

INTELLECTUAL PROPERTY: NEW FACTOR OF PRODUCTION
IN THE 21ST CENTURY

INFORMATION & KNOWLEDGE PROTECTED AS INTELLECTUAL PROPERTY: ROLE IN ECONOMIC,
SOCIAL, CULTURAL & TECHNOLOGICAL DEVELOPMENT

A. Introduction

“We are living in an interesting time” (Chinese saying). In fact, we are living in a “Golden Age” for intellectual property rights (IPR’s), in general, and for patents, in particular. Patent filings and issuances are skyrocketing, so much so that there is talk of a patent “revolution”, “explosion”, “frenzy”. In 1998 the U.S. Patent & Trademark Office granted a record 163,209 patents, an increase of 31.5% over 1997, and twice as many as in 1980.

More than ever companies are built around patented technology. The rate of American innovation is soaring. “New ideas are fostered in America like no place else on Earth.” (*U.S. News & World Report*, 1/4/99, p.40) “U.S. entrepreneurs power era of unprecedented prosperity” (*USA TODAY*, 7/30/99, p.B1) “Innovate or perish” is the motto. Royalties obtained for licensing patents have reached the billion dollar mark for companies such as IBM, TI.

And universities, not to be left out, have jumped on the bandwagon. In 1997, for example, they received 11,303 faculty invention disclosures, filed 4,267 new patent applications and obtained 2,645 patents. More than 1,000 commercial products have been developed under license from universities, putting 250,000 jobs and \$30 billion into the economy annually. (*LER*, Feb. 1999, p.11).

Courts read the riot act to infringers. Holding patents valid more often nowadays, they award billion dollar damages. “The recent *Litton v. Honeywell* verdict of 2 billion dollars is representative of this trend.” (Insight Press flyer, February 1999). Preliminary injunctions and treble damages are no longer rare and permanent injunctions are no longer stayed during appeals.

Thus, patents now are more enforceable and valuable and it no longer pays to infringe as before when, in the unlikely event the patent in suit was upheld, only reasonably-royalty damages were assessed. And there are other drastic contrasts between now and then (60’s and 70’s).

Even our Justice Department has made a complete about-face in their position on patents and licensing. According to their “Antitrust Guidelines for the Licensing of Intellectual Property” of 1995, “intellectual property (is) comparable to any other form of property”, there is no presumption that “intellectual property creates market power” and “intellectual property licensing...is generally pro-competitive”. What contrast to their prior hostility to patents, culminating in their philosophy that a patent conferred monopoly power as a matter of conclusive presumption and at least nine common licensing restrictions (“nine no-no’s”) were per se illegal!

B. Premises & Truism about the Nature & Importance of Patents

1. An IP System Should be Part of the Basic Infrastructure

A patent system should be part of a country’s infrastructure from the outset, rather than something thought about after reaching a fairly advanced state of development, concluded Robert M. Sherwood (Counselor in International Business in Washington) in his book *Intellectual Property and Economic Development* (Westview Press, 1990):

“Although largely invisible, an intellectual property system which protects innovation and creative expression may be viewed as a helpful precondition to creating and using new technology which boosts economic growth and aids development. From this point of view, the intellectual property protection system may be considered as a valuable part of a country’s infrastructure.

The concept of infrastructure has proven useful in examining economic development. Roads, irrigation, sewers, schools, water supply, health care and electrical systems are among the preconditions thought beneficial for development. Creation of infrastructure is accorded priority because of this.” (p.6)

Furthermore, Sherwood stated:

“It is submitted that viewing intellectual property protection as an important aspect of a country’s infrastructure would focus attention and analysis on its role in the economic development process rather than on trade conflicts.” (p.5)

In this context it should be kept in mind that patent protection preceded modern industrial development in most of today’s developed and industrialized countries, which at the time were still under-developed countries.

2. There are no Viable Alternatives

Modern and strong patent systems, following the model of the European Union, are of interest for all nations, including the smallest and also the least developed. For this reason, such systems are being adopted universally, which is not surprising.

Many of the Asian and East-European countries have established or strengthened their intellectual property systems before the GATT-TRIPS era and without being swayed by pressures from the outside. Why? Because they had come to realize that intellectual property systems would serve their own self-interests.

For example, a high official of the Indonesian Government made the following statements in a seminar which I attended in Jakarta a few years ago when I served as a consultant for the Patent , Trademark and Copyright Office, to assist them in implementing their first patent system:

“The need to expand our knowledge and to improve our technological development and dominance require a greater availability of technological information through growth and development of the patent system. Only through the expansion of knowledge, and the increase in technological dominance, will we be able to carry out efficiently the process of technology transfer as well as solve related problems.

Especially today one cannot ignore the role that intellectual property plays in international markets, which is becoming increasingly more important.

The future economic development of the country will focus more and more on the industrial sector directed to exports, which obviously will need access to international markets. This access will only be achieved if we participate in mutual agreements in the sector of intellectual property, through the operation of sufficient, efficient and reciprocal legal protection.

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The current situation, where intellectual property has greater value and more importance provides a very different stage from that of the fifties, sixties or even the seventies.”

In my opinion, these affirmations — and similar ones which I heard on subsequent trips to Korea and Malaysia — are very positive, modern, and at the same time surprising, since until 1991 there was no patent system in Indonesia. Furthermore, these statements have much relevance in other developing countries because there is considerable parallelism among many of them and Indonesia.

Indeed, we live in the nineties and not in the sixties or seventies, and nowadays we all live in a world that is becoming smaller and more interdependent every day, that is to say, we live in a “global village.”

On the other hand, there are no countries where patent systems were abolished, although Professors Melman and Machlup, famous economists of the fifties, after reviewing the American patent system in a study commissioned by the U.S. Congress, arrived at the following astounding conclusion: “If we did not have a patent system, it would be irresponsible, on the basis of our current knowledge and of its economic consequences, to recommend establishing one.”

But the patent system has survived Professors Melman and Machlup and other critics of similar mentality. Today critical opinions about the patent system are rarely heard, and conclusions such as those of Professors Melman and Machlup seem like bad jokes. Professors Mansfield and Scherer, well-known contemporary economists, never would say such things.

For Mansfield, the patent system is a very important instrument as regards the technological development, because investment in R&D always depends on the degree of protection of IP and given the intimate relationship between industrial innovation and economic growth, adequate protection of IP is indispensable for industrialized as well as for developing countries.

Time and again studies and proposals have been presented regarding alternatives to patents, as for example, economic incentive systems to inventors without grant of an exclusive right; but the patent system has outlived these and other proposals, because time has demonstrated that, when all is said and done, it is the best and most viable alternative of them all.

In this connection, the Spanish Professor Carlos Fernández-Novoa, of Santiago de Compostela, in his book *Toward a New Patent System*, studied other alternative systems, particularly a governmental system of monetary premiums, but rejected it. He concluded that: “(T)he patent system is the only system that provides incentives for technological research that is reconcilable with the system of market economy.”

By now I believe it is incontrovertible that a strong system of IP rights is indispensable for technological development, which stimulates economic growth and social welfare.

3. A Strong Patent System is in the Interest of Nationals

A patent system first and foremost is in the interest of nationals. There is genius and creativity everywhere but they need nurture. No country has a “monopoly” on that but where national talent and inventiveness are neglected, inventors and scientists have to go abroad to protect adequately their inventions. And this leads to the so-called “brain drain.”

In this regard Sherwood had the following comments in his already cited book (p.197):

“If people seem to be more inventive in the United States or Europe or Japan, it is not an accident. It is not because of genes or schooling or intelligence or fate. Implementation of the intellectual property system is critical because of the habit of mind which is fostered in the population. Human ingenuity and creativity are not dispersed unevenly across the globe. Those talents are present in every country. In some, unfortunately, the enabling infrastructure of effective intellectual property protection is missing.”

Interestingly, the fact that most of the patents are granted to foreigners in developing countries does absolutely not mean that the patent system serves only foreigners. The truth is that this occurs also in all industrialized countries with Japan and the U.S. the only exceptions. In the U.S. almost half of all the granted patents belong to foreigners, too.

A few years ago, in a seminar in Lima, Peru, which was organized by INDECOPI and which I attended to give a talk, I was approached by a couple who told me that the husband had invented significant improvements in cars. They wanted to go to Miami to enlist an American patent attorney in order to patent his inventions in the United States, because “it made no sense to try to patent anything in Peru.”

Also a few years ago I attended a seminar organized by the ABPI (Brazilian IP Association) and held in Salvador, Bahia. At this seminar, Dr. Virgilio Da Costa Neto, President of the Research & Development (R&D) Center of Bahia (CEPED), expressed wistfully that Japan was a wonderful example to imitate as concerns technological

development and patents. "Japan showed the way," he said.

Regarding that country, he made reference to the gigantic electronics company, Sony, which emerged after the last World War as a small family business, with a single patent based on a good idea for improving the radio.

Dr. Da Costa Neto also referred to other interesting concepts: Obtaining patents, he said, is a good business practice... patents help at the table of negotiations... and only through patents can an entrepreneur or a small company resist the competition of the giants.

Furthermore, he deplored the fact that, in spite of having a staff of more than 100 persons in his R&D Department, sufficient funds, and considerable technological development, he had not received any request to patent something.

Similar considerations were also expressed by Professor Eloisa Biasotto Mano, Director of the Macromolecular Institute of the Federal University of Rio de Janeiro.

4. The Most Important Incentive Provided by the Patent System

The problem in countries without a solid patent system, is that there are none of the incentives provided by such a system, which is prejudicial to technological development and economic growth. Actually, there are four incentives that a patent system furnishes, namely, to invent, to divulge inventions, to "invent around" prior invention and to invest in the commercialization of inventions and, interestingly, the incentive to invest is the most important of them all. (CAFC Judge Giles Rich)

Conventional wisdom has it that the ratio of requisite investment in the three phases of product innovation from laboratory to market place, namely, invention, development and commercialization is supposed to be of the order of 1:100:1000, and this would support the thesis of investment incentive.

Robert Sherwood has recently published an article on correlation of investments and IP. ("Intellectual Property Systems and Investment Stimulation...", 37 *IDEA*, No. 2, 1997, p.261.) In it he evaluates and classifies IP regimes of different countries as well as the GATT-TRIPS regime using a scale of 0 to 100. This study was done from an investor's perspective. Some of the numerical scores are: Guatemala 13; Argentina 39; India 46; Brazil and Pakistan 49; Costa Rica 54; TRIPS 55; Peru 61; Chile 62; Mexico 69; South Korea 74; U.S., EU, Japan, 75-90+, etc. GATT-TRIPS does not obtain a higher score inasmuch as it is a system of minimal standards; in other words, it is a floor and not a ceiling. TRIPS merely reduces trade conflicts rather than stimulate investments. Sherwood then invokes Professor Mansfield's investment/IP protection correlation from his published World Bank reports (Discussion Papers 19 and 27), indicating that the TRIPS level of protection is only good enough to support private investment in sales and distribution, assembly, and parts manufacture. A higher level of protection is needed to stimulate private investment in complete manufacture, product development and private research. Attachment 1 presents all of this quite graphically.

In this context, it is interesting to note there still exists a school of thought that asserts that technology is the "common heritage of mankind", that is to say, that all technology should be made available for free. But if technology should come free, why not oil and gold? This observation was provided by one of my students, none other than the then Director of Patents and Trademarks of Zimbabwe, Mr. Naboth Mvere, upon commenting that some countries have oil and others have gold and some countries have technology; and the countries that have oil and

gold do not consider them part of the “common heritage of mankind” and accordingly give them away for free. And don’t many developing countries have “green oil”, that is, an abundance of germoplasma and biodiversity?

5. Patents do not Constitute Monopolies

The notion that patents constitute monopolies is still widely held. This is a misconception that has caused a lot of mischief. A patent as well as other IP as such can never be a monopoly. The prevailing thought today is that a patent is property — a property like a house or a car or a share of stock — and not a special privilege, a monopoly granted by the government.

The concepts of patent and monopoly should be clearly distinguished. While in a monopoly something is taken away from the public domain, an invention is given to the public domain, although during a given term the inventor has the exclusive right to his/her creation. That is to say, a monopoly is something in the public domain that the government takes from the public and gives to a person or a company. An invention is something that did not exist before and was not in the public domain. It is something new and novel, that upon publication via the grant of the patent enriches the public domain with the knowledge of the invention — which spawns improvement inventions by others — and upon expiration of the patent, enters into the public domain, free to be used by anyone.

Other reasons: the Patent Laws of the United States (Sec. 261) and those of many other countries specifically state that patents are property; a patent does not grant the positive right to make, use and sell the patented invention but merely the negative right to prevent others from making, using and selling such an invention; there are always other competitive products, other subsequent or previous alternatives; and the patent right is too severely restricted in terms of duration, scope and patent misuse law to be considered a monopoly.

A more detailed discussion, reflecting former CAFC Chief Judge Howard Markey’s very strong opinion on the patent/monopoly issue, is given as Attachment 2.

6. “Everything Under the Sun Made by Man” is Patentable

The momentous pronouncement that “everything under the sun made by man” is patentable comes from the 1980 U.S. Supreme Court in the *Chakrabarty* decision. In deciding that new living organisms are patentable, they recognized that there is no better way to provide incentives for such potentially very valuable inventions. Clearly, this point nullifies the argument that inventions in the nutritional, pharmaceutical and biotechnological fields are too important to be patented. On the contrary, exactly because of the high public interest, they are too important not to be patented. And because of this, Professor Thomas Field, my colleague at the Franklin Pierce Law Center, emphasizes that such products should be patentable *a fortiori*. In other words, the greater the public interest, the greater the need for protection and with it the need to provide an incentive for investments.

Also, in the light of the *Chakrabarty* pronouncement, which bespeaks the expansiveness of the U.S. patent law, there should be no exclusion of subject matter from patentability. With the *Chakrabarty* decision, the first of the conventional exclusions to patentability fell, namely, that living matter was not patentable. Many patents on animals and plants have since been granted. We also know now that software, supposedly unpatentable (only copyrightable), because of the unpatentability of mathematical algorithms, is not only patentable but patent protection has become the protection of choice, side by side with copyright and trade secret protection. And just last year, we had a “seismic precedent”, the *State Street Bank* decision, where the Federal Circuit Court of Appeals ruled that a pure computer program designed solely to make financial calculations was patentable. This decision reinforces the recent trend of federal decisions bolstering the patentability of software. With this decision the business-method exception to patentability was also dealt a mortal blow.

Besides, the act of patenting is a neutral act and should not be restrained for social engineering purposes, and the patent right is a negative one, a right of exclusion rather than a positive one, a right to use. Should there be a public policy need to control the commercialization of a patented product, let there be separate legislation for that purpose a la Finland’s recent separate side-by-side (proposed) legislation on patenting and regulating biotech inventions.

7. Trade Secrets and Patents are Complementary.

Of course, any IP system must include not only patents, but also trade secrets, utility models, industrial designs, trademarks, copyrights, etc. All of these are most important for technological development and economic growth and, therefore, it is important to establish and maintain strong and modern systems in these other fields just as in that of patents.

In relation to trade secrets, inexplicably termed “undisclosed information” in Art. 39 of TRIPS, it should be kept in mind that the patent system and the trade secret system are not mutually exclusive, but, in reality, are

complementary. To protect adequately new inventive products or processes both IP categories can and should be used in complementary, even synergistic, ways.

There are those who would disagree with this thesis. When I defended this posture in a seminar of the ABPI in Sao Paulo, some years ago, the then chief of the Patent Office, was horrified, and expressed to be in total and profound disagreement with me. However, the U.S. Supreme Court in the *Kewanee Oil* decision in 1974 indicated that “Trade Secret law and patent law...each has its particular role to play, and the operation of one does not take away from the need for the other...the extension of trade secret protection (even) to clearly patentable inventions does not conflict with the patent policy of disclosure”.

In this same decision, in a concurring opinion, Justice Marshall asserted that Congress, in promulgating the law of patents, merely intended to offer to inventors a limited monopoly in exchange for disclosure of their invention, rather than exerting pressure on inventors to enter into this exchange by withdrawing any alternative possibility of legal protection for their inventions.

In another, more recent decision of the American Supreme Court, in the *Bonito Boats* case in 1989, it was maintained that trade secrets “dovetail” with patents.

In fact, as a practical matter and in terms of management strategy, not only is it possible but very important to proceed as follows:

- firstly, maintain the invention as a secret while a patent application for the same is in preparation or pending;
- secondly, hold as trade secret the " know-how" associated with the invention that does not have to be revealed in the patent application;
- thirdly, after the patent application is on file, preserve as trade secret all the improvements and R&D results subsequently obtained; and
- fourthly, with respect to technologically complex products and/ or processes, obtain protection via patents for some inventions, and simultaneously preserve as trade secrets other aspects, in particular, other inventions and know-how related to inventions already covered by patent applications or patents.

See Attachment 3 for further insights into the Patent/Trade Secret interface.

8. Integration of IPR's

As was shown above, patents and trade secrets are complementary, if not inseparable, and can and should be relied on side by side for optimal protection. In other words, it is possible to eat the cake and have it. The erstwhile view, prevalent even in the U.S. and still widespread in foreign countries, that only single protection is possible, e.g. utility and design patents on the same product are incompatible, has long gone overboard. Dual or multiple protection, integrating various IP categories and exploiting their overlap, especially in modern fields of technology, e.g. biotechnology, computer technology and other high technology areas, is now increasingly the order of the day.

Professor Jay Dratler, of the University of Hawaii "tied all the (formerly fragmented) fields of intellectual property together", for the first time in his treatise on "Intellectual Property Law: Commercial, Creative, and Industrial Property", *Law Journal Press*, 1991, inasmuch as intellectual property has become a "seamless web" in light of progress in technology and commerce, with new technologies straddling the gaps between most IP categories.

Professor Dratler explains:

"The (IP) fields overlap significantly, and the boundaries of each are far from sharply defined. Indeed, several different types of protection are often available for the same thing, or for different aspects of the same thing; therefore, resort to several kinds of protection may be required for complete coverage.

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Although several distinct types of intellectual property protection may protect a single product or service, there is usually a center of gravity. That is, one form of protection is usually the most important commercially, and the others assume a subordinate or supplementary role. This does not mean, however, that supplementary protection lacks value. Supplementary protection may cover additional subject matter, strengthen the exclusivity provided by other coverage, or invoke additional remedies for piracy."

Professor Dratler goes further and shows how integration of IP categories may even achieve synergy and provide fall-back forms of IP. He gives detailed illustrations of the many forms of IP protection that are available in the fields of computers (hardware and software), biotechnology and aesthetic designs of articles. And multiple protection for plants is also clearly available, not only via plant patents and plant variety protection certificates but also via utility patents, trade secrets and even design patents.

More recently, Stephen Elias, picking up on Professor Dratler's theme, presented a "Guide to use of Intellectual Property Protections", in chart form, in which he lists 119 creative work categories and the multiple IP protection available therefor. (Stephen Elias, *Patent, Copyright & Trademarks — A Desk Reference to Intellectual Property Law*, Nolo Press, pp. 10-12, 1996)

9. A Utility Model System is also Desirable.

A strong, modern patent system should also include a petty patent or a utility model or a short-term patent, as it is called in Ireland, which established such a system recently, with the European Union to follow shortly. Such second-tier protection for subpatentable inventions is desirable, given the strict patentability requirements, the long pendency and the high cost of conventional patents. In other words, petty or short-term patent protection would provide coverage for a large area of innovations which fall between design and utility patents, cannot be protected by trade secrets and for which present utility patents are out of reach because of high patentability standards and/or excessive costs.

C. How to Modernize and Strengthen an IP System

To modernize and strengthen a patent system with due regard to the principles enunciated above, I submit that a course of action involving the following six overlapping phases should be pursued:

- 1) modernization and strengthening of national IP legislation,
- 2) installation of an effective IP administration,
- 3) adherence to all relevant and important international IP treaties,
- 4) instillation of appreciation in all sectors of the importance of IP in economic and cultural development,
- 5) improvement of judicial mechanisms for the enforcement and defense of IPR's, and
- 6) establishment of regional, centralized IP systems and offices.

The last phase, for which there are ample precedents in the EU, Eurasia, Africa (ARIPO, OAPI), should be seriously considered as long as a World Patent is not over the horizon and it is believed that many developing countries will not be able to live up to the TRIPS mandates. Establishment of regional IP systems and offices should be embraced in my view in preference to other proposals that have been floated recently, such as, the "Rapid Patent System" (an application is published but stays pending for 20 years and then goes abandoned, unless a patentability examination is requested by someone — an ultimate deferred examination system) or a "Reference System" (comparable to the former confirmation or validation patent system but one which takes the PCT a step further.)

D. Conclusion

If a strong industrial property system is indispensable to technological development which in turn is indispensable to economic growth; if an industrial property system should be part of a country's infrastructure from the very

beginning, rather than something to be considered after reaching a fairly advanced state of development; if an effective industrial property system provides not only an incentive to invent but also, and by far more importantly, an incentive to invest in innovation; if the quality of investments a country can attract (domestically and from abroad) is directly proportional to the quality of its industrial property system; if investments, technology transfer and licensing are easier to bring about via industrial property rights as vehicles and bases; and if industrial property rights are not and cannot be monopolies per se, but rather a commodity and property, the acquisition and transfer of which has clear pro-competitive effects — all of which by now are well-established tenets and truisms — then our industrial property systems should not only be effective and strong but also liberally expansive rather overly restrictive as we go into the new millenium.

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