallel imports should be made under a rule of reason considering all legitimate interests. Article 8 of the Directive introduces an important relevant interest connected with the right of the rightholder to administrate and control the global exploitation of the trademark, i.e., the right to grant and control exclusive licenses. Today trademarks are not only an instrument to identify products. The exploitation of a trademark requires important investment in marketing and other intangibles. This investments contribute to the efficacy of a trademark to identify the trademark with a determinate fame and with a determinate positioning of the manufacturer and its products in the market. The global exploitation of this right requires also an assignment of the business to other enterprises through exclusive licensing. This enterprises should make investments to place the products in their assigned market. The relevant interest of this parties should be protected under a rule of reason. The rule of reason should take all circumstances to define if the interest to block parallel imports is legitimate. In addition, it should prove if the means chosen to block parallel imports provides a suitable balance between the interests of consumers and the interest of the rightholders.

A restricted interpretation of the Trademark Directive is not a suitable solution. It makes the same mistake as the Silhouette decision: it conforms with a legalistic approach without taken into consideration all the relevant interest involved. The rule of reason developed by the US case law to protect exclusive licensees offers a suitable solution. Within this framework, the legitimate interests of rightholders and exclusive licensees should be protected. Therefore, every acquirer of the good who wish to make business under the “implied licensee” doctrine is required to act with good faith with regard to the legitimate interests of the rightholder to control the global exploitation of his right. This principle may result from the integration, under a rule of reason, of Articles 7.2 and 8 of the Directive, related to the legitimate interests of the rightholder to control his exclusive licensees. Removing or partially obliterating the code numbers on the goods was an act intended to
hinder the rightholder in the exercise of the rights conferred by Article 8 of the Directive. This act seems sufficient to object the parallel imports, since it makes dubious the presumption of English law that a trademark proprietor is to be treated as having consented to the goods being imported into and sold in the EEA. Under these circumstances, a rule of reason would let to the conclusion that the rightholder should not be treated as consented the importation of the altered goods, since the goods were distributed under the condition that they would be commercialized with code numbers. The alteration of the code numbers on the good let to the presumption on the side of the importer that rightholder would control the origin of the products and eventually make efforts to control the parallel imports and therefore is intended to hinder a legitimate interest of the rightholder. Thus, the importer is not acting with good faith. On the other side, the alteration of the code numbers may remove the presumption that the rightholder has consented to the goods being imported into and sold in the EEA, since a legitimate interest of the rightholder, i.e., the right to control the operation of his licenses with the code numbers on the goods has been violated.

The rule of reason connected with domestic exhaustion, which have been developed to protect the interest of exclusive licensees may offer a suitable framework also for international exhaustion.

7. Domestic Exhaustion within the Rule of Reason. Vertical Territorial Restraints in Connection with Licensing in the EU and in the USA

In the US, the domestic exhaustion principle has also been balanced to protect exclusive licensees. The interest of the licensee in creating certain territorial restraints through the administration of the patent right had been usually recognized and protected as included in the content of patent protection within the right to assign exclusive licenses\textsuperscript{1916}. However, in order to guard the rights and welfare of the community, the patentee’s control over the product when it leaves

\textsuperscript{1916} Rothnie at 143. See also 35 USC § 261, which states: “... patents, or any interest therein, shall be assignable in law by an instrument in writing. The... patentee, or his assignees or legal representatives may in like manner grant and convey an exclusive right under his... patents to the whole or any specified part of the United States ”.
his hands is sharply limited. In 1977 the US Supreme Court ruled that post-sale, territorial and customer restraints where not illegal *per se*, but should be made in each case subject to the rule of reason. The rule of reason test has been developed as an instrument for determining whether alleged acts violate § 1 of the Sherman Anti-Trust Act (15 U.S.C.A. § 1). This principle declares conspiracies in restraint of trade to be illegal, fact finder must weigh all circumstances of the case to decide whether practice unreasonably restrains competition, and the test requires that plaintiff show anticompetitive effects, or actual harm to competition, and not whether the practices were unfair or tortious. Elements to be considered are the history of the restraint, the evil believed to exist, the reason for adopting the particular remedy and the purpose or end sought to be attained. Applied to patent law, this principle may imply that the patent holder’s imposition of restrictions on third parties connected with the use of the patent shall be reasonable to guarantee his participation in the global exploitation of his invention, but should not constitute an instrument for unreasonably restraining competition and hindering the diffusion of that technology. This rule of reason principle is in harmony with Article 40 of TRIPS. This article states that Member States are not prevented by the Agreement to control licensing practices which negatively affect competition in the relevant market, and that Member states are obligated to make consultations and collaborate in order to control anticompetitive measures affecting more than one State.

On the scope of licenses to manufacture and sell patented products, US law has recognized that the patentee is entitled to make the license subject to any conditions “the performance of which is reasonably with the reward which the


1918 *Continental T.V. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977) and American Bar Association (ABA), Section of Antitrust Law, Antitrust Law Developments, Chicago, 1992, 828, which suggested that this case, that involved unpatented products might, equally apply to patent products. See also Einhorn, The Impact of the WTO Agreement on TRIPS (Trade-Related Aspects of Intellectual Property Rights) on EC Law at 1079.

patentee (as a patentee) is entitled to secure.” Consequently, territorially restricted licenses have been allowable and enforceable, because any breach of such a territorial restriction by the licensee would be considered an infringement of the patent.

The antitrust law developed to regulate the relations between patentees and licensees within the US domestic market are suitable to harmonize the legitimate interest of patentees, licensees, and technology users in the international level. In fact, US case law has stated that anti-trust laws strike not only at interference with interstate commerce but also trade between the US and foreign countries. This is the case of *US v. Imperial Chemical Industries Ltd*, whereby His Honor’s order that ICI not use its patents in the U.K. to block imports from the United States under the compulsory licenses which he ordered. The relationship between the domestic and foreign licensees is expressed in the following decision: “If one who received a patent from the United States may so restrict his licenses without violating the domestic antitrust laws, it would seem clear that a patentee could do the same thing with foreign licenses without violating the antitrust laws of this country.”

Even though the rule of reason has been developed in the US, it applications has been difficult, since the hard protection system in the US influences Courts to frame patents as a necessary burden created by law. This situation may be elucidated with the following decision, whereby the US Government sought an order that Westinghouse license Mitsubishi companies to operate in the US, since these companies had been Westinghouse’s licensees for so long (back to 1923) that they had become wedded to Westinghouse’s technology and could not develop their own without infringing Westinghouse’s patents. The US Government argued that the license agreements masked a horizontal conspiracy to

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1921 See Schennen at 268, and Article 42 of the Community Patent Convention; Section 15 (2) German Patent Law; Article 8 EC Trademark Directive.

1922 Rothnie at 167.


1924 See Rothnie at 167.


1926 Rothnie at 169.
keep out of each other’s country\textsuperscript{1927}. The Court regarded the right of the patentee to refuse to license in the US as absolute. It states: “... no court has held that patentee must grant further licenses to potential competitors merely because he has granted them some. To find otherwise would severely limit the protection extended by Congress in the laws under which Westinghouse’s United States patents were granted...”\textsuperscript{1928}...[ “What the government is really proposing is this: Since all monopolies undesirable limit competition, every patent licensing contract should, if at all possible, be viewed as a combination in restraint of trade. Taken to its logical limits, the argument would find almost every patent licensing agreement to be illegal... This is a demand calculated to alter and substantially reduce the scope of the patent monopoly. It should be addressed to Congress, not to the courts”\textsuperscript{1929}. However, new rules are continuously being developed to find suitable mechanisms to balance the interests involved. The right to refuse to license should not be an absolute right, but a right that should balance the legitimate interests of patentees and technology users. Therefore, there is a tendency towards the framing of patent rights within a rule of reason.

The so called “first sale-doctrine” has been also watered down by the European Court of Justice\textsuperscript{1930} and the Regulations of the European Commission\textsuperscript{1931}. In any case, however, the right to make the license subject to any condition remains a relative right, subject to the rule of reason, which seeks the harmonization between the legitimate interests of patentees and technology users. In order to determine the antitrust validity of transfer of technology transactions, frequently the procompetitive and anticompetitive effects of that transactions are balanced\textsuperscript{1932}.

\textsuperscript{1927} Id. at 168.
\textsuperscript{1930} See ECJ “Maize Seed”, 1982 GRUR Int. 530; 17 IIC 362 (1986).
\textsuperscript{1931} Commission Regulation No. 2349/84 of July 23, 1984, on the application of Article 85 (3) of the EEC Treaty to certain categories of patent licensing agreements, OJ EC No. L 219, 16.8.1984 at 15. Article 1 (1)(5) and (6), banned territorial restrictions in licensing agreements if they prohibit the licensee from supplying demand for customers from a territory reserved by the license contract to another party for a period exceeding five years.
\textsuperscript{1932} Cabanellas, The Extraterritorial Effects of Antitrust Law, at 71.
This requires a global or aggregate evaluation of the effects, and not an analysis of its clauses or elements in isolation from each other\textsuperscript{1933}. Territorial restrictions have been considered necessary to encourage transfer of technology\textsuperscript{1934}. It may strengthen inter-brand competition as it facilitates the formation of new enterprises in different territories, promoting the investment in innovation as it contributes to the decentralization of production, distribution and servicing of products. In addition, the patent holder and the licensee could easily define the expected profit from the exploitation of technology to determine the amount of royalties to be paid. It is also expected that a patent holder would be more willing to grant a license if he can reduce the risk of having the licensee competing in his own market. Consequently, according to domestic US antitrust law, a vertical territorial restraint is permitted, absent from some special competitive abuse\textsuperscript{1935}. The European Commission similarly gives EC patent holders permission to grant patent licenses which restrict the sales territory of licensees within the territory of the Community\textsuperscript{1936}.

Both EU and US competition law defined a solution to harmonize the interest of the patent holder to create a vertical territorial restraint with the interest of the regional markets to promote free trade. This solution is achieved through the definition of the internal obligation of the contracting parties before the first sale of the product. In this way, both EU and US competition law protected the integration of the vertical market with the first sale doctrine\textsuperscript{1937}. That is, the first sale of a patented product removes any resale restraint based upon the patent itself.

\textsuperscript{1933} Id. In the case \textit{Windsurfing v. Commission}, at §96, the commission stated “only if the agreement as a whole is capable of affecting trade is it necessary to examine which are the clauses of the agreement which have as their object or effect a restriction or distortion of competition”, case 193/83, ECJ, Sammlung der Rechtsprechung des Gerichtshofes 1986-1, Luxemburg, 664. The German theory on cumulation of restraints of trade, on the other side, states that even in the case where a measure affecting trade is dispensed by the German Antitrust law (GWB), these measures will not be tolerated when its effects cumulate with other concurrent measures to considerably harm free competition. See Benisch, Werner Kumulation von Wettbewerbsbeschränkungen, 1959 WuW 765, 765.

\textsuperscript{1934} See Einhorn, The Impact of the WTO, at 1083-84.


\textsuperscript{1937} Id. at 42-45 and 61-65.
Under Article 85(3) of the EEC Treaty, the Commission is empowered to grant exemptions to the general prohibition of anticompetitive practices, when they are beneficial to economic development and to a certain extent, may help to ensure consumer protection\textsuperscript{1938}. The Commission Regulation 2349/84 of 23 July 1984 regulates the block exemption allowing vertical allocation of primary distribution territories among patent licensees\textsuperscript{1939}. Article 1 refers to ‘primary territorial sales restraints’ within the Community. The hypothesis of protected sales restraints is defined by recital 12 as continued:

1.- “obligations on the licensor and on the licensee not to exploit the licensed invention in and in particular not to export the licensed product into, the licensed territory in the case of the licensor and the “territories reserved for the licensor”, that is to say, territories within the common market in which the licensor has patent protection and has not granted any licenses, in the case of the licensee.”

2.- “both obligations of the licensee not to conduct an active policy of putting the product on the market (i.e. a prohibition of active competition as defined in Article 1 (1) (5) ) in the territories of other licensees for a period which may equal the duration of the license”.

3.- “The obligation of the licensee not to put the licensed product on the market in the territories of other licensees for a limited period of a few years (i.e. a prohibition not only of active competition but also of “passive competition” in which the licensee of a territory simply responds to request which he has not solicited from users or resellers established in the territories of other licensees. Article 1 (1) (6) ”).

A similar principle is found in the TRIPS Agreement. Article 31, f), referring to compulsory licensing states that “any such use shall be authorized predominantly for the supply of domestic market of the Member authorizing such use”.

The interest of the patent holder to segregate primary production and distribution activities is protected under the following argument included in the Commission Regulation 2349/84. Recital 12 reads: “(12) the obligations listed in Article 1 generally contribute to the improving the production of goods and the promoting of technical progress; they make patentees more willing to grant licenses and

\textsuperscript{1938} Horner at 95.
licensees more inclined to undertake the investment required to manufacture, use and put on the market a new product or to use a new process, so that undertakings other than the patentee acquire the possibility of manufacturing their products with the aid of the latest techniques and of developing those techniques further. The result is that the number of production facilities and the quantity and quality of goods produced in the common market increased.”

These restrictions and the corresponding obligations defined in recital 12 of the Commission Regulation 2349/84 may be permitted under the regulation only “in respect of territories in which the licensed product is protected by “parallel patents”, defined as patents covering the same invention, within the meaning of the case law of the Court of Justice and as long as the patents remain in force”.

However, the Commission considers parallel imports a mechanism to safeguard the interests of consumers, assuring a competitive supply of goods and services from a variety of internal EU sources. In addition, international competition exerts a pressure on Member State governments to assure that domestic manufacturers can produce and distribute at competitive prices vis-à-vis other Member States. Therefore, the recital 13 states: “consumers will as a rule be allowed a fair share of the benefit resulting from this improvement in the supply of goods on the market. To safeguard this effect however, it is right to exclude from the application of Article 1 cases where the parties agree to refuse to meet demand from users or resellers within their respective territories who would resell for export, or to take other steps to impede parallel imports, or where the licensee is obliged to refuse to meet unsolicited demand from the territory of other licensees (passive sales). The same applies where such action is the result of a concerted practice between the licensor and the licensee”.

This principle is adopted by the 1996 EC Block Exemption on Technology Transfer. Article 1 exempts to Article 85.1 of the EC Treaty exclusive and some other technology licenses. The Block Exemption is intended to allow certain restriction connected with competition between licensees, each may agree with the licensor not to produce and not to actively market in the territory of the

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1939 For details see Bodewig at 239-242.
1940 Recital 12 of Commission Regulation 2349/84.
others. In addition, each may agree not to sell even passively in their territories for a period of five years from the date of the first sale by a licensee within the common market.

However, the protection is limited. Recital 17 of the 240/96 Regulation states: “... Consumers will, as a rule, be allowed a fair share of the benefit resulting from the improvement in the supply of goods on the market. To safeguard this effect, however, it is right to exclude from the application of Article 1 cases where the parties agree to refuse to meet demand from users or resellers with their respective territories who would resell for export, or to take other steps to impede parallel imports”. As a result, the Block Exemption on Technology Transfer defines in more ample terms a protection of competition through parallel imports.

Under the rules for the free movement of goods, those whom either party sells the protected product cannot be retrained through the exercise of national intellectual property rights from selling it throughout the common market. However, there is no exhaustion of the right when a licensee uses the technology outside the scope of the contract. Article 2(1)(4) allows for the reservation by the licensor of his right to exercise a patent right in one member state if a licensee in another sells outside his territory.

Thus, there is a tendency to use the rule of reason to balance legitimate interests of technology users and patentees. Parallel imports prevent patent holders from using their rights to impose the kind of internal market segregation and distortions which the EU tries to eliminate, however, rightholders are allowed to impose certain segregation of markets when necessary to protect their investments in new technologies, as well in tooling up and making a market.

As a result, a mechanism is defined, which harmonizes the interest of the patent holder to administer his right by organizing a kind of internal primary market.

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1942 Article 1(1)(4).
1944 In Addition Article 2 provides the white list of clauses that normally do not infringe Article 85(1) but are exempted just in case. Article 3 containst the black list, which specifies conditions or provisions that prevent the application of the exemption even to the exclusive territory. Id. at 247.
1946 Id. at 240. See also Meyer at 501.
segregation on the basis of parallel patent licenses, with the interests of avoiding monopolistic segregation of markets. In this way, the right to define vertical territorial restraints is not considered an absolute and inherent right of the patent holder, but a right relative to specific economic advantages. This position follows the restrictions on patent monopolies defined as early as 1623 by the English “Statute of Monopolies” when ordering patent grants to be used in such manner as not to be “mischievous to the State by raising prices of commodities at home or hurt of trade”1949.

The block exemptions in the US and EC provides a new definition of the relationship between patent and competition law1950. Regulation 240/95 applies also to license contracts including or consisting only of countries outside the common market1951. Thus, a general international exhaustion principles may be adjusted in order to harmonize some legitimate interests of rightholders to separate markets with the legitimate interest of technology users to be allowed a fair share of the benefit resulting from the improvement in the supply of goods on the market.

D. Solution of Parallel Imports to Harmonize all Interests

1. Critique of the Traditional Exhaustion Principle of Continental Law

According to continental law, “exhaustion” is imposed whenever there is a license contract with the argument, “if the patentee decides to cash in on his patent not by marketing patented products himself or with his consent, but rather to sell the patent to someone else who subsequently markets the products, then the patentee has obtained his reward and should not be able to object to parallel importation of products that were marketed without his consent under a patent he previously owned and sold”1952.

1949 Anderfelt at 7.
1952 Heath, Parallel Imports and International Trade, at 627.
The assumption that the patentee has through licensing already obtained his reward ignores the interests that move parties to settle a license contract. This extreme position makes it difficult to negotiate license contracts because it does not recognize the fact that the exploitation of patents is made under changing conditions. In addition, the opportunities for exploiting the patent for exports is not always properly evaluated in the license contract.

2. *Patentee’s Right to Separate Markets According to General Goals of GATT/WTO and the Patent Institution*

Instead of using legal fictions to solve the problem of parallel imports, it may be convenient to take into consideration the natural function of a patent right and focus on the principle that the patentee should have the opportunity to obtain a fair share or participation in the social exploitation of his invention according to the particular conditions of each market. In order to solve the conflict between free trade and patent protection, it is necessary to differentiate the interests of the patent holder connected with the obtaining a fair reward for the exploitation of his invention, from his interest in separating markets in order to obtain extra rent (monopoly rent) through creating barriers to international or interregional trade and competition.

This thesis is in accordance with Article 8.2 of the TRIPS Agreement, which states that: “Appropriate measures, provided that they are consistent with the provision of this Agreement, may be needed to prevent the abuse of intellectual property rights by rightholders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology”. It is important to determine whether the separation of national markets is a practice that “unreasonably restrains trade or adversely affects the international transfer of technology”. The relevance of the interest to separate markets should be determined.

Thus, the problem of parallel imports presents two main components: the problem of guaranteeing the patent holder a fair participation in the social exploitation of his invention, and the problem of determining if patents can be used to protect monopolistic interests, *i.e.*, to exclude unwelcome competition. An example of this
monopolistic interest is the exploitation of price differences in distinct markets through price rising and reducing the quantity produced and sold. In such a case, the protection of the patentee’s interest in creating legal barriers of trade implies that he should be allowed to perpetuate the exploitation of markets through monopolies\textsuperscript{1953}. Patent rights are then conceived as rights to block the globalization process and competition in order to obtain extra profit, a monopoly rent. As the integration of markets constitutes a goal pursued by the GATT/WTO Agreement, the interest of a patent holder to block the integration of markets does not conform with the interests of GATT/WTO. Thus, a negative valuation of the use of patent rights as instruments for blocking the globalization of markets would stem from the GATT/WTO Agreement.

Although the TRIPS Agreement expressly states that the Agreement cannot be used to address the issue of exhaustion, globally considered, the WTO could do so. And the GATT/WTO Agreement may be considered a source of law independent of the TRIPS Agreement.

Consequently, it can be concluded that the patent holder is not allowed to seek an extra rent from the social exploitation of his invention, by using the right to perpetuate monopoly in each market. The profit of the patent holder should derive from the normal exploitation of his right under free trade conditions, not from artificially created barriers. In addition, as the WTO creates conditions that allow a patent holder to obtain a reward for his invention in global markets, the protection of his legitimate interest no longer requires allowing patent holders to create monopolies. Under the current global economy, the definition of patents as monopoly or private property rights is no longer satisfactory, as it originally may have been. Today, the priority is to find a definition of patents that permits “the mutual advantage of producers and users of technological knowledge in a manner conducive to social and economic welfare and to a balance of rights and obligations”. This is expressed in Art. 7 of the TRIPS Agreement. This interpretation is totally in harmony with the systematic nature of innovation and the requirement of the creation of technology markets by the promotion of networking.

\textsuperscript{1953} \textit{Id.} at 631.
The protection of the patent holder’s interest to participate in the social exploitation of his invention does not necessarily require the protection of the patent holder’s interest in separating markets to obtain a monopoly rent. The interest of the patent holder can be protected by giving him the right to control the global exploitation of the patent. This right should be framed not as a per se right, but as a right under the rule of reason, e.i., the right to grant exclusive licenses, and the right to adjust every license contract in order to take into consideration the changes in the exploitation of the patent. As a result, the patent holder’s right to administer the exploitation of his invention should include the right to a certain separation of markets. However, this is not an absolute right. The anticompetitive interests of the patent holder, which, for example, would be separating markets to create monopolies, contradicts the public interest in protecting free trade. It should be considered a practice which “unreasonably restrains trade”. Such interest in protecting free trade and promoting a networking system for technology influence the displacement of the interest of the patent holder to separate markets to a position of secondary importance, and to declare that this interest should be “exhausted” once a product is put by the patent holder, directly or indirectly on the market.

A fair harmonization of the private and social interests involved requires granting a limited right to separate markets through technology transfer contracts. The legitimate interests of the patent holder are sufficiently protected through his right to adjust licensing contracts, and define certain limitations to the exploitation of the patent in international trade. Following this view, the patent holder has the right to administer and participate in the global exploitation of his invention, but not the right to separate markets through hindering the free circulation of the patented product and unreasonably restraining free competition. The rules connected with the domestic exhaustion principle, developed in the US and the EC to allow a certain separation of the internal markets through exclusive licenses offer a basic framework which may be extended for an international exhaustion principle within a rule of reason.

3. Principle of Territoriality as Allowing National Adaptations of Patent Law
Even though the general principles of GATT/WTO favor the integration of markets through parallel imports, consensus and not imposition constitutes the main principle of WTO. Since no consensus could be reached among industrialized countries on the exhaustion principle, no sanction could be applied under the procedures of the TRIPS Agreements, in case that national law utilizes intellectual rights to protect their markets and grants the patent holder the right to prohibit parallel imports. Article 6 of the TRIPS Agreement should be interpreted in accordance with the territoriality principle: each country has the right to define through national legislation how a patent right is to be recognized and exploited in its territory, subject to the general principles defined in the international conventions. The territoriality principle grants each national law a certain scope to adjust the content of the rights granted to patent holders to exploit the invention in the national territory. Each national patent law should take a position regarding parallel imports; however, in absence of specific legislation in a Member State, general principles of law would favor an interpretation that takes into consideration the interests protected in the GATT/WTO Agreement, i.e., the interest in promoting free trade. Additionally, if the prohibition of parallel imports does not respond to a program of industrial development policy, but responds exclusively to a general protectionism policy against developing countries, then, not the prohibition of parallel imports itself, but the general policy of protectionism should be criticized as not conforming with the GATT Agreement. In general terms, the prohibition of parallel imports, when being used as an instrument to unreasonably restrain trade and protect monopolistic interests runs counter to the GATT/WTO.

Similarly, each national law should define what is the legal nature of patent rights. The definition of patent rights as a right to participate in the social exploitation of an invention leads to different solutions as those proposed by the definition of patents as monopoly or property rights per se, as proposed by German jurisprudence. Due to the increasing interdependence and integration of markets and the intensification of networking, a consensus within the foreseeable future on the principle of international exhaustion, following the principles adopted by the Japanese Supreme Court may be expected.
4. Separation of Markets Resulting from a Public Policy of Members Countries

The territoriality principle allows a country to design an industrial development policy. The TRIPS Agreement recognized expressly “the underlying public policy objectives of national systems for the protection of intellectual property, including developmental and technological objectives” and the “special needs of the least-developed country Members in respect of maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base”. Consequently, following the territoriality principle, each country reserves the competence to formulate or amend their laws and regulations, as defined in Article 8.1, and to adopt measures necessary to protect public health and nutrition, as well as to promote the public interest in sectors of vital importance to their socio-economic and technological development.

An example of this policy is the protection of infant industries, since at the beginning, they are not expected to be able to survive under free trade conditions. They normally require time in order to achieve an adequate level of international competitiveness, particularly in developing countries. A certain separation of markets is required to give a country the possibility of defining special rules for patent rights. Thus, such a certain separation of markets may be justified by specific objectives of development policy and by the right of the patent holder to define a suitable strategy for the administration of his patent. In this case, the separation of markets should be considered a result not only of the territoriality principle (as the German doctrine pointed out), but also of the legal nature of patents. However, in contrast to the German doctrine, the right to separate markets should be a relative and not an absolute right. Its application responds to the specific circumstances and needs of the industry, and from the need to take account of the specific conditions of the different markets in order to assure that the patentee obtain a fair profit.

The protection of infant industries creates some objections. There is a risk that protected industries would not become internationally competitive when they expect that protection would be maintained in the long term. As a result, protected infant industries tend to consolidate monopolies. The absence of free trade allows
these industries to charge consumers higher prices. Therefore, these industries have no incentives to raise the quality level and to develop international competitiveness. In such a case, the extra costs for consumers generated by the industrial protection would not constitute an effective social investment for the development of a stable and healthy industrial sector. Consequently, this kind of protection should be used very specifically and temporarily. It should not be granted as an absolute right, but as a right subject to the compromise of the protected industry to develop in a relatively short time capacities to compete in international markets. This leads to the conclusion that the separation of markets and the prohibition of parallel imports should not be regarded as an absolute and permanent right but as a transitional measure given to achieve specific economic goals.

Article 5.A of the Paris Convention gives an example of the use of this special protection for patentees. This article grants the patent holder a period of four years from the date of filing of the patent application or three years from the date of the grant of the patent, \( -\text{whichever period expires last}, \) in which he may be excused for his inaction regarding the exploitation of the patent right. Such a period can be considered a presumption that the development of a new technology requires the protection of an infant industry, \( i.e., \) a period of time for developing the capacities to exploit the new technology. In this case, it can be considered that the Paris Convention establishes as an additional component of a patent right, special protection of maximum four years to allow the patent holder to organize the exploitation of his invention. However, the patent right is granted under the priority condition almost simultaneously in all countries of the Union, and this protection is almost irrelevant, as the fabrication of the device in another Country Member is considered a valid exploitation of the patent for all Union Members.

An exception to the exhaustion principle or the “implied license” principle could be interpreted as having the same legal nature of the exception of Article 5A of the Paris Convention, which should be applied during a restricted period of time or under specific circumstances due to important differences in the market conditions among specific countries.

\[1954\] As included in the preamble of the TRIPS Agreement.
The period of four years defined in Article 5A can be prolonged when the patentee justifies his inaction with legitimate reasons. The interpretation of these “legitimate reasons” should correspond with the definition of the legal nature of the patent right. According to a monopolistic and proprietary definition of patents, legitimate reasons can be the interest of the patent holder in exploiting the market under monopolistic conditions. The result under a quasi-contractual framework should be different. In this case, patents are considered having originated in a quasi-contractual situation and created as an instrument to allow the patentee to participate in the social exploitation of his invention. Thus, infant industry protection should not be automatically incorporated in the content of patent rights. In this case, if it can be proven that through licensing the patent holder may obtain a fair remuneration, and that the infant industry protection is not justified, compulsory licensing may be granted by the state.

To summarize: The discrimination of markets is legitimated by the fact that a certain separation of markets may be required due to the existence of different industrial policies and economic conditions in each country. This is particularly evident in the pharmaceutical field, where price controls at national levels could create distortions that force patent holders to license for low royalty levels in those countries. They would only be willing to license when certain restrictions on parallel imports are allowed. Specifically, parallel imports coming from low price countries (in which the margin of sale is low) to others in which there is no price control (and the margin of sale is high) may require some control. In such cases, patent holders could obtain enough protection through contractual restrictions on the licensee in countries where prices are lower. The principles that should rule these restrictions are defined by Commission Regulation 2349/84 or in Article 31 f) of the TRIPS Agreement, restricting the production and commercialization of patented devices under compulsory licensing only to satisfy the local market.

These exceptions may also be granted in protecting infant industries, under short or middle term conditions and subject to a permanent control by the competent public office. In this case, the office responsible for the administration of the infant industry protection regime should continually verify that the additional incentive is well applied by the protected industry to develop international competitiveness. Therefore, this protection should not be considered an absolute right of the patent
holder, but extra protection granted under a specific industrial policy as an incentive for the development of the necessary know-how and industrial resources required to achieve international competitiveness.

These considerations lead to the conclusion that the interest of a patent holder to separate markets should not be regarded as a necessary and normal effect of the patent right and of the territoriality principle. Even more, this interest should not be protected by national law as a general principle. The separation of markets constitutes exceptions based on industrial policy considerations that allow patentees to adjust the profit obtained by licensee agreements in the various markets, taking into consideration the existence of important differences in the market conditions of each country. In addition, certain authorization to organize the exploitation of the patent through defining areas of exploitation for licensing should be accepted under analogue conditions of the Commission Regulation 240/96. The problem of parallel imports would be in these cases not a problem of infringement of national patent rights, but a problem of infringement of licensing contracts, which should be adjusted mainly at the internal level among contractual parties, in order to assure that the patent holder obtains a fair share of the exploitation of the invention in the importation market and is able to organize the global exploitation of his invention. Once this interest fulfilled the right of the patentee to control, the circulation of the patented device is exhausted.

5. Towards an Exhaustion Theory

a) General Overview

The contradiction between the needs for integrating global markets and competition and the prohibition of parallel imports should be solved in the foreseeable short run. This contradiction is to be solved when suitable instruments to harmonize the legitimate interest of rights holders are available. Two basic elements can achieve this goal. First, the reconsideration of the legal nature of intellectual property rights, particularly in the case of patents. National and international legislation and case law is reconsidering the legal nature of a patent right, moving it from the monopoly or private property conception to the quasi-contract of unjust enrichment. Second, the determination of alternative
mechanisms to the general prohibition of parallel imports, required to protect the legitimate interests of rightholders stemming from the existent huge differences in market conditions among industrialized and developing countries. When these two elements are available, good will compels Member countries to adopt the solution which harmonizes in the most efficient way the relevant interests involved. In this case, it is to be expected that the principle of “international exhaustion” will be recognized in the foreseeable future.

The problem of parallel imports can be solved by integrating within a rule of reason, the continental doctrine of “exhaustion”, the doctrine of implied license and the general principles derived from the quasi-contractual nature of patents. In this case, the exhaustion principle is restricted when necessary to protect legitimate interest of rightholders, particularly exclusive licensees. The “exhaustion” principle would not come from a legalistic accommodation of the interest of protecting free trade in the common market, but from the harmonization of this interest with the definition of the legal nature of the patent right. In principle, all national patent rights protect the same objective, that the patent holder obtain a fair share in the profit generated by the exploitation of the patent in that market. As long as this interest is fulfilled, there is no justification for the negative to recognize the exhaustion principle within the integrated markets where the protected invention is exploited.

The proposed solution integrates exhaustion, the “implied license” of the territoriality principles, with the GATT/WTO principle that patent rights are not to protect the interest of the patent holder to create monopolies and separate markets. This interpretation is in accordance with the TRIPS Agreement, and conforms with its Article 30. It adapts to the principle that each national law is free to accept, or not to accept, the application of the exhaustion principle.

The definition of the “international exhaustion principle” as the rule and not the exception can be considered in conformity with the TRIPS Agreement, even under the traditional hard patent protection system of a patent, which considers patent rights to be monopoly or property rights. Thus, the following principles allow for the harmonization of all interests involved.

(1) Parallel imports do not unreasonably conflict with the normal exploitation of a patent. This is true because under GATT/WTO patents are expected to be
exploited in integrated markets, not under anti-competitive circumstances creating trade barriers. As a result, parallel imports *per se* do not prejudice the legitimate interests of the patent owner, since the anti-competitive interests are not protected as a legitimate interest. The same principles for domestic exhaustion should apply for international exhaustion.

(2) In contrast, the exhaustion principle favors the TRIPS goals, which have not only questioned the anti-competitive interests of the patent holder, but have settled the need to define measures to prevent them.

(3) Free circulation of goods constitutes a key element for the integration of markets. Patent holders should not have a right to *per se* hinder the integration of markets by preventing parallel imports. The integration of markets benefits patent holders. It opens increasingly profit opportunities from the development of networks and technology markets worldwide, facilitating licensing and producing worldwide. Thus, it increases the possibilities for the exploitation of the patent. The principle of exhaustion takes into account and harmonizes the legitimate interests of users of technology worldwide in promoting the integration of markets, free trade and competition.

(4) The legitimate interests of patentees and exclusive licensees may be protected with rules equivalent to those developed for domestic exhaustion. In addition, certain exceptions to the exhaustion principle should be accepted when the interest of the patent holder in obtaining a fair profit is not sufficiently protected due to the existence of important legal and economic differences among markets. Consequently, the principle of the “implied license” can be integrated with Article 31 (h) of the TRIPS Agreement that reads: “the rightholder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization”.

In this case, the right of the patent holder to control parallel imports is not directly derived from the territoriality principle of patents, but indirectly, due to the different industrial policies that it allows. The right to control parallel imports originates in the right of the patent holder to organize the exploitation of the patent, *i.e.*, through exclusive licensees. This interest requires a particular protection in case of parallel imports because of the important differences among certain markets, which are increased by the differences in legal protection
generated by the territoriality principle. Consequently, the limitation of the exhaustion principle is derived from the right of the patent holder to a reasonable administration of the global exploitation of the patent through technology transfer contracting, which should take into consideration the existence of different legal and economic conditions in each national market.

As a result, the problem of possible existence of different market conditions in each national market can be solved by recognizing that the patent holder has the right to control the international activities of patent holders. This right should not be framed as a right to hinder *per se* international trade in order to assure a monopolist rent. This right should be framed as a right, under a rule of reason, allowing patentees to adjust according to the particular circumstances of each market, the reward they obtain, and to protect the legitimate interests of exclusive licensees. Thus, the patent holder may have the right, within a national territory such as the USA or a common market such as the EU, to impose certain trade limitations on licensees in order to define exploitation areas and facilitate the organization of the exploitation of the integrated market, but not as an instrument to create monopolies. Third parties aware from these circumstances should take into account the legitimate interests of patentees.

(5). The problem of parallel imports and the fact that markets where patents are exploited are increasingly integrated accentuate the convenience of a further harmonization of patent laws and the definition of general rules regarding parallel imports in order to facilitate the definition of royalties and licensing conditions, and reduce the transaction costs in the emerging markets of technology.

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**b) Coordination and Harmonization of National Patent Rights within an “Exhaustion” Framework**

The application of the hypothesis of an “international exhaustion” principle, accompanied by a right of the patent holder to administer the global exploitation of his patent through certain contractual restrictions of parallel imports, produces the problem of how to coordinate national patent rights in integrated markets. An interpretation of the territoriality principle and an adjustment of the general application of private international law regarding patent rights are required to provide a solution. The territoriality principle states that each national patent right
determines the claims that a patent holder expects in the national territory. The rights of exploitation of a patent in a national territory can only be determined by the national patent law. There is no recourse to another national patent law in order to determine the level of protection for a national patent. This, however, does not imply that the reward that the patent holder has already received in the land of production would be totally irrelevant. The profit already obtained in the land of manufacture should be considered a payment already obtained.

Within a quasi-contractual framework, the basic protection of inventors is derived from general principles of law. These principles of law are normally included in national legal system and recognized by international conventions. In this sense, the general protection of the patent law constitutes a general principle of law in all legal systems. The territoriality principle defines modifications of the general protection, but not an absolutely new and autonomous protection. Each national patent right defines a market where some special conditions generated by the specific national legislation may modify the way in which the patent holder exploits his invention.

Consequently, the main problem with parallel imports is how to allow the patentee to obtain a fair retribution from the exploitation of his invention in the different national markets. Since the determination of the price of each license contract depends on the particular situation of every exploitation market, the patentee should have the right to adjust his license contracts when the licensee expands his activities abroad by exporting. Therefore, the patentee should have the right to settle certain restrictions connected with the organization of the global exploitation of his invention among several licensees. However, the interest of using the territoriality principle to obtain higher profits from anti-competitive measures is not conform with the TRIPS Agreement. Furthermore, the anti-competitive interests do not correspond to the goals of the patent system. The patentee should therefore protect his interest not through separating markets, but through the adjustment of license contracts.
c) The Problem of Parallel Imports as a Contractual Issue between Parties

Parallel imports normally imply the exploitation of another national market, different to the one originally included in the licensing contract. In these cases, the license contract should be adjusted taking into consideration the national patent law and the particular situation of the exportation market. Here the common law solution with respect to parallel imports can provide an answer: each license contract includes an “implied license” to exploit the patent in other markets though parallel imports. However, the “implied license” also implies the obligation of the licensee to adjust the license to take into consideration the “implied clauses” connected with this “implied license”. Equity imposes to adjust the contract to the actual exploitation of other national markets. Article XX(d) of GATT is thereby interpreted as allowing member states to define measures to protect this legitimate interest of the patent holders, subject to the rule of reason.

This hypothesis was considered in the Paris Convention. Article 5quarter of the Paris Convention states: “When a product is imported into a country of the Union where there exists a patent protecting a process of manufacture of the said product, the patentee shall have all the rights, with regard to the imported product, as are accorded to him by the domestic law of the country of importation, on the basis of the process patent, with respect to products manufactured in that country.”

This solution would also be derived from the “quasi-contractual” nature of the patent right: each additional enrichment coming from an international exploitation of a patent not contemplated in the original contract may give the patentee the right to require an adjustment in his participation taking into consideration the legal and economic conditions in each national market where his invention is exploited.

Therefore, the problem of parallel imports should be considered a problem of internal negotiation between licensees and intermediates of patented products, who should give the patentee an equitable participation in the exploitation of the patent. The issue of parallel imports constitutes an internal problem to be solved between the contracting parties, when defining the distribution of profit generated by the exploitation of the patent. This diverges from the traditional German doctrine which states that the territoriality principle implies national patent rights.
and a separation of national markets. The patent holder would not have the right to use his title in order to protect monopolistic interest and block the free trade of the goods.

Thus, the patent holder may impose on the licensees certain restrictions which are necessary to assure him a fair participation in the global exploitation of the invention. Patentees may negotiate certain reasonable export restrictions in order to assure a certain strategy for the global exploitation of the patent. Within this framework, the expected exploitation of a patent is partially defined by the assignment of a market or territory in the license contract. If the licensee modifies the expected exploitation of the patent and expands this exploitation in other markets, the patentee should have the right to require the corresponding adjustments of the amount of his shares or royalties. Elements such as the amount of royalties could be determined as a function of the actual situation of the market in which the product would be sold. If the market conditions change, equity imposes an adjustment of the terms of the contract. If a reasonable exploitation of the patent requires the definition of the market where each license may be exploited, a restricted right to separate or assign markets should be allowed, as long as it does not create monopolies or is intended to hinder competition.

In this sense, the legal nature of a contract, whose subject matter is a patent right, should correspond to the legal nature of patents. If patents are conceived as rights to participate in the social exploitation of the invention, license contracts should also be defined as “participation contracts”, analogous to partnerships, and thus, subject to a dynamic reevaluation.

This solution promotes the use of patent rights as instruments for technology creation and diffusion, as it facilitates the process of financing R&D through licensing and global exploitation of patents. As a result, creation of international markets of technologies and networks around the world can be promoted. The interest of consumers, producers and patent holders could be conciliated within an institutional framework that promotes technology creation and technology diffusion.

The international exhaustion principle may be restricted when necessary to protect legitimate interests of patentees and exclusive licensees, particularly in cases where the patentee had obstacles in defining a fair participation for the use of his
invention. This circumstance should be presumed when parallel imports are coming from countries where the patentee is operating, but has not obtained a patent right, or when the products have been put on the market under a compulsory license or under schemes of price control. Notwithstanding, the application of the classical theory of exhaustion constitutes a suitable control of the abuse of patent rights which would eventually make it unnecessary for governments to restrict the administration right of patentee through policies like price-control schemes and compulsory licensing. This presents positive synergy effects which may reinforce the generalization of the international exhaustion principle.

The contractual framework, which imposes on the parties the general duty of good faith and fair dealing, taking into consideration the actual legal, economic and technological circumstances of the respective case, seems suitable for harmonizing all interests.

E. Summary and General Conclusions

1. Problem of Territoriality of Patent Rights and International Trade

Analysis of the function and nature of patents constitutes a useful instrument for finding proper answers to the constantly changing needs of the innovation system. The conflict between the needs of the globalization process which promotes the integration of markets and the traditional perspective that patents are protected by national law and therefore create separate national markets is a suitable example of this. The interpretation of the principle of territoriality defined by the Paris Convention is determined by the definition of the legal nature of the patent right. When patent rights are defined as private property or monopoly rights, the territoriality principle is normally interpreted as protecting the interest of patentees in separating national markets in order to obtain a monopolistic rent in each of those markets. Thus, national patent rights define national patent markets which are absolutely independent from one another. When the patent right is defined as having a quasi-contract nature, as a right to obtain participation in the welfare

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1955 Heath, Parallel Imports and International Trade, at 632.
1956 Id.
created by the social exploitation of the invention, the protection is centered on the right of the patent holder to have assured a proper participation in all the products that are sold in each national market. Each national patent right does not imply a separate national market for the patented product. Each national patent seeks to provide protection of the interest of the patent holder in the terms that every user of his technology in the national territory has already properly rewarded him, and that every product commercialized in the national market had been produced and sold with the authorization of the patentee. However, since the protection of the patentee originates from a common principle of law, each national patent right is not regarded as totally autonomous from one another. Each national patent law has at its foundation the protection of the same legitimate interest of the patentee. Therefore, the reward itself and the authorization to commercialize should not have to be necessarily performed in the land where his right is protected. Once the interest to obtain profit is protected and performed in one market, the transference of the device that incorporates the invention in other markets does not require the protection of the same interest. It can be supposed that the legitimate interest of the inventor in receiving a fair participation in the exploitation of this invention has already been considered in the price of sale and resale of the patented commodities. In such a case, the patent right is exhausted not only in the domestic market, but also in all those markets where there is a national patent law.

However, there are reasons that justify the interest of the patentee in defining certain separation of markets. Since each national law may differ in the scope of protection due to the territoriality principle, the patentee should be able to adjust their license contracts according to these differences. When producing to other markets not considered in the license, licensees and other contracting parties should be obligated to adjust the price of the royalty to the different conditions of each national market. Thus the principle of territoriality allows for the recognition of a certain separation of rights and correspondingly, of markets. However, this should not lead to disregarding the payments and negotiations achieved in another territory in regard to the exported good to presume that the patentee has an absolute right to separate markets prohibiting parallel imports. Patents should not be an obstacle to international trade, and under normal conditions it should be

1957 Bodewig at 232.
presumed that goods put in one market with the authorization of the patent holder should freely circulate, since the patentee has already fulfilled his legitimate interest in obtaining a reward. More than granting the right to stop parallel imports, the territoriality principle grants the patentee the right to ask the licensees to adjust royalties when exporting to other markets where the conditions are significantly different. This right should also be recognized within each national market, but only connected with contractual relationship between rightholders, licensees or other users of the right, subject to the rule of reason.

In contrast to patent rights, international exhaustion of trademark has traditionally been recognized. Trademarks protect only the identification of the product, patents, the right to exclude others in order to exploit the market. In this case, trademarks are considered as not protecting proprietary or monopolistic interest, but unfair competition. This traditional difference of treatment between trademarks and patent rights would not arise if patent rights were also considered quasi-contracts. In this case, both trademarks and patents have the same legal nature and source. Each can be considered as emerging from a quasi-contractual situation: trademarks, principally from the quasi-contract of unfair competition, and patent rights, particularly from the quasi-contract of unjust enrichment. The modern trend is that both sources of quasi-contracts, unjust enrichment and unfair competition tend to integrate when protecting intellectual rights. Trademarks should also protect the interest of the rightholder to obtain a profit from the investment made in marketing. This accentuates the convergence between trademarks and patents and the possibilities of defining a general framework for innovation rights with quasi-contracts.

2. **TRIPS and Parallel Importation**

Although the TRIPS Agreement, by its goals and principles, implicitly searches for a solution that harmonizes parallel imports with patent protection, it does not give an explicit answer regarding international exhaustion of patents. Article 6 expressly states that “nothing in this Agreement shall be used to address the issue of the exhaustion of intellectual property rights”. Thus, there is nothing in the TRIPS Agreement to impede the application of both: the continental exhaustion
principle, which declares the patent right exhausted once a patented merchandise is placed in the common market with the authorization of the patentee; or the common law exhaustion as outlined by the U.K policy, which presupposes the existence of an “implied license to export” and makes the importation restrictions subject to certain conditions, such as giving proper notice to the public about any restriction in the license contract in this respect. In similar terms, there is nothing to impede the application of the Japanese doctrine of exhaustion, which states that patent rights protect the same interest, that the patentee obtain a reward. Once the patentee has obtained a fair reward, there is no reason for national patent law to protect again the same interest restricting parallel imports.

The territoriality principle under the TRIPS Agreement should be interpreted as the right of any Member state to adapt patent protection to specific national interests, without creating an illegitimate hindrance to free trade. Each national patent right presents “relative” but not “absolute” independence in respect to the others. The independence is “absolute” in the sense that national legislation is free to set particular conditions for patent rights. However, this autonomy is relative in the sense that there is a common basic legal framework for patents which recognizes and promotes global exploitation of the invention in the Paris Union. Under the definition of patents as resulting from the quasi-contract of unjust enrichment, and granting a usufruct right on the market, the main interest of patent rights is to assure the patent holder a fair participation in the exploitation of the invention in each market. Consequently, the fact that a patent holder has already obtained a reward in the country of exportation is a relevant fact to be considered in the importation country. When this reward constitutes an adequate and normal profit in the importation country, the goal of patent protection is fulfilled and the right should be considered exhausted. Other legitimate interests, such as the protection of exclusive licensees may be considered.

The definition of patents as quasi-contracts grants a common legal framework, composed of the principles of law commonly recognized by Member states. This, joined with the existence of international conventions, in particular, the Paris Convention and the TRIPS Agreement constitutes a common legal base for patents that prevents interpretation of each national patent right as totally autonomous from the others. Patent rights define common legal principles and
protect common interests that are relevant in the interpretation of each national patent law. Consequently, international exhaustion of patents should be the general rule.

The independence of each national patent is absolute only concerning the specific national adjustments. Each national legislation defines specific conditions for recognition of patent rights (Article 27.3 TRIPS) and particular effects of national patent rights in the national territory. The TRIPS Agreement leaves the responsibility of defining specific measures for protecting against abuses of the patent right to each national law. This, however, is not absolute competence; such measures should be consistent with the provisions of this Agreement. Therefore, the solution to the parallel imports problem should grant patentees a mechanism for adjusting their royalties to the local differences of each national market.

3. Integration of Principle of Territoriality with Implicit Quasi-Contractual Definition of Patent Rights in the TRIPS Agreement

The problems of parallel imports can be better solved at the contractual level, under the implied license framework. The principle of international exhaustion should be the general rule. Notwithstanding, the right of the patentee to administer global exploitation of the patent should include the right to assign markets, as well as the right to adjust his participation in the exploitation of these markets, taking into consideration the economic and legal differences among markets. This right has been recognized in the US and in the EU within a domestic exhaustion framework. Patentees may impose on licensees certain limitations necessary for a proficient assignment of local markets and administration of the global exploitation of patents and trademarks. However, this right should not constitute unreasonable barriers to trade, and should take into consideration the legitimate interests of the users of technology, i.e., licensees and consumers. Therefore, the rule of reason is a vital instrument to define the limits of this faculty.

The legitimate interest of the patent holder to separate markets is connected with to two principal hypothesis. First, to his right to require an adjustment of his royalty, taking into consideration relevant market differences. This is particularly important in cases when a licensee exploits another market where, due to different
legal and economic conditions, the royalty should be higher in the importation country than in the production and exportation country. Second, the interest of the patent holder in administrating the global exploitation of his inventions should be protected. This is important in order to warrant a fair competition among licensees or in general, to motivate licensing, etc. For example, the patent holder may have a legitimate interest in hindering an excessive competition among licensees, when such a competition impedes the creation of a suitable structure in the market. The harmonization of these interests within a contractual framework provides a suitable alternative to a \textit{per se} prohibition of parallel imports. Therefore, a suitable framework for a global enforcement of patent licensing contracts should be established to protect, under the ‘rule of reason test’, these legitimate interests of patent holders, in such a way, that they do not become an unreasonable barrier to global trade and competition. In addition, according to Article IX and XX(d) GATT, Member countries are supposed to define measures to protect these legitimate interests of patent holders. However, they are compelled to favor, among the available possibilities, those that are suitable to promote trade, technological innovation and dissemination of technology, to the mutual advantage of producers and users of technological knowledge, as defined in Article 7 of TRIPS. This leads to the conclusion that the prohibition of parallel imports should be replaced by an institutional framework which allows for the separation of markets, only when absolutely necessary to protect legitimate interests of patentees and licensees, based on the rule of reason principle.
Even though technology creation and diffusion constitute a priority for developing countries, the development of the legal framework and commercial capabilities for these purposes have been neglected. Although patents are absolutely necessary to solve the appropriability problem of innovators and thus to create technology markets which allow technology transfer, developing countries have traditionally refused to grant adequate patent protection. This failure can be explained by the inconsistencies of the patent institution, specifically, the theoretical framework that defines its legal nature.

Because the traditional patent system defines patents as property and monopoly rights, it accentuates the conflict of interests between technology creators and technology users, and thus, between the promotion of technology creation and the promotion of technology diffusion. As a result, patent holders have tended to use patent rights to create a monopoly excluding others. Regarding developing countries, this conflict is aggravated by the North-South conflict framework. In contrast to Japan and other East-Asian countries, most developing countries have failed to propose a negotiation framework with MNEs which would allow a win/win position for both, technology creators and technology users. A *pareto optimum* is not achieved.

Patents defined as monopoly and property rights have been considered the best possible solution to protect innovators from their appropriability problems and thus, to promote technology creation and diffusion. However, the analysis of the evolution of the patent institution shows that the use of monopolies and private property rights to define patent rights has always been controversial. Through the concept of private property absolute rights are granted to protect the direct relationship between an individual and an object. In the case of patents, the relationship between the individual and the invention does not need protection, since it takes place within the internal sphere of individuals. The purpose of the patent system is different; it is precisely to allow the patentee to intervene in a market in order to obtain profit from his invention. Consequently, the monopolistic definition of patents is more coherent. Nevertheless, this definition is not suitable for defining subjective rights: the object of protection is the monopoly. Monopoly is not a legal term and defines not an object but a *facere*, the exclusion of
competition. Consequently, a suitable definition of the object of the monopoly right is required. The object of protection of the right should be the market defined by the patented technology, and not the monopoly itself. This approach allows for a redefinition of the legal framework of patents. The goal of the patent system is not the creation of monopolies. Its purpose is to permit the patentee to administer the social exploitation of his invention in order to obtain a fair profit for his contribution of having invented and disclosed a useful technical idea.

The traditional use of private and monopoly rights connected with patents responds to the lack of better alternatives to define the exclusion right given to patentees. Furthermore, the theoretical and practical inconsistencies of the definition of patents as property and monopoly rights were originally not that important, since innovation was performed by isolated firms, and the original markets for manufacturing were relative small and could be supplied by a few enterprises. The costs of granting monopoly rights were underestimated, they were considered absolutely necessary to allow inventors to recover their R&D expenditures. As a result, the traditional patent system was regarded as a suitable compromise between inventors and society.

The process of globalization and the developing of networking have radically changed this panorama. The increase in the number of R&D centers and the possibilities of networking through modern technology have opened new opportunities for taking advantages of the systemic nature of innovation. The latter integrates both, the process of technology diffusion and creation: the innovation process also evolves through the accumulation of small improvements and new uses are found and developed by technology users. Thus, new opportunities to create technology markets arise through networking, and thereby, to increase global innovation and profit. Networking make firms more efficient in improving their products, which are becoming multitechnology-based. Increasing competition from firms integrated in networks make unlikely that MNEs survive on their own R&D resources.

Thus, competition pressures firms to engage into transfer of technology. However, the traditional legal framework is not suitable. The negotiation of technology transfer is hampered as patentees tend to consider their right as the right to obtain a monopolist rent. Although the process of discovering new applications and
improvements is vital for assuring commercial success to R&D investments, holders of dependent patents are also not properly protected. The property rule protection allows the patentee to ignore the needs of technology users and holders of dependent patents, and invites him to go for a hard position in technology transfer negotiations. Opportunities to obtain profit from licensing are thus overlooked, and the process of exploiting existing technologies through finding improvements or new applications is not adequately promoted. This situation explains the increasingly competitive advantages of Japan and the efforts of the US to cope with it by promoting R&D cooperation among enterprises. The hard protection system has created a vicious circle: technology markets are not developed and transaction costs remain too high, since the opportunities of negotiating technology are disregarded. Therefore, the costs of the absolute and monopolistic exclusion of patents are significantly increased, as this kind of exclusion hinders not only the diffusion of technology, but also the process of creation of innovation. The soft system of Japan has broken this vicious circle.

Through a systemic adjustment of the traditional patent system and its integration into a national system of innovation, Japan succeeded in acquiring technology and creating international competitiveness. This competitiveness was based on the development of its abilities to improve and find improvements and new applications for the existing technology. Following this perspective, Japan created the soft protection patent system through a systemic modification of the hard protection system. They facilitated the process of patent filing, reduced the scope of protection of patents and relaxed the novelty requirement. Additionally, they use compulsory licensing as an instrument to grant proper protection to dependent patents. The main goal of the system is to dissuade enterprises to use patents to exclude competitors. Instead, the system invites patentees to use patents to share technology through licensing and cross-licensing agreements.

Thus, an efficient innovation system should harmonize the interests of both, technology creators and users, allowing them to participate in the innovation process. The creation of a national system of innovation constitutes a key element for promoting the creation and diffusion of technology, and therefore, a central element determining the international competitiveness of a country and its possibilities to take advantages of new technologies. The hard protection system
based on property and monopoly rights is no longer a suitable framework, as it promotes the use of absolute exclusion right to protect monopolistic interests and leads patentees to disregard the opportunities connected with licensing. Consequently, the negotiation of license contracts is hampered and the possibilities of networking reduced. The adjustments made by case law and jurisprudence to protect important improvements of technology taking them away from the scope of protection of principal patents constitute a valuable instrument, but are not sufficient for adjusting the patent system to the needs of the systemic innovation process.

The way the economic system functions and the management culture should be coherent with the proposed institutional framework. Japan adjusted not only the legal framework of patents, but also the way the political and economic institutions connected with innovation functions. It promoted the creation of networking between enterprises in order to move them to search for profit through cooperation agreements and the exploitation of the systemic nature of innovation rather than through excluding competitors and creating monopolies. The excessive concentration of the system in improving imported technology is compensated with public intervention in order to promote basic R&D. As a result, the system equilibrates between basic R&D and the systemic exploitation of it to make it profitable through the placement of new products in the market.

This shows the importance of an appropriate institutional framework for innovation, specifically the importance of creating a national system of innovation. Japan, Germany and the USA present a similar relation of expenditures in R&D to National Product. It is a paradox that, in Japan, most of R&D investments are financed by private enterprises, yet technology is normally at the disposition of the industry through licensing. In contrast, in the USA and Germany, technology is in the hands of private enterprises which tend to use it on a monopolistic basis, excluding competitors although R&D is financed mainly by the Government.

The Japanese innovation system constitutes a valuable model for designing a national system of innovation. Within this framework, the patent system should be regarded as a part of a national innovation system which enables technology users to share technology and participate in the enrichment generated by their innovation efforts. The patent system should promote the achievement of win/win agreements
between technology creators and users. In contrast, the hard protection system relies on market forces and regards the patent system mainly as a proprietary register of inventions. However, a redefinition of the patent system is necessary to control market failures and improve the conditions for the creation of technology markets.

After difficult GATT negotiations, a global order for the protection of technology was created. The TRIPS Agreement incorporated the principle that the patent system should harmonize the legitimate interest of both, inventors and users of technology. Article 7 states that “the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare and to the balance of rights and obligations.” This statement is inconsistent with the definition of patents as absolute exclusion rights, which corresponds to the private property and monopoly definitions.

On the other hand, the globalization process and the increased possibilities of exploiting the systemic nature of innovation through networking have led to a new patent culture based on networking, cross-licensing and joint ventures in R&D. Furthermore, the traditional definition of patents as monopoly rights and private property is no longer necessary to promote innovation. When integrated into a system of innovation which promotes the creation of technology markets through networking, it is to be expected that the traditional property rule protection of patent rights will converge into a liability rule protection, in which the main interest of patent holders is using patents to exchange technology and obtain profit not only by manufacturing, but also through licensing. Thus, Article 7 of the TRIPS Agreement offers a proper framework for this new paradigm. The TRIPS Agreement opens new opportunities for developing countries to change their negotiation strategy regarding technology transfer. It favors the creation of a system of innovation based on networking and win/win negotiation strategies. Consequently, it is vital to define a suitable framework for patents which harmonizes with the new innovation paradigm.

Within a system of innovation, a suitable framework for patents is provided by quasi-contractuals. The quasi-contractual framework has been an alternative
General Summary and Conclusions

Framework to intellectual property, traditionally used for the protection of trademarks and know-how, particularly for protection against unfair competition. This framework can properly be extended to patents in the form of the quasi-contract of unjust enrichment. The quasi-contract of unjust enrichment offers a suitable description of the legal nature of patent rights. Patents are created to solve the appropriability problem of inventors. In contrast to the monopoly or property rights theories, the quasi-contractual framework focuses on the legitimate interests of right holders and the need for a balance. This framework defines not absolute or per se rights, but rights subject to a rule of reason. In contrast to the quasi-contract of unfair competition, unjust enrichment, does not focus on the existence of damages, and the need to exclude unfair competition. It focuses on the need to assure a fair reward to inventors.

The quasi-contract of unjust enrichment offers a collaborative solution to the appropriability problem suffered by inventors. It solves the appropriability problem of inventors by requiring competitors and other users of the protected technology, to negotiate with the inventor and to pay him a fair price for the use of the innovation. Within this framework, the inventor has a legitimate interest in administrating the social use of the technology in order to be able to appropriate or participate in the wealth generated by the commercial use of his invention. This legitimate interest is protected as an inherent right originated in general principles of law.

Thus, the quasi-contract of unjust enrichment constitutes a legal institution that properly describes the appropriability problem of innovators and defines a solution in equity which conciliates the interest of the innovators and the users of the technology in the market. Patent rights are under this framework an instrument for allowing the patentee to obtain participation in the enrichment generated by the social exploitation of his invention. Within this framework, the exclusion right granted by patents are no longer an absolute right, but a relative one, which should harmonize the legitimate interest of the users of technology and the market.

The quasi-contractual institution allows the creation of a general theory of intellectual or innovation rights, which offers an answer to the dilemma of how to conciliate all the interests involved in the innovation process. Framing patents as quasi-contracts of unjust enrichment allows a redefinition of the patent rights
system. Patents are thereby considered granting the patentee the right to usufruct the market of his patented inventions, administrating the social exploitation of the invention to obtain profit. This redefinition of the legal nature of patents removes the traditional conflict of interests between patentees and technology users, as it manages to define an exclusion right which is not absolute, but an instrument to obtain profit from sharing the technology in the market. This definition excludes the protection of the patentee’s interest in using the patent to exclude competition in order to obtain a monopolistic rent. Therefore, the contradicts between patent rights and competition law is solved.

The territoriality principle defined in the Paris Convention has been traditionally interpreted as defining independent national patent law, which may be used to separate national markets, excluding the principle of international exhaustion. Framing patent rights as private property and monopoly rights leads to the conclusion that the territoriality principle of patents is intended to separate national markets, which are absolutely independent of one another. Within this framework, patent rights are exclusively created by national law and do not respond to general principles of law. Each national law creates a totally autonomous patent right intended to protect property and monopolistic interests in each national market. Therefore, a payment of a royalty in a national market is totally irrelevant for authorizing the importation of that device in another national market. Thus, patentees have the right to separate national markets in order to obtain a monopolist rent. This is the position of traditional of countries following the civil law legal tradition, particularly the German doctrine. The position of the countries following the common law system has been mixed, since common law has traditionally considered contracts hindering free trade illegal.

The TRIPS Agreement does not define a principle of international exhaustion of patent rights, even though this principle is implicitly protected by it, since patents should not constitute unreasonable obstacles to international trade. Good will however, compels Member countries to favor a solution for the protection of the legitimate interest of patent holders in separating markets, that offers the best alternative to harmonize all the interests involved in TRIPS and GATT.

Within quasi-contractual framework, the main interest protected by patents is that the patentee obtains a fair participation in the enrichment that each national market
obtains from the invention. National patent rights have a common background, as they share the same principles of law and a common international framework. Therefore, once the patentee has obtained a profit by placing with his authorization a patented product in one market, his right should be considered exhausted and that product should have the possibility of being exported to other markets. The reward already obtained in one national market is relevant for other national territories when considering the protection of the patentee, since the protected interest is the same.

The territoriality principle should be interpreted as a principle intended to give certain scopes of liberty to each country in order to adjust the patent law to the objectives of national industrial policy. The existence of different levels of protection due to the territoriality principle, however, requires the patentee to be able to adjust his participation when the licensee exploits other markets which present important different legal and economic conditions as compared to the market originally considered in the license contract. Furthermore, the patentee, according to his right to administer the global exploitation of the patent, is entitled to impose certain restrictions on licensees in order to assign the market among them.

The doctrine of international exhaustion has been partially applied in the common law countries and recently in Japan. The common law system has applied the “implied license” doctrine to protect acquirers of the patented good. An implied license is assumed, unless the patentee had expressly prohibit parallel imports. The US case law and legislation had sometimes applied a sort of “implied license” doctrine subject to a rule of reason: it may be presumed unless there are legitimate interests of exclusive licensees. The Japanese approach considers that the principal protected interest of patents is that the patentee has obtained a fair profit when placing directly or indirectly with his consent, the product in the market. In such a case the goal of the national patent law is exhausted and the patentees interest in stopping parallel imports is no longer protected. These positions may be integrated when extending the domestic exhaustion principle to international exhaustion. Within the EU and the US, the domestic exhaustion principle constitutes the general rule, but restricted when necessary to protect legitimate interests of right holders, under a rule of reason, controlled by competition law. Patentees are
allowed to a certain separation of markets, when absolutely necessary to protect legitimate interests of exclusive licensees. Thus, the problem of parallel imports may be resolved considering that in principle patent rights are exhausted when a product is placed in an international market with the consent of the patentee, as long as he has already being able to obtain a fair reward. However, international exhaustion may be restricted under the rule of reason. Patentees are allowed to create certain separation of markets defining exclusive licenses. They may impose on licensees contractual limitations on exporting, or require that the royalties connected with the exploitation of the patent in different markets be adjusted when the licensee expands his activities in these markets.

Within this framework, the problem of parallel imports should be considered primarily an internal problem among patentee and licensees, whereby parties defined mechanism to separate the exclusive markets assigned. Rightholders should not hamper the free circulation of merchandise legally placed in the market, unless absolutely necessary to protect their legitimate interests. Patent rights are intended to assure a profit to the patentee and are not intended as an instrument to separate markets in order to create a monopolist rent by excluding competition. Therefore, the international exhaustion principle may be restricted, and parallel imports prohibited, only when necessary to protect legitimate interests of rightholders. Member countries are entitled according to Article XX(d) GATT to define measures necessary to protect the legitimate interests of rightholders. However, the interest of patentees to separate markets in order to obtain a monopoly rent, and the interest of Member States to define mere protectionistic measures discriminating foreign merchandise is not protected by GATT-TRIPS. The rule of reason should guarantee the achievement of a balance of both, the legitimate private interest of patentees and technology users, and the public interest of promoting the creation and diffusion of technology, as ordered in Article 7 TRIPS.

Thus, framing of patents as quasi-contracts within a national system of innovation, and the potentiality of networking, offer a suitable institutional framework for conciliating the interests of both, technology creators and users, as well as the interests of industrial and developing countries. Patentees are no longer influenced to frame their rights as monopoly rights. Compulsory licensing is no longer framed
as an expropriation, but as a necessary measurement to balance legitimate interests of technology users. Infringement constitutes an act of unjust enrichment, whereby negligent or intentional infringers should additionally make restitution of damages. Thus, this framework offers a proper background for interpreting and applying the TRIPS Agreement. It allows the creation of a win/win bargaining scenario, where all parties are interested in sharing their resources as long as they can obtain fair participation in the enrichment generated by their contributions. It provides also a framework which harmonizes intellectual property rights with competition law. This framework is suitable for allowing global markets to profit from the systemic nature of innovation and the networking system. Not only development worldwide, but also a mutually beneficiary economic convergence between industrialized and developing countries, which is indispensable for economic stability, is thereby favored.
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