

**Damages for Patent Infringement under
Finnish and Chinese Law**

Justus Nieminen
Damages for Patent infringement Under
Finnish and Chinese Law
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Tämän tutkimuksen tarkoituksena on vastata seuraaviin kysymyksiin: Kuinka mitataan parhaiten vahingonkorvauksen määrä patentin loukkaustilanteissa? Voidaanko tätä metodia käyttää Suomessa sekä Kiinassa? Mitkä ovat suomalaisen ja kiinalaisen oikeusjärjestelmän erot ja yhtäläisyydet kyseisellä oikeudenalalla? Miksi suomalainen ja kiinalainen oikeusjärjestelmä ovat samanlaisia tai erilaisia?

Menetelminä käytän lainoppia, oikeusvertailua sekä oikeushistoriallista metodia. Lainopillisella metodilla pyrin tulkitsemaan Suomen ja Kiinan lainsäädäntöä, lainvalmistelumateriaaleja sekä oikeuskäytäntöä. Systematisoin myös alalla vallitsevia kansainvälisiä sopimuksia ja Euroopan Unionin tuottamaa sääntelyä johdonmukaiseksi kokonaisuudeksi. Oikeusvertailulla tutkin maiden yhtäläisyyksiä ja eroja niiden kulttuurillisessa kontekstissaan. Oikeushistoriallisella metodilla luodaan yhteys lainsäädännön kehittymisen ja yhteiskunnan muutosten välillä.

Tuloksena parhaan mittaustavan löytämistä käsittelevään kysymykseen esitän seuraavaa: Eri mittaustapoja tulee punnitta rinnakkain ja arvioida tilannetta kokonaisuutena. Hierarkia eri metodien välillä ei ole toimiva ratkaisu, sillä se on Kiinassa johtanut yksipuoliseen oikeuskäytäntöön, jossa lähes ainoastaan (yli 90% ratkaisuista) on käytetty kiinteän könttäsumman mittaamista suppean asteikon mukaan, mikä on johtanut vahingonkorvausten äärimmäisen alhaiseen tasoon sekä oikeudenmenetyksiin. Suomessa taas kohtuullisen käyttökorvauksen määrittäminen rojalitkorvauksena on osoittautunut vaikeaksi aloilla, joissa lisensointia ei juurikaan tapahdu. Käytäntöä ei kuitenkaan ole riittävästi tämän toteamiseksi.

Yhtäläisyyksiä maiden välillä on yhteinen liityntä TRIPS-sopimukseen, joka epämääräisen muotonsa ansiosta ei ole tuonut harmonisointia vahingonkorvausten mittaamiseen ollenkaan. Toinen yhtäläisyys on vahingonkorvausten rahamäärän keskimääräinen alhaisuus. Eroavaisuuksina Suomen riippuvaisuus Euroopan Unionista ja toisaalta Yhdysvaltojen vahva vaikutus Kiinaan poliittisesti. Kulttuurillisesti Suomessa ei loukata patenteja usein, kun taas Kiinassa patenttien loukkaus on juurtunut osaksi kulttuuria ja uusia keksintöjä halutaan kopioida ja sitä kautta levittää muiden käyttöön.

Harmonisointi on epäonnistunut täysin vahingonkorvausten mittaamisen osalta niin Euroopassa, kuin myös maailmanlaajuisesti. Kulttuurilliset erot ovat niin suuria, ettei Suomella ja Kiinalla tule olemaan harmonisoitua lainsäädäntöä tällä alueella. Kiinan uusi patenttilaki tulee entisestään viemään Kiinaa lähemmäs Yhdysvaltojen rangaistusluonteista vahingonkorvausten mittaustapaa, verrattuna eurooppalaiseen täyden korvauksen ja kohtuullisuuden periaatteen soveltamiseen.

Avainsanat: Patenttioikeus, loukkaus, vahingonkorvaus, Suomen oikeus, Kiinan oikeus

Chapter I

1. Introduction

1.1. Research problem

My main research problem is: How to reward full compensation for injuries caused by patent infringement? On the other hand, can the same method be applicable in both China and Finland? Important questions related to these are: What are the key differences in Finnish and Chinese legal systems and why are they so different?

Reasons why damages are interesting and important subject for my thesis are mainly the fact, that damages are money and money is the most important thing to businesses who defend their patented inventions by litigating. Patenting needs to be profitable to be a part of successful business. If there would not be a way to enforce and prevent others from infringing one's patent by damages, there probably would not be any patents. Some say, that rewarded damages are too low for enforcing and litigating to be profitable in countries, where punitive damages are not adopted. Some would say that damages are too high in United States because of these punitive damages, but some kind of mixture or a happy medium of systems, where punitive damages are, and are not, adopted would benefit patent holders greatly in both Finland and China.

Why China? China has one of the biggest populations in the world and with it, one of the biggest economies. China has surpassed the United States in the amount of patents and other intellectual property rights and their goal is to be world leaders in protection of intellectual property rights. There is a stark contrast between this goal and reality, which makes it hard to predict and interesting at the same time. China is evolving rapidly and constantly reforming their laws and judicial authorities. They also have unlimited funding for initiatives that the government deems important. Finland is the polar-opposite as the patent law has been the same since the beginning. Any amendments need to be accepted by the parliament, the European Union and several other organizations such as universities, industrial companies and the government. If the president of China decides to reform patent law, it will be done quickly without opposition from within the country. United States however has been very eager to criticize China's laws, enforcement and policies related to intellectual property rights. This dynamic between USA, China and EU will be discussed more thoroughly throughout this thesis.

Major difficulties in determining answers for these questions is the nature of patent right. Monetary value of a patent is not easily defined. There are valuable patents with major business potential and impact to patent owners' business, but there are also patents that provide very little value. Value depends heavily on the other players within the market¹, where the patent holder operates and not solely on the sales value of the device or method that is patented. Some patents are even granted invalid due to lack of time and resources for the patent office to examine prior arts thoroughly in the application stage². Some companies do not even do business with their patented products. These non-practicing entities use their patents to sue infringers and license their patents to other companies. Some call these companies by the name patent troll. Such business model is not popular in China, because of the small amount of damages rewarded, but it could gain popularity, if punitive damages are possibly adopted.

Different cultural backgrounds and power positions in the world of intellectual property increase the challenge level as well. Both countries are established technological innovators, but the political and economic differences are vast. China has a strong political leadership with only one party having limitless power and financial resources, while Finland is more based on democracy and free market economy. This enables China to make big changes fast, due to lack of political disagreements, while Finland has burdens of multiple different parties and opinions. The differences make it both interesting and difficult at the same time. It is hard for a Finnish person to understand Chinese way of living, politics and judicial system. Even more so in a complex world of patents.

Litigation and culture for infringements is also very different in Finland and China. Finland has only a handful of infringement cases where damages have been awarded, while China has thousands of cases annually. This makes it very hard to even make an assumption on what the general level of awarded damages is in Finland. All that is certain is that there are very few multi million damages awards in China and none in Finland. Because of the sheer difference in the sizes of the large industrial companies in these countries. There should be a lot more cases in China with bigger rewards. Considering the popularity of infringing activities in all brands of intellectual property rights, the differences should be huge. I am going to find out why this is not the case. Empirical evidence and case studies will help to answer these questions.

¹ Kasravi, K. and Risov, M. 2007. Patent Mining - Discovery of Business Value from Patent Repositories. Proceedings of the 40th Hawaii International Conference on System Sciences. [Online]. [Accessed 10.2.2018]. Available from: <https://pdfs.semanticscholar.org/>

² Frakes, M. and Wasserman, M. 2017. Is the Time Allocated to Review Patent Applications Inducing Examiners to Grant Invalid Patents?: Evidence from Micro-Level Application Data. MIT Press. [Online]. [Accessed 10.2.2018]. Available from: <https://scholarship.law.duke.edu/>

1.2. Scope

In China there are several types of intellectual property rights that are named as patents. This thesis only addresses innovation patents and excludes design patents and utility patents. I will be studying all the damages related to patent/innovation patent infringement. These include reasonable compensation for the exploitation of the invention and damages for other injury caused by infringement. Third group are punitive damages. They are currently not part of either Finnish, or Chinese patent laws, but I will still examine them as a possible solution to my research problem.

There are currently two types of litigation procedures in China, administrative and civil procedure. Administrative litigation means patent prosecution and post grant challenges to towards the validity of the patent. This includes application process, oppositions during the application phase and revocation trials. First instance in Finland for these cases is the Patent and Register Office (PRH) and in China, it is State Intellectual Property Office (SIPO). Civil procedure is the one that handles patent infringements. Usually the alleged infringer challenges the validity of the patent and also seeks a declaration of non-infringement. In these cases, the revocation trial is concluded first, because you can not infringe an invalid patent. Only civil procedure has damages being awarded to patent holder in cases of infringement. Because of this, I will exclude administrative procedure entirely from my scope of study.

Fines and all other penalties or fees paid to public authorities will be excluded. These are usually only rewarded in a criminal trial. Usually patent infringement is not seen as a crime against the state. Application process itself has lots of different fees that should be considered when assessing the losses to patent holder, so they are included as a factor to the actual damages construction. Revocation, annulment and opposition cases will not be a part of this thesis, even though damages can be rewarded in those proceedings.

Compulsory licenses are granted in some countries for the non-use of a patent. This means that your competitors get a license to your patent, even if you do not want to license it. These kinds of licenses are excluded, but reasonable compensations are calculated the same way as license fees in Finland³, therefor licenses will be addressed as a method of calculation. Regular continuous licenses can also be granted to the infringer -as a result of- an infringement trial. These are part of the scope of this thesis.

³ Patent Act of Finland. 1967. (C.9). Helsinki. Ministry of Economic Affairs and Employment.

I will include other remedies in connection to damages, if they affect the amount rewarded. Mainly injunctions or preliminary injunctions and evidence discovery. Injunctions may cost a lot to the alleged infringer. It is entirely possible that no infringement is found, but your business is shut down due to injunction. It is also possible that confiscated production equipment was used to produce or manufacture some other products as well. In those cases, losses to the infringer should be considered in the damages calculations.

Costs for the court proceedings will be included, because these costs would not occur without an infringement. In Finland these costs are awarded separately from the actual damages. In China, there has only recently been a case, where attorney's fees were calculated by the hour. This case will be analyzed more thoroughly later on. More common way is just to assess a lump sum that feels like a sufficient cost for a trial. Hourly calculation for me, seems like the better option. It is easier to prove and easier to determine overall.

Since Finland's enforcement system has not really been tested in patent matters, I will explore European Community law in this context as well. It is extremely fragmented and harmonization efforts have failed time and time again. In order to compare such a huge jurisdiction of China to something even remotely in the same dimensions, Europe is the best alternative.

1.3. Research methods

I will use dogmatic, historical and comparative methods for this thesis to make sure that the subject will be thoroughly studied. Legalistic research will be the main-focus, but I need comparative studies to truly understand the Chinese legal system and the underlying principles and practices.

Dogmatic method consist of interpretation of legal norms⁴. Main goal is to understand the current state of law in Finland and China. My dogmatic methods will include case analysis on two of the most prominent cases in Finland and China, law review and interpretation of national and international norms, and examination of their application in practice. Also, the future Fourth Amendment to Patent Law in China will be reviewed. Relevant international treaties will be examined and interpreted, when they are applicable. Most notable are the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement and the Unified Patent Court (UPC) agreement. In later chapters, I will study some of the main principles related to culpability, deterrence and compensation. Goal for using this method is to establish the current state of the legal

⁴Hirvonen, A. 2011. Mitkä metodit? Opas oikeustieteen metodologiaan. Yleisen oikeustieteen julkaisuja. 17. pp. 36-52.

environment in these two countries and in Europe. Second objective is to interpret the rules that construct such environment.⁵

Legal history is a research method focusing on the past, and the effects of said past to the current norms and legal environment. Legal history is tightly woven into comparative method and is essential in order to understand the vast differences of western and eastern culture, particularly European and Chinese legal culture. Legal norms are seen in connection to the society, where they are applied. Goal is to establish how legal culture and thinking has evolved in the last centuries and how it has affected their current legal systems, culture and societies⁶ surrounding patent law and damages.

Comparative method is described in legal literature as methodically and theoretically pluralistic.⁷ This means, that there are different opinions about the contents of this discipline. This is only natural, since the goal is to usually compare two legal systems that are very different from each other. Such is the case in this thesis as well. My particular goal for the comparison is to seek the efficient and useful provisions and to critique the ones that need improvement. In order to do so, I have to examine these legal systems side by side, in their respective contexts where they are implemented. Due to Finland being a relatively small country in the world of patent infringements, a European aspect must be included in order to fully compare the legal system to such a vast country as China. Problem is, that European Patent Law in regard to damages is not a harmonized unit at all. This creates a difficult, but interesting environment for my research. Finnish Patent Law research relating to damages has relied heavily on comparative method in the past due to lack of case law.⁸ European Community has no case law either, since the Community Law has no provisions relating to measuring or calculating damages.

In Chapter I, I will introduce readers into my research questions, basics of patent law and the earlier developments of the two countries. Chapter II is about the regulations and treaties that govern these two countries and sometimes even unites them. Chapter III brings forth the theoretic aspects and I will study the underlining principles behind the patent system. In Chapter IV I will break down the different factors that contribute to damages in patent infringement cases. Two example cases will also be reviewed to see examples of the calculations that courts do to determine correct damages. In Chapter V I will do some *de lege ferenda* type of research and present solutions to the various

⁵Husa, J., Mutanen, A. and Pohjalainen, T. 2008. Kirjoitetaan JURIDIKKAA. Second edition. Helsinki. Talentum.

⁶See footnote 5.

⁷Husa, J. 2013. Oikeusvertailu. Helsinki. Lakimiesliiton kustannus.

⁸Castren, M. 1978. Vahingonkorvaus immateriaalioikeudessa. Helsinki. Suomalainen lakimiesyhdistys. Has a comparison to German and Swiss Patent Laws.

problems connected to my research questions. Finally, in Chapter VI I will wrap things up and present my conclusions based on this research.

1.3.1. Research materials

I will be using government bills, legislation, treaties, statistics, law-reviews, articles, books of established scholars, scientific research, commercial databases and case law. I will also interview Chinese patent attorneys and lecturers. Challenges are to be expected since the language of literature in China is almost always Chinese. Also, the freedom of scholars to properly criticize Chinese legislation and government's organs and policies is highly questionable. American scholars do most of the writing in the field of patent law and they also tend to have prejudice against China due to their communist regime and never-ending trade wars between United States and China. Damages has not been the most popular subject of legal literature in the past, but since foreign companies are arriving to Chinese markets in vast numbers, they are accustomed to entirely different amounts of damages and therefore stronger protection of their patents. Chinese government has taken actions to improve the situation, which makes it a fruitful ground for my research.

In Finland, there is even less research on the subject due to the lack of case law from the higher instance court, the Supreme Court. Legislative material regarding the subject of damages provides very little background information for the vague provisions in the Finnish Patent Law. Research relies heavily on comparisons to other Nordic and European countries. Europe in its entirety is very fragmented regarding methods to measure damages. Despite some harmonization efforts relating to intellectual property rights, rules for damages for patent infringement remain significantly different in every country.⁹ There is still enough relevant research material to conclude this thesis.

1.4. Definitions

In this section, I will briefly define the most important concepts for this thesis. Patent terminology can be difficult to understand, even for professionals, so I will explain these terms in a simple and easy to understand manner. Intellectual Property Law is a very distinctive field, with little similarities to other fields. Patent Law in particular is a field mostly populated by engineers instead

⁹Provisions are not only different, but the study implies that they are ineffective as well. See more from: Brohm, R. Dixon, A. Galli, C. Hoffman, E. Oliver, J. Peets, L. Shapiro, T. Lund, C. Rossoglou, K. Söderlund, A. Vrins, O. 2010. Damages in Intellectual Property Rights. European Observatory on Counterfeiting and Piracy. [Online]. [Accessed 14 November 2018]. Available from: euipo.europa.eu/

of lawyers due to the heavy emphasis on technology. Damages are one of the only aspects of Patent Law for lawyers to study efficiently and thoroughly.

1.4.1. Patent right

Patent right is an exclusive right to prohibit others from marketing, manufacturing, selling or professionally using the patented invention. There is a common misconception that patent right is an exclusive right to exploit the invention. This is not possible in situations, where someone else has patented some part of the product that you are trying to exploit. There can be several patents in a single product and they all may or may not have different owners. Mobile phones are notorious for having over 1000 patents in one small mobile phone. If you do not get a license for all of these patents, you cannot manufacture, market or sell your phones, even if you have a patent or two of your own in the product. This has led to numerous high profile trials in the industry. The name: Smartphone patent wars has been used to describe the situation.¹⁰

Important distinction should be made between intellectual property right and material property right. A patent is not a product that the inventor can own and hold in their possession physically. It is only the right to say no to others, who want to utilize the patented invention. It is the right to give or not to give permissions to others. There are also similarities between intellectual and other property rights. Both can be sold, rented or given to others by free or by a license agreement.

To acquire this right, invention must be novel, inventive and industrially applicable. Patent must be applied through expensive examination process in the local or regional patent authority. In Finland, this authority is the Patent and Register Administration PRH. In China, this authority is the State Intellectual Property Office SIPO. Most notable regional authorities are European Patent Office EPO and World Intellectual Property Organization WIPO. You can also file a patent in any other country outside your place of residence. Even global patenting is possible through WIPO, which does not grant any patents, but serves as a preliminary recommendation only. By recommendation I mean a recommendation on patentability. This recommendation is called the International Preliminary Report on Patentability (IPRP). It can be either completely positive, completely negative or partially negative for certain claims only. National offices can use this recommendation as a starting point for their own examinations. Patent Convention Treaty PCT governs WIPO's process. Duration of patent right is 20 years from the priority application's filing date in both

¹⁰For a list of the biggest cases, see Wikipedia. Wikipedia. 2016. [Online]. [Accessed 28 October 2018]. Available from: https://en.wikipedia.org/wiki/Smartphone_patent_wars

Finland and in China. There are some exceptions to the 20 years in different countries and you can get added duration for medicine patents in certain countries.

A patent can freely be copied and infringed in all of the countries, where the patent application has not been filed. The protection is valid only if applied by an application. You cannot file applications later on to cover important countries, since the first applications form prior art and therefore are already known later on. You have a one year window called Priority year, when you have to file all necessary applications in important regions and countries. It is also possible to file a new and improved priority application within this first year. All of the applications claim filing dates from the priority application.

In order to prosecute a patent application in local authorities abroad, applicant needs to use local patent attorneys. This can be very costly, but it is required by law in most countries. Regional offices grant titles for local attorneys as well. A Finnish patent attorney can become a European patent attorney by passing an exam at the EPO.

Requirements are, however, not relevant regarding the scope of this thesis. Costs of the application process can be seen as a factor when assessing the value of patents and efforts to acquire the right. In my opinion, the more applicant spends money involuntarily, the more damages should be rewarded to them, from entities who did not pay anything for their utilization of the same invention. What matters is the substance of patent right and how it could be infringed. Most importantly, how much is the value of this right, how much damage is caused when it is infringed and what is the value of this damage.

1.4.2. Infringement of patent right

According to Chinese patent law, exploitation of a patent without permission of the patent holder, is considered as infringement of patent right.¹¹ In Finnish Patents Act, infringement is described as:

“(1) making, offering, putting on the market or using a product protected by the patent, or importing or possessing such product for these purposes; (2) using a process protected by the patent or offering such process for use in this country if he knows or if it is evident from the circumstances that the use of the process is prohibited without the consent of the proprietor of the patent; (3) offering, putting on the market or using a product obtained by a process protected by the patent or importing or possessing such product for these purposes.”

¹¹ Patent Law of the People's Republic of China 2008. (c.5). Beijing. SIPO.

I will examine different factors for determining infringement further on in this thesis. Indirect infringement is a situation where the infringer sells patented technology to a third party. The third party is indirectly infringing, whether they knew about the patent or not. These situations will be excluded to keep this thesis compact. Indirect infringement does not occur in the situation, where a customer of the patent holder purchases and uses a patented product. Patent right is simply exhausted between the buyer and seller. Buyer still can not sell this product further to third parties, if contracts prohibiting this were made before the transaction. Indemnity is a clause in an agreement, freeing the other party from harm in cases, where received products infringe a patent. This removes the possibility of indirect infringement for the buyer. These are very popular in agreements related to patents.

There are various levels of culpability for infringements. Accidental infringement without any negligence, minor negligence, negligence, gross negligence and intentional infringement. These levels are very hard to define and vary heavily case by case. The more people and factors are involved, the harder this determination could be. In some countries like Finland, intentional infringement is also a crime. In China however, only intentional forging of a patent is a crime. Forging is a way of infringing, but not the only one. Penalties and damages are dependable on these levels naturally. In Finland, this is clearly stated in the law, but in China, it is not mentioned at all. This is one of the biggest differences between these countries.

1.4.3. Damages for patent infringement

Damages are a way to compensate injuries in cases of patent infringement. They are also a way to enforce one's patent right. Fear of damages is supposed to prevent infringements from happening. This is called the deterrent effect of damages. In both countries, damages shall cover all patent holder's actual losses.¹² These include benefits gained by the infringer, reasonable compensation for exploitation, costs of the litigation and other losses caused by the infringement.

Sometimes, damages are seen as a form of punishment for the infringer, because of the breach of exclusivity alone. The whole point in owning a patent is the freedom to operate, which means the freedom to license or not to license the patent right to others. This freedom is no longer patent holder's after an infringement has occurred. There is no exclusivity anymore after the technology has been offered by some other entity or person into the market. So, damages can also be rewarded by principle, without measurable losses. This approach however is very problematic. In Criminal

¹² For China: Patent Law of the People's Republic of China 2008. (c.5). Beijing. SIPO. For Finland: Government Bill 2006. (c.13). Helsinki. Ministry of Economic Affairs and Employment.

Law, the concept of presumed danger without injuries is similar, but it is based on a physical danger, which patent infringement is not afflicting.

If the amount of damages seems too difficult to prove, there is a different alternative in both countries. In Finland, reasonable royalty fee is the minimum amount of damages. It can be very difficult to calculate, if the patent in question has never been licensed before. Since it is the minimum requirement, reasonable royalty must be calculated first in all cases and then add other damages, if they are sufficiently proven. In my opinion, it is too risky to base the entire system on the assumption, that reasonable royalty can be calculated in reliable way in every case.

In China, there is a fixed minimum damage fee between 1275€ and 127501€. This will not even cover the application and annuity payment costs for a single country patent necessarily.¹³ This statutory amount should be used as the last resort according to Chinese law, but in reality, it is used in almost all cases. This gives a good picture on the uniformity of world's patent laws regarding damages for infringement. There is absolutely none of it. Even inside Europe, you cannot find even two similar countries. Harmonization has simply never happened. This has mostly been reasoned with the cultural differences, but that has never been a problem in the European Union before.

Achieving the legislators' goal of covering all patent holder's losses is also my goal with this thesis and I believe that this is not the case, when current legal systems and case law will be examined further. I also recognize even at this point, that this may be impossible to achieve, but it is worth researching either way. Different principles will be studied as well. Especially United States has a system, where patent infringement is deemed as so serious, that the infringer has to be punished heavily over the threshold of gained benefits or afflicted losses. At the same time, their system rewards patent holders greatly for suing their infringers.

1.5. Background

1.5.1. Similar developments in both countries

Fundamental concept of a patent has been the same throughout history of both countries. Patent has always been an invention with novelty, inventive step and industrial applicability. Inventive step means that an invention is something different from the state of the art. State of the art is something obvious to a professional in the industry of the invention. This professional is referred to in patent

¹³ See Lemley M. 2001. Rational Ignorance at the Patent Office. *Northwestern University Law Review*. [Online]. 95(4), p.4. [Assessed 13.2.2018]. Available from: <https://poseidon01.ssrn.com/> Lemley estimates application costs alone to be 10000\$-30000\$ for a US patent.

law as a “person skilled in the art”. The level of skill this imaginative person may possess, is different in every country and jurisdiction. China is especially known for having high level of skill for this person skilled in the art. What this means in practice is, that inventive step is absurdly high, since even the most imaginative methods are known or presumed to be the obvious choice for professionals in the industry. Concrete example would be a cleaning professional who supposedly uses a wooden vacuum cleaner. In patent examiner’s mind and hopefully backed by evidence, a wooden vacuum cleaner may be seen as the obvious choice.

Invention also needs to solve a technical problem. In other words, it has to be useful and valuable enough to distinguish itself as an invention worth patenting. That being said, even something as simple as new material for a device can be patentable. This indicates, that the inventive step can be achieved without changes to the function of the device. For layman, this does not sound inventive at all, but in reality, new material can reduce the production costs, time, wear and tear of equipment and other significant improvements to certain product. It is also possible to patent a new end use for existing device or combination of different already known inventions. This is something, that is difficult for layman to understand as well. These basic concepts of patent law have still been there, since the beginning of patenting.

Reason for patents to exist has been faster technology development through inventions. Similar starting points led to very different developments until recent globalization and massive economic growth in China, that has led to numerous reforms and more similar patenting environment to Europe and Finland. Both countries are currently part of the World Intellectual Property Organization (WIPO) and Paris Convention for the Protection of Industrial Property (Paris Convention). Most important treaty from the damages perspective is the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). Article 45 of TRIPS¹⁴ includes authorization for judicial authorities to order damages, but it does not obligate them to do so. Still, TRIPS have had a major role in harmonization of the world’s patent laws in areas outside damages. Effects on damages calculation still remain minimal at best. Before joining WTO in 2001, China amended their Patent Law, particularly damages, to be more favorable towards patent holders. This was the first time China introduced a way to calculate damages for patent infringement.¹⁵ So similar developments actually stopped sometime between 1969 when Finland established calculation

¹⁴ World Trade Organization website. Amended TRIPS agreement. Part III – Enforcement of Intellectual Property Rights [Online]. [Accessed 19.2.2018]. Available from: <https://www.wto.org/>

¹⁵ See Patent Law of the People's Republic of China 1992. (c.7). Beijing. Communication from the Chinese authorities. VS. Patent Law of the People's Republic of China 2000. (c.7). Beijing. Presidential Order No. 11 of People's Republic of China. Earlier did not have a way to calculate damages for infringement.

methods for damages and 2001, when China did it. Questions arise, how were the damages calculated before any regulations? Did regulating affect the practices in force at the time?

1.5.2. Different paths

Finland became independent in 1917 but the concept of patent right was introduced much earlier in the shape of royal privileges granted to inventors and importers of inventions in 1668. First patents in Finland were granted as invention-privileges in 1830s. First regulation and Patent Act were made in 1876¹⁶. Patent right was first a reward to inventor, but the right itself transferred to the crown. This is quite similar concept to Chinese way of sharing the knowledge of inventions to the greater good of the state. Individuals were recognized, but they were never bigger than the crown.

Later on in 1898 a statute including a provision on damages and negligence was formed.¹⁷ It states that if the infringer knew or should have known about the patent right of another, a full responsibility to compensate all injuries would take place. This was the first time negligent infringers were also within the scope of damages. Before this, only intentional infringements constituted this responsibility and liability.

China was an independent country long before Finland. They had a strong cultural identity and society, where common good, state's advancement and harmony were placed above all else¹⁸. Despite their strong roots, China had plenty of civil wars and conflicts with western nations throughout its history. Perhaps the most famous for its cruelty was the Boxer rebellion in 1900, where Christians and other Western looking people were killed on sight in vast numbers.¹⁹ First exclusive right was granted by the Emperor Guangxu in 1882 to an innovative technology of mechanical weaving.²⁰ So in both countries, ruler granted patent rights to inventions at roughly the same time. Exclusivity of patent right of the inventor was not in the interests of the state, so it occurred much later on.

Ideological differences behind these developments were different. In China, intellectual property was meant to be shared with all the citizens. It was an honor to invent new technologies, but the benefits were shared to improve the state. In Finland, nobles and merchants were granted privileges to boost technology development, economy, trade and competition. These were more liberal ideas,

¹⁶ Oesch, R., Pihlajamaa, H. 2008. 2nd edition. Patenttioikeus. Helsinki. Talentum.

¹⁷ Castren, M. 1978. Vahingonkorvaus immateriaalioikeudessa. pp.22. Helsinki. Suomalainen lakimiesyhdistys.

¹⁸ Yonehara, B. 2002. Enter the Dragon: China's WTO Accession Film Piracy and Prospects for the Enforcement of Copyright Laws. 9 UCLA Ent. Law Review.

¹⁹ Zhao, Y. 2018. China's Intellectual Property System in the Process of Catch-up. Helsinki. University of Helsinki.

²⁰ Chengsi, Z. 2007. On Intellectual Property. Social Science Academic Press. Beijing.

compared to China's more communistic approach. To conclude the early stages of patenting in these two areas, inventions were highly valued by the state, but the rights of the state far outweighed the rights of the inventors. Everything was under strict control of the state. Global, free and independent market economy boosted by patents was still far away in the future.

To examine the modern-day environment in Finland and China, the Global Innovation Index 2018²¹ is a great report to study. Despite their similar rankings in the overall report (Finland 7th and China 17th), there are vast differences especially in the regulatory environment. Finland is in 6th place, while China is in 100th place. Regulatory quality has Finland in 8th place and China in 87th place. Rule of law Finland 3rd place and China 75th place. One way to explain this is the diversity of China. There are many more jurisdictions with varied levels of training, education and regulatory needs. It is never an easy task to regulate a state with a population exceeding one billion. It could as well be a matter of allocating resources. China has the funds available for initiatives they see as important. China also has world-leading experts in various fields, so the lack of talents is not the case. Acquiring the best talents in legal field to legislate is a problem, that most countries face. Private practice is often seen as more prestigious, lucrative and interesting. This is demonstrated well in the Index: knowledge workers ranking is 1 for China in the world. Basic definition of knowledge worker is someone, who has expert knowledge of a certain field.

Finland has an environment of very strict regulations on most fields, but the part where damages for patent infringement is regulated is quite vague and mirrors the EU law's definitions. Some other member states of the EU, have taken a very different approach. The amount of infringements of patents is so low, that it is clearly not seen as a problem and therefore that part of patent law has remained the same, since its establishment long ago. In conclusion, Finland can be seen as a safe haven to patent owners, while China is much more dangerous and unpredictable. This is quite natural considering the amount of potential competitors in Finnish markets compared to Chinese markets. There may be hundreds of competitors in China, while only two or three in Finland and the products sold are the same.

1.5.3. Idea of infringement

In the beginning, infringement in China was a method for sharing the innovative technologies inside the state's borders. For inventors, it was a prestigious honor to be copied widely. The Confucian

²¹ Global Innovation Index. 2018. Global Innovation Index 2018 Energizing the World with Innovation. [Online] 11th Edition. Global Innovation Index, Cornell, INSEAD, WIPO. [Assessed 11 August 2018]. Available from: <https://www.globalinnovationindex.org/>

principles governed Chinese life from 100 B.C. until 1911²². These principles set the benefit of community over the benefits of individual inventors and companies. Knowledge was shared for the good of the community. Exclusivity was the enemy of the state figuratively speaking. Later on, infringement was used to also copy technologies from foreign companies. It was indirectly a part of a larger plan by the government to boost Chinese technology development. Part of this strategy was to form State Owned Enterprises (SOE), with substantial funding, to acquire foreign companies with innovative technologies. Another tactic was to add compulsory license to foreign companies, who wanted to patent in China. This gives firm basis on the assumption, that the Chinese government was not against patent infringement. A reasonable assumption is also, that China has been pressured to be against it by foreign powers. Despite all of this, their system in regards to damages is very unique still.

Finland did not have the same national identity, because they were under Swedish and Russian rulers before their independence. European influence and industrial revolution forged the basis of Finnish patent system. There is not a lot of literature about infringement acts in Finnish history, so I am going to have to assume that it was not a major issue, or at least not a tool for national strategy to boost technology development like China. If we think about reasons why one would want to infringe a patent, cost savings come to mind first. By infringing, the infringer gets the same competitive advantage without the costs of application process, annuity payments and research and development.

Another reason for infringement could be simply unawareness of a patent. The further back in history we go, the harder it was to get information and conduct any kind of competitor follow-up. The question of negligence and willfulness was much harder to determine. These reasons naturally can be applied to cases in both Finland and China. Despite the lack of modern competitor surveillance tools, there were numerous inventions, that were so famous, that most people would know about them. Significant inventions had major disruptive effects to entire economies, since the industrial revolution made some of the professions at the time redundant. Even working-class citizens would learn about steam engines and electricity. Inventors like Leonardo Da Vinci, Thomas Edison and many others were lauded as geniuses and sometimes even enemies of the state because of their disruptive thinking and new ideas.

²² Cheng, J. 1997. China's Copyright System: Rising to the Spirit of Trips Requires an Internal Focus and WTO Membership. *Fordham International Law Journal*. **21** (5). pp.1979-1980. [Assessed 24 July 2018]. Available from: <https://ir.lawnet.fordham.edu/>

Globalization and free market economy is something that China and Finland have approached very differently. State run censorship of western companies like Google in China and fierce competition between Alibaba and Amazon are just few examples of the current environment. Finland has embraced the regulations of the European Union and the principles of free market with open arms. Industrial corporations have established a firm foothold in Asia, South America and Africa.

Chapter II

2. Legal base of damages for patent infringement

2.1. Agreement on Trade-Related Aspects of Intellectual Property Rights

China's admission in the World Trade Organization in 2001 can be said to have kick-started the process of improving intellectual property protection in China. Main concern for other members was the rampant counterfeiting culture of China. Trademarks, patents and copyrights were all copied inside the domestic markets with almost impunity. United States has been monitoring and pressuring Chinese legislators and the government constantly during their membership.

TRIPS agreement is the only international treaty with provisions on damages for infringement. Both Finland and China are members of the WTO and with it, this treaty. First section of Article 45 covers damages for negligent and willful infringement and section 2. covers damages for infringement without negligence.²³ These provisions only provide the minimum level for member's legislation. These requirements are very simple and easy to comply with. Still, it was a major step for China in 2001, since their patent law offered very little in terms of actual protection. Somehow compliance with very basic means of compensation were a big change. Since members need to be compliant with TRIPS, the national patent laws of Finland and China naturally fulfill the requirements.

Adequate compensation for caused injuries is the basic principle in TRIPS as well. This does not mean, that members could not set higher damages for willful infringements. Legal basis for bigger damages already exists in China, inside their tort law²⁴. Finland remains dependent on European

²³ Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994. [Online]. [Accessed 6 April 2018]. Available from: <http://www.wto.org/>

²⁴ Tort Law of the People's Republic of China 2010. (c5). Beijing. Standing Committee of the Eleventh National People's Congress.

Union's laws, which have traditionally been against penalizing damages. Punitive damages will be examined more thoroughly later on in this thesis.

TRIPS also regulates discovery of evidence, which is important in order to calculate damages accurately. Solid evidence and means to discover it are crucial in China especially, since the entire calculation process is based on the quality of provided evidence. Judicial authorities in each member state should have fast and effective measures to preserve and discover essential evidence at their disposal. In the first paragraph of Article 43 of TRIPS it is stated, that:

1. The judicial authorities shall have the authority, where a party has presented reasonably available evidence sufficient to support its claims and has specified evidence relevant to substantiation of its claims which lies in the control of the opposing party, to order that this evidence be produced by the opposing party, subject in appropriate cases to conditions which ensure the protection of confidential information.

If the plaintiff needs to have presented the evidence and specified it, why do they need the opposing party to produce it? It is impossible to present evidence one does not have, or should not even know about. This would be the literal interpretation of this paragraph. The concept of confidential information is not defined either. The opposing party would most of the time claim, that all reasonably available evidence is confidential information. If we take a bit more conceptual approach to interpretation, we may come to a conclusion, that it is sufficient for the plaintiff to make a list of possible data, that may be reasonably available and that is not confidential. They would have to also know, that this kind of data is in the possession of the opposing party. There is no possible way of knowing any of this without the opposing party telling them. By telling the plaintiff these things, the alleged infringer would incriminate themselves. In theory, this paragraph gives tools to acquire evidence, but in practice, it does not. By itself, it is a vague framework for discovery of evidence and easy to work around by infringers. In order to fully assess it, we need to look at the second chapter:

2. In cases in which a party to a proceeding voluntarily and without good reason refuses access to, or otherwise does not provide necessary information within a reasonable period, or significantly impedes a procedure relating to an enforcement action, a Member may accord judicial authorities the authority to make preliminary and final determinations, affirmative or negative, on the basis of the information presented to them, including the complaint or the allegation presented by the party adversely affected by the denial of access

to information, subject to providing the parties an opportunity to be heard on the allegations or evidence.

This paragraph grants the opportunity to the judicial authorities to decide the case negatively for the party that refuses to provide information. In other words, it gives judges the freedom to assess the case with a limited burden of proof to the plaintiff. This provision gives needed flexibility to damages assessments as well, if adopted. It is a very risky road to take however. Sometimes the plaintiff may be demanding confidential information or information, that is simply unavailable or even non-existent. There would need to be proof somewhere, that this evidence exists, which would mean inspections or other more drastic measures to get the information. These same measures could be directed to acquiring the actual evidence in stead.

The European Court of Justice (ECJ) has stated before in their case 12/86 Meryen Demirel v. Stadt Schwabisch Gmund, that an international treaty has direct effect in European Community, if the provision includes a clear obligation, and is not subject to any other subsequent measures. Now, if we assess the actual provisions for damages, we can see, that there are no clear obligations to be seen, if we use the literal way of interpretation. Firstly, the wording: “The judicial authorities shall have the authority to order the infringer to pay” does not constitute any kind of obligation to the courts. They simply have the authority to order. This is further implied in the second paragraph, where the wording is: “Members may authorize the judicial authorities to order”. Having authority to do something is not exactly an obligation to do anything. When it comes to the subsequent measures, courts have to take several steps before they can determine the amount of damages or even reasons to award them. This can be interpreted as a need for subsequent measures. Simply having authority is not a measure at all. It is simply acknowledgment of power and jurisdiction. So, even though the TRIPS agreement is an important instrument in the world of intellectual property law and even patent law, it has little to no relevance in calculating damages or rewarding them.

National courts cannot seek interpretation guidelines for damages or have any support from the TRIPS provisions directly. It is also very hard to find a way to breach these provisions, since there are no obligations. Member would need to remove damages entirely from their patent litigation system in order to breach TRIPS. Another option would be to remove judicial authorities from the field of patent infringements entirely. Then there would be no authorities to give authority to. If we would change the provision into a form of obligation, there is an obligation to have some form of judicial authorities. Only after you establish judicial authorities, there can be authority given to

them. Forming judicial authorities is a national issue and not exactly relevant for damages, so TRIPS has no power to affect it.

Overall, as a means of harmonizing the world's patent laws, TRIPS has failed, as have many other international treaties. It does provide a framework and the minimum standard, but nothing substantial or new in the field of patent infringements and especially damages. As long as members have a very basic patent enforcement regime, they are not breaching the TRIPS agreement.

2.2. Directive on the Enforcement of Intellectual Property Rights

This EU directive is below TRIPS or any other international obligations in hierarchy.²⁵ It adds a new component to damages, that is excluded from Finnish and Chinese laws. Elements other than economic factors such as moral prejudice are considered, when the infringement is negligent or willful. There is also a comprehensive assessment of all factors, which is a welcome addition. Article 13 paragraph 1 a) states that:

“They shall take into account all appropriate aspects, such as the negative economic consequences, including lost profits, which the injured party has suffered, any unfair profits made by the infringer and, in appropriate cases, elements other than economic factors, such as the moral prejudice caused to the rightholder by the infringement”.

This is something, that China nor Finland has never adopted. Flexible, thorough and comprehensive assessment of all the factors involved. There is no hierarchy of reasonable royalty or losses to patent holder first. Everything is assessed together to see the bigger picture. This is naturally something that courts should always do, but somehow damages especially for patent cases have been so difficult, that legislation has been vague and difficult to harmonize. There is no mention of comprehensive assessments in the laws and courts limit their reasoning for damages in their verdicts.

This moral prejudice is not defined in any way, so it could be tarnished reputation or lost business opportunity or any other possible reason. This provision adds needed flexibility and could be seen as a step in the right direction. I believe, that more different viewpoints in the assessment of damages is better than the somewhat narrow way of China. Having criteria that excludes all other methods is too limiting. By this, I mean the hierarchy in Chinese patent law, where losses for patent holder outweighs profits gained by the infringer, which further outweighs license-based damages.

²⁵ Council Directive 2004/48/EC of 29 April 2004 on the enforcement of intellectual property rights. [Online]. [Accessed 13 April 2018]. Available from: <http://eur-lex.europa.eu/>

Reasoning for having the method China has could be simplicity. Patent infringement cases can be very complex and the calculation method, where only one method is applicable at a time, makes it easier for judges. Making things easier works for some things but judging a case at a court where millions are at stake usually results to loss of money and rights. This is further demonstrated later on, where I will show some statistics about the usage of different methods by Chinese courts. Over 90 percent of the cases were solved by stating a statutory sum of damages. This is the easiest way to calculate damages and nearly always leads to patent holders receiving much less compensation than claimed.

Finnish courts also use a similar method of stating a lump sum of damages. Major difference is, that there is no limit to the maximum or minimum amounts available. The assessment inside this method is also not limited to certain aspects or criteria like in China.

This directive also regulates discovery of evidence. Discovery should be made available, if the infringement case has been filed and the infringement has been acknowledged in a commercial way. Before this assumption can be made, interests need to be assessed. Discovery should not result to unreasonable harm. Included in this discovery are the names and addresses of producers, manufacturers, distributors, suppliers, holders and retailers of the infringing products. Also included are the prices and quantities of such products. Manufacturing method, which is one of the most important things to discover, is not mentioned at all. Neither are the customers or license agreements made with them. Basically the discovery gives opportunities to the plaintiff to find evidence by determining the players on the field, but does not discover it nor preserve it for them. Just having the names of the companies involved is not enough to prove anything. Pricing of the products is helpful information for the calculation of damages but it does not prove it happened. Considering the nature of European Union law as the bare minimum requirement for member states, this can be seen as acceptable.

2.3. Agreement on a Unified Patent Court

The Unified Patent Court is a new institution, that is not operational yet and therefore has no jurisdiction. Several member states of the European Union, Finland included, have ratified it none the less. The basic idea is to have first instance courts in the member states, with judges from other member states to solve disputes related to a new European patent called the European Patent with a Unitary Effect as well as the current European patent. The new court system would bring case law

from a central European court to harmonize the field of Patent Law in Europe.²⁶ This will not be the case at all though, since the applicable laws will be the national respective laws of the member states. The fragmentation will definitely stay the same, even after this new addition.

Benefits to this new system are mostly related to cost savings. Litigation can be done in only one instance instead of all national courts, that the patent would be in force. It would no longer be mandatory to file a European patent in each national patent office, which would save costs as well. Lowered litigation and enforcement costs would possibly affect damages as well. Mainly so, that getting smaller damages rewards would affect less on the plaintiff, because of the lesser litigation costs. Only future case law will tell, what kind of damages will be awarded and which law will be the most popular.

The UPC-agreement has the same wording as the enforcement directive. These European provisions clearly aim to have different injuries and undue rewards considered together, while Chinese law gravitates towards individual and exclusive consideration for each loss or gain. In Europe, reasonable royalty fee is seen as the alternative solution, while in China, it is fixed (and small) fee. Both systems seem to ignore prosecution costs, negotiation costs for license agreement if the infringement never happened, and the patent prosecution costs avoided by infringing. Interesting part is also the European indifference of level of guilt between negligence and willfulness. Chinese law at least mentions seriousness of the case and nature of infringement as points of consideration. Only, these points are relevant exclusively, when fixed fee is calculated, so the consideration is highly limited.

UPC-agreement suffers from the same flaws as other international and regional treaties related to damages. It has no rules for harmonizing. The purpose of having these agreements in the first place is to harmonize national laws at least to some degree. Understandably, it is extremely difficult in a region such as Europe, where the member states have vastly different ways to approach legal issues, especially damages. Lack of harmonization can cause uncertainty and increase risks for international companies. In a system like the UPC, it will most certainly lead to some laws being preferred over the others. It will be interesting to see, how a foreign judge interprets a member's national laws. Considering the vast differences in each law, it is possible to have even more fragmented European system than it already is. At least the national courts with their respective own

²⁶European Patent Office. 2017. European Patent Office website. [Online]. [Accessed 14 November 2018]. Available from: <https://www.epo.org/>

laws have a certain level of predictability. This old system will remain an option for those who are too afraid of loss of rights in the new UPC-system.

2.4. Finnish Patent Act

The principle of reasonable compensation is written in the first paragraph of Section 58: Any person who intentionally or negligently infringes a patent shall be liable to pay reasonable compensation for the exploitation of the invention and damages for other injury caused by the infringement (Patent Act 1967). On one hand, this means that all injuries should be compensated, but on the other hand, there is a principle forbidding bigger financial gain than actual injuries caused.²⁷ As a principle, this is very fair and just. In practice it has also worked well, since there are no cases available in Finnish case law where high damages have been awarded.

In practice, this means a reasonable license fee.²⁸ This can be determined in multiple ways. One method is to calculate the average amount from license fees paid for similar patents. This information however is not public knowledge and evidence is very hard to find. Common practice according to case law is 2-5% from sales prices. This figure is decided case by case and usually without much evidence to back it up.

2.4.1. Levels of guilt

Intentional and negligent infringement are treated the same way when counting damages. Unintentional infringer without negligence shall only pay compensation for the exploitation if and to the extent held reasonable (Patent Act 1967).

This is strange and unique system that is highly questionable. Normally intentionally committed breaches of contracts, or criminal offences are sanctioned more highly than negligent executions of the same deeds. I believe, that adding additional damages for willful infringements would be a good way to solve this problem. My reasoning for this is the difficulty of not being negligent in innovative industries with lots of patenting activity. On one hand, patent claims can be incredibly hard to read and interpret, on the other hand, finding relevant patents from the vast jungle of patents is also very hard. Even if a company knows who their main competitors are, there could be hundreds of patent applications and thousands of claims to read through.

²⁷ See the term “rikastumiskielto” is used to describe this principle on page 314 of Oesch, R. and Pihlajamaa, H. 2008. Patenttioikeus. Helsinki. Talentum.

²⁸ Government Bill for a New Patent Law. 1966. Helsinki. Ministry of Economic Affairs and Industry.

Intentional infringement is sanctioned also as a crime. This means higher amounts of money lost to the infringer due to fines, but the patent holder does not benefit from it. These criminal cases are judged in courts that do not specialize in patent cases, so the lack of sufficient expertise and technical knowledge can propose a risk that patent holder may not want to take.

2.4.2. Restrictions for damages based on time

Compensation proceedings for patent infringement shall only refer to damage during the last five years prior to institution of proceedings. The right to compensation for damage suffered prior to that period shall lapse (Patent Act 1967). This provision can be seen as severely punishing for the patent holder and strongly favorable for the infringer. Since patent term is 20 years, there is a possibility that someone infringes a patent for 15 years without consequences. This provision should be removed as it is unjust and encourages infringers.

Fortunately, Section 60 has an exception to this provision: The provisions of section 58(3) concerning damages shall not apply if action for compensation is brought within one year of the period for lodging an opposition concerning the patent or, if an opposition has been lodged, within a year from the date on which the Patent Authority has decided to maintain the patent (Patent Act 1967). Still, this provision is entirely useless, if the duration of the patent prosecution, from the date of publishing until the year after opposition period, is less than 5 years. Since the patent application is published after 18 months from filing, time period until one year of opposition period's end is hardly ever more than 5 years. This is another example of favorable legislating towards infringers. There is no real need for this provision to exist.

Protection term starts from the date of publication of the patent application, which is before the actual granting of the patent. Subject matter of the published claims can be different from the ones that are granted. According to law, both of these sets of claims matter when deciding, whether infringement action has occurred. Damages for infringement before grant can only be awarded as reasonable compensation. This means that infringement before grant can never be intentional or negligent, even though it very well might be. This is yet another favorable provision for infringers.

2.5. Patent Law of the People's Republic of China

Chinese damage calculation is also based on the principle of reasonable compensation for actual losses to patent holder. As previously stated, these losses are hard to calculate. Because of this, there are several different ways of calculation written in the actual provisions. Firstly, compensation

can be determined by calculating the benefits gained by the infringer. If this fails, next step is to calculate reasonably multiplied amount of the royalties of the patent. This provision sets the bar for reasonable compensation higher than the royalties, contrary to Finnish law. The law does not imply, however, whether this also applies to infringements without negligence. In fact, the concept of negligence is excluded entirely from the damages provisions.

Costs for putting the infringing actions to an end are mentioned as part of all kinds of compensation schemes. These costs possibly cover attorney's fees, warning letters, court proceedings and travel expenses. There is no way of knowing exactly what is included, since no description is provided. This can lead to parties claiming all kinds of irrelevant costs and attorneys billing outrageous sums. A list of some of the main costs included would clear out this problem at least somewhat. Hourly rates for attorneys' fees have only been considered recently as an option. Previously they were only counted by a lump sum.

Finally, if all else fails, the people's court may, on the basis of the factors such as the type of patent right, nature of the infringement, and seriousness of the case, determine the amount of compensation within the range from 10,000 yuan to 1,000,000 yuan (Patent Law of the People's Republic of China 2008). This amount is 1 296,90 - 129 690,39 euros. Modesty of this amount combined with the difficulties of proving the actual losses caused, make this way also favorable towards the infringer. It is alarming to know, that most infringement cases are actually solved by using the statutory amount. This means that damages can not be over 129 690,39 euros.

To get some perspective about damages amounts in general. The average amount rewarded in Finland's second instance court, where only 15 cases have even included any damages awards for patent infringement, is 1,783,423 euros²⁹. More than ten times the amount of maximum statutory damages allowed in China. From the chart below you can see how the amounts are divided and it is clear to see that foreign companies tend to get much bigger damage rewards compared to local companies. This is mostly due to the bigger size of the disputes and the companies themselves. Later on a specific case between international corporations will be examined more thoroughly.

²⁹ I used Darts-IP to gather this data. It is a research tool widely used by patent professionals around the world. Assessed in 15th July 2018. Available at: <https://app.darts-ip.com/>

Case	Sum - Damages €
Molok vs. O.G.K.	2925
Delaval International vs. Finnlacto, Kumijaloste	3645
Teknosto vs. Ipeka Automation	5100
Lmp Patents vs. Uudenkaupungin Työvene, Lamor Corporation	5272
Fuuga-Controls vs. Electrolux Professional, Kitchen Harri Ojala, Restel / Kylpylähotelli Eden, Sokotel / Hotelli Tammer, Tampereen Espanjalaiset Ravintolat / Ravintola Salud	10000
LMP Patents Ltd vs. Porin Kaupunki	15600
Rysti, Valmet vs. Insinööritoimisto Olli Heikinheimo, Plan-Sell	16800
Tesa vs. Staples Finland	40500
Lmp Patents vs. Uudenkaupungin Työvene, Lamor Corporation, Suomen Valtio / Ympäristöministeriö / Suomen Ympäristökeskus	53100
Decocoat vs. AcousticOne	66787
Anstar vs. Peikko Group	101617
Maaselän Kone vs. Laitilan Rautarakenne	124500
Kh Innovations vs. Chemitec Consulting	1698000
Langh Ship vs. Flinter Groningen, Flinter Shipping, Wijnne & Barends' Cargadoors En Agentuurkantoren	8100000
Ranbaxy Laboratories, Ranbaxy Uk vs. Warner-Lambert Company, Pfizer	16507504
Total Result	26751350

Figure 1

To conclude, the Chinese system would work fine with smaller companies, but very poorly with larger ones. China is known for its state own enterprises with almost unlimited financial resources and size. Foreign companies operating there are also sometimes huge in size. To ensure proper protection of patent rights for companies of all sizes, action need to be made for removing the maximum amount of the statutory damages. It is simply impossible to know beforehand, what amount will be just for any given infringement. The amounts available should not be restricted by legislation.

2.5.1. The Fourth Amendment of Chinese Patent Law

China is preparing the Fourth Amendment at the moment and it has several changes to damages measurements as well. The amendment should be passed this year and it supposedly includes additions of punitive damages, statutory damages from 50 000 to 5 000 000 RMB. Lastly, a transfer duty of evidence will be added to make discovery of evidence more effective.³⁰ It seems that with these amendments, China is taking steps towards the American system and distancing itself from the more European principle of reasonable compensation. Still, the maximum statutory amount of 637 987.702 Euros is quite limiting to bigger international companies and the disputes that they are usually involved with. There have been notions even inside China, that the statutory damages provision should be removed completely from their system.³¹ The article refers to same data from

³⁰Li, M. 2018. Resent Developments in Chinese IP Law. 12.11.2018, University of Lapland.

³¹Li, X. and Wang, D. 2017. Chinese Patent Law's Statutory Provision: The One Size That Fits None. Washington International Law Journal. 26 (2). pp.209-246.

CIELA that will be presented in this thesis later on. Overall, it is evident that the damages remain way too small for the enforcement to be worth the effort and money in the current and even future states. Statutory method of calculation is by far the most prominent of all of the available methods. This too needs to change in order to achieve at least feasible compensation. Harsh estimate supposedly claims that damages in current state represent 5 percent of the actual losses.³² Estimate was made by a judge from Guangdong Peoples' High Court. To conclude, the problem of lacking compensation will not be solved with these amendments.

Chapter III

3. Theoretical background of damages

3.1. Tort Law, Civil Law or Criminal Law?

Patent Law is a complex field and different parties have different agendas within it. Governments seek to increase innovations and disclose them to the public. Criminal courts want to deter infringers with both financial and freedom punishments. Patent holders want to have monopolies in their respective markets and ensure that their research and development results are not exploited by others. Some patent holders are also non-practicing entities, whose only objective is to sue infringers and license the patented technology to whoever is willing to pay for it. There are criminal organizations and willful infringers, who want to benefit from other's research and innovations for free. Lastly there are negligent infringers who simply lack the will, knowledge, money or tools to prevent their own infringing activities. This is a fairly normal business practice.

Damages are a part of criminal, tort and civil cases. Finland uses a principle of compensating instead of punishment in all of these cases. China however, has adopted punitive damages in tort cases³³. Recent statements from Chinese Prime Minister hint heavily on punitive damages in future Patent Act as well³⁴. Usually, in order for tort case to transform into a criminal case, there has to be social harm. Social harm is basically harm against the society, court system and the government. So severe willful infringement cases should be able to cause liability of the criminal side. In China, only counterfeiting of a patent is a crime, while in Finland, every kind of method of infringement is

³²Changuan, Z. Peichang, W. 2015. Why it is Difficult to Reach Fair Compensations in Intellectual Property Cases. Yangcheng Evening News. [Online]. 23 April 2015. [Accessed on 13 November 2018]. Available from: <http://news.163.com/> in Chinese language, so I cannot confirm the actual statement.

³³Tort Law of the People's Republic of China 2010. (c.5). Beijing. Standing Committee of the Eleventh National People's Congress.

³⁴Chen, C.J. 2018. China Plans to Impose Punitive Compensation Upon Patent Infringement. Lexology. [Online]. [Accessed 11 June 2018]. Available from: <https://www.lexology.com/>

considered a crime. Another requirement for criminal liability in Finland is the imminent possibility to cause serious financial harm to the patent holder.

Level of intent for culpability and therefore criminal liability also varies between these two countries. Gross negligence causes criminal liability in Finland, whereas only intentional acts cause criminal liability in China. Traditionally, these differences are cultural. Chinese legislators see government's interference as something that is harmful for normal business economy and functionality of the markets involved. In Finland and in Europe in general, government interference by criminal proceedings is inevitable and necessary to ensure normal business economy.³⁵

Harshness of the penalties differ also heavily. Chinese criminal law is known to give harsh penalties for criminals, while Finnish law is very lenient in this regard even on a global scale. To sum it up simply, China prefers strict punishments for certain specific deeds like forging, while Finland prefers lenient punishment for all kinds of infringing deeds.

Sanctions in criminal proceedings are also individual, compared to the civil side, where a legal entity may be the owner of the patent right, which is infringed by another legal entity. Naturally individual persons may also be sued for patent infringement in civil proceedings as well. Prison sentences and day-fines can only be addressed to individual persons. These cases are very rare in patent law. Mostly these crimes relate to trademark and copyright law, where counterfeiting is widely common practice. Still, to understand the complex legal environment surrounding patent infringements, this information is relevant to assess.

3.2. Reasonableness

The concept of reasonableness is particularly vague in patent law. Usually in torts, damages need to be reasonable to the party at fault. In patent law, however, there are no definitions made in Finnish or Chinese legislation. In Finland, reasonable compensation for exploiting a patent is regarded as a reasonable license fee. This fee should be reasonable to both parties³⁶. This is normally achieved through negotiations between parties, not by judges. Since the amount of injuries do not need to be proven for receiving the reasonable compensation part of the damages, one could argue, that these damages are always unreasonable to the infringer. This is one of the rare instances in patent law,

³⁵Lee, N. Bruun, N. Li, M. 2016. Governance of Intellectual Property Rights in China and Europe. p.357-360. Cheltenham. Edward Elgar Publishing.

³⁶ Rantala, T.2005. Kohtuullisen käyttökorvauksen määrittäminen patentinloukkaustilanteessa. Defensor Legis. [Online]. 2. p.288. [Assessed 23rd June 2018]. Available from: <https://www-edilex-fi.ezproxy.ulapland.fi/>

where the plaintiff gains an advantage over the infringer. The fact that at least some injuries were caused by the infringement has to be proven though.

The reasonable license fee is argued to be the best way to compensate the weakened exclusivity of the patent right.³⁷ At the same time, it is also a punishment for the infringer, who neglected the duty of asking a permission from the patent holder to exploit the invention. These are both scenarios, where notable damage did not happen, but the patent right is seen as a right worth protecting either way. This implies that, damages can be reasonable even without any injuries. Unused patent enjoys the same protection as a used one would. Some countries have blocked this possibility by setting a use requirement for patents. If the patent is not utilized in the country, it will not be valid, or a mandatory license can be given by the state to anyone who wants it. This creates a conflict of interests between the disturbance of free market and the right to hold a patent right without exploiting it. Exclusivity should mean the right to not exploit the patent just as much as it is about forbidding others. That is the freedom of choice in any kind of ownership. You do not have to sell or use your car in order to enjoy the ownership of it. Scholars of Competition Law and most state officials would probably disagree with this notion.

Another argument for this is, that infringement is always worth at least a reasonable license fee. Infringers rights are also covered with the “rikastumisenkielto”. This means, that plaintiff should not gain more wealth, than what they had before the infringement. Determining how much gain is too much, is impossible to define accurately. Bad performance, popularity or number of other reasons can affect the patent holder financially even without any infringement. Losses to patent holder directly caused by the infringement need to be known, as accurately as possible, before any level of reasonable, or unreasonable gain can be judged.

Similar situation occurs in China, when injuries are not proven, and statutory damages are awarded. Due to limits to the maximum available damages in this method, infringer can be safer from unreasonable damage amounts. Plaintiff suffers the unreasonable fate here, since the highest amounts available are still sometimes a fracture of the actual damage. If most of the cases are calculated by the statutory method, and they are, reasonable compensation is hardly ever paid. This makes the current legislation ineffective for achieving its goal. If the goal is reasonable compensation. There may be other goals behind the legislators’ will, such as safeguarding infringers’ interests and rights.

³⁷ See Möhrig, P. 1931. Einfelfragen der Schadensliquidation imgewerblichen Rechtsschutz und Urheberrecht. pp.419. GRUR. And Möller, H. 1938. Der Umfang des Schadenersatzes nach § 47. pp.221. GRUR.

Reasonable compensation can be achieved by using a method of calculation, which is a license fee calculation in Finland. In China, reasonable outcome is achievable in all three of the first calculation methods. The only one, that is clearly not reasonable, is the statutory way. Reasonable compensation can be fully possible with counting losses of the patent holder, profits of the infringer or license fee. What makes all these three methods unreasonable is the high burden of proof. In fact, it is so high, that most cases are solved by using the unreasonable statutory method. To mitigate the high burden of proof, accessibility to evidence should be made more effective. Discovery of evidence will be examined with the damages calculations because of this. They are very dependent of each other especially in China, where the burden of proof is absurdly high and judges are very cautious not to overstep their boundaries.

Due to all that is stated above, it is easy to conclude, that patent infringements lead to unreasonable outcomes more often, than not. To rectify this, new methods need to be applied to provide reasonable outcomes to these disputes. Patent holders are using arbitration more and more, because they are afraid of the unreasonable decisions of the courts.

3.3. A Theory of Punitive Damages

This theory was created by Benjamin C. Zipursky in 2005³⁸. The word punitive means punishing over the reasonable compensation's limits. The recipient of punitive damages can be either the state, or the actual injured party in trial. My opinion is, that patent infringement is more of a plaintiff-driven, personal matter between private parties. In patent cases, where infringement has been proven, but the monetary value has not, a remedy of punitive nature may be needed to even the odds.

In regular civil tort cases, injuries are often much easier to define, because they can be measured as physical injuries or deficiencies of sold goods. Patent's value is completely different. Sometimes, patent's value is completely dependent on future developments of the respective industry and technology area. Customers and competitors may desire the patented product greatly, or it can be designed around by every competitor easily, thus losing all the value of the patent. In Chinese law, there is already a system in place for calculating damages, when injuries are hard or impossible to define. Problem is, that the amount is too small at best to ensure even the reasonable compensation the plaintiff duly deserves. This does not mean that punitive damages have to be over the top, like in

³⁸ Zipursky, B. 2005. Theory of Punitive Damages. Texas Law Review. [Online]. 84(105), pp.105-171. [Accessed 9 April 2018]. Available from: <https://ir.lawnet.fordham.edu/>

famous BMW vs Gore case³⁹, where reasonable damages were set at 4000\$ and punitive damages were 4 000 000\$.

Zipursky states that punitive damages are equally part of criminal and civil law, where state's interest is to deter infringers from committing the same deed later on and plaintiff's interest is to have retribution. Therefore plaintiff should have the right to be punitive. I believe that only the latter should be involved in patent infringement. Punitive damages would only be means to get just compensation, when all other methods fail. It should be more of an insurance to plaintiff than anything else. My view differs somewhat from the traditional American view of unjustly hard punishments and leans more towards the reasonable compensation. What I am arguing is, that reasonable compensation is not possible by applying current patent laws of both Finland and China. Plaintiffs need other ways than current damages system to ensure that their expensive research and patent prosecution does not go in vain.

China has a history of having harsh punishments in criminal law, including the death penalty. It is embedded into the Chinese culture, making it easier to adopt punitive damages. They already have adopted them in tort law as well. Even the Chinese Prime Minister is in favor of the American way and is keen to amend their laws. The leap from extremely small damages to extremely high is a huge change. Transition for the already cautious courts would be slow and troublesome most probably.

In Europe, especially in northern Europe, more lenient approach has been used to deter infringements and crimes in general. The death penalty is no longer part of any of the northern countries. Rehabilitation is the preferred way to prevent future crimes. Punitive damages are also against the principles of EU law regarding patent infringements. It is highly unlikely that Finland and China would ever have similar systems regarding punitive damages.

3.4. Full compensation theory

Full compensation theory is based on making the patent holder whole by compensating all injuries and losses caused by the infringement. Goal is to return both parties to their original financial status before the infringement ever happened. This can be relatively easy to do, when injuries are purely physical or relate to faults in purchased products. In patent cases, not so much. It is most times impossible to determine the cause of lost sales margins, since it could be due to one's own behavior or the infringing product or process. Substantive customer data is not often available or even given

³⁹ BMW of North America, Inc. vs Gore. 1996.

to courts since it is commonly held as a trade secret. Patent holder would need to prove that their usual customers are purchasing their products from the infringer, instead of themselves. This would be including a third party into the case.

Flexibility in legislation is needed to add more methods and freedom to courts, when assessing the overall amount of damages. By flexibility, I also mean the time-period when damages can be obtained. Currently in Finland, the only time frame is 5 years from the date when infringement suit is filed, unless the suit is filed within a year from the opposition period, which is right after grant. This allows free infringements to happen for 15 years if timed right and executed with enough secrecy that the infringement remains undetected. Fortunately, this kind of system is not implemented in China. There is no incentive to patent if the right can not be enforced efficiently for majority of its duration.

Time restrictions are usually implemented due to the estimation, that patents decrease in value over time. The invention becomes less meaningful and reputation, marketing, customers and other factors become more prevalent. It is still highly unjust to disregard damages completely after just 5 years. Damages could be easily calculated with a formula, where the amount decreases annually. Reasonable restriction based on time would therefore only be reduced damages over time, not removed.

This theory is mostly regarded as part of private law and especially tort law. Patent law on the other hand is not exclusively private law, since governments have their own agendas and interests involved. Patenting is seen, by governments, as a way to promote innovation that would benefit consumers and entire industries. Patent holders are usually multinational conglomerates with incentives to make money and gain a competitive edge. As a general principle, just compensation is an admirable theory, but currently nearly impossible to achieve in practice. Due to its general nature of being an abstract concept, this is hardly surprising or unexpected.

3.5. Deterrent effect of damages

One of the main functions for damages or any kind of sanctions is to deter the actor from ever doing the same thing again. This can be done beforehand or directly after the deed. In the preventive approach, damages for infringement should be set so high, that potential infringers would be too afraid to do it. This would be possible with a system, where a fixed sum of damages would be calculated by a formula known to everyone. In the United States, this has been achieved by using punitive damages, often three times larger than the regular damages would be in Europe or China.

Courts have established case law, where damages are very high and spread fear to infringers. However, real deterrent effect is very hard to prove as an effective way of truly preventing illegal activities. Usually, the end result is the opposite. Countries with harsh punishments tend to have more crimes than countries who try to rehabilitate criminals during and after the initial punishment.

Theory of defiance⁴⁰ suggests that unfair judgments and too large damages can be seen by infringers as injustice. This creates rebellious notions against the judicial authorities and increases crime rates. This however is a theory for criminal law and criminology first and foremost. Applicability to patent infringements or other white-collar crimes is difficult, since the nature of these crimes is completely different. Some companies may have unlimited financial resources while others could be demolished by practically any kind of sanctions. The personality of a multinational conglomerate is hardly the same as a career criminal or any individual person.

Deterrent sanctions are also part of the new General Data Protection Regulation of the European Union.⁴¹ These vary from fines of 20 million euros to 4% of company's revenue. These sanctions seem to have created a large deterrent effect, since the regulation has been the hottest topic in recent years and most companies from all sizes want to comply with the regulation. This indicates, that deterrence of high damages could work better with companies, than individual persons.

Another question is, are negligent infringers criminals, who need to be deterred? Finland thinks infringing with gross negligence or intent is a crime, while China thinks that only counterfeiting of a patent is a crime, and even then, only intentional counterfeiting. So, should principles of criminal law even be applicable to civil disputes? Would deterrence be even a worthy goal? I would say it is a worthy goal, but overly large damages is not the way to achieve it. Better way would be an effective and functional enforcement, so it would be known to infringers, that what they are doing would lead to ramifications more often than not. Responsibility and accountability could be deterrent by itself. It is troublesome and costly to litigate constantly for both sides, but the possibility of losing or winning based on technicalities, bad legislation or poor judges is a huge gamble currently. This deters patent holders from enforcing their patent rights, instead of infringers being too afraid to infringe.

⁴⁰ Lawrence, W.S. 1993. Defiance, Deterrence, and Irrelevance: A Theory of the Criminal Sanction. *Journal of Research in Crime and Delinquency*. [Online]. 30(4). pp.445-473. [Accessed 10 May 2018]. Available from: <https://www.researchgate.net/>

⁴¹ Council Regulation (EU) 679/2016 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). [Online]. [Accessed 10 May 2018]. Available from: <http://eur-lex.europa.eu/>

Chapter IV

4. Components of damage calculation

4.1. Injuries

There are multiple ways to suffer injuries for patent infringement. I will divide these into two groups: moral and economical injuries. Economical injuries can be; lost profits from reduced sales of the patented products, costs from investigations to find information about the infringement, paying license fees to commercial patent databases in order to conduct competitor follow-up, legal fees for sending warning letters to the infringer, costs for court proceedings, research and development costs, patent prosecution costs, annuities, wages of possible in-house IPR management team working on the case, travel expenses and missed license income. Moral injuries can be; loss of reputation because of someone else could sell products with worse quality, losing of market share, losing important customers to competitors, reduced freedom to operate, increased interest for other potential infringers and bad publicity from possible media coverage.

Damages for all of these injuries can be claimed in both China and Finland, or at least they are not excluded from the law. In China though, in order to receive damages for some injuries, you have to exclude others. First group is called actual losses. This includes all of the injuries stated in the previous chapter, but in order to receive full compensation out of these injuries, you can not receive compensation for infringers own profits or a reasonable royalty fee. I believe, that all these three components can and do occur in most infringement cases simultaneously. There is no incentive to infringe if there is no profit to gain. Avoiding reasonable royalty fee is part of that profit as well. These should not be alternative methods.

Finland has more flexible legislation for the scope of injuries, but the amount of case law on patent infringement is so low, that determining any kind of common practices is really hard to do. Royalty-based reasonable compensation is always rewarded even without proven injuries, but most times damages for injuries are paid on top of that, without differentiating them in the verdict.⁴² This indicates that courts may not have unified formulas or guidelines to calculate damages in patent cases. Principle of full compensation only applies to proven and claimed injuries caused by willful or negligent infringement. European Union law or international law has no means for harmonized calculation of damages either.

⁴² Haarman, P.L. 2014. *Immateriaalioikeus*. Helsinki. Talentum.

4.2. Profits gained from infringement

Profits are easier to prove than losses, because they are easier to connect to the infringing activities. Sold products can be seen from bookkeeping or sales records usually, if they are available. Infringing party would not want to give this information and enforcing discovery of evidence can be easier said than done. Customer data is often regarded as a valuable trade secret as well. Sometimes the customer gives their purchasing records to courts for evidence, but if all the customers are not cooperative, full profits can not be calculated and especially Chinese courts would use another method to determine the damages.

In China, counting the benefits occurred from the infringement, is the second step, if losses are too hard to prove. The amount of compensation for unjust profits may be a lot smaller than patent holder's lost profits, since illegal copies are often sold for a much lower price.⁴³ Profits can give a better indication of the true damage caused, since there are no factors involved, where relation to the infringement itself would be questionable. All profits are a direct result of the infringing product.

There are several other ways to profit from infringement than sales. Infringer does not invest in the research and development of the infringing product, when we are talking about an intentional infringement. Unaware negligent infringer may invest the same amount as the patent holder because of their ignorance of the patent that is in force. This may feel more like a loss to the patent holder than profit to the infringer, but in reality, patent holder has to do the research in order to invent something new, while the infringer can enjoy the results with only the cost of manufacturing and marketing. This profit cannot be seen as increased profit, but rather as savings.

Another way to profit is not paying for the application process, formally called patent prosecution. For intentional infringer, avoiding these two costs and gaining profits from sales of infringing goods can lead to much bigger profits and savings than the actual damages that they would have to end up paying. It all depends, whether the research itself is valuable to the sold product. If the patent itself does not increase the value of the product, it may be unfair to count avoiding these cost as any kind of profit. Sometimes the only added value of a patent is the possibility to prevent others from selling it. Other times it may be a groundbreaking new material, that is 100 times cheaper to manufacture,

⁴³ Sepetys, K. Cox, A. 2009. Intellectual Property Rights Protection in China: Trends in Litigation and Economic Damages. USA: National Economic Research Associates, Inc. [Accessed 3 May 2018]. Available from: <https://www.nera.com/>

making the product 100 times cheaper to manufacture, while the overall value of the product simultaneously stays the same.

4.3. Royalties

Royalties have a very different position in Finland and China. In China, royalty-based damages are an alternative, when losses of the patent holder or profits of the infringer are hard to prove. In Finland, reasonable royalty fee is the minimum amount of damages, which are rewarded in all infringement cases. Other damages can be added on top of royalties, when proven by the plaintiff. Royalty fee in patent law is the amount that would be recovered from a licensee if there would not have been any infringement.

Major problem, when determining reasonable royalty fee is that information about other companies' license agreements is not public. It is a well-guarded trade secret more likely. Since average royalties from certain industries are hardly ever available, other means have to be used. One way is to count a percentage of sales of a certain patented product. It is rare that a patent covers the entire product in question, so the proportional share of patented technology inside the device or product need to be calculated as well.

Another problem arises, when the patent is a method patent or a process patent. Processes may include large plants filled with different kinds of equipment. Value is determined on the exclusivity of such method in achieving the end-result. If others can not achieve the same result by using a different method, the value of the patent rises very high. This high value makes a strong patent as a preventive tool, but it only creates monetary value, when the solutions are sold and the bigger market share is achieved. It takes expert economic analysis, research and calculation to come up with an accurate amount for royalties. Hiring these experts is still not worth the risk if the damages at best are less than the actual expert's salary. Expert testimony as a reliable piece of evidence is also all but certain.

One way to calculate the license fee is to use the same amount used in an agreement with a third party regarding the same patent. Infringer may or may not have the same position in the market or in the value chain as the third party. A customer can usually negotiate much better terms than supplier or manufacturer of the patented product. In my opinion, license fee is the hardest value to calculate for the patent and therefore it should not be the minimum amount or first option in general. It should be a part of the general assessment of the value and adjusted accordingly depending the situation and other supporting evidence available.

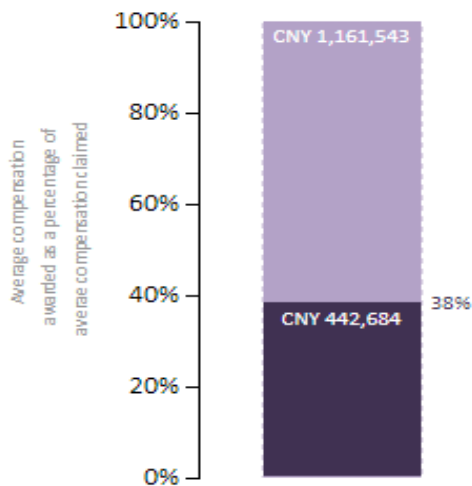
4.4. Statutory damages

Compensation

Type: Invention, Location: All locations, Court: All courts, Industry: All industries

Claimed vs Awarded

The below graph shows the average compensation awarded as a percentage of the average compensation claimed.

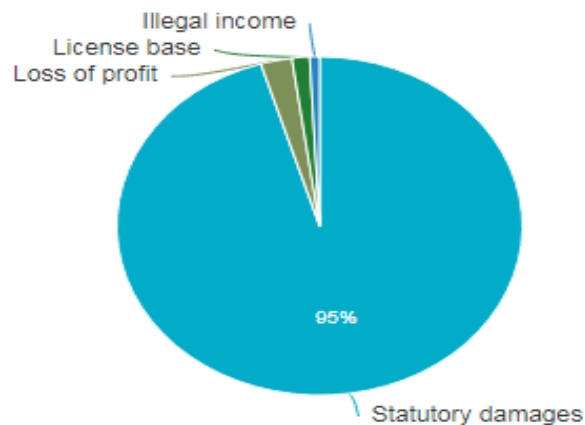


Out of a total of 1,975 cases, there was a finding of infringement and compensation claimed, in 1,219 cases (61.7%) with a compensation claimed amount of CNY 1,161,543.

1,190 cases (97.6%) were awarded with an average compensation amount of CNY 442,684 (38% of average compensation claimed).

Basis of compensation

The number of cases for each basis of compensation type when compensation was awarded



Of the cases where compensation was awarded, 95% were awarded on the basis of Statutory damages.

Note: Not all cases have disclosed a basis of compensation where compensation was awarded.

Figure 2

Another alternative method, that should be an added bonus, is the method of statutory damages. The amount available is so low, that it does not cover any of the other three categories individually. As shown in the statistics from Figure 1 of CIELA⁴⁴, the damages are almost always statutory and much

⁴⁴ CIELA. 2015. CIELA is a unique litigation analysis tool which enables IP owners and their counsel to evaluate and compare IP litigation venues across China and includes a free-to-use web service. Users can obtain statistics on IP rulings from across China or focus on specific courts. [Online]. [Accessed 24 April 2018]. Available from: <https://www.ciela.cn/>

less than claimed. This method is only available in China and is used when all other types of damages are too hard to prove. These factors are quite vague and offer very little support to the judges. This can be a good thing, and judging by the popularity of this method over others, it is safe to say that judges like to have more freedom of choice, while at the same time, low maximum limit to avoid mistakes. The idea itself is good, since damages are notoriously hard to prove in patent infringement cases. There are three factors taken account, when calculating the statutory damages; the type of patent right, nature of the infringement, and seriousness of the case. The type of patent right refers to three different patent types available in China; utility patent, design patent and innovation patent. Innovation patent is the European equivalent of patent, utility patent is the same as utility model and design patent is the design right.

From all the types of patent rights, the innovation patent has the most requirements and strongest protection out of these three. It is the hardest, most expensive and time consuming to acquire as well. Naturally, the damages should be higher as well. The statutory amount is still the same in all three categories. This would not be an issue, if the gap between the minimum and the maximum available amount would be large enough to accommodate all possible cases. Currently the gap is only suitable for start ups with design patents at best.

Design patent cases seem to follow the same pattern as innovation patent cases. Most awarded damages are of the statutory kind and far less than claimed, as seen from the chart of Figure 2 from CIELA below.⁴⁵ Utility patent cases are the same as designs in this regard. As a conclusion, innovation patents are being rewarded higher damages and therefore serve as a multiplier in the first category of the type of patent right.

Nature of the infringement refers to methods used. The more methods used, the more damages should be awarded. Methods can be manufacturing, selling, advertising or using of the patented technology.

Seriousness of the case refers to culpability. Intentional infringement serves as the highest multiplier, while infringement without negligence is the lowest. Conclusion to this is that willful infringement of an innovation patent by manufacturing, marketing, selling and utilizing it would be sanctioned the hardest.

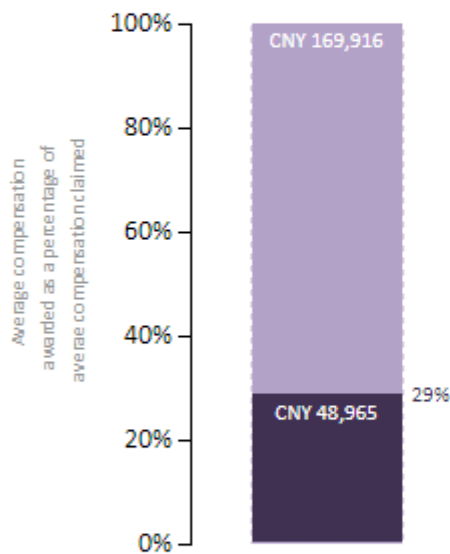
⁴⁵ CIELA. 2015. CIELA is a unique litigation analysis tool which enables IP owners and their counsel to evaluate and compare IP litigation venues across China and includes a free-to-use web service. Users can obtain statistics on IP rulings from across China or focus on specific courts. [Online]. [Accessed 10 May 2018]. Available from: <https://www.ciela.cn/>

Compensation

Type: Design, Location: All locations, Court: All courts, Industry: All industries

Claimed vs Awarded

The below graph shows the average compensation awarded as a percentage of the average compensation claimed.



Basis of compensation

The number of cases for each basis of compensation type when compensation was awarded



Out of a total of 7,597 cases, there was a finding of infringement and compensation claimed, in 6,310 cases (83.1%) with a compensation claimed amount of CNY 169,916.

6,120 cases (97%) were awarded with an average compensation amount of CNY 48,965 (29% of average compensation claimed).

Of the cases where compensation was awarded, 99% were awarded on the basis of Statutory damages.

Note: Not all cases have disclosed a basis of compensation where compensation was awarded.

Figure 3

Statutory damages in China offer a sort of formula in legislation to help with the calculation process. The set cap for the highest amount of damages possible to award is the main problem of this method. True justice can never be served as long as there are caps this low included in the provision. This combined with the fact that more than 97% of all cases are decided by using this method, makes me question the true motives behind this provision and the courts that utilize it.

4.5. Negligence

Level of negligence in patent infringements means the level of knowledge, that the infringer should have about patents in force in the specific field they operate in. It does not matter, whether the infringer actually knows this information or not. Problematic can be the difficulty of reading and understanding patent claims. It takes a seasoned patent attorney and a technical expert from the research and development side of the company to even read a patent application and understand it. In some industries, competitors may have hundreds or thousands of patent families with variety of different allowed claims. Even knowing all of your competitors can be extremely difficult for globally operating companies.

Slight negligence is a lesser version of this and is only mentioned in Finnish law. It is possible to settle damages for slight negligence situations. Chinese law does not mention negligence at all, but it is implied that seriousness of the case would be level of negligence. Negligence in tort law is usually measured using four elements: duty, breach of duty, causation and damages.⁴⁶ These elements can be used in patent cases as well.

4.5.1. Duty

Duty in patent law would mean the duty of not infringing any patent rights. This includes awareness of the state of the art. State of the art is the current level of technology known to a professional in that particular technology area. Patent professionals are usually not qualified enough to be those professionals. This means cooperation between patent professionals and inventors, when operating in patent environment. Prior art searches and competitor surveillance are key aspects to fulfilling the duty. Time, personnel and resources needed to complete these tasks are very high. This should be taken account, when assessing the damages for negligent and intentional infringements. It's very easy to purposefully infringe and very hard to fulfill the duty and not neglect it. Damages should be much higher for willful infringements compared to negligent ones.

To get a grasp of the resources needed for a seamless competitor follow-up and fulfillment of the duty, one needs inventors to read entire patent portfolios varying from hundreds to thousands of patent applications. One application can be from 10 pages to several hundred pages. Patent language and techniques needed to read it needs to be trained to inventors as well. Aside from that, inventors usually have their own responsibilities outside of inventing or patent matters. Depending on the industry, there can be few or plenty of competitors and every single patent application needs

⁴⁶ Epstein, R.A. 2000. Cases and Materials on Torts. 7th edition. New York. Wolters Kluwer.

to be read in order to ensure complete freedom to operate and proceed to patenting with any given invention your employees may have made. Costs can be millions of euros just for the follow-up operations annually. Most companies do not invest these sums and end up infringing competitors' patents.

4.5.2. Breach of duty

In order to neglect the duty, one must breach it somehow. In practice, this would mean that the infringer does not hire or have a patent professional or anybody with knowledge of intellectual property rights. This, however, is often not the case. Main issue is the lack of resources, skills and suitable technical experts for the competitor surveillance. The smaller the company is, the higher the chances of negligent and breaching actions. Even if the correct personnel would be found, they may not have time or interest in these tasks.

Position in the value chain is also a major factor. Retail sellers are not expected to know about patents as much as a large technology corporation with a significantly large patent portfolio. A scenario may occur, where the infringer has no patents of their own and do not even consider patenting as an option to do business. Current legislation in China and in Finland is well suited for protecting these infringers for not suffering from overly large damages. That is a very good thing but assessing intentional infringements by the same provisions gives a huge advantage and encouragement to deliberate infringing acts, instead of accidental or unknowing ones.

Another type of breach would be misinterpretation of competitor's patent claims. This is not a difficult mistake to make, since patent claims are notoriously hard to interpret. Even expert judges sometimes misinterpret patents. The scope of patent's protection is only as wide as the text in the claims. Claims are constructed to be as vague as possible in order to cover as wide area as possible.

4.5.3. Causation

Causation is relation between actions and effects. If a neglected or deliberate action has infringing effect on patent, causality is there. The less you do to prevent infringement, the more causation there will be. If infringement happens on accident, no causation can be found. Negligence can be achieved with careless behavior or without any behavior. What matters most is the probability, not the actual deed.

In law, causation is different from other sciences. Causation in law can be formed without any actions at all. In patent law especially, doing nothing at all to ensure your freedom to operate is very

risky. Freedom to operate means the freedom to sell, market, manufacture and utilize your products without infringing other party's patents.

Another kind of causation is between infringement and injuries caused. In theory, it is possible to infringe someone's patent without any caused injuries. Patent right itself was infringed, but nobody suffered. This can happen, when parties are in a different line of business. Some patented apparatus or method can work in very different markets, in exactly the same way. Parties are therefore not competitors at all. Still, this kind of infringement may be meaningful in the future, if the patent holder wants to expand into new markets. Law in these cases is preventive by nature and lacks causation.

4.6. Intention to infringe

Final component after negligence is intention. Intentional infringements are not stipulated in Chinese nor Finnish patent laws in a deterrent way. Finnish criminal law has the only way to punish intentional infringements more than negligent infringements. Fine for these crimes is paid to the State so naturally the injured party benefits nothing from it. This kind of legislation sends a message that willful infringement injures only the State and not the patent holder. Damages can also be claimed in the criminal proceedings, but the competence of district courts in assessing these complex situations is much lower than in Market Court, which specializes in intellectual property cases. Fortunately, expert judges can be utilized in these proceedings to help the district judge.

Punitive damages would be an option for intentional infringement cases. It would provide a possibility to differentiate negligent infringements from intentional ones and increase deterrence. In order to justify punitive damages, I would first have to prove that current laws are not sufficient for recovering reasonable and full compensation.

First step would be to add a section to the law, where intentional infringing would result to higher damages, than negligent ones. Currently neither China, nor Finland has this kind of information mentioned in their patent laws. This, combined with the fact that China only has intentional counterfeiting as a crime, is alarming. There is no mention of intentional patent infringement, or whether it should be treated any differently. You cannot deter something that is not known to be bad. Naturally, it is known by infringers, that intentional is worse than negligent, but leaving it out completely is only asking for confusion and disputes.

4.7. Discovery of evidence

Discovery of evidence has been arranged somewhat differently in Finland and China. In Finland, discovery is regulated in the Act to Preserve Evidence in Industrial and Copyright Civil Cases.⁴⁷ The court can order a preliminary injunction, if the plaintiff can prove its right and a violation of that right. In this case patent right and evident infringement of such right. Wording in the law implies, that only court can give this order and no application procedure is involved. This leaves it up to court to decide, which evidence is important enough for injunction.

This injunction must not cause unreasonable harm to the defendant. Situations where impounding evidence could cause unreasonable harm, mostly relate to evidence that is the actual infringing product and the patented part of the product is very small compared to the importance of such product to the defendant's business.

There has to be a risk of such evidence being destroyed or hidden if the preliminary injunction is not ordered. The defendant has the right to be heard and provide a response regarding this matter. In my opinion, the risk is there more often than not. If the hiding or destroying of evidence is not done on purpose, it can easily happen on accident. My personal experience in a company with high patenting activity has taught me, that documents and contracts get lost all the time and original signatures disappear from the documents because of scanning. Even the most important documents and evidence can be botched if not handled with care.

Another option is an interim preliminary injunction of evidence. This can be requested by the plaintiff if the injunction action is in danger to be jeopardized in some way. In this procedure, defendant gets no opportunity to respond. This is a major exception from the principle of contradiction. Principle of contradiction states that parties have to be given a chance to respond to claims made against them. This is a shrewd and effective way to preserve evidence, but it is definitely not in line with principles of procedural law. However, Haarman and Mansala⁴⁸ claim, correctly in my opinion, that destruction of evidence would be even more imminent, if the alleged infringer was aware of any injunction actions made against them beforehand. The actual injunction will be done by the bailiff, with the assistance of the police, if needed.

⁴⁷ My own translation from the Finnish title: Laki todistelun turvaamisesta teollis- ja tekijänoikeuksia koskevissa riita-asioissa 2000. Helsinki. Ministry of Economic Affairs and Employment.

⁴⁸ Haarman, P.L. and Mansala, M.L. 2012. Immateriaalioikeuden perusteet. Second edition. Helsinki. Talentum. P 168.

There is also a bond needed to initiate the injunction of evidence. This bond is supposed to cover injuries possibly caused by the injunction. The amount of the bond is decided by the bailiff.

4.7.1. Discovery in China

In China, the discovery of evidence is regulated in the Civil Procedure Law of the People's Republic of China.⁴⁹ The plaintiff has the right to apply for preservation of the evidence, when it is likely to be destroyed, hidden or difficult to obtain. Burden of proof that this is needed, is once again on the plaintiff.

In practice, the court assembles a team of investigators, experts, bailiffs and judges and rushes in to the defendant's facilities unannounced and recovers needed evidence. On paper this sounds like a very effective way to recover evidence, but as previously stated, courts still reward damages mostly based on the statutory method. Since the statutory method is only applied, when sufficient proof is not available, conclusion is, that evidence is not found by using this method.

4.7.2. Confidentiality of evidence

There is a clear conflict in patent law between confidentiality and discovery of evidence. Arbitration is more preferable to a trial because of this. Settlement agreements made in arbitration are confidential and preserve the confidentiality of the parties. In patent infringement trials, parties may not want to disclose their methods of manufacturing products or doing business. Under Finnish law, witness can refuse to testify about a trade secret, unless very important reasons, such as nature of the case, relevancy to solving the case, consequences or other circumstances demand it.⁵⁰ This can lead to a stalemate, where important evidence can be concealed from the court. It could also lead to such testimony solving the entire case. If a patent infringement has actually occurred, it is highly unlikely that the manufacturing method used is a trade secret of the alleged infringer, since the patent holder has used it before. There are other ways to acquire or infringe patented products than manufacturing though.

External experts or even the patent holder can be used as help to determine the sufficient evidence on site. This naturally brings forth risks of confidentiality being breached on matters outside of the infringement case at hand. It is not a rare occasion that multiple different products are manufactured in the same facilities as the supposedly infringing products.

⁴⁹ Civil Procedure Law of the People's Republic of China 1991. (c7). Beijing. Seventh National People's Congress.

⁵⁰ Civil Procedure Law of Finland 2015. (c17). Helsinki. Finnish Government.

Patent trials are not confidential by default. Patents are public domain, so having confidential patent trials is most times not in the parties' interests. Even though the entire trial is not confidential, some of it may be. Even if the trial would be confidential to public, you must still reveal information to the other party. This is basic application of the principle of contradictory. Parties have the right to know about matters, that may affect their rights. Considering, that parties in an infringement trial are most times the fiercest of competitors, these trials become a chess game of revealing enough to win the case, but not enough to reveal your own trade secrets in the process.

4.8. Case law examples

Assessing case law regarding awarded damages brings forth a few problems. Firstly, different industries have different license rates. Secondly, the value of a patent is never the same in two different cases. Thirdly, the amount of case law available is too low for making any general conclusions. In China, the low amount of case law refers to case law published in English language. I will have to refer to unofficial sources outside of courts to review them. In Finland, there have only been 15 cases where damages have been rewarded for patent infringement and all of the cases were decided in a court that does not specialize in patent law. I will refer to one case from both jurisdiction, where some significant calculations were made to determine the damages.

4.8.1. Beijing Watchdata v Hengbao

Beijing Watchdata v Hengbao⁵¹ was decided in Beijing IP Court in 2016. The case was about a smart password USBKey. The calculation method used was infringers profits. The court considered evidence from 3 sources. First were sales amounts from three of the customers of the infringer. Second source was a special audit report on contracts of the plaintiff's sales to their customers. Third source was initial public offering prospectus from a similar company. This contained profit figures of USBKeys sold from 2011 to 2013. Other evidence was recovered as well. The Court froze Hengbao's assets for 1 million RMB and seized two kinds of USB keys, along with accounting records and contracts.⁵² This recovery seems to be quite substantial, when considering statistics on the rate of cases solved, where damages were too difficult to prove. It indicates either great luck, change in approach or more competent officials in the court. Since the Beijing IP Court is a specialized court in intellectual property, this kind of recovery should not be too rare. Watchdata also claimed 2 million RMB based on advertisement on Hengbao's website, but these

⁵¹ Yao, G. and Hu, Q. 2017. Managing Intellectual Property. Breaking the damages dilemma. 271, pp.34-38.

⁵² CHOFN Intellectual Property. 2017. Mondaq website for intellectual property related articles. [Online]. [Assessed 24 July 2018]. Available from: <http://www.mondaq.com/>

profits could not be proven, since Hengbao refused to provide its books to the court. It seems strange, that other evidence could be recovered with ease, but books could be kept secret.

Calculation was conducted by multiplying sales amounts with profits. Total sales amounted to 4.8 million RMB and reasonable profit was around 10 RMB per sold product. 0.9 million RMB was added based on the claims about the website. Attorney's fees were counted by the hours marked on invoices and calendars. These fees amounted for 1 million RMB. Total damages were therefore 50 million RMB, which is 6,3 million euros. These were the highest damages ever awarded in the Beijing IP Court. For reference, even first instance court in Helsinki has awarded higher damages with only 18 recorded cases. A judicial committee of seven Chief Judges were needed to make this fairly simple calculation. With the volume of cases in Chinese courts, this kind of committee is probably very difficult to be summoned for every deviation from the statutory damages calculation rule.

This case can be seen as the forerunner for better protection of patents in China and it received a warm welcome from the intellectual property scholars and professionals. Recovery of evidence was good, but not complete and the large number of judges needed left room for improvement. This is still a step towards the direction of higher deterrence, accountability and punishment for patent infringements. The case was appealed by Hengbao, so the final verdict is yet to be given. Beijing People's High Court has the opportunity to set an example or return to the old ways.

Hourly rates for attorney costs were never calculated until here. Since most attorneys only charge by the hour, this is a welcome addition to decision making in Chinese courts. Correct amount of the fees claimed can still be assessed when using hourly rates. This is the way in Finnish courts. The one million RMB rewarded for attorney fees would have been maximum amount of available statutory damages for the entire case. This gives a good perspective on the adequacy of the statutory damages calculation method. The Supreme Court Guidance from 2009 gives judges a possibility to break through the upper limit of statutory damages in cases where claimed damages reach well over the statutory limit, while still remaining reasonable. This is one of the additions, that foreign patent holders would like to see in a future amendment to the patent law. A mere guidance from the Supreme Court is not enough to encourage judges to breach the limit set in the statutory damage amount in every single situation, it might be needed.

4.8.2. Merck vs. Ratiopharm

Merck & Co Inc., MSD Finland Oy, Merck Sharp & Dohme B.V. and E.I. du Pont de Nemours and Company vs. Ratiopharm GmbH and Ratiopharm Oy is one of the only cases in Finland, where damages were awarded at the appeal court stage.

Ratiopharm claimed that they manufactured their product using a Huahai II method, instead of the patented one. As evidence they provided audits, that had no mention about the manufacturing methods. They also provided research reports with no mention about the manufacturing method. Considering that the method was the only thing they were trying to prove, conclusion is that they were hiding the real manufacturing method. At the same time, Ratiopharm even had their own patented solution, that they could not prove they were using. Merck on the other hand could not prove any losses for their market share. Burden of proof seemed to shift heavily towards the alleged infringer in this case. Both parties failed to prove their claims and the court had to make their own decision without much support. It is very hard to believe, that Ratiopharm would have paid for patent prosecution and protection for the similar method they were simultaneously infringing. Only reasons would be significant cost savings or improvements in quality. Very hard to believe is also the assumption, that Ratiopharm did not supervise or even know about their own manufacturing methods in China.

License agreement between the parties would not have been an option according to a witness testimony from Merck representative. This indicated that the patent would be more valuable as a preventive right, than a licensed one. Added to that, even small portion of market share would have been too risky to give to the competitor. Therefore, the court relied on procedural law, which gives courts the opportunity to assess the amount of damages without sufficient evidence. This amount is not limited in any way, but it has the requirement of being reasonable. Chinese system only has the option of statutory amount in the law, but the Supreme People's Court supports the breach of this statutory limit, if the case requires it. So far very few courts are utilizing this opportunity.

The appeal court finally decided to set damage amount to 250 000 euros. 316 696 euros was claimed by the plaintiff initially. This seems fair, when considering the lack of evidence provided in this case. The evidence was probably in Ratiopharm's possession, because no pharmaceutical company would operate without knowing exactly how their products were manufactured. Merck simply could not access this evidence. This case demonstrates well, how expert testimonies are ignored, if other written evidence does not fully support it. First instance court seemed to favor

expert testimonies much more than the appeal court. It definitely highlights the difficulties in acquiring evidence. The regulations are there for preserving and receiving evidence from the other party, but in practice, all relevant pieces of evidence are never found or presented to courts.

In Finland, there is a principle of free consideration of evidence for judges. This means, that the court is not bound to the presented evidence in their overall assessment of the case. Court may choose to ignore some, or all of the evidence, or prefer one piece of evidence over the other. This gives the option of making a decision even without evidence. This ended up being exactly what happened in this case.

Courts in Finland also have an obligation to make a decision in every case. The easy way out is dismissing the case all together, due to lack of evidence. This has also been the case plenty of times before.⁵³ Naturally, some of the cases were also dismissed due to the lack of evidence about the infringement itself. It is not even possible to assess the damages without such proof. This case highlights the problematic nature of damage calculations quite well. What makes this case even more interesting is the fact that it has the highest damages awarded, while no solid evidence was provided. As this is only an individual case, no conclusions towards the lack of evidence leading to greater rewards can be made. It is still a valid assumption, that the opposite result is more likely. Weaker evidence leads to smaller damages.

It is very rare to see a foreign large corporation in litigation for patent infringements in Finland. Usually these cases are settled outside of courts or arbitrated in some other country. Lack of case law from Finnish courts makes it very risky endeavor to litigate here. Especially considering the weak evidence, it is a miracle, that this case went to court at all. It is safe to assume that mitigation efforts failed or the companies did not reach an agreement in any other way than court proceedings.

Magnitude of the case played a big role in the amount of damages. The volumes of the products and prices were higher than most cases and the parties involved were multinational corporations. Pharmaceutical industry is also known for higher damages and higher litigation rates worldwide, as you can see from the figure below from PwC's Patent Litigation Study 2017.⁵⁴

⁵³ Supreme Court cases 23.1.1929/238, 4.5.1936/1209, 2.3.1938/528, 6.11.1939/2342, 14.9.1955/2647-2649, 26.5.1977/1377. See more from these cases: Kemppinen, J. 1981. *Immateriaalioikeudellisia oikeustapauksia*. Jyväskylä. Gummerus.

⁵⁴ PricewaterhouseCoopers. 2017. 2017 Patent Litigation Study Change on the horizon? pp.19. [Online]. [Accessed 15 November]. Available from: <http://www.ipwatchdog.com/>

Fig 16: Median damages award: top ten industries: 1997–2016

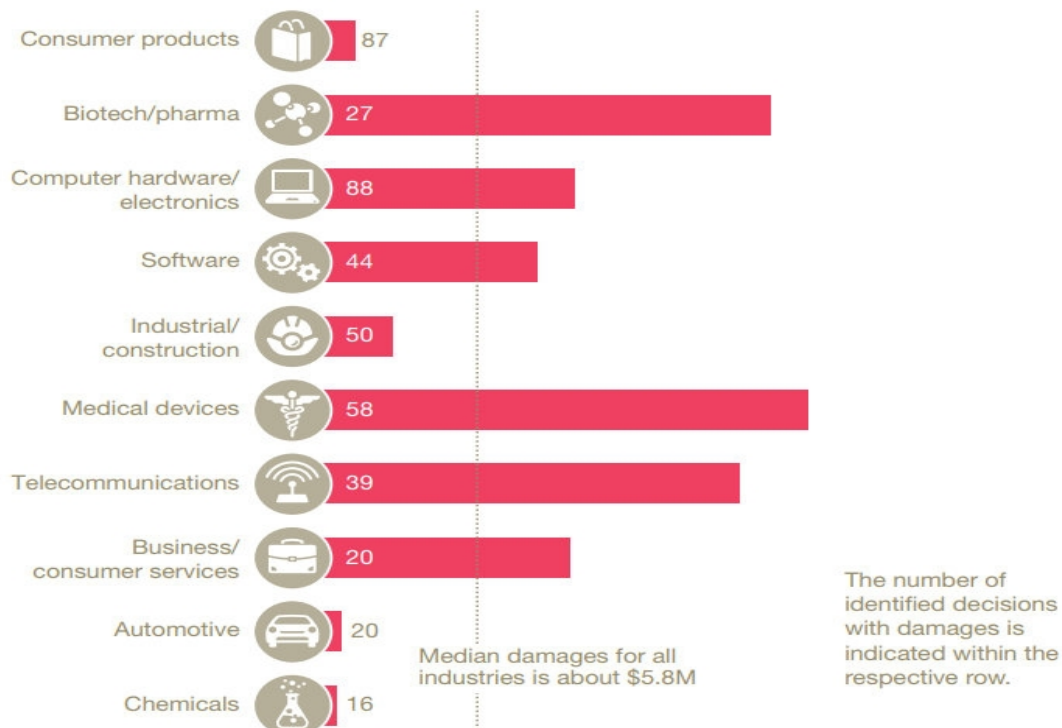


Figure 5

Important thing to notice here is that this figure is based on only cases litigated in the United States. Figures from China, Finland or any other region or country could be entirely different. Interesting thing to note as well is the fact that Merck has received the highest damages ever in the US, 2.5 billion dollars.

Chapter V

5. Solutions

So far, I have pointed out several problems without many solutions. In this last chapter, I will propose solutions to these problems one at a time. These solutions are my idea of best practices for counting damages in a just way. I believe that both Finland and China have their good and bad regulations and rules. Both of them are too limiting in the ways that judges could approach the matter. Still, both believe in the same end result: Full compensation without unreasonable profits or losses to either side. This is a worthy goal, that I can relate to as well. I will use the same nominators as in Chapter IV to keep the structure clear.

5.1. Injuries

In the current and the future world, good reputation and good will is key to success for all companies big and small. There are less corporations with high pollution, child labor and poor treatment of staff and competitors. Morality effects majorly to businesses and should definitely be part of the injuries possible from patent infringement. Patent holder has no control over the manufacturing conditions, quality, safety or any other circumstances of the infringer. This combined with the possibility of someone or even large populations mixing the infringing product and company to the patent holder, is an injury, that can not be ignored by legislators.

Naturally, same applies to the infringer. Being exposed to the public as an infringer and a criminal is often very bad and even crippling to business. In Finland, bad publicity is considered a factor, that can lower the sentence in criminal cases. Mitigating factors are usually excluded in patent laws. Court assesses mitigating circumstances case by case. This can be a good thing or a bad thing. If the court can assess the situation without any guidelines from the law, legislative reforms in this aspect are not needed. In China, it is not mandatory to follow a higher courts' preliminary rulings. Most effective way there would certainly be to include provisions of moral injuries and a list of mitigating factors as well.

Different combinations of injuries should be made available for simultaneous consideration for courts. In Finland this means also alternative solutions, when reasonable royalty fee is too hard to determine. In China this would mean the removal of hierarchy inside the damages provisions. All injuries and gains should be part of an overall assessment of the situation. Calculation of the value of a patent or infringement is very difficult in general, but impossible if only one injury type is considered at a time, if there are multiple factors simultaneously affecting the situation.

5.2. Profits gained from infringement

In Finland, there is no obligation to surrender profits to the patent holder in full. The profits have to be connected to the losses in some relevant way. This connection could be phrased as the necessary causality, otherwise known as *conditio sine qua non*.⁵⁵

Profits are occurring if the costs of manufacturing, marketing, delivering and selling the patented invention are less than the value of sold products. This equation is quite simple and does not need explanation in a detailed provision. Evidence for profits has to be available. Still, it is rarely

⁵⁵Kivimäki, T. Ylöstalo, M. 1973. Suomen siviilioikeuden oppikirja. Third edition. pp.480-481. Porvoo. WSOY.

recovered. Every company keeps a record of sold individual products, even if it does not show in their financial statements.

The patent can be a small part of a complex machine or equipment, which makes it a little bit harder to determine. Value could be based on the proportional size of the invention inside the device, or an estimate of proportional effect on functionality. If the invention is an integral part of the device, or the only thing that makes the product run for example, size is not a good way of measuring. Comparing it to other products or inventions is also hard, because there can not be a similar product to the patented one. At least not similar enough to compare. Question is: Is it fair to estimate the value based on the available data? I believe it is and should be. The wording in China is: “If the profits are too hard to prove.” This removes all responsibility from the courts to make an assessment, based on limited evidence or difficulties to obtain such evidence.

5.3. Royalties

Royalties are determined differently in every industry. Highest royalty rates have traditionally been in the medical industry. It is impossible to make a provision or a formula for counting royalties because of this. Usually some kind of industry standard rate is used. Industry standard and patent are usually completely opposite of each other. Patent has to be something, that is distinguished from the industry standard to even fulfill the inventive step requirement in the first place. Only way to reliably and accurately count reasonable royalty rate is to compare license agreements made for the same patent, with third parties. Even that is not sufficient enough, because there are no similar companies. Every company has different bargaining methods and advantages and financial and economical situations as well as market positioning.

Once again, the only opportunity is to assess the bigger picture and come up with a reasonable conclusion. In China, the burden of proof is so high, that reasonable royalty is skipped nearly always because of these reasons. Another reason to remove the hierarchy, that often leads to statutory calculation with an unreasonably low cap.

It is also questionable to base the whole basis of reasonable compensation to reasonable royalty. As this is one of the hardest things to accurately prove, it should be a part of the bigger picture, instead of the minimum, and sometimes only available amount, like in Finland.

5.4. Statutory damages

Statutory damages are only available in China. Because of the indecisiveness or absurdly high burden of proof or various other reasons, it is the most used way to calculate damages and the most unfair. It gives the illusion of overall assessment, when in reality, it is severely limiting with its low cap. Even the Supreme Court in China has noticed this problem, but courts are still hesitant to breach the cap, even with Supreme Court's blessing. There would be no need for this statutory chart in my proposed system of extensive assessment of the overall situation without limiting caps.

Statutory damages would not be a huge problem without the cap. Since in China it is difficult to prove anything, there has to be a way to at least reward some damages. This is certainly not the best practice available though. Some might say that minimum compensation in the form of reasonable royalty fee is the same as statutory damages by principle. They would be right in the sense, that both are calculated without concrete evidence and serve as the minimum available remedy. Overall, I do not see any use to have statutory damages as an option in my proposed system.

5.5. Negligence

Negligence, gross negligence, minor negligence and intentional infringements should all be considered differently and distinguished clearly in the laws of Finland and China. Both laws have currently no distinction between willful and negligent infringements. Only time negligence is even mentioned is minor negligence in Finnish law. Minor negligence gives the opportunity to mitigate the damages. This is a very good provision, that could possibly solve the lack of concrete evidence requirement in Chinese law. If damages can not be proven well enough, mitigating factors could be taken into consideration, if level of negligence is low.

On the other hand, if the level of negligence is very high, more options should be available. Depending on the case, multipliers or added bonuses could be added to close the gap on damages that can be proven and damages that may have occurred but have not been proven. At first glance, this may be against the principle of full compensation, but negotiating with a party who willfully infringes patents would, in reality, lead to higher license fee. It is the same thing in criminal or tort law. Higher culpability and level of negligence leads to higher convictions and damages. Parties are not equal and should not be equal, if the other party intends to breach the contract or in this case, the presumed license agreement. The whole reasonable royalty discussion changes with a willful opposite party.

As stated before, being negligent in most industries is quite easy. The difference between negligent and normal behavior in the field of patents is very thin, because very few people truly know enough about patents and technology to capably examine all competitors' patent portfolios and adjust their research and development efforts to avoid infringements. Companies who have managed to do this have usually a group of experts, whose only job is to read competitors patents. Even that is not enough for global companies who operate in countries like China and India and may have hundreds of competitors.

Minor negligence should have very little culpability and consequences. Problem is that difference between minor or normal negligence is difficult to determine, since normal negligence itself has quite low culpability too. Thorough examination of all the evidence and circumstances is once again the key. It should be more clearly distinguished however that minor negligence gives minor damages. This is not a major problem in either of the countries though. Both have the culture of avoiding too large damage amounts more greatly than too little.

5.6. Discovery of evidence

Basic principle in civil law is that parties themselves acquire the evidence they need for the case. Another basic principle is the contradictory principle. It grants parties the right to be heard on any claims presented against them. This should also include the right to receive all the needed evidence for making those claims. This is not the case in patent infringement trials. Parties usually want to keep all evidence to themselves to avoid giving any kind of competitive edge to their rivals. Records of sold goods are kept in every single company, but somehow, they are often not found when the opponent would ask for them. Same thing happens with the documentation on the manufacturing methods. Every single company knows how their products are manufactured, yet nobody seems to have any proof.

If these basic principles are not followed, why should any other principles be followed? How can there be any reasonable or full compensation or even a burden of proof if you can not get the proof? The whole Chinese system is based on sufficient proof, yet not on sufficient discovery of proof. The courts in China even have a time limit for production of evidence, which varies from 30 to 60 days. The other party can simply stall for a month and avoid the whole request with ease. Effective and fast litigation process is naturally a good thing but taking into consideration the fact that patent trials are very long, it is safe to say that it does not make a difference in the grand scheme if production of

evidence is done in 30 days or 100. It makes it very difficult for foreign litigators to acquire the evidence, translations and other formalities on time.

Argument against the longer evidence production period would be that evidence should be produced before the filing of the infringement claim. Some of the evidence would definitely be feasible to obtain before the filing but pending infringement claim creates the right to obtain evidence from the infringer. There is no way to get some of the evidence without suing and without the 30 day-time-limit.

Preliminary injunction claim is also a good way to deal with the situation, but the plaintiff has to produce evidence for that too. Overall the discovery of evidence lacks authority in both countries. Both of my case law examples demonstrated that key pieces of evidence were not recovered. This could be rectified with more authoritative officials. It could limit the privacy and protection of proprietary information and courts would be very hesitant to do that. In the current way evidence can not be recovered efficiently.

Chapter VI

6. Final conclusions

6.1. Current state and predictions

Comparing two very different legal environments in a complex field such as patents is hard. Finland lives under European Union's shadow and has a history of only very minor changes in patent law and especially damages, while China is going through reform after reform in constant turmoil towards being the patenting capital of the world. Both countries would rather reward damages too low than grant any undue compensation due to bad judgments by the judges.

Finland has no power in the European Union or outside it to shape the patent law in a better direction, while China is the country with most money, power and patent holders to rule the world. If China would develop a solid patent litigation procedure, which would result in full compensation being paid, rest of the world would possibly follow in their footsteps. Since the Chinese courts themselves can not even apply their own current procedure in practice, it is hard to see anybody else following. Recent developments have shown also another way. The American way. Chinese government has started to talk about punitive damages among other reforms in the midst of a raging trade-war against the United States. The power-struggle between these two superpowers will continue to shape both patent law and the world economy in the future. Hopefully as a result we

could see a mixture of the Chinese caution and American grandiose, with a spice of North-European stability and longevity.

Both China and Finland are restricting the options for the courts to assess every aspect of the case in order to determine sufficient damages. They set artificial minimum or maximum boundaries as if the judges should not be trusted to make the right decision. Perhaps it is so. Top experts in the field of patent law are not drawn to courts. I have heard leading experts say that a patent infringement trial is a flip of a coin. Risks of losing everything and gaining nothing are imminent and the attorney costs are very high. It is often a better idea to keep your inventions as secrets than to risk publishing them and losing in court. Arbitration and mitigation are much safer, cheaper and faster than court proceedings. Patent holders also prefer arbitration over courts because of this. Expertise of the arbitrators is also usually far greater than that of courts.

6.2. How to reward full compensation for patent infringement?

I will systematize my idea with several steps, that need to be executed, but do not exclude or overlap with other steps. First step is to determine injuries as accurately as possible. Second step is to effectively collect all relevant evidence from the infringing party and any other party that may possess evidence related to the infringement. Third step is to determine undue profits for the infringer. Fourth step is to determine a suitable license rate for the patent. Sixth step is to determine the level of negligence. Seventh step is the general assessment of the success in previous steps. After these seven steps, the court weighs these components against each other to determine the overall damages and the best possible solution in each case.

A common principle, when different methods are considered is that they should not be accumulated to constitute unreasonable amounts of damages.⁵⁶ In practice, this means that you can assess different methods together, but you cannot add undue profits to reasonable royalty fee, if you have not made the assessment of the royalty fee based on those profits. There are no rules prohibiting a more comprehensive consideration. In theory, all the methods can be assessed simultaneously or in a specific order, as long as the outcome is reasonable and constitutes full compensation for caused injuries.

6.2.1. Determination of injuries

It is very important to determine all injuries before initiating any lawsuits. It will significantly improve the possibility of recovering the relevant evidence later on, when the case is pending. This

⁵⁶ Castren, M. 1978. Vahingonkorvaus immateriaalioikeudessa. pp.146. Helsinki. Suomalainen lakimiesyhdistys.

is naturally not an issue for courts or legislators, but a more strategic guideline for the future plaintiff. Preparation also negates the time needed to collect and find the relevant evidence. In China, there is a very short time frame for evidence collection, with strict formal requirements that take time to execute. All of the evidence from the plaintiff's side should be ready and in order before filing the suit. In China, this means legalization and translation of all the evidence. These formalities may take time, that is very limited, after filing the suit.

In order to have any evidence, it is important to keep records of sales and all the costs from patenting and research & development. In companies, that have vast international patent portfolios, this is hard to organize. The more documentation you have, the better chances you will have of proving the infringement and the injuries it has caused.

In this stage it is also very important to establish, whether the whole infringement matter could be resolved in any other manner than court proceedings. The best way to calculate full compensation is to not go to court at all. Settlement or arbitration are far more safer options and often times more beneficial and cheaper. It also helps to preserve the relationship with the infringer, since these alternate methods of dispute resolution are more civilized and humane way of solving these issues. Who knows, the patent holder may want to merge or own the infringer in the future or do business with them. Bad relations are bad for business.

6.2.2. Effective recovery of evidence from the infringer

There are international (TRIPS) and national regulations in place for this in theory. In practice, they are not utilized⁵⁷ or not effective enough to secure all relevant evidence. In order to differentiate the relevant evidence and collect it, there needs to be a plan. Since the facilities of a company are usually private properties, the plan is not going to be perfect. Trade secrets and proprietary information unrelated to the case is in great danger for disclosure in these recovery raids. This makes the option of not informing the infringer a huge risk. Still, since the infringement or great danger for it has been established at this point, I think that the privacy of the alleged infringer can be carefully violated in order to secure the important evidence. However, under no circumstances should the plaintiff roam freely in their competitors' premises. Recovery must always be a controlled endeavor.

On the other hand, the plaintiff may want to safeguard their own trade secrets and withhold evidence themselves. This is almost as likely as the infringer's need to keep their secrets. Since the

⁵⁷ Sulin, H. 2014. Todistelun turvaamista koskeva laki vähällä käytöllä. IPRinfo 2:2014. [Online]. [Assessed 26 September 2018]. Available from: <http://www.iprinfo.fi/>

trials are mostly public, the opposition in court is not the only party necessarily to find out about the information presented to the court.

6.2.3. Determining undue profits for the infringer

In order to succeed in this determination, the first two steps need to be completed and evidence of the undue profits acquired. The period of time for this evidence is from the filing date of the patent application to present moment. This can be anywhere between 1 and 20 years. The longer the time, the harder it will be to collect the evidence. More evidence equals more time needed to search for the evidence. Another problem is, that the evidence may have been lost completely. Sales figures from 20 years are not something that are usually available. Back then archives were in paper form and during the transformation into current digitized era, only the most important documents and archives were scanned or digitized through other methods.

Currently Finnish law has regulated a 5 year time for damages, counted from the date of filing of the infringement suit. Only way to go around this is if the infringement happened within 1 year after the opposition period. This regulation is absurd and basically renders the period in force for patents a lot shorter than 20 years. This does not have basis in any international treaties. It is only there to make infringing worth the effort. China has no such regulation in its' laws. To take this into consideration, patent holder should focus their competitor surveillance in the year after the opposition period has ended. This could be seen as beneficial to patent holders who have very little resources to use for surveillance. They can focus all their efforts into a single year instead of all 20. Even so, I still think this limitation is in conflict with the rest of the patent law and with the patent right itself. It gives competitors the opportunity to infringe patents for free for up to 15 years.

When determining the undue profits, it needs to be remembered, that the infringer is profiting also because they did not pay for the development of the patented invention. This very important matter is usually never discussed in court during the damages calculations. Research and development costs can be millions for the project that resulted in the invention that was patented. Useful way to calculate this profit would be to first count the proportion of the invention inside the research and development project. Then just divide that sum by 2 and you have the price for the infringers contribution.

The same method should be used to calculate the profits for not paying for the prosecution of the patent application. First add up all the patent office fees and attorney fees and divide the amount by 2. If the patent was applied in only the country, where it was infringed, the calculations are done for

the case. If not, one should only use the prosecution costs for that particular country and divide those by 2 to get the costs for shared prosecution.

Often neglected way of profiting are also the maintenance fees for keeping the patent in force. Those should also be determined from the country, where the patent is infringed and then divided by 2. If there are more than 2 patent holders, these amounts could be divided by the number of patent holders added with the infringer.

More problems arise, if the price for the product including the patent is low in the market compared to the costs referenced above. This could indicate that no profit, or very little profit were made, even if all the costs were avoided. Naturally, value of the invention inside the product decreases over time, when factors such as brand, customer satisfaction, market demand among other things come in to play. This is one of the reasons why all steps are part of the big picture that can not be assessed mathematically in every occasion. Judges need to thoroughly examine lots of variables and dependencies.

Profit can also be made by sales. Profit margin is calculated by adding up the manufacturing and marketing costs and deducting this sum from the sales price. Value of the profit that is solely caused by the patent inside the product is not so easily defined. In some industries or products, invention itself can boost the sales price and increase the profits significantly. Sometimes the patent is a minor improvement and only adds little value. Since the infringement is solely against the invention and not the product, the value of the patented invention is the only value that matters. Proportional size could be one factor. If the invention is the product itself, calculations are a little easier. This is not often the case. Currently technology advances usually by minor improvements to the existing technology. Customer demand can add great value to the invention. Having high demand is not always a sign of valuable invention. It just means that customers need it and due to the patent, could not buy it from anywhere else.

To conclude, it is important to understand the value of the invention and the proportion of profits that relate to the invention. The fact that the infringer makes profit at all, indicates that the invention is not widely known to be a patent by the market. Usually more valuable patents gain publicity and prestige. In some countries, they are granted as Standard Essential Patents (SEP). They are so disruptive, that licensing them becomes mandatory. Often times courts only get the sales figures without proof of the proportional value of the inventions. Courts will have to make up a percentage based on that specific industry and market.

6.2.4. Determining losses for the patent holder

Now that evidence has been recovered and undue profits determined, it is time to calculate the losses. As previously stated, moral injuries are very hard to prove, but important none the less. Statistics on sales are not enough to prove that the lack of sales activity was solely caused by the infringement. Thorough analysis for the market in question has to be made. Trends in the industry and better or more cheaper technology could just as well be reasons for lacking sales. Bad marketing, sales personnel or mistakes in public relations can cause decrease of sales just as well.

Good combination of evidence would be the sales figures combined with sales figures from the infringer. Best case scenario would be client specific numbers but those can be protected as trade secrets. If patent holder can prove that their loss is infringers gain with the same client, losses are easier to prove as being caused by the infringement directly. If the evidence is not available, the court has to make an assessment based on the information at hand. Skipping this phase should never be an option, like in China.

Moral injuries could be proven by advertising materials and market behavior of the infringer. Witness testimonies can be used to describe behavior and possible lies by the infringer in customer meetings. Lesser quality manufacturing or materials could be proven from the infringing products themselves. Lesser quality products could lessen the value of the patent holder's company and their products for their customers. The products could also cause environmental hazards that would not have occurred with the original patented product. These could be proven by test results. Environmental issues are very important for technology companies nowadays and if neglected, can cause serious damages for reputation. If no evidence is provided, the court can not assess these issues in my opinion. It is too risky to determine moral injuries in the same manner as financial ones. My solution for moral injuries is to only include them, when proven.

6.2.5. Determining reasonable royalty

As previously stated, reasonable royalty has a very different role in Finland than in China. Both of these roles have pros and cons. I would not use reasonable royalty as the minimum damages, since there may or may not be any practice or median value around. Licensing is only one of the ways to monetize patents and some patent holders never do it in the traditional way by licensing to competitors. Calculation of the value of reasonable royalty is a good way to determine the value of the patent, but not the ultimate and best way. I still think efforts to calculate it should be made. Main difference between a royalty and a license is that royalty is only possible from sold products.

In a way, reasonable royalty is the same thing as undue profits for the infringer and at the same time, due profits for the patent holder.

License agreement can determine a lump sum unrelated to sales. Negotiating power and other variables affect the value greatly, whereas royalty is usually a fixed percentage. License agreement can also be in the form of royalty agreement. License fee is usually the value of the patent to the competitor and gives fairly accurate estimate for the market value of the invention. If available, a license agreement with a competitor other than the infringer would be great evidence to base the damages on.

Chinese law offers the option of multipliers to reasonable royalty. There is no connection to culpability mentioned, but it could be used to punish infringers based on their level of negligence. Intentional infringements could be punished with double royalties or even triple royalties. One could argue, that the only instance to punish infringers this way should be the criminal court, since the patent holder should not gain more than it is due. Others could argue that infringement trials are so expensive and uncertain as well as difficult in terms of damage calculation, that an extra reward would balance out these risks of otherwise too low damages. There are other ways to do this and using a multiplier is probably not the best.

Good solution is to examine the evidence and try to determine a possible royalty fee. If there is not enough evidence or common practices from the industry, courts could determine a new policy for that industry or use other ways. It should not be a minimum reward or standard to base the calculations. Still, if it can be done easily and accurately, it is one of the best ways and can even be used as the only calculation method.

6.2.6. Effects of culpability

There needs to be a clear separation of negligent, accidental and willful infringements and the damages for each of them. There is no such distinction in current patent law of China. European law and Finnish law have established systems for this, but still every European country has different regulations. Harmonization efforts have been failures among TRIPS parties as well. Meanwhile trademark laws have been harmonized quite well at least around Europe. Reasons for such differences have been national customs and practices. These same reasons have not stopped harmonization of trademark laws but somehow are really important regarding patents.

Universal opinion seems to be that culpability matters and accidental infringement should not be calculated the same way as willful infringement. Options seem to be punitive damages or

multipliers to royalty fees for willful infringement. Regular damages based on profits, losses and royalties for negligent infringements. Finally, some kind of reasonable assessment for minor negligence and accidents.

Noteworthy cultural difference between Finland and China is the criminality of intentional infringements. In Finland, it is possible to sue the infringer for industrial right crime in criminal court. This indicates that the state clearly sees intentional infringements as serious crimes against both the state and the patent holder. China does not offer such an option at all. This is too lenient approach towards intentional infringements. Only counterfeiting patents is criminalized in China. This basically excludes all process or method patents entirely out of the scope of criminal behavior. It is impossible in general to counterfeit intellectual property such as the right to prevent others from utilizing your invention. This can be interpreted to mean that, China sees the actual intellectual property as less valued and worthy of protection, than the physical results of such intellectual property right.

Criminal proceedings give an important tool on top of damages, fines. Fines can be sentenced on top of the damages to fairly punish the infringer without undue benefits to the patent holder. Problem with a district court in Finland handling patent infringement is the lack of expertise. There are no technical expert judges in district court. There are however at most two experts consulting the judges. Requirements for these experts are university degree, experience in patent matters, or optionally knowledge of economics and marketing. It is possible to have a marketing expert instead of a patent expert according to law⁵⁸. In practice this does not happen fortunately. So the argument of lacking expertise of criminal courts can be settled with legislation. Still, one of my arguments throughout this thesis has been, that even specialized courts lack the expertise to assess infringement cases and calculate damages. If done correctly, criminal proceedings could be a great addition to China as well.

Latest developments seem to indicate the adoption of punitive damages. Something that the European Union will probably never do. Pressure from the United States is much harder for China than for Finland, which have led to reformation more towards the US system. This is a rapid change from the overly cautious current system of nearly always calculating the statutory minimal amounts. I do not think that this fast development will suit the Chinese system at all. Still, they have the tools for fast developments and the financial resources to make them happen.

⁵⁸See Tuomioistuineläki 2016. (c17). Finnish Government. Helsinki. See also Patenttiläki 1967. (c9). Finnish Government. Helsinki.

Negligent infringements are more common and harmonization could be easier. Current situation remains very different however. Role of royalty fee is exaggerated in Finland and optional in China. There seems to be no difference in the procedure in China, whether the infringement is negligent, willful or accidental. In Finland patent holder can sue the infringer in district court, but if they do not, the procedure is identical to negligent infringement. Criminal proceedings are completely optional and hardly benefit the patent holder. Solution would be a clear distinction on culpability and more flexible methods to assess the damages amount itself. Courts are already choosing the most flexible method of statutory damages in China, where there are no concrete methods of calculations, just a general assessment of the case. Sometimes less regulation and more freedom is better, as long as the court can reason their methods to the parties and to the public as well.

In the cases of accidental infringement, court should not be the venue at all. There are mediation and other options available in both countries and in China, mediation is even stated as the first step before anything else will be done in infringement cases. It benefits nobody to litigate such matters. In Finland, the reasonable compensation is only mentioned and no gesture towards mediation is offered. In practice, this mediation happens in the court by mediating the damages. There is also the option of mediation instead of the court proceedings, but it is not mentioned in relevant laws related to patents.

Culpability has been ignored for too long. There needs to be clear distinction and clearly different procedures and methods for each level of culpability. Methods outside of courts should be advertised more especially with cases of minor negligence or purely accidental circumstances. Deterrence and harsher punishments in severe infringements should also be emphasized more.

6.2.7. Industry specific tailoring

Different industries have different preferences on what creates value for the invention. In some industries, sustainability or decreased environmental hazards can be more valued traits compared to increased safety or functionality of the invention. Pharmaceuticals for example have an aspect of benefiting the common good. A cure for cancer would be so beneficial that exclusive rights could be limited greatly to combat the disease. In order for judges to understand the case better, they have to learn about the industry and its specific characteristics.

Despite its fundamental importance, this is never mentioned in the legal texts. Some industry specific laws have been made to cover pharmaceuticals, but I will not address them in the

framework of this thesis. I will go through couple of industries, that have very distinct features, such as mobile phone industry and mining industry. Both are important for Finland and China.

Mobile phone industry is known for its high rate of cross-licensing. This means that direct competitors use each others technology in their products. Due to similarities of the overall technology in mobile phones, this is a must. One mobile phone can include hundreds of patents that are licensed to all the biggest companies in the industry. License value is a much better nominator in mobile phone industry than in the mining industry.

Mining industry is more famous for the lack of traditional licensing between competitors. New innovations are kept secret or patented to solely utilize the exclusive right. The competitive edge is not achieved through licensing, but through better sales numbers and higher quality technology than competitors. Sustainability and safety of the technology is also much more important in mining industry. Often times mines and mineral processing facilities are dangerous and the substances included vary from acids to molten metals and cyanide. Safety and efficiency of the patented technology far outweighs the license value, when calculating the true value, these factors should be taken into account.

Courts use industry experts to assist and give testimonies in order to understand these special nominators. Still, judges have to trust these experts, since especially in Finland, courts have so few infringement cases, that they may not have any knowledge of a certain industry beforehand. Without their own point of view, judges cannot truly contest the experts on their views. This may result to misinformed decisions. China has specialized courts just for intellectual property rights cases, so the standard of expertise should be higher. There are also many more infringement cases so the level of experience and variety of industries represented should not be a problem.

Since the different industries are so varied, common regulations are impossible to include in legislation, but judges should be the experts, rather than depend on them. This can even be the case at times, since the industry experts sometimes become judges. To ensure proper skills and knowledge, training is a better option than legislative means surely. This training has undoubtedly been organized in both countries. Even state run initiatives have been made especially in China to further improve the competence of judges in specialized intellectual property courts.

6.2.8. Conclusion

Current legal state of damages for patent infringements around the world and especially in Finland and in China is best described by lack of harmonization, evident cultural conflicts and lack of

certainty. Despite several international treaties and multilateral agreements, no unity has been achieved. Best practices are hard to define and developments are very slow in most countries. China seems to be the country playing catch up, or some might even see China as a forerunner of something new and better. They certainly have the will and funds for it.

Worldwide uniformity is probably not possible or even recommendable, due to very different cultures, financial and industrial differences and judicial systems. Also the size-difference of China compared to most countries is vastly different. TRIPS agreement has set up a vague foundation for determining some of the necessities for damages determination, but it is simply not enough to guarantee the best, or even adequate possible execution in local courts of its member states.

Steps have been taken to better the overall protection of patent rights in problematic areas like China and the future will definitely see many more reforms. Finland is not the hot spot for patent infringements so reforms will hardly be expected to occur, even if needed. Realistic expectation is to never see a uniform legislation in the field of damages for patent infringement between Finland and China.

Europe as a region will unify somewhat, if the new Unified Patent Court establishes itself as the new go to patent litigation court in Europe. Still, due to applicable law being the national law preferred by the parties, no harmonized case law will be formed. The end results are possibly exactly the same as before in national courts. The UPC-agreement does nothing new to damages assessments, so we will have to wait for the actual case law to see, if any development will be made and which directions the court will take.

As long as the United States have their very different and distinct system and their own demands for the Chinese Patent Law, there is no incentive for China to adopt even a fully harmonized European system for their patent disputes. Latest developments have also shown, that China has taken actions towards harmonizing their system with the United States. No additions of evidence discovery and punitive damages are coming with the new Fourth Amendment of Chinese Patent Law. It is very hard to believe that the European Union would ever adopt the American way into a part of the EU Law, so harmonization is highly unlikely in that regard as well.

This study has shown that uniformity may not be possible or pursued and even if uniformity would be achieved, it could lead to bad results. There are however things that are very important to get right, in order to have a good system for damages calculation. Most important is the competent and educated assessment of the entire case, not only profits or losses or any individual aspect. Also

important is to have the best possible evidence to actually do the assessment. Only after these steps can true justice be served to patent holders.

Currently a patent right is probably the weakest it has ever been. With the internet, anyone can find patents from free databases provided by national patent offices. Big corporations can bully inventors from start ups or mid size companies by simply hiring better lawyers or settling the case with money. Keeping inventions as trade secrets has become more and more popular and safer way to protect know-how. Even trade secret protection is often not enough, since key employees change companies all the time and bring their knowledge of trade secrets with them to the new employers.

High technology industries have become minefields, where every action brings more risks than benefits for small companies trying to enter to markets with their groundbreaking inventions. As the world keeps developing, legislators need to catch up and develop with it. One way to revive the patent right and its strength, is to improve regulations on damage calculation. There are numerous other ways to do it as well, but they will be subjects for other studies.

This Thesis has been a huge challenge for me due to my more practical mindset to most legal issues. Taking a more scientific approach to these issues has taught me a lot. Time will only tell, if my arguments and preferences will be seen in the future in some form in China or Finland. Only one thing is for certain. Changes will come soon in China. It will be interesting to see, whether the new reforms will change anything.

