



저작자표시-비영리-변경금지 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.

다음과 같은 조건을 따라야 합니다:



저작자표시. 귀하는 원저작자를 표시하여야 합니다.



비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.



변경금지. 귀하는 이 저작물을 개작, 변형 또는 가공할 수 없습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 [이용허락규약\(Legal Code\)](#)을 이해하기 쉽게 요약한 것입니다.

[Disclaimer](#)

Master's Thesis of Law

**Analysis of the Impact of the
Patent
System on the Industry
Through Historical Examples**

과거 사례 분석을 통해 살펴본 산업에
미치는 특허법의 영향.

August 2016

**Graduate School of Law
Seoul National University
Intellectual Property Major**

Alexandre Philippine

Abstract

The main objective of this research is to understand if the patent system that have always been seen as fundamental in the modern society is actually helping the economy and the industry sector. While the patent system is accepted by most, as a good way to protect invention, the social benefit and the impact of this one on the society has never been shown clearly by research. This study was made in the hope of bringing a bit of light on the subject.

To be able to analyze the impact of patent law on the system, the description of its origins and the way it developed enables the reader to slowly understand the evolution of it and the issue of it. To be able to have a good understanding of the system, a review of the main evolution will be seen, first by developing the existence of a protection of invention in the ancient Greece, with the city of Sybaris and the development of diverse sector of its economy thanks to the patent system. Followed by the creation of the first patent law in the history made in Venice, the city indeed was one of the superpower of the 14-15th century, and the patent law enacted in the late 15th was probably one of the tools that did bring this development.

The subject of American patent act and development of the patent law in England having been dealt with in many researches, this research will rather focus on the patent debate in the 19th century between, patent advocates and patent disclaimers.

Will follow, an analysis of the modern patent system and the way countries accepted the standardization of norms to finally arrive to a global system of protection of the intellectual property by the ratification of TRIPS agreement by the developing countries. US negotiators of the Uruguay round of GATT have pushed the TRIPS agreement, the impact of new protections in

developing countries having consequences on their economy that are necessary to deeply understand and have a global pictures of the consequences of patent laws on the world industries. To see how introduction of new regulations affects the economy of developing countries, we will see the examples of the introduction of patent regulation in Kenya and the effect it had on the country. Most of Kenyan patents been filled by foreigners or foreign companies with low disclosure of information.

The Patent law being implemented in almost every countries nowadays, it would be could to adapt it to the different cultures and to the level of development of countries. Leaving more time for he unprepared countries to adapt their law and culture to the system of protection.

Besides, some points of the actual system bring problems. The initial creation of the patent system was to satisfy inventors to be able to push a feeling of invention in the country by giving reward based on the utility of the invention. The problem is that the analysis of the situation of Netherlands in the 19th century shows that there is no such tendency of improvement of innovative feeling in the country before and after a patent law. Plus, the litigation fees being really high comparing with before, inventors are not as well protected as they might have been centuries ago. Most of the litigation involve not two sole inventors trying to prove their rights on an invention but two industry or, a sole inventor against a full industry. In this case it's difficult to have fair litigation with fair judgment.

Most of recommendation are based on the exploitation of results focus the developing countries. To be able to maximize profits and make patent a system that can be profitable for both companies and states, implementation of a slow patent law or delayed one, could help the developing countries to be able to broaden their knowledge and develop their market easier, and by this let global companies make profits.

Second recommendation would be to push pharmaceuticals companies and software companies to actually invest in R&D in developing countries to be able to sell their or fill patents. Even if the investment represents a colossal loss of money at the beginning, the education and the technology improvement that result from it would enable developing countries to develop their market and finally satisfy both foreign company as well as locals few years later, while the lack of investments now represents a success on the short term but deprive most of multinational companies from a long term benefit they could make.

A reform of the patent system is necessary to adapt it to the modern society as it always have been done in the past. This evolution would make the patent system good and profitable for all, and make a logic of win-win between countries and companies.

Key Words: Patents Law, Development, Industry, TRIPS

Student number: 2014-25169

TABLE OF CONTENTS

Introduction	
Birth of the IP protection	
Antiquity & Early Protection.....	
Sybaris Protection of Invention and Development.....	
Privileges system	
Venice and the Patent system	
Patent Protection 19-20th century	
Dissensions and Standardization of the System	
Renegade of the system.....	
Switzerland.....	
Netherlands	
Standardization of the system and participation of Developing countries	
Current Views on the system	
TRIPS Negotiation.....	
Developing countries & Patent System	
Model of standardization.....	
Modern Times	

Critics & Findings

Conclusion.....

Introduction

In our modern times, the Patent system is a convenient method for securing intellectual property, most of company and new inventor got used to fill a patent to protect their invention but we should not forget how the patent system appeared.

The creation of the modern patent came thanks to the development the system undergoes through history and in different place of the world. While it would be possible to analyze the development in mainly US and UK, a worldwide analysis of development of the patent system is more interesting because it can be used to analyze lacks in the law that most of the nation in the world decided to ratify by their acceptation of the TRIPS agreement later on.

The main question that can arise through the times is to know if finally, the patent system is something that is useful and interesting to keep or something that isn't adapted to the modern society.

To analyze the question of the benefit or the advantage of the patent system., it is important to understand its early creation and the main developments it had through history. Generally, history brings a good

feedback relating to policies and law because it enables scholars to fully understand the impact of a law on the society and the economy.

By using some example and trying to get the early essence of the patent system, we will try to understand the meaning and the philosophy in which the protection of invention was made possible and then see the impact of the modern policies on countries and the society to analyze if the patent system is good for development and industries or if it is not actually the case anymore.

The industry nowadays tends to create new technology fast and the world is developing at a rate that could never be imagined couple years ago, this development of technology implies the protection of the inventor's wealth while it could be in contradiction with the benefit of the society.

We will study the impact of the patent system and intellectual property on the industry of some countries through the history and see if it was positive or had adverse effects. By this it would be possible to formulated some idea for the modern patent system.

Birth of the IP Protection

Introduction to the protection of intellectual property in the Antiquity

In the beginning of what we can call civilization, it is possible to discover Intellectual property rights, Ancient civilizations in Europe showed a significant degree of protection of IP rights even if no proof of a large scale protection system has been discovered yet. To be able to set up an efficient broad system of protection for intellectual property and consequently for patent, some pre-requisite exist. Indeed, the intellectual property protection imply a minimum of consideration from the government towards its people. In the Antiquity, period that we could consider as the beginning of time for our modern society, period where mathematics, philosophy and fast development emerged. Greek city-states were mostly democratic. Most of the male citizens had freedom of speech and equal rights in the city. Besides, not only did citizens participate in a direct democracy whereby they themselves made the decisions by which they lived, but they also actively served in the institutions that governed them, and so they directly controlled all parts of the political process¹. Political disagreements were constant between cities and that's why after the Peloponnesian wars, the idea was more to impress their neighbor than destroy them, particularly after Persians attempts of invasion². Most of

¹ Mark Cartwright, "Athenian Democracy," *Ancient History Encyclopedia*, last modified October 13, 2014.

² "Peloponnesian War". *Encyclopædia Britannica. Encyclopædia Britannica Online*. Encyclopædia Britannica Inc., 2016. Web. 20 avr. 2016

the commerce of Greek cities were composed of agricultural products and made by maritime traffic. The control of the maritime traffic was mostly focused on roads around the Calabria Peninsula, controlled by the habitants of Sybaris. Most of the cities of the Greek territory were fighting for a better share of the territory between each city, however certain cities such as Sybaris were much richer than others³.

Where rich cities and democratic governments exist, we can see the birth of a beginning of intellectual property protection. It is possible to find the existence of the first trace of protection in the same Sybaris city where commerce flourished in Antiquity. Chefs of the city could receive a privilege for the creation of a new recipe if this one were satisfying two conditions, being novel and creating a dish that tastes good enough to receive a permission of monopoly from the government⁴. The two requirements looked a bit like our current system, but were really different in the matter that it excluded every person of the city to use some recipes without any regard about the obviousness. Athenaeus of Naucratis complains about it in one of his poems, where he stated that "if any confectioner or cook invented any peculiar

³ Claude Mossé « GRECE ANTIQUE- La Grande Grèce » Encyclopaedia Universalis .

⁴ Yves Plasseraud, François Sauvignon, Paris 1883 – Genèse du droit unioniste, (Paris, Librairies techniques, 1983), p. 5

or excellent dish, no other artist was allowed to make this for a year, but he alone who invented was entitled to all the profit to be derived from the manufacture of it for that time; in order that others might be induced to labor at excelling in such pursuit"⁵. While still far from the current system we can see that the policy in Sybaris was made in order to promote the invention in the society, and can be recognize as an early form of patent system. Even if the impact on industry and development was probably really low because it was focusing only on some peculiar area such as cooking. Contrary, in other city-state, at the same time 500 B.C.E, such as Athens, no practices like this existed, generally the inventor of a new technology or new art was celebrated and rewarded with a flower crown but couldn't get any monopoly for using the invention.

Some author later on however, complained about the increase of cities according privilege and monopoly to citizen for invention in Greek territory (city-states and colonies), such as Aristotle who lived in the 4th century B.C.E. After the colonization of Greece territory by Roman during the Empire, romans decided to consolidate the achievements of Greek culture and the monopoly and privilege system were only banned by the Eastern Roman Emperor Zeno

⁵ Phylarchus of Naucratis, "The Deipnosophists, or, Banquet of the Learned of Athenæus",

the Isaurian at the end of the 5th Century.⁶ The monopoly and privilege to use an invention in the Antiquity was conditioned at two points, the first was the understanding and the acceptance by the government and the population that the invention and its discovery belong not to the society or the ruler but to the person itself and the second was the intention to reward the person with a monopoly on the invention to increase the desire of other citizens to create and increase the renown of the city and so being able to compete against other City-States and attract merchant and as well as activity. Even though researches don't show yet any new discovery in that field because of the destruction of the region due to the multiple wars, it's still possible to link the first proto-patent system to the ancient Greece. As it is recognized to be the cradle of copyright and authorship rights⁷

Sybaris, Protection of Inventions and Development

This Greek Colony, can be recognized as the first developer of a system of protection of new invention in the world. Sybaris was founded in the ancient

Translated from Ancient Greek by H.Bohn 12:20, p.835

⁶ George Francis Takach, *Patents: A Canadian compendium of law and practice*, (Edmonton, Juriliber Limited, 1993), p. 1.

⁷ Moore, Adam and Himma, Ken, "Intellectual Property", *The Stanford Encyclopedia of Philosophy* (Winter 2014 Edition), Edward N. Zalta (ed.) p.1.

Greece in 710 B.C, and was according to most of the author of the period "one of the richest city in the world". It is indeed possible to check the affirmation with the text of Herodotus: For the wedding of the youngest daughter of the Sicyon's Dictator, the son of Hippocrates from Sybaris won the girl by all his luxurious gift above every other competitor.⁸ Two other authors come to develop this explanation Timaeus and Diodorus who both come back on this story. Timaeus explain that the followers of the son of Hippocrates are in the number of a thousand, composed of cooks, bird-catchers and dancers⁹ while Diodorus describe the young man as arrogant toward both the girl and the other men due to his superior wealth.¹⁰ This wealth can be attribute to inventions in the city and the development that resulted from it, positive at least until the city got destroyed.

Commerce

Most of the money made in Sybaris at the time comes from two systems. The commerce in the first place and the portage.

The City location could help Greece to deliver its products everywhere in

⁸ Herod, VI, 127

⁹ Tim, Frag 58. Ap. Athen. XII ,11.

¹⁰ Diod. Sic , VIII, 19.

Western Europe. The existence of such commerce is known by the existence of commerce and exchange between Greek colonies of Italy and tribes of the North as well as ones in the South of the actual France. The commerce of Sybaris with the non-Greek cities is mainly composed of Leather and Wine at this moment. But as the city is not the only one to be in Italy at this period, what could make the city greater is the use of their special topography and their willingness to develop their commerce as well as their population. All of these factors will later on have an impact on the Intellectual Property's protection in the city.

The location of Sybaris in Italy is complicated comparing to other cities. Surrounded by mountain it was almost impossible to have a developed commerce. But the city had couple advantages that enable it to develop its economy. The city, is different with the other Greek city by couple factors. In the first place Sybaris is located on the same place than an old Phoenician warehouse and by this, the city enjoyed its development with the help of Phoenician who were the greatest merchants of Mediterranean Sea. The second advantage of the city is its vision of the commerce and politics. Indeed, comparing with the other Greek cities whom considered the citizenship as a right that only people born or affiliate to the city could enjoy, Sybaris were

giving the citizenship to any people who were residing in the city without considering their blood or their wealth. By this action the city attracted a lot of foreigners and became the first multicultural Antique city¹¹. The second Point is their Phoenician point of view of the commerce, that were focusing on profits and benefits without considering the origin of the other party or the partner. While all the rest of Greece would never have done business with barbarians, people of Sybaris were pleased to do business with Etruscan, Latin or Celtic tribes.

Commerce with other Greek cities wasn't the hardest thing to do because only a harbor was necessary but as the city was totally surrounded by mountains it was more difficult to be able to deliver merchandise by ground. After the foundation of the City, the problem was the survival and people had to be innovative to manage to commerce with others.

To begin, being able to open roads to the north and other cities as well as to be able to remain in contact with the rest of the Greek world, the city decided to found colonies around the city to extend its possessions and its control on the nature. The city decided to attack cities and build colonies around itself after couple years, Sybaris was in possession of 25 cities and had

¹¹ Diod, Sic. XII, 9

4 Nations under its command.¹² Using these other cities as path to access the other part of western Europe and all Italy. The city developed a system of Country to Sea and Sea to Country to avoid the destruction of the Sea (Waves, Storms) that could be deadly at that time.¹³ And by this, was offering an alternative to trade for merchants who didn't want to take risk to lose their merchandise in the sea as the terrestrial road of Sybaris was safe of attack and safe of climate/natural disaster.

Plus, to be able to commerce with the rest of the Greek world easily and attract merchant, the city decided to change its money. While Athene divide its Stater in 2 Drachma, Sybaris decide to divide its own into 3 Drachma to be able to commerce with Corinth but as well with the whole Greek world as the 3 Drachma system for silver money give the possibility to easily be converted in both Eugenic and Euboic system.

Invention, Property and Influence

The new development of the city pushed the population to be even more multicultural and even more focus on business and new law appeared to protected their trade. This is the beginning of the protection of the invention

¹² Strab, Edit Didot p 218, 13.

¹³ Muller, op. Cit. I, p205

and creation.

As stated before to protect the Development of culinary tradition in the city, the law was protecting cooks whose were finding a new recipe in the city of its colony for at least 1 year and with a crown as reward.

But other kind of protections born in the city in correlation with its development. The city soon started to protected metals extracted in their territories or the one that was modified in the city as being "original and unique", Sybaris blacksmiths could enjoy a protection of their works because imitators were punished if they were to come in the city. In the *Odyssey*, the city is described as a being supplier of metals such as copper for all the Greece and surtaxing merchants who were to introduce metals from the city to another one and vice versa.

The protection is as well valid for art and luxurious products, indeed most of artists that comes to Sybaris could enjoy a protection of their art and luxurious products, not by a protection of their invention but by a system of reward after inspection.¹⁴ If the art was considered by the city council as new and original, he was exempt from paying tax for its creation. The same rule

¹⁴ Tim, *Frag 59*, ap Athen., XII, 3; Cf Muller, *Op. Cit.*; I, p265

was applying for merchant bringing art or pottery from other population such as Etruscan potteries. By this system of the merchant who wanted to be rich were coming to Sybaris to sell original work from abroad and because they could sell it without having to pay any taxes.

Method of construction and new invention that could show the prosperity of the city to the other Cities of Greece where rewarded by a Tax waving right where the inventor of a new technology could be exempt from paying any taxes on the sales of his invention for one year, moreover, the inventor could be rewarded by a prize in money shared by the community. By this system the competition was discouraged in the technology for at least a year. In the period Sybaris saw the birth of many new developments such as steam bath, ornament for hair, canalization system.¹⁵

Purple and Franchise

The protection on the discoveries in Sybaris is broad because the Greek were not considering the invention as being restricted to some areas but as been applied to any new discovery. The purple color in the ancient times was obtained from the Bolinus Brandaris and Hexaplex Trunculus that could be

¹⁵ Tim frag 59, Athen XII, 3

found in the deep water of the Mediterranean Sea. After collection, the process of creation of the coloration of clothing using it was secret.

The difficulty lied in the fact that after being exposed to the purple pigment the oxidation was making the clothes losing its color after couple days, but the Phoenician found a process to protect clothing from alteration and only Sybaris were aware of the secret in the all ancient Greece. That's why most of the woman of Sybaris were dressed with purple¹⁶

To be able to keep the secret, Sybaris invented IP right for craftsman who could transform the sea snail into a purple colored clothes. These craftsmen were given the right to delegate the fishery of the snail to any fisherman they wanted to. These fishermen were then authorized by the city to fish and sell their cargo to the craftsman free of tax. People who were to fish these special sea snails without authorization from a craftsman were punished of death. The craftsmen were able to sell afterwards their tunic and clothes made of purple in the city and its colony only, and having the obligation to pay annual fees to be able to keep the right to make the invention.

This represent one of the most interesting system of antiquity were the

¹⁶ Ptolem. Everg, Frag 8 ap Athene, XIIp 518.

power of making something is considered as an invention belonging to the city. Where the process of making the color is shared to only some who has to pay for using it (similar to license or Franchise), and where these latter ones can delegate the collect of the raw material to a third party, bound by an agreement between the city and the craftsman.

The development of Sybaris though stopped here, and their laws and traditions with it after couple wars with its neighbors, whose couldn't accept the commerce of the city with Etruscan and other nations considered as enemy for a part of Greece. However, Sybaris represent a good example of protection of Invention and success. The problem faced by the city is the lack of peace and the jealousy of neighbors regarding the prosperity of the city. The strong protection of innovations was strongly helped by the reprisals of people who were not respecting the property of inventors. The creation of strong protection of invention was made after the development of Economy and that protection could be seen as a way to protect their economy against competitors and other city-states that would have wanted to copy their technology.

Development in the Middle Age.

After the abolition of the privilege system by the first Eastern Roman

Emperor unique ruler of the all Roman Empire and until the end of the Empire in the 15th century by the destruction of Mistra by the Ottomans, privileges on a creation or a discovery wasn't possible anymore. However, while the Empire was wavering, the western Europe was in a new development after the early dark age marked by wars. The politic is certainly a cause of this new development. While the Eastern part of Europe is ruled by Caliph and Emperor, western part of Europe around the 12th century is ruled by Kings. The difference while small in the popular language can be seen as really different in essence. The difference can be analyzed by the different wars that happened at the period, and can give some clues on why the patent system and protection of inventor could happen in the western Europe but not in the Eastern part of Europe or even in China. In the middle age, two religions with different leader came to power, Muslims and Christians. The Caliph or even the Emperor represent the religious power as well as the ultimate authority. While Kings represent God on earth after having been blessed by the Pope. The Caliph rules on a territory that fully belongs to him and every Duke or Cheick that exist in his territory are only administrators that should take care of the domain for him. They are not and won't be entitled to the territory under they controlled and there is so no property rights but just a lent of power to serve the real owner (The Caliph / Emperor), this explain as well why

the Caliph wasn't easy to conquer because no one would ever rebel against the Caliph and even if someone does, or the territory is captured, the population would not accept the new ruler as they master until the Caliph is dead. By contrast, the king, even though owning all the territory like the Caliph, accept to leave the administration and piece of territory to his people, territory that can be then transferred to the heir of the owner of the propriety. It's easy to understand this by watching European wars for instance were each Duke are quasi-independent and where the King hasn't a fully total power, but should instead try to balance interest of each lords under is power to keep the kingdom under his control. In such circumstance it is possible to understand the major difference of principles that happened during the middle age concerning invention and propriety of it. While Arabs developed many technologies and discoveries such as coffee¹⁷, the most interesting field to study to develop the idea of the difference between property of invention in these two parts of the world is the analysis of the windmill. After the discovery or the invention of the windmill. While the invention of the horizontal axis windmill was traced back to the Northwest Europe in the 12th

¹⁷ Meyers, Hannah (2005-03-07). ""Suave Molecules of Mocha" -- Coffee, Chemistry, and Civilization". Retrieved 2007-02-03.

century¹⁸ the vertical axis windmill was invented by Arabs centuries before without any possibilities for the inventor to get any pecuniary reward on it¹⁹. The dissociation of the two culture is important to understand why finally in Europe it was possible for the inventor to obtain privileges while it was almost impossible to get them in Eastern Europe. The kingdom is, just like a democracy, a place where it is possible for people to hold a minimum of property on what they do or created. In this situation, some people in western Europe could obtain privileges in form of monopolies for their invention by local authorities if they judged that the invention monopoly could be interesting for their domain and the development of their assets. By analyzing the early system of privilege in Europe, it is possible to trace back the existence of some privileges given by local rulers to some inventors, in 1105 an abbot of Normandy is authorized by local lord to have a monopoly on the construction of Windmill on a restricted part of his territory.²⁰ More and more we can see this idea of development of privileges spreading in all the western Europe that recognize inventors as parents and their invention as their child.

¹⁸ Drachmann, A.G. (1961), "Heron's Windmill", *Centaurus*7: 145-151.

¹⁹ Dietrich Lohrmann, "Von der östlichen zur westlichen Windmühle", *Archiv für Kulturgeschichte*, Vol. 77, Issue 1 (1995), pp.1-30 (10f.)

²⁰ Yves Plasseraud, François Sauvignon, Paris 1883 – Genèse du droit unioniste, (Paris, Librairies techniques, 1983), p. 6.

The idea is then to use invention to develop the Kingdom via a unique right given to the inventor to spread his invention through the realm. However, comparing with the modern definition of "invention" the old meaning was closer from "discovery", consequently most of the privileges wasn't focusing on new technology but on new discovery that not existed in the realm yet. Most of the privileges granted between the 13th-15th century followed some basic principles of the public interest and the limitation in the time and space. The public interest of the invention is decided by the land owner, or the local authorities, that decided whether or not the invention could be interesting for the territory under their control, in this case we cannot talk about a real development of a patent system, it is actually closer to a bypass granted by the authorities of the land to get a monopoly in a field generally open to public or fully owned by the local authorities. The second appreciation is a limitation of the privilege in time and space, the limitation in time is implemented to limit the benefit of the inventor and balance it with the public interest even if in the case of the western world at this period, the public interest generally means the local authorities interest. The limitation in space however, is a consequence of the organization of western kingdoms, where lands belong to both, the Kingdom and the local ruler. That's why it is possible for a local ruler to take decisions to grant monopoly inside its own

territory but the approval for the whole realm belong to the King who generally reject these practices at the time. The local privileges in the period would then be closer to a sub-allowance of property and authorities. These privileges were accorded by sovereign authorities for all the period 13th-15th century notably in England and in France. The grant in England was however different from the previous explanation for France, because in England the privilege grants was made by the acquisition of a *litterae patentes* from the English Ruler exclusively and that enabled the inventor to obtain a monopoly for the whole kingdom and not a portion of it²¹. The *letters patent* could grant monopoly to manufacture or products only and were not applicable to discovery such as ore site in opposition with the privileges system of the continental Europe²².

The development of this system of protection was however important in the perspective of development of commerce. This is the reason that pushed for example Marco Polo to enter at the service of Kublai Khan for years. The possibility to obtain a monopoly for a foreign imported product pushed

²¹ Cassell's Latin Dictionary, revised by Marchant & Charles, 260th. thousand: "Literae, Plur: that which is written; Cicero: *Dare alicui literas* (plur) *ad aliquem*: to give to a messenger a letter for a third person"

²² E Wyndham Hulme, *The History of the Patent System under the Prerogative and at Common Law*, Law Quarterly Review, vol.46 (1896), pp.141-154.

Marco polo to go to Asia and to enter at the service of Kublai Khan to try to convince him to open the silk road and let Marco introduce the silk worms and the silk work to Western Europe where the opportunity to make money and have a monopoly in each and every country of Europe through a privilege system would have meant the possibility to become one of the richest man in the continent almost instantly.

Venice and the First patent law

Venice, in the early 1400, is one of the most powerful nation of Europe, it's situation place the city at the same time as a center of commerce and power. Between the 9th and 12th century, the city turned into a maritime republic and with expansions in the Alps and by securing the commerce road between western world and the byzantine empire from the Islamic pirates²³, became one of the few superpower between Mediterranean nations, particularly by its monopoly on salt.²⁴ Until 16th century almost no other port of the interior sea could compete against Venice well organized transportation of pilgrims.²⁵

²³ Thomas F. Madden, Venice: A New History, Penguin, 2013

²⁴ Richard Cowen, The importance of salt

²⁵ Pilgerreisen von Venedig nach Jerusalem im späten Mittelalter- Die Verträge mit dem

With its conquest in the north and its maritime location, Venice started to feel the obligation to attract technology from foreign countries and to attract investment from other parts of Europe. The location of Venice was both a blessing and a disadvantage because most of continental countries were jealous of its position. The political status of Venice was even worse. Almost every state of Italy was opposed to its commercial supremacy, the Ottoman Empire was keeping on getting closer to their border and France, Spain as well as Germanic States had tense relationships with the Republic. The first Italian patent delivered was however delivered by the Republic of Florence in 1421 to Filippo Brunelleschi for 3 years for his invention of a barge that can carry marble along the Arno river.²⁶

The competition between Florence and Venice was known in all Italy, the invention and the success of the patent given by Florence, pushed the Venetians to start according privilege in the continental way, in the form of a bypass of merchant guild's monopoly for a special product or technology. Most of the development of the Venetian economy in the 15th century came with the will of the authorities to develop the economy by the importation of

Schiffspatron, Seite 2, Fabian H. Flöper, GRIN Verlag, 2011

²⁶ Terence Kealey, *The Economic Laws of Scientific Research*, St. Martin's Press, 1996

new technologies from abroad. Technologies transferred with the privileges system focused particularly on the water-pumps and systems of lock for ports. Another way to get a privilege in the Venetian Republic was under a loan system. Where the inventor could receive a loan from the Republic for the construction/introduction of a new technology in the territory, if the construction was successful the inventor could reimburse his loan in 10 years while if the construction failed he should reimburse in only 6 months. The infringement of the privilege in the republic was punished of 1000 ducats which was a really high amount of money at the time and the destruction of the counterfeit product.

The development of the system of privilege that entered as a practice in the territory, to development the republic with new technology such as French grain-mill in 1440²⁷, slowly changed to become a way to attract inventors to be able to make Venice shine abroad and to expand the exportation of the city in the same time. To be able to shine abroad Venice wants to develop the city to transform it in one of the most beautiful city of Europe, Petrarqua the poet will say about Venice that it's a miraculous city, due to its expansion at

²⁷ L'État et l'invention, p. 31

90% on the water and constantly in construction.²⁸

Most of exportations of Venice at the time were based on food and luxury products, and with the development of new maritime roads, the city wanted to focus on new products exportation. In 1474 the government decided to develop a law to regulate the practice and to give the possibility for foreign inventor who wants to come to Venice to feel safer while bringing their invention in the city. The law: "Parte Veneziana "indicates the first modern requirement of a patent law:

- The requirement of Non-obviousness: *the inventor shall be intelligent and have a highly technical invention to bring to the territory*
- The requirement of Novelty in the territory: *The invention shall not have been made already in the territory*
- The principle of Publication: *If an inventor wants the protection he should explain his invention to a council of expert that judge whether the invention satisfy the requirements and publish it*
- Exclusive right of the inventor: *The inventor is entitled to an*

²⁸ « Venise. les chantiers d'exception d'une cité baties sur l'eau » cahiers de Sciences et vies. Les racines du monde n81, juin 2004 p42

*exclusionary right for others to practice the invention for 10 years*²⁹

Besides, the law included what we could call a compulsory license provision, inventor who didn't use their invention but kept the protection was sanctioned by the government, and their patent rescinded.

The law of 1474 voted by majority of the Senate (116 "yes" against 10 "no") bring some novel idea of what a protected invention shall be and what it should bring to the nation and how/why the nation should develop such a law:

- Encourage an intense development in activity or manufacture and bring new possibility for the city.
- Protect the inventor of a new invention by helping him getting money to reimburse the funds he used in the development of its invention
- The utility of the invention for the society and people of the Republic³⁰

²⁹ *Regie patenti colle quali S.M. accorda a Felice Festa il privilegio privato, per anni dieci, per l'esercizio della litografia negli Stati di terra-ferma, esclusa la Divisione di Genova, cogli obblighi e condizioni ivi espresse, 2 maggio 1820, Archivio storico dell'Accademia delle scienze di Torino, Mazzo 183, doc. Br 1820, 30, Torino 1820 (documento di 8 pp. non numerate di cui due bianche).*

³⁰ Paris 1883, p. 7

- The right that the inventor has on its invention, opposed to the full right of the monarch to own everything in the kingdom, the democratic power of Venice enabled the civil equality between people, immigrant or citizen.³¹

With the "Parte Veneziana" the city created a special court for infringement and an examination office. The real difference was in the novelty and the utility of the invention. The early system didn't bring many acceptations among the population and the inventors who still preferred the practice system of 1470. Plus, the principle of novelty was a rough restriction for inventors comparing with before the law. In this case, only few inventors could finally get patents on their invention, for the period of 1474-1500 research estimate that only 21 patents were accepted in the territory. However, the development increased immensely the century after, bringing to 530 inventions patented between 1501-1600³².

The impact of the patent law on Venice can be seen from abroad and by analysis of other neighboring countries at the beginning of the 15th century. Some major invention came along with the patent law and privilege

³¹ ^, Archivio storico dell'Accademia delle scienze di Torino, Mazzo 183, doc. Br 1820, 30, Torino 1820

introduced in Venice, some from the introduction of existing technologies from another country. The first recorded privilege for a printing press date from 1469, that give to John of Speyer a five years' monopoly for his technology in Venice, then later on, and with the introduction of the patent law, the republic granted to Aldus a patent for the use of its printing press that include Greek font and satisfy the novelty to be able to make and disseminate old Greek classics in the territory and outside the territory.³³ One of the most notable development that the system of protection bring is the development in the republic of a large amount of techniques to modify and improve the use of ores. With the development of new techniques, the Venetian rapidly developed some method to improve the art of glass-blowers, as well as developing silver goblets to replace wood ones. This technique was an amazing development as it could let the beverage free of parasite taste.³⁴ The impact of the patent law in Venice can be observe with its dissemination around Europe in the century that follows. One notable thing that we can see is the attraction for the world to Venice. At the end of the 14th century, the

³² L'État et l'invention, p. 32

³³ Jackson, M. (2002) From Private to Public: Reexamining the Technological Basis for Copyright, *Journal of Communication*, 52, 416-433

³⁴ Rhodain claude " innovation : la guerre des brevet", CONTACT, Revue l'amicale de l' E.M.S.S.T, juin 1990 p30-33.

Pope Alexander VI started a full re-conquest of the lost territories of the Pontifical states. Cesare Borgia, his son, scared by all Italy and used as a model in the Letters of Nicolas Machiavelli as the personification of the perfect leader and general³⁵, even after having the Italy knee before the Pope and himself and with the desire to unify all the Italy under one and unique nation couldn't get more from Venice except a military alliance.³⁶ After the patent law being enacted, a lot of immigrant started to come to Venice looking for opportunity to succeed and make money. The number of inhabitant in Venice while being around 80 000 people in the middle 15th century increase to 100 000 citizens in the beginning of 16th century³⁷, and the annual income of the 15th century were 15 times higher than in Paris, Madrid or London, the world superpowers of the time³⁸. The city even after having lost against the king of France Louis XII in 1509 and with an Economy almost entirely destroy manage to safe itself thanks to artisans and peasants in the continental part of the country.³⁹ With the increase of protection and

³⁵ *Il Principe*, Antonio Blado d'Asola, 1532.

³⁶ Jean matthieu Rose ' *La veritable histoire des papes*', Paris, GRANCHER, 1991.

³⁷ Henri Pirenne, *Les villes du Moyen Âge* (PUF, 1992)

³⁸ Patricia Fortini Brown, *La Renaissance à Venise*, Paris, Flammarion, 2008, 174 p

³⁹ Patrick Boucheron, « 1509. Louis XII est vainqueur à Agnadel », Alain Corbin (dir.), *1515 et les grandes dates de l'histoire de France*, Le Seuil, France Loisirs, p. 165-169

the difficulty to satisfy conditions of novelty, certain categories of workers and inventors decide to leave the country and try to implement the system of patent and privilege for new inventions in other countries. This is the beginning of the fall of the Venetian quasi-monopoly in Europe, when the development of new commerce roads, the discovery of America and the fall of Constantinople (fall of the Eastern Roman Empire) pushed merchants of the world and most of artisans to slowly try to look for a better place to trade and find better opportunities.⁴⁰

More and more artisans decided to run away from Venice and implement the system of Protection in neighboring countries where it has been almost instantly accepted⁴¹.

The emigration and the arrival of new artisan in countries was extremely advantageous for other countries and to be able to access the technology Venice was protecting, they welcome almost every artisan giving them protection with only one duty to form new apprentice, and by this, secure the long term implementation of new technology in the country. The penalty for any artisan that were infringing protected technology in Venice abroad was

⁴⁰ Prager 1944, p720

⁴¹ Prager 1944, p720

death. And by this threat most of artisans disseminate around Europe spreading more and more the idea of a protection for their art.

The decline of Venice wasn't due to its economy but rather as it impossibility to have a military strength. They couldn't survive alone and always needed an ally against either France or Ottoman, because of this and the opening of the Cape of Good Hope to access Orient easily, Venice lost more and more influence and finally couldn't come back on the international game. The lack of persistence in the success of the patent law of Venice cannot really be assimilate to a problem of legislation but more like an unexpected unlucky scenario.

The patent law and the system of privileges enables the city-states to flourish for about 150 years with a strong economy and a really advanced technology.

Patent Protection 19-20th century

Dissension & Standardization of the system.

In the beginning of the 19th century, the three industrial superpower, France, US and England had both their system of protection for invention. Patent acts passed in US in 1793 and in 1791 in France. Then followed Austria, Russia, Prussia, Netherlands, Sweden and most other countries of continental Europe

between 1800-1850. However, the birth of the patent system in these countries leads to a contestation in England first then in Germany about the utility of the patent system and its impact on the economy. In England, the contestation came to the fact that costs were too high to be bear by inventors. The cost of a patent protection in England for the 19th century was around 4 times per capita income⁴² and the procedure was too clumsy as well as favoring elite class and rich people in the society. The accusation, leads to the attack on the whole patent system and its impact on the economy and society in general. The mission of the Parliament in that area lead to the conclusion that the patent system was so damaging for the country that it should abolished. The draft bill of 1872 on the patent system require the patent protection to be lowered to seven years and an abandon of patents that are not worked within two years after their grant as well as a systematic compulsory licensing of all patents.⁴³ While the House of Lords agreed on the necessity to pass the bill and did it (1874) the House of Commons withdrawn it later on a came with a new simplification of the system. Including the possibility of submission by Post, the examination of patent by experts to

⁴² Khan, B. "An Economic History of Patent Institutions". EH.Net Encyclopedia, edited by Robert Whaples. March 16, 2008

⁴³ Machlup & Penrose The patent controversy in the 19th century -1950

examined with the invention is patentable and a diminution of fees (600\$ => 20\$). This package came along with a stronger protection against foreign competition. (1883)

Germany, with a different political system, add to struggle against the demand for a global patent law to be applied to every states and a strengthening of existing rules. And this lead to a reply of anti-patent movement.⁴⁴ The two sides of the movement were composed for the pro-protectionist by Inventors, Engineers & Philosophers while the other part was mainly composed of Economist and Manufacturer. In 1868 Bismark, announced his disapproval of a patent system for all German state and put an end to the debate.⁴⁵ A global patent law was later on passed for the entire German empire in 1877. These two examples of protestation in the 19th Century lead to a debate between 1827-1875 about the impact of patent on industry. The debate was mainly made as a propaganda style debate and not as a real reflection. As the scholar were trying to convinced the public of the impact (pro/con) to oppose or push a patent law in their own country. In this debates, the pro-patent side

⁴⁴ John Prince-Smith, "Ueber Patente fir Erfindungen," *Vierteljahrschrift fur Volkswirtschaft und Kulturgeschichte*, Erster Jahrgang (1863), III, 150. Also Herman Grothe, *Das Patentgesetz fur das Deutsche Reich* (Berlin, 1877), p.7

⁴⁵ Machlup & Penrose *The patent controversy in the 19th century -1950*

manages to finally win the war after losing many battles. Most of the debates took place in news-papers and books that represented the only way of mass propaganda in this time. English, German, and French intellectuals were confronting their ideas on the subject in the hope to change the legislation in their own country.

At the beginning of the debate came the impact of the monopoly that the inventor has on its invention. Even though some theorists such as Jeremy Bentham were categorizing the exclusivity in the invention as different with a monopoly⁴⁶, and Jean Baptiste Say "neither harms nor hinders any branch of industry that was previously know"⁴⁷, some others were complaining about the possible competition arising between companies and that could harm competitors of the inventor explanation made by Simonde de Sismondi.⁴⁸

The main complained was the monopoly and the impact of the monopoly on the industry. And by the development of the question, debaters came to

⁴⁶ Jeremy Bentham stated 'Exclusive privileges given to inventors has nothing in commons with monopolies which are so justly decried "Observation on Parts of the Declaration of Rights, as Proposed by Citizen Sieyes." First published in French, republished from the English MS. in *The Works of Jeremy Bentham*, ed. John Bowring (Edinburgh, 1843), II, 533.

⁴⁷ Jean Baptiste Say, *Traite d'economie politique* (1st ed.; Paris, 1803), p. 263.

⁴⁸ Sismonde de Sismondi "Consumers benefit very little from the invention, the inventor gains much, the other producers lose, and their workers fall into misery" *Nouveaux principes d'économie politique ou de la richesse dans ses rapports avec la population* (2d ed.; Paris, 3827), II, 334-35.

question how to reward and inventor if not by a monopoly in its invention. The debate around monopoly at the beginning was carried by the Pro-patent system as the right for an inventor to use and decide how and where to use its invention, right considered by some as a property right or even stronger than property right because the invention represents a creation of mind, that description was detailed in the declaration of Stanislas de Bouffler in France while the Post-revolution and newly empowered Constitutional Assembly were starting to work on an Intellectual property law⁴⁹.

However, some specialists even with regards to the belonging of an idea to a person kept on thinking that some better way to reward inventors could be found instead of a monopoly that could simply paralyze the competitor as well as poorly rewarding for the public if the inventor decided not to manufacture. Some specialist such as Schaffle were recognizing the difference between the necessity of monopoly and property of ideas in the domain of culture and technology. The idea of the Economist was that it is almost impossible for an author and editor to make money on a book if they are

⁴⁹ Constitutional Assembly in December 1790: "If there is for 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"-Augustin-Charles Renouard, *Traite des brevet*

victims of piracy, but he thought that the technology development and the knowledge about the way the invention works, would always give the inventor a step ahead of competitors, step that will always give a period of times were the inventor is in a situation of monopoly only by the fact that competitors need to first find the way to reproduce the object and then manufacture it, in this period of time the inventor can make enough money to be rewarded and will be able to keep succeed anyway by attaching for example his name on the product.⁵⁰

The theory of protectionist was made of four types of arguments, detailed by Machlup and Penrose, complementary but that can be used individually as well to defend the protection of existing patent laws:

- A man owns his ideas and has a property rights on it, society should recognize and protect this property and condemn infringers. Enforcement of the exclusivity in the patented invention is the only way to recognize this right.
- Justice require a man that contribute to society to be compensated and rewarded for its service and the only way to reward an inventor

⁵⁰ Schaffle, Die nationaldkonomische Theorie, p. 141.

that render useful service to the society is to give him the exclusivity in the use of his invention

- Industrial progress is a necessity for society and the only way to make capitalist and inventor take the risk of creating new technology by investing their time or money is to secure them profits for their invention. The cheapest and most effective way to do it is by patent rights.
- Industrial progress is desirable for society and in absence of any protection for its idea, an inventor would keep it secret and the secret might die with him. In this case the society couldn't enjoy its invention. The only way to push an inventor to disclose his secret is to grant him an exclusive right on it.⁵¹

These arguments can be all contested. As seen previously with the property right of inventors and the fair reward. Some economists of the time, debated on the possibility to grant another type of reward, developed the idea of funding via government subvention. However, the idea was strongly criticized for its possible increase of corruption⁵². It is, though, interesting to

⁵¹ Machlup & Penrose The patent controversy in the 19th century -1950

⁵² The Patent Question under Free Trade, p. 24; and Viktor Bohmert, "Gründung eines

see the lack of ideas regarding another form of reward than money. The ideas regarding the patent system in the time of the debate, was that the inventor should own and be rewarded for its invention, in this case, it's interesting to see that intellectuals didn't think about any other way to reward an inventor except with money. The capitalistic way to think in Europe, increasing with the *Free Trade Movement* pushed the legislator to focus everything on the basis of money. But some people would eventually choose fame above money and by analyzing the history of invention in the antiquity, it is possible to compare or give more ideas to the legislator about how to create a patent law that enables a different type of reward than with money. Athenian were rewarding great inventors in an art with a crown and a public ceremony so every member of the community could know the inventor who did help the city to prosper. Of course this kind of system is really easily to develop when the city is composed of thousands of people and inventors only few comparing with an industrial European country and its thousands of new invention per year. But it would have been interesting to develop a beginning of system based for example on the tax decrease for newly invention manufactured and sold in the country, this system would have pushed industry and inventor not only to

Vereins zum Ersatz der Erfindungspatente und zur Belohnung unpatentirter Erfindungen in Zurich," *lahrbficher fur Nationaldconomie und Statisti*4, IX (1867), 93

look for products that can be appealing to public but as well to try to reduce cost and applied new features to pre-existing technology and in all different area of technology instead of focusing in only one protected area where they can inflate the price.

The two industrial factors were debates to know if, first, the exclusivity was promoting inventions in the country and then if the protection was the only way to have access to the secrecy of the invention.

Most of the patent abolishers didn't reject the fact that inventions are desirable and necessary for the development of industry but they rejected that without exclusivity invention won't be use or made and that patent rights represents the most efficient and cheap way to do so. Rodriguez De Beaulieu stated that a man doesn't need a property or a privilege as a stimulus to invent⁵³ as well as Sir William Armstrong declaring that no legislative interference should be made to push inventors to invent.⁵⁴ Most of English economist embrace the point of view of mills, concerning the system,

⁵³ Rodriguez, in De Beaulieu, "Discussion sur la propriety des inventions," *Journal des economists*, XXXIV (2d Ser.) (1862), 82.

⁵⁴ Sir William Armstrong, "The seeds of invention exist, as it were, in the air, ready to germinate whenever suitable conditions arise, and no legislative interference is needed to ensure their growth in proper season" opening address of the president "Report of the 33rd Meeting of the British Association for the Advancement of Science, held at Newcastle in 1863 (London, 1864), p. 111.

analyzing the social cost and the social benefits and finally stated that even if the system produces almost an infinite effect, it doesn't cost nothing⁵⁵ The Social cost for the economist, was the development of channels of technology and area that are not protected by a Patent and the development of the area protected. In this way, the society could lose more in the process as company will tend to develop products that are protected rather than developing product useful for the society in their research of profits.

The main defense for the pro-patent system was that competitors could focus on others area that are restricted by the patent and by this, avoid the loss of development in every areas of technology. As well as the fact that the patent and the exclusivity in the invention didn't deprive others from something they didn't have better discovering the technology actually exist or could be made.⁵⁶ Most of Economists of the time, did assume that inventors were actually sole trader or manufacturers but most of the case they had to sell their patent at small price to an industrial or wait for an infringer to come up.⁵⁷ and in this case the manufacturer wasn't the one who could finally be

⁵⁵ Bentham, "A Manual of Political Economy," Works, ed. Bowring, III, 71.

⁵⁶ The Economist, February I, 1851, pp. 114-15

⁵⁷ "No patent brings its holder any immediate pecuniary right. He can only sue people who infringe his patent, and the costliness of patent suits is such that he is seldom able to protect himself. To make the property worth anything, a capitalist must take it up; but the capitalist,

rewarded for the labor of the research and the investment of time and money for the discovery but was only making money from something they purchase at a cheap price.

Regarding the disclosure, many agreed that patent isn't a good way to disclose secrets, for couple reasons. The idea is that the patent is a protection in exchange of a full disclosure to the society, so the public could enjoy the technology after the monopoly times. But some authors criticized the system by saying that inventors looking for patent are the one who think they cannot keep the invention secret and so, need a protection to avoid someone else to find the secret and use it before himself. The second objection to this theory was that everywhere in the world, so many people work on the same area of research that one day or another the same discovery would be made by someone else and by looking for a protection the inventor is only trying to defend himself against others. This idea was developed notably by Prince-Smith who acknowledges the fact that somewhere in the world someone is working in the same invention and if they were sharing their knowledges like it's made in science for example, it would be faster for people and general

in doing so, stipulates for the lion's share of the profit. Probably in ninety-nine cases out of a hundred the reward was obtained by such speculators, and not by inventors."-The Spectator, June 5, 1869. These observations reflect a House of Commons debate of May 28, 1869.

public to enjoy the invention instead of waiting the end of the monopoly.⁵⁸

The end of the debates regarding the impact of the patent system on industry came with the legislation in favor of the system, Economists finally gave up the subject and accepted it as a rule without any final conclusion to be made on the subject. Most of the European countries decided to adopt patent norms and the standardization did arise with the Paris convention for the protection of intellectual property. However, Switzerland and Netherlands are two countries interesting to analyze to develop the impact of the patent law or non-patent law benefits in an economic perspective.

The Renegade of the system

Switzerland

While all Europe decided to develop a patent system in the early 19th century and then debated about the consequence of it on the industry. Switzerland was doing the exact opposite, debating on the subject by watching what happened to countries around before decided whether or not including a patent law in their constitution.

⁵⁸ Prince-Smith, "Ueber Patente fur Erfindungen," Vierteljahrschrift fir Volkswirtschaft und Kulturgeschichte, III, 16o.

In the Half 19th century, Switzerland was one of the only New-Industrial power of Europe without patent law or patent system existing. Most of the Engineers of the countries had trouble struggling against the scholars from the Zurich institute of Technology⁵⁹ that claimed the patent system to be inconsistent with the industry of Switzerland. The main difference between Switzerland and their neighbors was the difference in fields of technology. While Switzerland was known for chocolate, cheese and hand-made crafting, other countries were focusing on technology that involve mechanics more and more. Switzerland parliament rejected fives tentative of patent law in 1849, 1851, 1854, January 1863 and December 1863. Legislators stated the fact that according to economists the patent system was indefensible as well as being pernicious.⁶⁰

Most of the Swiss export where made in chocolate and hand-made watches, most of the legislators and manufacturers thought at the time that a law in the field would be useless as it prevents people for imitating but as long as the process keep secret and their way to make watches stay concealed and only from master to apprentice, they don't need to worry about imitation

⁵⁹ Bolley and Kronauer, Gutachten uber den Einfluss des Mangels eines Patentgesetzes auf die schweizerische Industrie (Zurich, 1862)

⁶⁰ Offizielles Bundesblatt, Jahrgang (i864), II, 510- I.

problems.

However, in the late 19th century, a problem came to Swiss, the development of mechanization tended to push American industry to a development for a mass production instead of a method of unique hand-made watches and leather boots⁶¹, with the grant of more than 2000 patents on watches, Swiss watches crafters got suddenly terrified to see US crafters making so much watches that they finally develop methods to compete with Swiss crafters on the international market as well as overcome them by developing the mechanization process in the watches making. This would result in destruction of artisanal work in the country and the destruction of ancient knowledges. The first argument that pushed the Switzerland to develop a patent system was the fear to see their market and international market totally full of US crafts. The patent law in the country result in an attempt to protect their industry and their market from the external competition.

Second argument that pushed Switzerland to developed a patent law was the pressures from other countries towards the Swiss government. The

⁶¹ Khan, B. "An Economic History of Patent Institutions". EH.Net Encyclopedia, edited by Robert Whaples. March 16, 2008

difficulty of reforming the constitution can be understood by the referendum system. In 1882, the government tried to make a referendum to pass a patent law, after external pressure from neighbors, but it failed⁶². Finally, after the Paris Convention and the agreement of so many neighbors about the necessity of a strong patent law to protect inventors and technologies, Switzerland was seen as a pirate nation and people were claiming that Swiss were copying or make counterfeit products. A new possibility for industrial powers to move problems in the hand of someone else. At this period, government of France, England, Spain etc. were blaming Swiss for being the problem in every Economic crisis in Europe and for harming their industry. With this feeling, Swiss felt that it was more and more difficult to export and represented a trade barrier to be categorized as a Pro-piracy nation. They finally adopted the system in 1887.⁶³

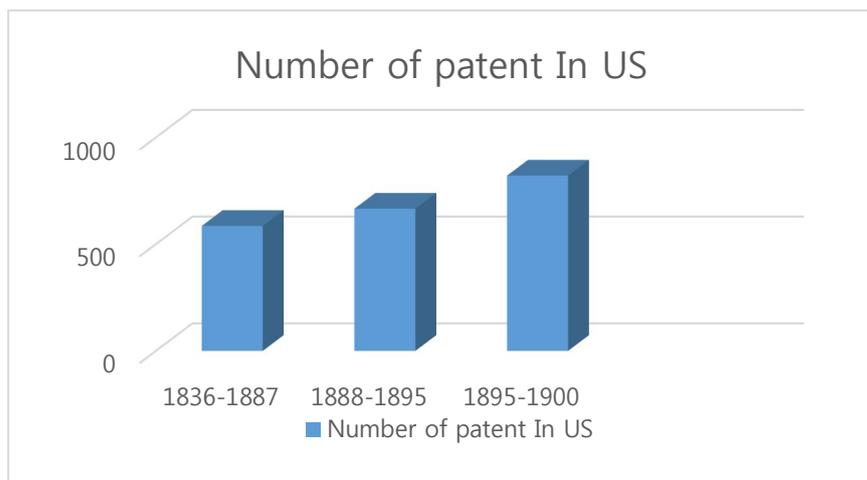
The Us Patent Law, in the 19th century accepted the patent rights for foreign inventors living in US. However only around 300 patents had been granted to Swiss for the entire Century regarding chocolates manufacturing

⁶² Botschaft des Bundesrathes an die Bundesversammlung betreffend Forderung der Landwirtschaft, Industrie und Gewerbe, und Schutz des gewerblichen Eigenthums, June I, 1886, p. 5.

⁶³ E. Guyer, Einführung in das Schweizerische Erfindungsrecht (Zurich: Fachschriften-Verlag, 1916), p. 14.

and watches for 585 patents in total until 1887.⁶⁴ However, even if the Swiss were consider to be expert in the textile and notably in the manufacturing of leather boots and coloration, only 6 patent had been granted to Swiss for this kind of invention. The importance of the proportion of watches patent as well as music box and chocolate could be understand with the system of US patentability that allow an invention to be patented only if it was a novelty in the world and not only in the US territory, because of this, Swiss filled patents has fast as they could to try to protect their secret before the US company could find a way to mass product and by pass patents.

After the patent law in Switzerland, an increase could be observed in the number of patent filled in the US.



⁶⁴ Khan, B. "An Economic History of Patent Institutions". EH.Net Encyclopedia, edited by

The number of Patent filled within the US by Swiss increased more and more after the enactment of the Patent Law in Switzerland. The most interesting things isn't only the number or patent but the value of them.

Difference between before and after the Patent Law in Switzerland can be seen in the area of protection, while before the patent law most of the development were made in the area that Swiss people were excelling in, such as watches and hand-crafted products, the Post Patent Law Patents were focusing on diverse technologies that were not developed before, such as lamp, turbines and explosive⁶⁵. The idea between this differentiation of invention, is the difference between the market before and after the Patent Law.

The Swiss market, could be seen in the past a specialized market where only some people could develop their artisanal works and where most of profits were made by exportations. In such a system most of people rely on what is already existing and don't try to invent anything in new fields of technology simply because the market is too small inside (few millions people) and it's better to focus on what already succeed in exportation. After the

Robert Whaples. March 16, 2008

⁶⁵ Schiff, Eric. *Industrialization without National Patents: The Netherlands, 1869-1912*;

Patent Law, Most of Swiss suddenly knew that they could protect their invention not only in the Switzerland but in other countries too and they could be able to earn money by extending their Swiss quality to other products and other areas of technology. By doing so, the direction of Inventive activity changed to be less focused on what already exist and to be more developed on what can be seen as a product of quality made by Swiss people. Due to its small market and its development in exportation, the Swiss model of development in patent could be an example for developing country that currently suffer from the mass production of bigger country flooding their domestic market. It can be an example of refocusing of the society on the development of quality instead of the acceptance of mass production doctrine lead by developed countries.

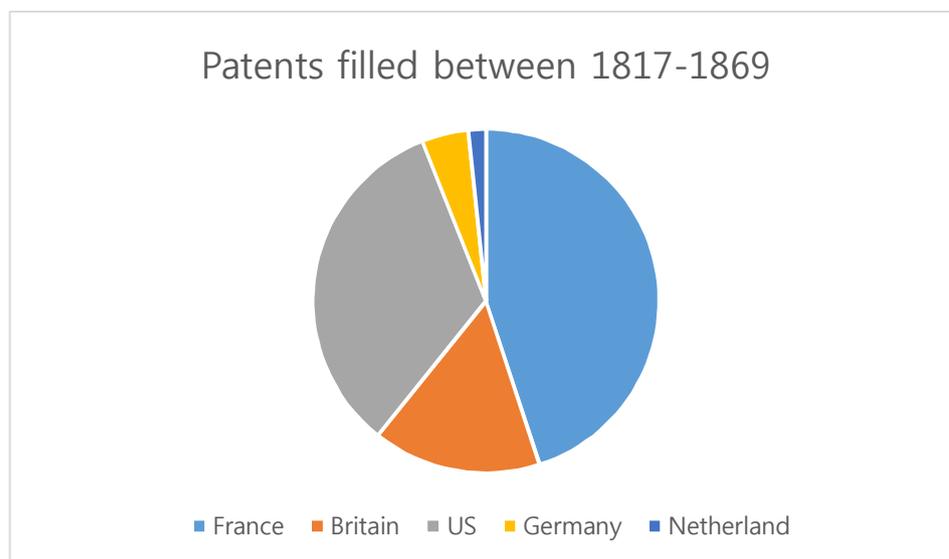
It is as well important to remember that the success of Switzerland in term of chemicals and high-technology is due to the import of German invention that couldn't be protected in Switzerland and their development later on to be protected by Swiss in US.

Netherlands

Switzerland, 1850-1907. Princeton: Princeton University Press, 1971.

The Netherlands in the 19th century was one of the first country of Europe to pass a Patent Law, in 1817, even before Spain. The Netherlands comparing to other European countries wasn't known for its invention potential. After 1869 and due to the free trade movement spreading around the world. Netherlands decided to abolished their Patent law that they considered features that avoid competition and an instrument that will destroy the economy⁶⁶.

The analysis of the number of patent files by comparison with other countries in Europe give another explanation of the phenomena.



⁶⁶Professor Akersdyck At the International Congress for Tariff Reform in Brussels, 1856 "patents have shakled the freedom of labor" . Cf. G. Rolin-Jaequemyns, "De quelques manifestations recentes de l'opinion publique en Europe au sujet des brevets d'invention,"

As seen the number of Patent granted in Netherlands during the period it had a patent system was really low in comparison with other industrial countries. While France granted 125721 patents in this period Netherlands only granted 4561 patents. Population of Holland is of course lower than population of other countries but even after adjusting the patenting rate to the population, the rate was only around 13 % of the US one and most of the patent were granted to foreigners and not nationals. Indeed, in the period 1850 to 1869, 88% of patent were actually granted to foreigners for their importation of a foreign technology in the Dutch territory.⁶⁷

The Free Trade Movement was used to help the Dutch to abolish a system that were not really useful for them on the behalf of the development of world commerce. This free trade movement was particularly strong in Netherland and promoted:

- The trade of goods without taxes or trade barriers
- The trades in services without taxes and barriers
- The absence of trade policies that could be an advantage to some

Revue de droit international et de legislation comparie, I (I 869), 605.

⁶⁷ Schiff, Eric. *Industrialization without National Patents: The Netherlands, 1869-1912; Switzerland, 1850-1907*. Princeton: Princeton University Press, 1971

firms over others, particularly regulation of laws and taxes

- The unregulated access to Market
- The inability of firms to distort the market through government-imposed Monopolies

The free trade movement was in this case totally opposed to the idea of monopoly in invention and a grant of privilege through a Government-imposed monopoly, the spread of the movement to Netherlands and all Europe was the major concern of the patent abolishers in the half 19th as seen before, but this movement was even more developed in Netherlands, country where poor inventive activity occurred. In this case the government had absolutely no interest and little reason to create a new patent law after abolishing the first one.

The contradiction comes from the Paris convention, the country that signed the convention in the beginning were Belgium, France, Brazil, Guatemala, Italy, the Netherlands, Portugal, El Salvador, Serbia, Spain and Switzerland. Guatemala, El Salvador and Serbia which denounced and reapplied the convention later on. Netherlands accepted to signed the convention but didn't accept to have a patent law. The important fact here come from the different

articles of the convention. According to the Article 2 and 3 the people who are national of one of the country of the union and domiciled in one country of the Paris convention should be respected with the same law than the national of the latter country.⁶⁸

When a national of a Union country filed a patent in a foreign country that belong to this agreement, then he should be considered as a fully national of the latter country and enjoy the same right in terms of protection of Intellectual property, by this agreement it becomes possible to develop the principles of Non-discrimination between nationals and non-nationals. Furthermore, if the intellectual property is infringed, foreigners have the same benefice of remedies than the fully nationals.

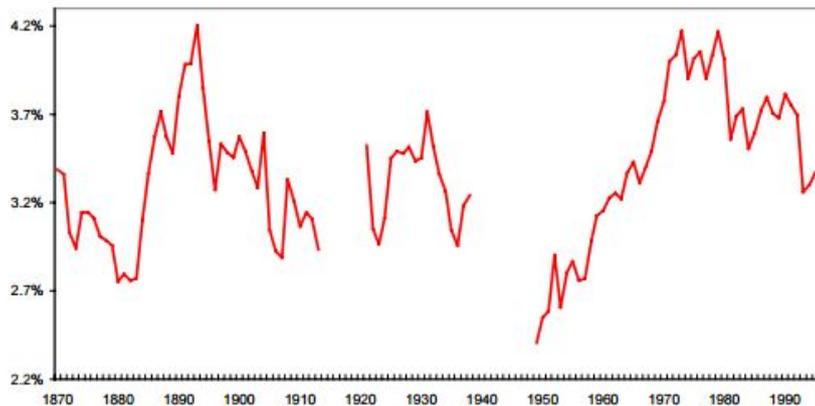
The Netherlands in the 19th century didn't grow as fast as other countries, the country couldn't get industrialized as fast because of different factor including the bad geographical and politic situation. While having an economy based on agriculture and trade, it is really hard to harvest and trade when the country is constantly at war or subject to flood⁶⁹.

⁶⁸ Paris 1883

⁶⁹ *Gedenkboek van Neerlands watersnood in februari 1825*("Memorial Book of the Dutch Flood Disaster of February 1825

The idea of ratifying the Paris convention was really important and Start the new development of the Netherlands after the abolition of the patent system.

The share of Dutch exports in world trade, 1870-1995 (in %)⁷⁰



The ratification of the convention enabled Netherlands to boost their exportation by allowing with the system of Article 2 & 3 of Paris the possibility for Dutch companies to obtain protection abroad and protect no invention in their own territory.

Double effect could be observed, the first one is the beginning of large scale industrialization in Netherlands territory with the development of roads and

⁷⁰ For a discussion of the market share of the Netherlands in world trade, see: J.P. Smits, 'Economische ontwikkeling 1800-1995', in: R. van der Bie en P. Dehing, eds., *Nationaal goed. Feiten en cijfers over onze samenleving, (ca.) 1800-1999* (Den Haag/Amsterdam, 1999) 16-

infrastructures, the import of technology and the use of foreign protected technology could insure the development of the first to use first to benefit doctrine. In this case, many companies that didn't own any right under some technology ran into Netherlands to use protected technologies that were making a lot of money in other countries of Europe to be able get reward from it in a country where they wouldn't suffer of any law suits.

The development of Netherlands kept on to finally reach the level of industrialization of other European countries of the time. When this was done the Government decided to adopt a new Patent law and to protect Intellectual property in Dutch territories in 1912. The New adoption could have been a "boom" for the economy and the inventiveness of people like it was the case after the patent law of Switzerland but instead the adoption of the reform by the Netherlands lead to 79% of patents protection filled by foreigners.⁷¹

The Netherlands case stay however really interesting in the analysis of the Patent Protection in a country. The patent protection in a country where the development isn't really advance can lead to the monopoly of foreign investments and have disadvantage for the society while the adoption of a

patent law in a developed country can lead to the competition of companies and eventually brings development of new technology like in the Switzerland case.

The Comparison of Both system leads to the aspect of Developed country – Developed Country VS Developed Country – Developing country.

While the Switzerland case introduce the competition and the effect of a non-patent system in an industrialized country. The Netherland case brings the example of a country that is far behind in the matter of technology.

The Swiss case shows that a non-patent system country that is industrialized can bring the hate and anger of other countries. Other countries might feel the non-regulation as a way to steal technologies from them and compete on the market by promoting piracy. However, it is necessary for industrialized countries to finally develop a system of protection to be able to firstly be respected as a non-violating rights country but as well to be able to insure the market opening for its own national company. The other interesting point of the Swiss case is the development of new inventions and method for inventions. While the non-patent system period was represented by the

Robert Whaples. March 16, 2008

absence of development in diverse fields of technology and more focused in 3-4 area that could develop thanks to trade secrets, the new legislation brings the opportunity for Swiss to develop more products and see some new possibilities of profit rather than just keeping on focusing on their artisanal arts.

The Case of Netherlands, in a counter part is the perfect example of patent law in developing country and then a non-patent law system. In the first part of the 19th century, while the Netherlands did have a patent law we could see that the technological advance of other nations above them couldn't lead to any things but to a full or almost full monopoly of foreign companies on the Patents granted. Most of the foreign companies could claim the novelty of invention while the Dutch (most of them farmer) couldn't invent anything new in their land that a foreigner did do before. The abolition of the system linked with the ratification of the Paris convention gave the possibility of the Netherlands to develop and get at the same level of industrialization of other European country by enabling competitors of a foreign patent owners to use foreign protected inventions without any problem in the Dutch territory and by that, led the country to a full development in their economy and society. Even though the Patent law of 1912 shows that Dutch people still

didn't get any illumination or inspiration for invention, the lack of filling can be explained by the difference of knowledge in the field comparing with other European sole inventors or manufacturers who were used to fill a patent as soon as the discovery of the invention was made to prohibit any people from using it. Most of manufacturers were accustomed with the fact to go to the Patent office, in Germany, in the same day that the invention was made to avoid competitors from reaching the same results and get the exclusivity of it notably in chemical products⁷².

Standardization of the System and Participation of Developing countries

Most of modern analysis of the patent system cannot reach a conclusion concerning the effects (benefit or not) of the patent system on the economy and the industry. To analyze this effect one should divide the analysis in two categories, one concerning the system in developed countries, another the impact of the system in the developing countries.

In the last century, one of the most discussed question in international conferences was the impact of the intellectual property right in developing countries. Even though most of the literature about it doesn't go un the same

⁷² Harold Wagner, Patent harmonization

direction. Most of authors agree that the patent system can have a beneficial impact on the development of developing countries.

Current views on the patent system.

Researches appointed by WIPO, European union, OECD and World Bank all agree on the fact that Patent system can be a chance for countries which both possess a patent system and strong intellectual property law.

Many researches made by European commission as well as WIPO develop the impact of the patent system on economy by showing the impact of Patent system on firms. The European Union in a Research made in May 2005 comes with a precise description of the actual system. Analyzing the impact of the patent system via data.

- Argument 1: Economic Value of Patent: The patent system enables the early inventors to be protected and to avoid duplication in R&D as well as full disclosure of the invention for society.⁷³ The report mention as well that literature on the subject is poor and always subject to theory. Mainly the first argument sums up the point we made in the

⁷³ Study on Evaluating the Knowledge Economy - What are Patents Actually Worth? -- The Value of Patents for Today's Economy and Society- May 2005- European commission

discussion relative to the patent system in the 19th century, the group appointed by European commission despite deep research on the subject cannot agree on a real Economic value of the patent system due to the balance of the social cost of it and the unmeasurable effect on the industry and firms.

- Argument 2: The use of patent: The use of patent can let the society to have access to the technology knowledge and by this could be able to let the market develop the technology to make it more efficient and help as well companies to develop their inventive activity as well as making companies easily license inventions⁷⁴.
- Argument 3: New firm creation and employment: Many new firms based on technology can be link with the protection of their invention and consequently employ people and make money⁷⁵.
- Argument 4: Increase of the R&D productivity: The will of being the one to have an exclusivity in an invention push companies to be productive in R&D and not slow down theirs researches.⁷⁶

⁷⁴ ^ Idem p 20

⁷⁵ ^ Idem p 21

⁷⁶ ^ Idem May 2005 p 22

These complete researches though, are only an analysis of literacy in the area and don't details deeply the consequences of the system in developing countries specially. Most of the argument exposed in the explanation of previous literatures and reports of the commission can be easily blow.

The argument one represent the view of most Patent advocates in the 19th century and the argument is based on the value of patent for the Economy. The possibility to avoid duplicate R&D in a very interesting point that still could be question.

The Patent System is based on the disclosure of information for the public to have access to the key point of the invention. This way of dealing with disclosure was maybe interesting in the industrial time were most of invention were based either on simple mechanics and chemistry, however we can doubt about the subject in a world where the engineering is developed to a point that even with full disclosure of an invention features it is difficult to imitate it without a minimum of R&D in the subject. Another point to add on this subject is the early protection of inventors by rewarding them with money and protection of their invention, this can be true for some inventors, but only few people meet the condition of being a person to protect. Most of inventors tends to assign their patents right to a firm or to finish with an invention

useless that represent a burden for their life regarding the fee they should pay for filling the application and for the maintenance of the protection, only few percent of patent are really used in the market and the others are either unsellable or representing a burden for inventors that believe their invention is the best thing ever made. In this incentive, the protection offered by the society to these inventors cannot really be considered as a protection but only a rope to help them hang, even if this is of course an extreme explanation of things.

The Second argument is based on research of Gans, Hsu and Stern, 2002; Arora and Fosfuri, 2003, who did research by interviewing some scientist, engineers and executives about patent protection and its impact. The conclusion was that a strong patent protection can lead companies to be feel more free of licensing their invention. This could be explained by the fact that the license provides the feature of the invention and by this a transfer of technology or knowledge, if the patent protection isn't strong enough the company might be worry to see its invention imitated by competitors or the licensee or worse, see the patent directly challenged by the patentee. However, while stating the advantage of a strong patent protection Vs poor patent protection, this study doesn't show any development of the idea Strong

patent protection Vs No protection. This explanation couldn't be then used to explain the benefit of a patent protection for the country.

The third argument of the Commission was the increase of new firm based on the protection offered by patents. Indeed, many start-ups rely on the protection of their new technology to be able to find their place in the market, by this, they are able to protect their new invention and develop. This protection then can lead to employment increase and birth of new firm that will help the development of the country. This argument while being totally true is, just like the argument two, not focusing on the Key issue here. While the problem is to understand if the patent system is good for economy or not, the comparison with a country without strong intellectual property rights should be made, in this case even if it is uncontestable that the many new firm rely on the patent protection to be able to develop and access to market, it is possible to say that a country without patent system would have an employment rate increase too, for new firm based on the imitation of existing technology. The equation Patent protection = Employment can be seen in the other way too by the equation No IPR = Employment. The employment and the development of the economy with Patent Protection can be seen as interesting because it helps firms to develop. In this case, we can take the

example of the Silicon Valley that created since the last 20 years most of the new tech of the world. The impact of the patent system on the development of firms cannot be question but in opposite it is possible to take the example of China that didn't enforce intellectual property rights really strongly in the 20th century. The non-enforcement of the intellectual property rights would let a lot of Chinese manufacture of counterfeit goods living and this was representing way more people employed than in the technology in US. In this case the enforcement of intellectual property right would have been a disaster for Chinese worker who would have felt into misery in one day and let their family with no resource.⁷⁷

Finally, the last argument for the Patent support is a defense of the principle of productivity, the patent protection pushed the inventor who look for a monopoly in the invention to develop his R&D to be able to be the first one to file the patent in this domain. The argument however, is detailed in the report as being true only in Europe and US and no proof of this development could be made anywhere else in Europe.

All these arguments and explanation in the support of the patent system

⁷⁷ La contrefaçon en droit chinois de la propriété intellectuelle Bingzhi Zhao Yuanhuan revue internationale de droit comparé . 2007 p 361-372

don't make any difference between the possible impact in the industrialized country and the developed countries and this represent a problem because as seen before the difference between both kinds of economic and industry is critically different.

Impact of the Patent protection on developing countries

The literature is mainly Pro-patent system in developing countries. Most of research made on the subject appointed by WIPO or IP firms explain that the development of strong Patent protection policies in developing countries could be an effective tool to development⁷⁸

Most of the research detail that a strong patent protection is a source of development. And the most common view to support it, is the increase number of developing countries deciding to join international Convention such as Paris or TRIPS agreement. The Paris Convention for example saw its member getting from 80 in the early 70s to 144 in 1988⁷⁹. The explanation is that developing countries gain from the protection by attracting investors

⁷⁸ Shahid Alikhan, *Socio-Economic Benefits of Intellectual Property Protection in Developing Countries 1* (2000).

⁷⁹ Brega, *supra* note 13

from developed countries⁸⁰, another explanation comes that patent system would make investor more prone to bring invention abroad and to educate engineers and local scientist about it.

According to research the will of developing countries to join international standards in intellectual property rights would come from the sudden understanding of the benefit of it. This understanding will push them to finally protect the invention to be able to increase their knowledges and investment from abroad in their territory. To test this assumption, it is possible to see the negotiation of the TRIPS and how developing countries finally accepted to ratify the text.

TRIPS Negotiations.

The Trips negotiation started in the Uruguay round of the GATT and was one on the 15 groups of negotiation. The negotiation of intellectual property rights was supposed at the beginning to be broad and a simple discussion about counterfeit goods as stated in the declaration of the Swiss and Colombian Ambassador: *"Negotiations shall aim to develop a multilateral framework of principles, rules, and disciplines with international trade in*

⁸⁰ Press Release, World Intellectual Prop. Org., International Patent Filings Exceed 110,000 for Third Year Running (Feb. 23, 2004),

*counterfeit goods, taking into account work already undertaken in the GATT*⁸¹

While Most of developing countries had poor experience with the Intellectual property rights, US came up with a group of expert composed with USTR, patent office, copyright office and tried to form a group with other OECD countries. The creation of the IPC (composed of representative of US Technology industry: IBM, Pfizer etc....) to prepare a text with their counterpart in Europe and Japan relating to the minimum standards of intellectual property protection, shows the will of the developed countries and developed countries' industry to enforce their invention rights around the world.

The two first year of negotiations focused on the Debates North-South were developed countries were generally willing to come with a text that will change the world concerning the IP, and the south countries willing to have less rules in this sector and being able to be more free to choose their own legislation.⁸² The US-EU-JAPAN documents prepared by industries had different effect on each negotiation teams. US negotiators believed the documents should be used as a basis of work for negotiations of the TRIPS,

⁸¹ ""Trade-Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods," in WTO/GATT Ministerial Declaration on the Uruguay Round (Declaration of 20 September 1986)

⁸² Trade-Related aspect of intellectual property rights – Institute for international economics- www.iie.com

while European composed by part of Developing countries wanted to be more neutral and didn't want either to reject or accept their industries' recommendations. Japan finally totally rejected the documents by arguing the government shall choose what is good for industry and not the opposite⁸³

The document prepared as a basis of discussion was then prepared by US global companies and not by the government. In this example we can wonder if decisions took in the negotiations were truly following the benefit of US citizens or benefits of few US Companies.

Negotiations came to a point where no compromise could be made between developing countries that rejected propositions of developed countries, and developed countries who didn't want to release the pressure on the implementation of strong regulations.

In 1988, the US congress, passed a new legislation called the Omnibus Trade and Competitiveness Act that included a provision called "Special 301" that could be use by USTR to submit annually a report to the congress to

⁸³ Coming from a quotation of Pfizer General counsel Lou Clemente in Santoro "The European governments were less willing to adopt these views. Instead they choose to emphasize the differences between the US and Europe. The Japanese government was even less responsive to the document, In the Japanese culture there is much different relationship between government and business, In japan it's the government which decides what is best for Japan and for Japanese Business

identify nations that didn't respects adequate protection for intellectual property rights or didn't give fair and equitable market access to IPR holder of US. The most serious infringer of IPR could be place on a Priority Watch list and could be subject to retaliation by US. By this regulation, most of countries in the TRIPS negotiation seen the US operation as a threat in case of a non-acceptance of their condition. The priority watch list of US under the Special 301 in 1989 were composed of 25 countries including South Korea, India, Brazil, China, Mexico, Taiwan and Thailand.

The real start of negotiation came for the mid-term review, while knowing that the position of strengthening of intellectual property standard would be almost impossible to support, US negotiators used in the same times the carrot and the stick. US negotiators promised to lift or at least reduced the MFA (Multi fibre-arrangement), this provision of GATT used since 1974 was used by developed countries to restrict their import of manufactural goods (textiles) from developing countries by imposing quotas on them.⁸⁴ With this promised most of ASEAN countries decided to accept the principle of minimum standards, and help the Developed countries to convinced other members.

⁸⁴ Trade-Related aspect of intellectual property rights – Institute for international

Regarding the Brazil and Indian as well as other countries that didn't want any standards of protection, their acceptance came from multiple factor. First of all, the US negotiators threat to leave negotiation of Uruguay Round if the TRIPS negotiations didn't satisfy them enough, the Uruguay round were promoting really reduced tariff and subsidies in agriculture and most of the developing countries couldn't accept to lose this part only for the protection of intellectual property. This reason combined with the fear of retaliation under the Special 301 in strategic industry of country. US being the largest market of the 20th century it would have been a disaster for Brazil not be able to sell coffee or wood there anymore, these developing countries saw the possibility by the acceptation of the TRIPS to settle dispute via WTO and bypass the American congress which would never offer any chance of justice.

The final agreement came with some International Standards of protections such as:

- Protection of patents for 20 years from the filling date
- Recognition of "well-know" trademarks
- Patent Protection for pharmaceutical products

- Protection for Copyrights
- Patent protection for semiconductors design for 10 years
- Conflicts under WTO's dispute settlement mechanism

After the agreement some source of US came with explanation that goes to explain that US were only focusing on the commercial benefit of their industry by these negotiations and not caring about others countries culture or other views about Patent system and IP in general.

Kirk stated that "The pharmaceutical guys and the software guys started the round. They're the guys that drove the process. They had their oars in right up front" and Subramanian to add: "Developing countries absolutely misread the evolution of TRIPS. They think they made a mistake by leaving the door slightly ajar. That's completely academic. The TRIPS Juggernaut was really unstoppable; the United States could not have come back with an agreement that lacked serious obligation on IP"⁸⁵

The explanation of the TRIPS negotiation shows one things totally different from the general academic studies, the developing countries were

⁸⁵ Trade-Related aspect of intellectual property rights p.76 – Institute for international economics- www.iie.com.

not really willing to sign the agreement and join general standards of protection. They only signed because the US threatened them with some measures so they had no other choice than follow what US industry wanted to obtain, the success of the Uruguay round, that could help them to develop. The general acknowledgement that developing countries decide to join Protection of intellectual property convention and agreement is totally wrong. Exactly like the Netherlands case in 1912, the developing countries signatory of the TRIPS were pushed to do so by external political pressures and the threat of retaliation in trade areas by their partners. The question of the impact of patent protection in developing countries in the modern times should be so analyzed by using some new example of IP friendly countries.

The Case of Pharmaceuticals patents and developing countries

Pharmaceuticals products represent an interesting way to deal with the analysis of intellectual property impact on countries. Mostly pharmaceuticals company have to spend hundreds millions dollars in R&D to be able to finally make a drug. And at the moment the drug become available on the market, without any patent protection, it could be imitated and finally comes to no reward for the company. The study of Mansfiel in 1983 show that 60% of the invention would not have been subject to development if no patent protection

were available and 35 % of the chemicals⁸⁶. The key argument of Pro-patent system is that most of pharmaceutical companies produces worldwide and they take the example of Mexico as explanation of the success of patent system.

The development of drugs is a perfect example of the success of patent system, as it rewards the company that spend so long to develop the drug and invest so much money on it. Without this method of reward, they might be almost no possibility for any laboratory to develop new pharmaceuticals products as it will lack of benefit and people could easily get in trouble. Protection of inventions related to pharmaceutical products is then necessary to insure the operation of laboratories.

The example of success of the patent system in the field for developing country is Mexico. Because after the patent legislation of 1991 in Mexico, the Pharmaceuticals company investment in the country jump from 17 million US\$ in 1990 to 41millions US\$ in 1994.⁸⁷

These results however are to be considered as relevant only on a certain

⁸⁶ Edwin Mansfield, Patents and Innovation: An Empirical Study, 32 MGMT. SCI. 173, 180 (1986)

⁸⁷ Bale, Supra note 31

point, of course the pharmaceuticals company are relying on patents to make money and would probably not invest in a country where no patent system exists, however one thing should be notice, it's the place of Mexico not as developing country but as member of NIC, newly industrialized country⁸⁸. The situation of Mexico is close to the situation to the situation of Switzerland in the end of 19th century, the economy was based on textile and agriculture with some technology of manufacture and after a rapid industrialization the country decided to improve their Intellectual property protection even before the TRIPS agreement to be ratified. It cannot be a perfect example for developing countries, mainly because the country is considered as not developing but newly developed and the pharmaceutical products represent only a fraction of patent system and doesn't represent other field of technology or goods.

Developing countries & Patent

To analyze the Impact of the IP protection in developing country, it is important to see who are the beneficial entity of the Patent System in the country. A good example is the Situation of African countries, not

⁸⁸ Mauro F. Guillén (2003). "Multinationals, Ideology, and Organized Labor". *The Limits of Convergence*. Princeton University Press. pp. 126 (Table 5.1). ISBN 0-691-11633-4

industrialized at all and in multiple economic problems.

Kenya, joined the TRIPS agreement, by believing that the transfer of technology and the investment in the country would benefit to the industry and make the country developed. In 1991, Kenya joined the TRIPS so and between 1991 to 2013 the Patent office of Kenya has granted 589 Patents. the comparison with US is amazing when we know that in 2016 USPTO tends to grants an average of 4000-5000 patents per weeks. Most terrible fact, is that among the 50-60 patent granted by Kenyan PTO each year, only 2-3 patents are granted to Kenyan inventors or organizations, the rest of them being granted to foreign companies and for 95% pharmaceutical companies⁸⁹.

Most of developing countries follow the same process in the intellectual property development. Mostly, WIPO and IP firms are strict on the subject and explain that the economic and social benefice of the patent system cannot be discussed.

The introduction of technology in Developing country should be analyze though because the case of Kenyan is a representation of what mostly poor developing country have to face. The patent system is based on the novelty

⁸⁹ Isaac Rutenberg “ Faking it: time to rethink intellectual property in developing countries? October 2013 the guardian.

and the non-obviousness of the invention. In developing countries, the idea is to give an access to knowledges after a period of time, so the country can develop and finally access to the knowledge after giving an exclusive right to the foreign company to work in their territory. WIPO representatives generally explain that this method is good for developing countries which can, after 20 years, benefit from technologies descriptions. And finally can let the local company develop same inventions. The WIPO explanation lack of substance however. Patent claims and description being more and more specific.

Claims and description of the invention

One of the current problem for developing countries is their lack of expertise in the patent fields. Most of patent filled in Europe, US, and Japan are made by specialists in the field, patent lawyer having degree in both law and science. Their knowledges of the fields of the patented inventions enable the company to either broaden the scope of the patent or narrow the scope of it.

The Problem of scope is something that is recurrent in the problems of developing countries. Inventors of developed countries having as main problem to face prior art should always narrow the claim of their patented invention, by describing in details and really precisely the invention. In this

schemes it is quite easy to understand how they could obtain the invention by only reading the patent and the reproduction is easily made by almost any engineer after the transition period of 20 years.

However, in developing countries, the scope is a real problem, because prior acts don't exist and most of countries have their system being a territorial novelty and not a worldwide novelty, most of foreign companies filling an application in a developing country don't find any problems relating to prior art. In this situation, they tend to broaden the scope of their claim and finally arrive with a final patent that could regroup 100 or more patents in develop countries (particularly true for pharmaceuticals). This being specially the case with the access to lawyer competent in the field that can write a Western alike patent to submit to the developing country. Finally, either Patent examiner of the developing country, nor the society is able to have any access to the technology. The broad scope of the patent, let the company in a leadership for a lot of different type of inventions and development and the final products they sell under the patent might be really different than the patented invention itself because their claim embrace a really larger scope than their products.

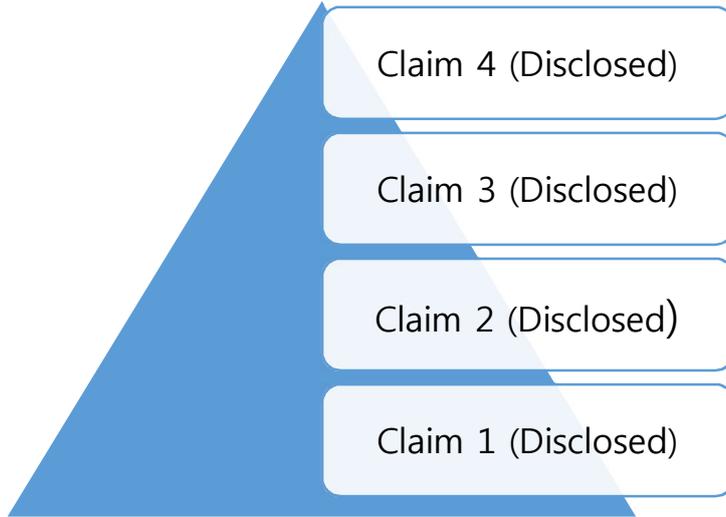
Because of this, even if the developing country get to finally have the

disclosure of information relatives to the invention, the scope is so broad that for most of the local companies it would take years of R&D after the end of the protection, to finally come to the same products than the foreign companies. And all of this for what? Not being able to file a patent abroad anyway because foreign companies already have/had a patent on the products with a claimed more narrowed.

In this case, the acceptation of patent system for developing countries can indeed be an advantages regarding with foreign investment and making foreign companies more tend to increase direct investments in their country. But the main problem is the lack of possibilities for developing countries to finally come to an independency from developed countries which will always be owner of most of patents in the country.

The possibility of having a much larger scope for their patent in developing countries than in developed country is of course an advantage for Multi-national companies but cannot lead to an access to knowledge for the developing countries

Scheme representing the disclosure of the invention in the patent for develop country



Scheme representing the disclosure of the invention in the patent for developing country



Educational Barriers, Boost of Inventive activities & Culture

Coming along with one of the major problem of the Intellectual property for developing countries, the lack of education is a factor of failure. First of all, the improvement of technology by the disclosure of the invention's features comes the problem of education.

Inventors, to be able to patent an invention should be able first to fill the application. In Europe or US most of patent lawyer are expert in the field and can write a perfect description of the patented invention features to make the patent almost not challengeable by competitor. However, most of developing countries citizen and lawyer lack of expertise in the domain. The lack of expertise is due to multiple factors, first to mention is the lack of high educated people in the country, but most important is their relation to intellectual property that is something new for most of these countries. In this case, foreign developed companies generally tend to be more professional and to know how to enforce their patents in developing countries by using the local legislation and conventions. While developing countries and citizens of these countries tend to have a really important lack of knowledges in this field. Consequently, they miss opportunities to compete and to come with important legislation in the IP field. It can be seen during the drafting of the

TRIPS and the drafting of the Talloire text which lacks in important and detailed features that could have help the developing countries to limit the implementation of Intellectual property in their territory⁹⁰

The educational barriers can be seen as well as the lack of understanding of disclosed inventions and the lack poor effect of the disclosure on inventors. After the invention features being disclosed, most of EU-US company already filled multiple patents with more narrowed claim in Developed countries. Consequence is that if an inventor or industry of a developing country manage to find a new application, there is a lot of chance for his patent application to be refused in EU-US for the existence of a prior act. It is possible to see the impact of patent system on the developing countries by comparing the value of patents and the nationality of the citizen in an identical area of protection for patent system.

⁹⁰ Watal 2001, p 31-32

	Domestic applicant	European applicant	USA applicant	Non-EU & non-USA applicant	Non-domestic co-applicant	Total
<30k	8.13%	5.35%	4.56%	5.88%	8.90%	7.88%
30k-100k	17.84%	16.31%	12.98%	17.65%	11.44%	17.39%
100k-300k	20.77%	20.32%	16.49%	23.53%	22.46%	20.65%
300k-1m	21.65%	21.93%	25.61%	20.59%	21.61%	21.80%
1m-3m	15.20%	17.91%	17.19%	23.53%	15.68%	15.45%
3m-10m	9.50%	9.36%	11.58%	2.94%	11.02%	9.58%
10m-30m	3.56%	4.81%	5.96%	2.94%	3.39%	3.70%
30m-100m	1.85%	2.41%	3.16%	2.94%	4.24%	2.00%
100m-300m	0.75%	1.07%	1.40%	0.00%	0.00%	0.76%
>300m	0.76%	0.53%	1.05%	0.00%	1.27%	0.77%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Average patent value	6,173.36 (30,109.91)	6,556.86 (28,249.27)	9,422.09 (36,486.80)	3,079.41 (11,269.43)	8,211.80 (35,690.17)	6,359.79 (30,410.79)
Average number of forward citations	0.92 (1.81)	0.92 (1.92)	0.76 (1.49)	0.97 (1.86)	0.77 (1.76)	0.91 (1.80)
Share of opposed patents	8.67%	7.60%	8.66%	10.26%	7.89%	8.60%
Number of observations	7926	434	335	39	279	9013

As it is easy to see on the table made for the European commission, most of patent of interest and that brings high economy boost are actually filled by US-Domestic or EU citizen or companies, most of the developing countries inside the "Non-EU ,Non-US" bring patents with poor value and the number of patent filled in EU compared with the population included inside this category shows that the system of patent doesn't boost the level of inventive activities of the citizen from developing countries but more facilitate the possibility for Western companies to enter in a developing market with a possible monopoly on a large scope inventions.

Last but not least, most developing countries in our days are closer to the

status of Netherlands in 19th century, more than Switzerland. While the adoption of a patent law in Switzerland led to an increase in US patents granted to Swiss citizens, the new patent law in 1912 of Netherlands didn't bring an explosion of inventive activity by the citizens, due to their lack of knowledge in the field of patent mechanism and protections. Developing countries fall into the same situation.

The Cultural barriers represent one of the most important trouble in the enforcement and in the development of Intellectual property rights in developing countries. The system being mostly developed in Western countries with an old Mercantilism base mixed with a strong personal profit for the inventor, the idea of protection of invention is difficult to accept for certain populations that consider the invention of oneself as the invention belonging to the community, this is strongly true in China or some less develop countries from Oceania which consider just like Greek that an inventor should be reward for its invention and have a public recognition but that he shouldn't be the only one to decide how his invention will be use as the inventor is a part of the community and so belongs his invention. By asking developing countries to enforce IPR in their territory one should remember that culture being different, western system of protection might not

be adapted to the typical culture and tradition of local population.

Lack of licensing and Direct Investment

After showing that the patent system in developing countries wasn't helping the disclosure due to the large scope of the patent filled, we can analyze the licensing activities and investment from developed countries to developing countries.

Most supporters of the patent system in developing countries come with the development of direct investments and the increase of licensing to local companies. However, it is possible to temper this argument by showing the different kind of direct investments and how companies generally react to patent system.

While Chemical and Pharmaceutical companies could benefit from the patent system (improvement of Swiss company after the creation of the patent system), most of the goods and food companies don't rely on the system to invest in a country. The most famous case is Coca-Cola who keep its recipe secret for more than 100 years and still invest massively in every developing country around the world.

The case of India is interesting as well, while being one of the emerging

strong economy, India didn't accept any patent for pharmaceutical products since their patent act of 1970, only process patents were admitted for a period of 7 years⁹¹. But even with a non-protection friendly atmosphere 16 of the 30 largest pharmaceutical companies of the world in 1993 had direct investment in India. This example shows that even though the lack of license can be annoying for foreign companies who wants to get in the country, this concern only the R&D, other benefit are subject to the economic growth and the opportunity of the country, while India is one of the largest market of the planet regarding drugs and pharmaceutical products, largest world company cannot give up the market only to be able to secure their invention, they stop their R&D in the country and just simply sell the drug knowing that the duplication by local companies into generic product would probably take years and then secure themselves a monopoly in an immense market for a while before any competition to entire in the market. This example sends us back to one of the philosophy at the beginning of 19th century explaining that the period between the first sell on the market and the competition to rise will insure enough profit for company to keep on invent new products and be rewarded.

⁹¹ Heinz Redwood, *New Horizons in India: The Consequences of Pharmaceutical Patent*

The lack of licensing now is another form of problem. The case of China is interesting to deal with this subject. The reward that a patentee should get for its invention should be in exchange of the win for the society. However most of foreign company in China that owns patent rights, mostly separate their production to avoid reproduction and counterfeit goods. This could be negligible if the transmission of the information on the invention was made clear, but most of products in goods such as phone etc. are made by a mixture of trade secret and patented invention. Generally, the system of licensing in china don't involve any know how but only a way to produce cheap component before adding the important technologic features in a place where Chinese company could not have any access to the technology. This could be seen as a response to the poor enforcement of IP right by the Chinese authorities but even though the system tends to be more develop and that most foreign company in China agree on the fact that their IP rights are more enforced, the licensing keeps being poor and focus on low technologic goods.

Model for Developing country

While it could be possible for developing countries to follow the example

of Netherlands, it would be difficult due to international pressure to keep in this way.

Another possibility then, could come from the Japanese patent history. Japan after the second world war was considered as an emerging market owning few technology and having problems to develop their own technologies and having access to the European or American technology. To be able to finally introduced the technology in their country, Japan government should trick American companies who were not willing to accept technology transfers that easily.

In 1960's most of the American company wanted to export technology to produce at lesser cost their products. However, they always wanted to add an exclusive grant back clause in every license agreement with Japanese company, with this system, the American company could get back any invention made by the Japanese company during the license agreement term and have an exclusive right on it.

To fight against this process that Japanese thought unfair, the government created the obligation, for every restitution of Japanese company improvements or inventions to Western company, to be subject to an approval of the Ministry of International Trade and Industry (MITI).

The MITI along with the Fair trade commission help the Japanese companies to be almost always protected by the government in case of demand of restitution of inventions. The FTC blocked the use of "exclusive grant backs" provision by explaining the inconstancy of this provision with the Japanese law. The MITI for its part grants always no approval, only in a case where a Japanese company violated the agreement totally.⁹²

It is possible for developing country to base their own patent system on a double possibility for them, first by reducing the cost of foreigner company investing in their country in a technological field or developing sector. The second step to create a law that would push the foreign company to finally disclose their technology and the use of it by having no choice but to educate local engineers or scholars.

Critics & Findings

Sole Inventor VS Corporation

The actual problems in the Patent law are the same problems that already exist in the past. One of the recurrent problem is the Monopoly of invention by Corporation and the impossibility for normal citizens to have access to the

⁹² Harold C. Wegner Sweet & Maxwell 1993. P17

patent protection totally. While most people explain the good will of the Patent system. We can see that in the actual world, the social benefit of the system isn't really existing anymore.

The Perfect example to show this is the example of the Professor Robert Keams, Creator of the blinking wipers in 1963, the Professor decides to files a patent in 1964 for its invention. While he thought that his invention could be a good idea to develop for new cars, he contacted Ford to tell them about his idea but ford didn't answer to him. Later on after a while, in 1969 Ford suddenly introduce the blinking wipers in its new model of Mustang. While Keams went to Washington and claim he was the inventor, he was put in a mental hospital by authorities who thought that he was crazy to even try to claim the invention belongs to him after been released and lost his wife and kids who left during his detention, after filling a law suit against Ford, and the abandon of his attorney, Mr Keams had to represent himself in the court to finally see Ford ordered by Jury to give him 10 million dollars for its infringement in 1990. While the story finish well for the Professor, even if it's not the case of every one, he still lost couple years of his life in a mental hospital, forced to take drugs while he wasn't insane, had to represent himself in a court to finally have a judgement in his favor 12 years later. And lost wife,

kids and probably friends in the process. The Patent filling was made in 1963 and he had to wait until 1990 to finally get his right enforced and get a compensation. The amount of money given to him clearly doesn't worth the life he had to live and barely reimburse the money used for the litigation.

This example while not being the case of every inventor represents one of the key problem of the modern system of patent. The key philosophy behind the patent system was to protect inventors for their discoveries and offer them a way to get rewarded by the society at the level of utility of their invention. The problem is that when the system has been created it was faster and easier for an inventor to enforce his right. The modern system of patent for sole inventor is difficult to support.

First of all, inventors lack of leverage against manufacturer. While they could try to fill complaint for infringement, it's generally hard to do so because the general public and jury would easily doubt about the faith of a simple man against a respected industry of the country.

The second problem is coming from the cost of a litigation arising for a patent infringement. A normal litigation in US for example can represent more than 20 million dollars in lawyers and annex fees as well as an incredible burden for a sole inventor. This is something that most of Companies know

really well. An inventor, alone, might be scared to start a litigation against a manufacturer for this reason, the process is really costly and the final decision isn't objective.

Monopoly of Corporation and NPE

Another problem of the system of patent that could be predictable, and that were perfectly seen at the early stage of the development as a possibility, is the increase of patent that are not used to develop any products and submarine patents.

Most of multinational enterprises do not patent their important or really brand new technology anymore because they scared the instant development of copy or imitation by their concurrent.

Corporations own 82 percent of patents granted to U.S. entities⁹³ in 2001, and universities only 1.9%. Meanwhile only 3-4% of Patent granted to corporations are actually used by them to develop new products and 95% of these patents keep silent and are never used in the manufacture or the development of new products. The Development of the practice of being NPE is one of the modern consequence in the monopoly of Patent by corporations.

⁹³National Science Foundation, Division of Science Resources Statistics *Science and Engineering Indicators 2004* Arlington, VA (NSB 04-01) May 2004

While a production of the technology is costly in time, money, development and marketing, and finally brings a few return on investment. It is generally agreed by most, that the reward from litigation is far more effective for making money.

By this, most of the corporation decide to manufacture products that can brings immediate success and that will not be too difficult to develop at big scale. While they choose to keep their patent protection while using starting the manufacture or the production for technology that could bring a dangerous investment.

The development of the system of Patent troll by most of International companies which then spend couple years to litigate against start-ups or sole inventor under their right on the invention is a gangrene for the society and the economy.

Regarding the economy, the most difficult thing to understand is, how, it is possible to protect the invention of a company that doesn't want to use or develop the invention and use it only to refrain competitor to do so. In this case the patent protection becomes totally unproductive because it let companies having a monopoly in products that none can use. The second economic problem comes from the creation of firms based on patented

invention or development that would not be made because of a similar patent exist and his owns by a corporation that doesn't use it at the same moment. In this case the country loses the possibility to make the market evolve and to create firms and employment. In crisis period such as now, where most of develop countries have employment problems, it is strange to see government keeping on agreeing on the fact that patent protection without production is an advantage for the economy.

To detail the economy part, it is possible to argue the benefit of the patent system of the economy regarding the problem of market size. While it is possible to agree that a protection for an invention to be manufactured and sold in a small country is necessary somehow to secure a minimum of benefit for the inventor (at least the fee of development), this is not the case regarding some huge market like China-India or US where the inventor can manage to reimburse and make 10 times what he invested in the technology in a simple week. The protection of 20 years should be considered then as being too big for a real proportional coverage of fee and reward. In this case a good way to solve the problem would be to fix a limit of money earned by the inventor on the patent that could limit his benefice to 10-20 times, limit after what the invention would fall into the public domain and the inventor

would have to accept competition on the market.

The society counterpart is strong too, the essence of the patent system as it was created and developed mainly during the 19th century, was to bring a social benefit, where people could have access to the features of the invention and the society develop. The problem that comes now is that most of corporation keeping their knowledge and development process under trade secret more than patents, the society don't get any reward in the development of patent. Patents while being a nice way to protect technology couple centuries before became nowadays a way to protect invention that cannot be protected by trade secret and that will finally be discovered soon or later by other competitors. By the patent protection granted to company, the Enterprise tries not to share its knowledge in exchange of protection but generally to protect something that could either brings him royalties later on with a license or with a litigation. By this process the society get nothing from the protection and the system of patent represents only another way for company of making money from their law department.

One possibility would be to use the old system of Venice, that protected inventors but were cancelling their protection in the invention after 2 years of non-use if someone could come with an idea to develop the invention and a

plan to make money on it. The capitalistic system of economy states that something belongs to the person who can develop it the best and that can make the most money of it, it is interesting to see that for patent protection, the system is closer from a full protection that could be a creation of a socialist system.

Stimulation of the Invention

One of the main argument in the defense of the patent system is the boost of inventiveness that the patent protection would offer. The theory is that with the patent protection and the reward that goes with it (money), inventor tends to be more stimulate to invent because they are almost sure to be able to reimburse their investments and their time.

The idea of development of the Invention represent one good theory that deserves to be analyzed.

No one can argue that most of inventors (companies or sole inventors etc.) are interested by a minimum reward in terms of money. Investment in the development of new invention can represent a really high lost if anyone can suddenly copy the invention after the deposit on the market. But here comes the first thought. If ones are able to copy an invention as soon as it comes on

the market, doesn't it mean that the non-obviousness and the novelty of the invention were not satisfied?

Generally, the two views on the subject are the opposition between pro-patent views that consider the reward of the inventor cannot be made if the market can copy the products in couple months or years and finally compete with the inventor, and the view of patent abolisher who view the protection as useless because the inventor could make enough money before the imitation of the invention, but we can judge as well the difficulty of reproduction.

Inventions protected by patent should be both non-obvious and novel to be able to be patentable. The important thing is the difference between the level of different patents. While some patented inventions are so difficult to develop and reproduce that countries need sometimes to use industrial spying, some others are so easy to copy by manufacturers that the market can be flooded of counterfeit goods in only couple weeks. In the latter case, should we even consider the invention as an invention then? The principle of the patent protection was to reward the labor of the inventor for his discovery, but if the invention can be copied so easily and without any special know-how, then it is difficult to protect the non-obviousness and the novelty of the patented invention.

Another important point is the scope of inventive activity brought by the patent system. While most patents are granted to Corporations, it is difficult to support nowadays the view of the development of inventiveness. Most of the R&D made by corporations focus on one technology or a field of technology that could bring benefit for their company. The inventiveness is then restricted to some area and the patent system acts as a pipeline that enables high technological discovery in certain fields but neglects other fields of studies because of the weak reward it can bring to the company. The problem comes from the creation of the patent system, that was made to protect and help inventors who discovered something that can help society, not something that can help their company. Because of this it is difficult to support the view that the patent system is good for inventive activity, it only limits inventiveness to a part of what could be discovered, representing generally the field where money can be made.

The stimulation of inventiveness meets another problem. Most of other fields where patents couldn't be used to develop the spirit of invention from inventors such as business and other non-patentable subject matters, kept on developing and people of the field kept being more and more inventive while their creation couldn't be protected. This can show as well that even if the

patent can reward people who are chasing money it doesn't specially apply to every inventor and there will always be a good part of invention even without any way to protect technology.

End Consumers and Lobbies

Another problem of the exclusive right of certain companies comes from the issue of morality. The patent system is funded on the morality, where the society accept to grant a monopoly in an invention for the inventor to be rewarded for its discovery and to support innovation and protect the inventor. The problem is the morality of certain firms which don't respect anything but money. Recently Turing Pharmaceutical was the perfect example of the problem of morality arising of the modern patent system, when suddenly the CEO decided to increase the AID's medication price by 5000%. The market of drugs being unregulated in US by the government, it is possible for a patent owner to do as he will. Consequently, the price of the drugs that worth 1\$ to produced and sold 13\$ on the market, increased to 750\$, leaving without any medication AID's patients. In this case, shall the society follow the morality of protection of invention when the patentee doesn't respect any moral right?

The End consumer problem can be see particularly when we focus on big industrial groups that exists nowadays such as Apple, Samsung etc. While an

iPhone 6s cost 234\$ de produce⁹⁴, the final price gets to 749\$ on the US market. Even counting the R&D (poor because almost no new amazing features comes with the development of new phone each year), and the marketing, the benefit of the company for each phone might be around 40-45%. And this is only in US because the same product in Europe cost 859 Euro (1050\$) which represents an inflation of more than 25% in countries outside US. In the same time in China a journalist at the China Consumer Electronic Fair explains that 40-50 company have decided to sell illegally the same counterfeit phone for 90\$⁹⁵. The balance of interest between companies and consumers is difficult to reach but if most of the developing country and more and more citizen of developed country tends to look for products on the illegal market it is as well a problem coming from the total monopoly that certain companies have in particular sectors with their patents and their technologies. This monopoly brings another problem concerning lobbies.

Most of the reform took during the TRIPS negotiations came from industries of pharmaceutical products and software industries, weirdly the final agreement pushed the introduction of protection in software and patents in

⁹⁴ Business insider

⁹⁵ China Tech 11 April 2016

pharmaceutical products. The patent system developed the idea of protection so far that the monopoly given by the society to companies finally gave them enough power to convince government and legislator to take rules in their favor. Lobbies spread in US and other develop countries and it should be important to refocus on the essence of a patent law that isn't made or had been made to help some to get power, but to develop all industries sectors and reward inventor in any invention.

Problems of litigation

The problem of money could be solved easily if an inventor who see his patent totally infringe could feel safe to fill a complaint. Problem is that in most country, patent litigations are decided in part or totally from jury's order. While the Jury's representation can be a good idea in homicide or general litigation that doesn't require complex knowledge in the field of study or in the law field, it is a suicide in the case of patent litigation.

Patent cases require a high level of understanding in technology and law, and in this situation most jury's decision are not motivated by a real understanding of the infringement or non-infringement of the technology but by a simple belief or feeling about it. Watching litigations in US can sometimes be really funny as it is possible to see lawyers trying to influence

the Jury not by concrete argumentation but with emotional arguments to support their clients. Most of jury members face a dilemma, condemn an inventor that claim something is protected by his rights or condemn a full industry and possibly hundreds of jobs with it. To solve the problem of subjectivity of the Jury's member, it would be a good idea to at least introduce fully or partly some experts in the field of technology to come with an order that isn't following only the justice process but with an order that can be considered as right and objective.

Pharmaceutical products

An idea would be the creation of specialized court, that can simply deprive a patentee from its patent in the case where the patentee doesn't have respect moral rights towards the society and people who grant him his right. Pharmaceuticals companies can be understood as they have a budget in R&D really high compare to other sectors of the industry, however they should think of another way to make money, such as access to developing markets with high population, where they could sell basic medication in high quantities instead of increasing prices of drugs that some people need to survive.

Another point about laboratories and pharma companies and that can be

extend to software companies too, is the incompatibility to protect their creation the same way in different countries. Pharmaceutical companies, chemical companies and software companies get a return on investment depending on the population of the country. The Interesting thing is too see the example of Kenya where most of Western pharma companies fill patent and by this the health security of the country is subject to the good will of the company.

The main problem lay in the fact that in contradiction of the time of TRIPS negotiation where pharma companies were explaining that they cannot invest in R&D in developing countries because of the lack of protection, the protection now is real but the R&D is still absent. Because of this, the security of the country is directly subject to the wealth of the company who filled protection. Even if the compulsory license system exists, the lack of R&D in developing country and the paralysis of local pharmaceutical companies due to the monopoly of western one, create an impossibility in case of crisis to react rapidly because of lack of expertise.

A system to implement by the developing country would be a system of protection base on 20 years of protection subject to the amount of R&D in the country. Most of international companies that manufacture goods should

invest in a country to be able to sell while pharmaceutical company only have to ship drugs from the country of production to the pharmacist. A good way to make Pharmaceutical company play the game in subject of patent would be to create a law allowing the cancellation of the protection if they earned 2-3 times more in the country than their investment in this one. In this case most of pharmaceutical company would have to accept the spread of their R&D worldwide and would have to help every country to develop more equally. The last reason that support this argumentation is shown by the poor number of scientist of developing countries who study in US and decide to return in their country. The lack of infrastructure and the impossibility to have a direct access to R&D position make them run away and go to work in developed countries. The share of technological benefit from the patent system is then unique, Developed countries make technology and develop them, patent the invention in developing countries with large scope and finally the only real use of the developing countries is the manufactural part or the consumer market.

Patent in technology field

The system of patent in technological field is in my point of view almost useless in our modern world because people tend to be attracted by the

quality of products. In this case, the problem of who owns the patent for the technology doesn't really matter if he isn't able to make a good and appealing product out of it. The negative impact of the retention of technology is however a really big mistake I think, considering the number of firms that could be created out of un used technology and combination of different patent existing but owns by different patentee who doesn't want to use it. A good solution of this would be the use of the compulsory license system of Venice, letting patentee having rights as well as obligation. Rights to defend their protected invention but obligation to license if they don't use it. In this situation, many new firms could raise and much more litigation including NPE would happen. That would reduce the number of unused patent, boost the economy of new technology and start-ups, and decrease the number of useless litigation. The consequence of the diminution in the number of litigation would be a gain of time and real procedure thanks to a suction effect. Less case = Fast court decision.

The second point about patent protection in the technology field is the reward of the company that totally sucks the bank account of much of customers. Developing a technology that represent a good expansion in a field should be rewarded but a simple monopoly on the invention tend to

push company to invest less in R&D and to keep much of their money. The invention that brings a long term benefit on which the company can lay and doesn't have to develop much new features, would fatally bring to a lack of invention in the next 20 years of protection. The discovery of the invention brings an exclusivity in the field and cut the possibility to compete with the holder of right. However, one of the main features of the liberal system is to be able to compete to push innovation and force price to get down and company to evolved in inventing new products. The monopoly however, brings nothing else than increase of prices and stagnation of the technology level. It would be wise for governments to rethink the system of patents to increase the possibility for competitor to use faster the protected technology, by restricting the profit a patentee can make for each invention. The profit could be eventually stated by a court during a litigation for infringement and finally accept the competitor to use the patented invention if the profit of the inventor exceeds 20-30 times what he invested and that a relation between the patent grants and the lack of innovation in its products can be found.

Implementation of easier intellectual property rights for developing countries

While the implementation of easier and more comprehensive model for developing countries regarding intellectual property seems to be legit, it is

legally however more difficult to implement the change without violating the existing agreements in TRIPs for example. One of the solution would be to help the developing countries by re-negotiating the Trips agreement during the Doha round, but as the Doha round of the WTO is seen as almost dead and most of the countries now turn themselves toward the FTA and MEGA FTA, one solution would be to try to implement lesser intellectual property protection in developing countries with a rules that push them to strengthen the rules concerning Intellectual property through times. Such as implementing one year of additional protection every 5 years, until we get to the 20 years required by the TRIPs. The Regulation of IP is not beneficiating to the Economy of developing countries as it restricts the possibilities of business and in the view of foreign companies or inventors the regulation cannot be seen as a benefit because a developing country would bring less money for a protected product than a developed country. A fully developed country would bring a bigger consumption and more profits than a country where people cannot buy anything. The principle of territoriality making the lack of protection being good only for the people of the developing country. And the protection staying strong in developed countries to be able to keep making profit out of the high consumption.

The implementation of lighter IP protection with a progressive change throughout time and development of the country could be an idea of terms to implement in new Mega FTA such a TPP or RCEP where we can see the existence of both developed and developing countries. This could help the developing countries to slowly come to a good level of economy where the protection of the IP would become something that can reward the companies.

Conclusion

Examples of patent system and protection of Intellectual property rights such as protection of invention throughout the times are numerous. Models tends to show that the protection of invention can be a good solution to some extent but that it should be limited and restricted in time and strength. The examples of Sybaris or Venice shows that mercantile cities tend to be beneficiary of the system of protection as it boosts the development of technologies and importation of new technologies from abroad. Sybaris used the protection of invention and discovery to be famous in all the Greece for its wealth and to keep a monopoly that could help the city to trade effectively in some area such a clothing or importation of foreign arts and luxurious object. Venice in its part used the protection to import foreign technology and to be able to improve the recognition of its craftsmen in all Europe. And help

the city to stay the center of western commerce for years.

However, examples of Switzerland and Holland shows that the implementation of protection of IP conducts to few changes for countries that are not really either inventive or have a market large enough to satisfy inventor. This is why most of Swiss filled their new patents in technology in US and the country developed mostly by copying new technology from Germany and France. The Netherlands been pushed to implement patent law because neighbors were not happy and the after implementation didn't change much things for the inventiveness of Dutch's people. The strong debate between expert in the field, economist, philosophe during the 19th – 20th century let a gap in patent system as it was clearly not because its advantages that the patent system had been introduced but with the help of propaganda and politicians, what led use to still cannot be able to really judge the positivity or negativity of the system on the industry and the economy.

The Trips negotiation period and the arguments of patent advocates for developing countries can be somehow misconceived, and most of advantages such as the increase of inventiveness or the disclosure of technologies for the society seems not to be that obvious.

The patent system in its actual form brings prejudice to both developed and

developing countries. The main prejudice in the developed countries is the lack of social benefit as most of patents are not used and litigations are so expensive that it kills every possibility for the society to feel that they really win something. For the developed countries patent infringement system should be simplified and patent protection based on the benefit of the company more than a duration. That could help to increase the competition (after the R&D fee reimbursed) and increase the innovation by destroy monopolies as well as insuring a true reward for R&D.

For developing countries, the case of Kenya could serve as a basis of example that the Patent system tend to suffer some lacks and a compulsory license or protection wave rights could be a solution not to block the development of new business, develop the economy of these countries and make developed countries as well as the world, enjoy a stronger market and more consumption in these countries.

The actuals stakes are to be able to balance the benefits of the public and the benefits of company or inventors. The actual system might bring some imbalances that could be interesting to change by the introduction of new rules or the reduction of existing ones.

The patent system has a direct impact on the industry and the economy

and to be able to obtain all its advantages without suffering of inconvenient it is necessary to regulate the protection to avoid abuses. Rebalance the power of protection between inventors and corporations, rethink the protection for pharmaceutical products, develop a new model for poor and developing countries, fight against NPE and be sure that the initial purpose that is the disclosure of features and knowledges can really happen.

The re-examination of the patent laws and their impact in the society is essential to be able to finally enjoy the full benefit of the protection of people's ideas.

Bibliography

Mark Cartwright, "Athenian Democracy," *Ancient History Encyclopedia*, last modified October 13, 2014.

"Peloponnesian War". *Encyclopædia Britannica. Encyclopædia Britannica Online.*

Encyclopædia Britannica Inc., 2016. Web. 20 avr.. 2016

Claude Mossé « GRECE ANTIQUE- La Grande Grèce » Encyclopaedia Universalis .

Yves Plasseraud, François Sauvignon, Paris 1883 – Genèse du droit unioniste, (Paris, Librairies techniques, 1983)

Phylarchus of Naucratis, "The Deipnosophists, or, Banquet of the Learned of Athenæus", Translated from Ancient Greek by H.Bohn

George Francis Takach, Patents: A Canadian compendium of law and practice, (Edmonton, Juriliber Limited, 1993), p. 1.

Moore, Adam and Himma, Ken, "Intellectual Property", *The Stanford Encyclopedia of Philosophy* (Winter 2014 Edition), Edward N. Zalta (ed.)

Meyers, Hannah (2005-03-07). ""Suave Molecules of Mocha" -- Coffee, Chemistry, and Civilization". Retrieved 2007-02-03.

Drachmann, A.G. (1961), "Heron's Windmill", *Centaurus*⁷

Dietrich Lohrmann, "Von der östlichen zur westlichen Windmühle", *Archiv für Kulturgeschichte*, Vol. 77, Issue 1 (1995), pp.1-30 (10f.)

Cassell's Latin Dictionary, revised by Marchant & Charles, 260th. thousand:

"Literae, Plur: that which is written; Cicero: *Dare alicui literas* (plur) *ad aliquem*:

to give to a messenger a letter for a third person"

E Wyndham Hulme, *The History of the Patent System under the Prerogative and at Common Law*, *Law Quarterly Review*, vol.46 (1896), pp.141-154.

Thomas F. Madden, *Venice: A New History*, Penguin, 2013

Richard Cowen, *The importance of salt*

Pilgerreisen von Venedig nach Jerusalem im späten Mittelalter- Die Verträge mit dem Schiffspatron, Seite 2, Fabian H. Flöper, GRIN Verlag, 2011

Terence Kealey, *The Economic Laws of Scientific Research*, St. Martin's Press, 1996

L'État et l'invention

« Venise. les chantiers d'exception d'une cité baties sur l'eau » cahiers de Sciences et vies. Les racines du monde n81, juin 2004

Archivio storico dell'Accademia delle scienze di Torino, Mazzo 183, doc. Br 1820, 30, Torino 1820 (documento di 8 pp. non numerate di cui due bianche).

Paris 1883

Jackson, M. (2002) From Private to Public: Reexamining the Technological Basis for Copyright, *Journal of Communication*

Rhodain claud " innovation : la guerre des brevet", CONTACT, Revue l'amicale de l' E.M.S.S.T, juin 1990.

Il Principe, Antonio Blado d'Asola, 1532.

Jean matthieu Rose ' La veritable histoire des papes', Paris, GRANCHER, 1991.

Henri Pirenne, *Les villes du Moyen Âge* (PUF, 1992)

Patricia Fortini Brown, *La Renaissance à Venise*, Paris, Flammarion, 2008

Patrick Boucheron, « 1509. Louis XII est vainqueur à Agnadel », Alain Corbin (dir.), 1515

et les grandes dates de l'histoire de France, Le Seuil, France Loisirs,

Khan, B. "An Economic History of Patent Institutions". EH.Net Encyclopedia, edited by Robert Whaples. March 16, 2008

Machlup & Penrose *The patent controversy in the 19th century* -1950

John Prince-Smith, "Ueber Patente fir Erfindungen," *Vierteljahrschrift fur Volkswirtschaft und Kulturgeschichte*, Erster Jahrgang (1863), III, 150. Also Herman Grothe, *Das Patentgesetz fur das Deutsche Reich* (Berlin, 1877), p.7

Machlup & Penrose *The patent controversy in the 19th century* -1950

Jeremy Bentham stated 'First published in French, republished from the English MS. in *The Works of Jeremy Bentham*, ed. John Bowring (Edinburgh, 1843), II

Jean Baptiste Say, *Traite d'economie politique* (1st ed.; Paris, 1803).

Sismonde de Sismondi *Nouveaux principes d'économie politique ou de la richesse dans ses rapports avec la population* (2d ed.; Paris, 3827), II

Constitutional Assembly in December 1790: -Augustin-Charles Renouard, *Traite des brevet*

Schaffle, *Die nationaldkonomische Theorie*, p. 141.

Machlup & Penrose *The patent controversy in the 19th century* -1950

The Patent Question under Free Trade, p. 24; and Viktor Bohmert, *lahrbficher fur Nationaldkonomie und Statisti4*, IX (1867)

Rodriguez, in De Beaulieu, "Discussion sur la propriety des inventions," *Journal des economists*, XXXIV (2d Ser.) (1862)

Sir William Armstrong, *Report of the 33rd Meeting of the British Association for the Advancement of Science*, held at Newcastle in i863 (London, 1864)

Bentham, "A Manual of Political Economy," *Works*, ed. Bowring, III

The Economist, February I, 1851.

Prince-Smith, "Ueber Patente fur Erfindungen," Vierteljahrschrift fir Volkswirtschaft und Kulturgeschichte, III, 16o.

Bolley and Kronauer, Gutachten uber den Einfluss des Mangels eines Patentgesetzes auf die schweizerische Industrie (Zurich, 1862)

Offizielles Bundesblatt, Jahrgang (i864), II, 510- I.

Botschaft des Bundesrathes an die Bundesversammlung betreffend Forderung der Landwirtschaft, Industrie und Gewerbe, und Schutz des gewerblichen Eigenthums, June I, 1886, p. 5.

E. Guyer, Einfuhrung in das Schweizerische Erfindungsrecht (Zurich: Fachschriften-Verlag, 1916

Schiff, Eric. *Industrialization without National Patents: The Netherlands, 1869-1912; Switzerland, 1850-1907*. Princeton: Princeton University Press, 1971.

Gedenkboek van Neerlands watersnood in februari 1825("Memorial Book of the Dutch Flood Disaster of February 1825

Shahid Alikhan, Socio-Economic Benefits of Intellectual Property Protection in Developing Countries 1 (2000).

Trade-Related aspect of intellectual property rights – Institute for international economics- www.iie.com

Edwin Mansfield, Patents and Innovation: An Empirical Study, 32 MGMT. SCI. 173, 180 (1986)

Bale, Supra note 31

Mauro F. Guillén (2003). "Multinationals, Ideology, and Organized Labor". The Limits of Convergence. Princeton University Press. pp. 126 (Table 5.1). ISBN 0-691-11633-4

¹ Heinz Redwood, *New Horizons in India: The Consequences of Pharmaceutical Patent Protection* (1994)

Harold C. Wegner Sweet & Maxwell 1993. P17

National Science Foundation, Division of Science Resources Statistics *Science and Engineering Indicators 2004* Arlington, VA (NSB 04-01) May 2004

ABSTRACT

본 연구의 주된 목적은 현대 사회에서 근본적이라고 여겨지는 특허법이 실제로는 경제와 산업 영역을 돕고 있다는 점을 이해하는 것이다. 발명을 보호하는 유용한 방법으로서 특허법이 인정되지만, 특허법의 사회적 영향과 이점은 연구에 의해서 분명히 밝혀진 바가 없다. 이 연구는 해당 주제 영역을 조금이나마 개척하고자 하는 희망에서 시행되었다.

법체계 안에서 특허법의 영향을 분석하기 위해, 특허법의 기원에 대한 기술과 이것이 발전해온 방식을 살펴보는 것은 독자들로 하여금 특허법의 발전 방향과 이에 관련된 이슈를 점진적으로 이해할 수 있도록 도와준다. 법체계에 대해 제대로 이해할 수 있기 위해서, 도시 시바리스(Sybaris)와 특허법체제로 인한 이곳의 다양한 경제적 영역에서의 발전과 마찬가지로, 고대 그리스에서의 발명에 대한 보호 장치의 존재를 우선적으로 발전시킴으로써 특허법의 주요한 발전 방향에 대해 검토하고자 한다. 베니스의 역사에서 첫 번째 특허법의 성립전에, 그 도시는 14 세기에서 15 세기에 가장 강성한 도시 중에 하나였다. 그리고 15 세기 후반에 시행된 특허법은 그 도시의 발전을 가능하게 한 장치들 중에 하나였던 것으로 추정된다.

미국 특허법과 영국에서의 특허법의 발달에 대한 주제는 여러 연구들에서 다루어져 왔지만, 이 연구는 19 세기에 있었던 저작권 옹호론자들과 반대론자들 사이의 논쟁에 보다 초점을 맞춘다.

이 연구는 현대 특허법에 대한 분석과 국가들이 최종적으로 개발도상국들에 의해 맺어진 TRIPS 협정의 비준에 의한 지적 재산권 보호를 위한 국제적인 법체계에 이르기 위해 규범의 표준화를 받아들였던 방식에 대한 분석을 따라갈 것이다. GATT의 우루과이 라운드에서 미국의 교섭가들은 TRIPS 협정을 밀어붙였고 개발도상국에서의 새로운 보호 협정의 영향은 그들의 경제를 깊게 이해할 필요가 있는 결과를 가져다주었으며, 세계 산업에 특허법으로 인한 나타난 결과의 전지구적인 이해를 가져왔다. 새로운 규제의 도입이 어떻게 개발도상국 경제에 영향을 미쳤는지를 알아보기 위하여, 우리는 케냐에서의 특허법 규제의 도입의 사례와 이것이 해당국에 미친 영향을 확인할 것이다.

특허법이 오늘날 거의 모든 나라에서 시행되고 있으며, 이것은 다른 문화와 국가들의 발전 단계에도 적용될 수 있을 것이다. 이것은 아직 준비가 미흡한 국가들에게 특허권 보호를 위한 법체계에 그들 고유의 법과 문화를 적응시킬 수 있는 충분한 시간을 준다.

게다가, 실제 특허법에서 특정 부분은 문제들을 야기한다. 특허법 체계의 초기 성립은 발명의 유용성을 고려하여 이에 대한 보상을 해줌으로써 국가에 발명을 독려하여 발명가들을 만족시키기 위함이었다. 문제는 19 세기 네덜란드의 상황이 보여주는 것처럼, 특허법의 도입 이후에도 발명에 대한 독창적인 감각이 개선된 경향이 없다는 점이다. 또한, 법정 비용이 이전과 비교했을 때 매우 높아졌기 때문에, 발명가들이 수세기 전만큼 제대로 보호받을 수 없게 되었다. 대부분의 소송은 발명에서 그들의 권리를 입증하려는 두 단독의 발명가들을 포함하고 있는 것이 아니라, 두 산업 분야 혹은 하나의 완전한 산업 분야에 대항하는 하나의 발명가를 포함하고 있다. 이러한 경우, 공평한 판단에 의한 공평한 소송이 이루어지기 어렵다.

이 연구에서 제안하는 것의 대부분은 개발도상국에 초점이 맞추어진 결과의 이용에 기반을 두고 있다. 이윤을 극대화하고 기업과 국가 모두에 이익이 되는 저작권 법체계를 만들기 위해서, 시간을 두고 특허법을 도입하거나 도입을 미루는 것은 개발도상국으로 하여금 그들의 지식을 확장시키고 그들의 시장을 보다 용이하게 발달시킬 수 있도록 한다. 그리고 이것을 통해 초국가적 기업들은 이윤을 창출할 수 있다.

두 번째 제안은 제약회사와 소프트웨어 회사로 하여금 그들의 특허를 완성하고 팔 수 있도록 개발도상국에 있는 연구개발(R&D)에 투자하게끔 하는 것이다. 비록 초기에는 이와 같은 투자가 투자금의 막대한 손실을 가져오더라도, 이와 같은 과정에 의해 발생하는 교육과 기술의 개선은 개발도상국으로 하여금 그들의 시장을 발달시킬 수 있도록 해주며, 마침내 몇 년 후에는 토종 기업 뿐 아니라 외국 기업을 만족시킬 수 있도록 한다. 투자의 부족이 현재로서는 단기적으로 성공을 나타내는 반면에 장기적으로는 대부분의 다국적기업의 잠재적인 이익을 착취할 수 있다. 특허법의 개정은 과거에도 그랬던 것처럼 현대 사회에의 적용을 위해서 필요하다. 특허법의

발달은 특허권 법체계를 모두 이롭게 만들어줄 것이며, 국가와 기업 모두가 이익을 얻는(win-win) 논리를 발생시킬 것이다.