

THE EXTRATERRITORIAL REACH OF PATENT LAW
A comparative review of divided patent infringement across borders

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1. INTRODUCTION

Patent infringement of physical inventions can usually be traced back to the location of the invention, making a separated performance of patent claims less of a problem for tangible inventions. Therefore, it is possible to determine and enforce patent infringement where the infringing product or system is located. The problem today is there has been a massive rise in the amount of inventions within the field of information technology, and the world has become far more connected. Thus, problems concerning infringement across borders are increasing since these types of inventions are not limited by national borders in the same way as more tangible inventions. Modern computer systems operate without regard to national borders, which poses a threat to those wanting to enforce national patent rights¹. Because patented inventions such as of out-of-country datacenters, cloud services, software etc. can be executed across international borders with ease, potential infringers have the opportunity to infringe patents without the risk of being prosecuted. Case law has shown that due to the intangible nature of software and other information-technology, there can be a difference between the locality of the invention and the locality of its use, which was not previously possible². The basic rule for a patent, especially a patent concerning a process or method, is that all claims of the patent must be performed inside the country where the invention is protected. If some of the patent claims are performed in another jurisdiction, it might not constitute to infringement inside the county. Even if the invention is protected by a patent in both relevant countries, a so-called parallel patent, patent law might not cover the infringing activity³. Patents have jurisdiction inside the country where they are granted, and there is no “global patent” that protects an invention in all countries. Since

¹ (Thornham 2013)

² (Handa 2007) page 74

³ (Wasserman 2007) page 282

this makes international patent protection fragmented⁴, there is a possibility of fragmented or divided infringement where there is no complete conduct of use in each of the countries involved⁵. By looking at international legislation and court cases, this thesis will highlight some possible solutions to the problems with divided patent infringement across national borders.

2. THE CONCEPT OF PATENTS

2.1 WHAT IS A PATENT?

The concept of granting patents for inventions goes back a long time. The English Statute of Monopoly from 1624 is recognized as one of the earliest origins of modern patent law, although the earliest evidence of patent law can be traced all the way back to the Italian Renaissance⁶. It is important to realize that the concept of patents is largely the same throughout the world. Even though there are differences in legislation and practice across the world, the fundamental principles are largely similar.

The basic idea behind granting patents is that an inventor gets a reward for inventing something, which then supposedly stimulates innovation. In the U.S., the ability to obtain a patent is a fundamental right specified in clause 8 section 8 of the American Constitution⁷. An invention that is *novel*, *useful* and *nonobvious to a person skilled in the art*⁸ fills the requirements

⁴ (Trimble 2012) page 1

⁵ (Lee 2010)page 5

⁶ (Bender 200) page 50

⁷ (Keasen, 2016)

⁸ (Luce 2007) page 271

for patenting. In order to keep this explanation of patents brief, I will not elaborate on the requirements for patentability.

A patent is an exclusive right that protects the inventor from others reaping the fruits of his hard work, or “free-riding” on his invention. By granting the inventor exclusive rights to the invention for a limited time, it makes it possible for him to profit financially from his invention. In that sense, a patent is essentially a legal monopoly to the invention⁹. This creates incentive and encourages individuals and companies to make technological contributions to society¹⁰.

It is important that society’s cost of having a patent system doesn’t exceed the benefits the system offers. Like other types of economic monopolies, it creates disadvantages such as higher prices and limited access¹¹. There is often a fine line for legislators to balance, in order to ensure one promotes innovation, but not limit the development of new technology. To ensure that the inventor’s monopoly isn’t too strong the duration of the patent is limited. Even though the invention itself is protected through the term of the patent, the details of the invention are also fully disclosed so that it can be used by everyone when the exclusive period is over. The patent is further limited by being confined within geographical boundaries¹². I will go into more detail about this below, but patents are generally only valid in the country in which they are granted.

⁹ (Luce 2007) page 264

¹⁰ (Keasen, 2016)

¹¹ (Burk 1993) page 27

¹² (Exporting software components - Finding a role for software in 36 U.S.C. § 271 (f) Extraterritorial patent infringement, 2005) page 412-413.

2.2 METHOD AND SYSTEM CLAIMS

The patent *claims* determine the scope of the invention. In other words, the claims are what determines what is protected by the patent¹³. To understand the infringement problems across countries' borders it is important to distinguish between the two types of patent claims; *method claims* and *system claims*. The type of claim depends on the patent referring to a physical entity or activity. System or product claims usually refers to a physical entity, made up my certain components. Method claims are steps that explain a process. In this representation, I will use the term *method claims* for a patented activity or process.

2.3 INFRINGEMENT

Without sufficient protection for inventors', it makes it easy for infringers to take advantage of their patented invention, which can potentially decrease development of new technology, at least in theory¹⁴. *Infringement* is to exploit a patented invention without the inventor's consent¹⁵, and is when all the patented claims are present in a device or a method.

For there to be infringement of a patented *system*, the product or apparatus must contain all the components of the supposed infringed product's claims¹⁶. For a patented method the primary rule is that all the steps of the method must be performed¹⁷. However, there might be

¹³ The Norwegian Law of Patents § 39 cf. EPC art. 69 & 35 U.S.C: § 112(b); "claims particularly pointing out and distinctly claiming the subject matter (...) regards as the invention".

¹⁴ The reason why I say in theory is that there is no real way to test what impact abolishment of the patent system would have on innovation, but this will not be discussed further in this thesis.

¹⁵ The Norwegian definition. The definition of infringement in US patent law is stated in U.S.C 35 § 271 (a).

¹⁶ (Grow 2016(forthcoming)) page 3

¹⁷ (T. R. Holbrook 2009) page 1

situations were no single party practices all steps of the patent, but the actions in different jurisdictions combined do¹⁸. This is what is referred to as divided or fragmented infringement which is the focus of this thesis.

3. THE CHALLENGES OF PROTECTING INVENTIONS OUTSIDE NATIONAL BORDERS — DIVIDED INFRINGEMENT

3.1 THE TERRITORIAL PRINCIPLE IN PATENT LAW

Patent law is based on a territorial principle. The patent rights granted in one country applies to that jurisdiction, and the protection does not extend to other nations. The law of the geographical area in which the patent is granted determines what is patent infringement¹⁹.

3.2 DIVIDED PATENT INFRINGEMENT

Due to globalization the need for extraterritorial extension of patent rights has changed²⁰. Before, extraterritorial infringement was less of a problem since information was slow to travel across borders. The costs of production, transportation and import were also high which made it difficult to compete against a manufacturer just by obtaining their intellectual property. Physical inventions are often more burdensome to exploit across borders because most of the time you

¹⁸ (McDermott Will & Emory 2012) page 2

¹⁹ (Lee 2010) page 24

²⁰ (Handa 2007) page 14

need the entire invention present in one place. These cost burdens therefore served as protection against abroad exploitations of patents²¹.

Globalization has resulted in the mentioned cost burdens almost disappearing. Software and telecommunications inventions can be produced or transported across national borders without high costs²². Knowledge of new technology can be communicated quickly over the internet, and transport time have decreased dramatically. This has made patentees more vulnerable to patents' strict territorial limits²³. Because patenting software is now less problematic across the world, problems with enforcement emerge. Inventions in the field of network technology and software do not necessarily operate with national borders in the same way that other physical entities, and therefore it can be hard to enforce infringement through national legislation. Computer programs are often modular, which also makes them more receptive to partial or divided use.

Divided infringement is when “two or more parties collectively perform all of the steps of a patented claim, but where no single party acting alone in completing the entire patented invention”²⁴. Divided or fragmented infringement can occur in two scenarios. It is important to distinguish between these two types of divided infringement situations, with the latter having international jurisdiction problems attributed to it. The first one is if the infringing system is owned and performed by separate parties inside the country with different steps of the system or method claims being performed by each party²⁵. The second, is when there is a partial

²¹ (Handa 2007) page 14

²² (Lee 2010) page 4

²³ (Handa 2007) page 15

²⁴ (Grow 2016(forthcoming)) page 1

²⁵ (T. R. Holbrook, The Potential Extraterritorial Consequences of Akamai 2012) page 499-500

infringement of a patented process in different jurisdictions, or cross-border patent infringement. For instance, the invention is not present in one country at the same time, or there are several stages of the invention that might be carried out abroad. In order for there to be infringement, the entire patented method or system has to be performed inside the country²⁶. The use of some steps of the method, or some individual components of the patented invention, may not necessarily amount to full infringement until it covers the entire process²⁷. This is typical with patented computer programs. An example can be a method, with one step that occurs on a user's communication device and one or more steps occurring on a server location abroad. This thesis will focus on divided infringement across borders.

Divided infringement is most likely to occur in the technological area of software, telecommunication and information technology²⁸. If parts of the patent claims are performed in another jurisdiction, it creates a problem with enforcement of patent infringement. Even if the invention is protected through a patent in both countries, patent law may not cover the entire infringing activity²⁹. No "global patent" exists today that protects an invention in all countries. Since patent protection therefore is fragmented when you see it in a global perspective³⁰, you end up with the possibility of fragmented infringement where there is no complete conduct of use in each of the countries involved³¹. Divided infringement allows for a potential infringer to practice a patented invention and still avoid liability, thus having the potential of impacting an important field of innovation very negatively³². The localization of an act inside the relevant jurisdiction is

²⁶ (Lee 2010) page 7

²⁷ (Lee 2010) page 7

²⁸ (Wasserman 2007) page 304

²⁹ (Wasserman 2007) page 282

³⁰ (Trimble 2012) page 1

³¹ (Lee 2010) page 5

³² (Wasserman 2007) page 293

decisive for determining whether infringement can be found in these situations³³. Without some form of extraterritorial application of patent law, it is difficult to ensure satisfactory protection for intangible products like software and networked technology³⁴.

4. LEGISLATION AND COURT DECISIONS CONCERNING THE PROBLEM OF DIVIDED INFRINGEMENT

4.1 US

4.1.1 THE TERRITORIALITY OF US PATENT LAW

In U.S. law there is a strong presumption against applying domestic legislation on activities outside of the country unless it is explicitly stated in the statute³⁵. Each country has their own policy and considerations when it comes to the right to inventions, and by extending the reach of national patent law you run risk of interfering with that.

In the United States, the Patent Infringement Act states that an infringer is “whoever without authority makes, uses, offers to sell, or sells any patented invention *within the United States*” or who imports the patented inventions *into the country*, cf. section 271(a)³⁶. This shows the strict territorial restrictions of Section 271(a)³⁷. Legislation against active inducement of infringement and contributory infringement are found in § 271 (b) and (c), respectively. These latter provisions are ways of making parties liable for infringement when they facilitate the

³³ (Trimble, Global Patents: Limits of Transnational Enforcement 2012) page 117

³⁴ (Wasserman 2007) page 281 and 287

³⁵ (Luce 2007) page 264

³⁶ 35 U.S.C. § 271 (a)

³⁷ (T. R. Holbrook, The Potential Extraterritorial Consequences of Akamai 2012) page 503

infringement of others³⁸. Still, these are also territorially limited since they require first finding direct infringement domestically inside the U.S.³⁹. Congress added section 271 (f)⁴⁰ and (g)⁴¹ to Title 35 in 1984 and 1988 respectively, to address the issue of manufacturers intentionally circumventing the U.S. patent system⁴². These additions extended the reach of patent law beyond territorial borders and opened up the previously strict basis of territoriality of U.S patent law. The additions in the legislation were also a response to the increasing development in technological areas such as the pharmaceutical industry, as well as increased world trade and globalization⁴³.

However, these amendments were created in an era where inventions were largely physical or machine-based⁴⁴. The ongoing expansion and rising importance of intangible inventions pose a challenge to how inventions can be exported and exploited internationally⁴⁵. Poor understanding of new technologies has made the courts inconsistent when policing these granted monopolies⁴⁶.

³⁸ (T. R. Holbrook, *The Potential Extraterritorial Consequences of Akamai* 2012) page 505

³⁹ (Handa 2007) page 37

⁴⁰ imposed liability for one who supplies components of a patented invention for abroad assembly, and in cases where there is an “intent to infringe” or there is no other suitable use then combining it into an invention that is patented in the US cf. (Gramenopoulos og Italiano 2006)

⁴¹ Protected against the importation of a product produced outside the US by a process that infringes a U.S. process patent cf. (Burk 1993) page 36

⁴² An example is the case of *Deepsouth Packing Co. v. Laitram Corp.*, from 1972. The Supreme Court ascertained patent law’s strict territorial limits by stating that the wording of § 271(a) cf. (Holbrook 2014) page 11. The case involved automated shrimp processing machines, which both parties manufactured, that Laitram had a patent on. By making the machine components separately, and shipping them abroad for assembly, Deepsouth did not “make” or “use” the invention according to the language of US § 271(a) which would infringe Laitram’s patent, since the law does not have extraterritorial application cf. (Luce 2007) page 266. The Supreme Court was criticized for creating a loophole that enabled exploitation of U.S. patents without fear of liability, even when it was clearly an attempt to intentionally circumvent the patent system cf. (Handa 2007) page 40 and (Luce 2007) page 267

⁴³ (Gramenopoulos og Italiano 2006)

⁴⁴ (Handa 2007) page 51

⁴⁵ (Luce 2007) page 285 and (Handa 2007) page 51

⁴⁶ (Handa 2007) page 51

The courts have struggled to find liability in cases of divided infringement without extending US jurisdiction too far. The U.S. Supreme Court has established a strong presumption against extraterritoriality in U.S. patent law⁴⁷. This territorial principle is not only rooted in § 271(a), but also in the primary rule of infringement in which all elements of the patent must be performed in order to establish infringement. The courts have had different approaches to method and system patents concerning the problem of divided infringement. For system patents infringement have been found when someone controls and benefits from the system inside the U.S., and effectively creates liability by localizing the invention inside the country. Method claims, on the other hand, have been treated somewhat differently. Judges have used a stricter interpretation for method patents, and sticking to the legal basis that all steps of the patented method must be performed within the U.S. for there to be infringement. The following cases will explain the U.S. courts' approach to divided patent infringement.

4.1.2 ANALYSIS OF U.S. COURT PRACTICE (IN CHRONOLOGICAL ORDER)

The **Microsoft Corp. v. AT&T** case from 2007 shows the inconsistencies of the statutes when § 271(f) is applied to method or process patents⁴⁸. AT&T alleged that Microsoft infringed on their speech coding patent by delivering master disks containing Windows® OS for copying onto computers and subsequent sale abroad⁴⁹. The Supreme Court reversed the Federal Circuit's decision that software code *by itself* cannot be interpreted to be a "component"⁵⁰ cf. § 271 (f).

⁴⁷ (Holbrook 2014) page 5. The same applies to the Courts interpretation of legislation from Congress as well, where it is meant to be applied only within the territorial jurisdiction of the U.S.

⁴⁸ (Luce 2007) page 272

⁴⁹ (Handa 2007) page 65

⁵⁰ *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1367 (Fed. Cir. 2005) at 1370. As in the case of *Eolas* from the Federal Circuit held that software can be considered a "component" of an invention in the

The Supreme Court did not exclude the possibility of software being a “component”. However, the uninstalled Windows software could only be a component, which supplying for abroad assembly could be infringement, if it was installed and able to perform AT&T patented technology in its current form. By stating that uninstalled or unapplied software cannot be a component, The Supreme Court reaffirmed the strict presumption against extraterritoriality in U.S. patent law⁵¹. The extended reach of U.S. patent law created by additions to § 271 and court practice remained the same for other forms of innovation⁵².

This standing is affirmed in the *en banc* decision of **Cardiac Pacemakers v. St. Jude Medical** from 2009⁵³. The court of Appeal for the Federal Circuit, The U.S’s primary appellate patent court⁵⁴, was to consider if § 271(f) could be applied to method claims and not only product claims⁵⁵. The court looked at the definition of the word “component,” as used in § 271(f), and stated that a component is a *tangible part of the product*. A component of a method, on the other hand, is a step in the method and not the physical components used in performance of the method. Thus, The Federal Circuit found, based on legislative history and the presumption

context of § 271 (f). In the Eoalas case from 2006 the Court of Appeals for the Federal Circuit took a position on whether the exported code was a supplied “*component*” of a patented invention that constituted infringement in according to § 271(f), in which Microsoft disagreed since computer code cannot be considered a component since it is intangible information according to the standard in Deepsouth (Id. at 1339, 1340 and (Luce 2007) page 273). The court held that the supplied master disk was a component of a patented invention, finding that the software on the exported disk that were “much more than a prototype a mold” or even a component, but “probably (rather) the key part of the(...)invention (Eolas Technologies, Inc. v. Microsoft Corp., 399 F.3d at 1339. (Luce 2007) page 274-275

⁵¹ (Handa 2007) page 71 The dissenting judge from the federal circuit case states that when Congress added § 271(f) it was meant to affect those who manufactured components of patented inventions within the United States and exporting them for assembly in order to avoid infringement of a domestic patent Still, it is not meant to extend the reach of U.S patent law in such away that it effectively attaches “liability to manufacturing activities” occurring entirely abroad. The supreme court agreed with this.

⁵² (Handa 2007) page 72.

⁵³ *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, Nos. 07.1296,-1349 (Fed. Cir. Aug. 19, 2009)(en banc)

⁵⁴ (Grow 2016(forthcoming)) page 5

⁵⁵ (Crouch 2009)

against territoriality in the U.S., that §271 (f) requirement of a supplied component is inapplicable for a patented method because you cannot *physically* “supply” a method claim abroad. The court could not extend § 271(f) reach to apply for method patents⁵⁶. This shows that the additions in the legislation are unable to deal with the problem of divided infringement, due to the courts clear distinction between method and system patents.

NTP, Inc. v. Research in Motion (RIM) from 2005 is another case from the U.S. Court of Appeals for the Federal Circuit. NTP sued RIM for infringement of both their system and method patent⁵⁷. NTP’s patents that involved wireless push e-mail technology. All messages going to the Blackberry e-mail system subscribers were processed through a “relay switch”⁵⁸. This switch was located in Canada, which meant that all steps of the method patent were not performed inside the US. Thus, there was no direct infringement within the United States of NTPs method patent. The court stated that as long as “control and beneficial use” of the *system* is obtained within the US⁵⁹, it is infringement under the statute as established in the case *Decca*⁶⁰. Even though a key component was located outside of the US, the overall beneficial use occurred inside the country⁶¹. However, this approach was not applied to the method patent. The method patent was not considered infringed since the entire process was not used “within the US” when the relay switch was located in Canada. The case makes it clear that a method patent cannot be

⁵⁶ (Grover 2009)

⁵⁷ (Luce 2007)page 278

⁵⁸ (Handa 2007) page 57 and(Wasserman 2007) page 288; The system used a (1) handheld unit, (2) Redirector software on the personal desktop or company server, (3) a relay switch and (4) a wireless network

⁵⁹ (Lee 2010) page 36, (Clancy, et al. 2006) and (Handa 2007) page 58. The court used a solution form the *Decca Ltd. V. United States*. In the case the US Navy used a positioning system based on radio signals from three transmission station, one of which was located in Norway cf. *Decca Ltd. v. United States* 544 F.2d 1070, 1074 (Ct. Cl. 1976). The US government claimed that one component, the station in Norway, was located outside the US and therefore not “used” within the US in to constitute infringement of Decca’s patent in accordance with § 271(a).

⁶⁰ *Decca Ltd. V. United State* 544, F.2nd 1070 and (Wasserman 2007) page 289

⁶¹ (Wasserman 2007) page 290

infringed unless all steps are performed in the U.S.⁶². In summary, the case extended the reach of domestic patent law by creating a “control and beneficial use test”, but failed to apply it to method claims.

In **Muniacion, Inc v. Thomason Corporation**⁶³ (2008) the court issued an opinion relevant to the issue of divided infringement of method patent domestically. By applying a rule from the case of **BMC Resources Inc. Paymentech L.**(2007)⁶⁴., the Court established a rule where *method patents* can be infringed if the patented “steps are carried out by multiple parties where one party exercises control or direction” over the entire process so that every step traces back to the control and thus infringing party⁶⁵.

The US. Court of Appeals for the Federal Circuit’s en banc decision, **Akamai Technologies, Inc. v. Limelight Networks, Inc. (Akamai)**, is the one of the most recent cases regarding liability for infringement of method patents where no single party has performed all claims. However, it does not concern cross-border patent infringement, but rather if the actions of two parties domestically can amount to full infringement. On the other hand, it can potentially influence how the court will look at the issue in cross-border scenarios.

⁶² (Trimble 2012) page 122

⁶³ The case involved infringement of a patented method in bidding on financial instruments over an electronic network. The court used the standard control or direction and held that Thomson did not “perform(ed) every step of the claimed methods” nor did any other “party perform steps on its behalf”. Therefore, there was no infringement of the method patent

⁶⁴ The court affirms the rule that “a method claim is directly infringed only if each step of the claimed method is performed” cf. **BMC Resources, Inc. v. Paymentech, L.P.**, 498 F.3d 1373, 1378–79 (Fed. Cir. 2007). On the other hand, they also recognize a that “a defendant cannot (...) avoid liability for direct infringement by having someone else carry out one or more of the claimed steps on its behalf”, as mentioned in the Blackberry case for method patents. In other words; use of a method patent can still be infringed where the “actions of multiple parties combine to perform every step of a claimed method” **BMC Resources, Inc. v. Paymentech, L.P.**, 498 F.3d 1373, 1378–79 (Fed. Cir. 2007). Direct infringement then depends on if on party exercises “control or direction” over the entire process cf. **BMC Resources, Inc. v. Paymentech, L.P.**, 498 F.3d 1373, 1378–79 (Fed. Cir. 2007)

⁶⁵ (Skadden, Arps, Slate, Meagher & Flom LLP and Affiliates 2014) page 1

In the case, MIT and its licensee Akamai Tech Inc. sued Limelight Networks Inc. for infringement of their method patent, which was a process of delivering website content to Internet users⁶⁶. Limelight performed several of claims in the patented process, except the “tagging” and “serving” step that was performed by the users of the system themselves⁶⁷. The court in the previous appeal required all steps of the method to be performed by a “single entity”, which again required a contractual agreement or a joint enterprise of some sort. In other words, there had to be a party that acted as a leading infringer with sufficient control⁶⁸. In the newest opinion, The Federal Circuit⁶⁹ found that there are two circumstances that liability for infringement as an entity can be found⁷⁰; (1) “(where) that entity *directs or controls* others performance” or (2) “(where) the actors form a *joint enterprise*”⁷¹. When determining if a single entity “directs or controls” performance, the court held that it is sufficient for determining direct infringement under § 271(a) that an alleged infringer establishes the manner or timing of the performance.⁷² Applying this rule to the case, the court found Limelight to direct and control its customer’s performance of the remaining steps of the patented method, and was liable as a direct infringer.

⁶⁶ Netflix uses this technology, among others.

⁶⁷ (Skadden, Arps, Slate, Meagher & Flom LLP and Affiliates 2014) page 1

⁶⁸ (Schaffer og Robinson 2015)

⁶⁹ On remand from The Supreme Court

⁷⁰ (Patterson Thuente IP 2016)

⁷¹ (Noonan og Borella 2015)

⁷² The court found substantial evidence that Limelight imposed the the "tagging" and "serving" steps and was in control of the "manner or timing" of the steps performance, such as the "welcome letter" with step-by step instructions the customer on how to use Limelight's services, technicians ready to help with potential installation problems etc.. Thus, all the steps were attributable to Limelight as a direct infringer of the patent.

(Rantanen 2015) & *Akamai Techs., Inc. v. Limelight Networks, Inc.*, -- F.3d -- (Fed. Cir. 2015) (*en banc*), 2015 U.S. App. LEXIS 14175 (Aug. 13, 2015) cf. *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 930 (2005) (stating that an actor “infringes vicariously by profiting from direct infringement” if that actor has the right and ability to stop or limit the infringement)

In summary, by reviewing a *totality of circumstances*, the case softened the joint infringement doctrine for divided infringement compared to the earlier standard from *Munition*⁷³ for determining liability through § 271(a). The court did not expressly mention what the rule would be for a situation of divided infringement where the separate steps of a method patent are performed between borders. However, they acknowledged that “other factual scenarios may arise warranting attributing other’s performance of method steps to a single actor”⁷⁴. This suggests that this rule about direct infringement of method patents, or a similar one, can be applied in situations where steps are performed outside of the U.S.

4.1.3 SUMMARY

The increase in software-based technology, and the nature of this type of patentable subject matter, has put a stress on the legislative framework in the U.S. that was originally meant to cover physical or machine-based inventions⁷⁵. Therefore, the technological changes have made it difficult for the courts to address divided infringement⁷⁶. The analysis of case law and section 271 shows that the extraterritorial reach of U.S. patents have changed and is still evolving⁷⁷. It is clear that from the *RIM* case, all the way up to the more recent cases like *Municipality* and *Akamai*, that the court applies and practices different rules for divided infringement depending on the patent being a method or a system⁷⁸ even though the language of

⁷³ (Noonan og Borella 2015)

⁷⁴ *Akamai Technologies, Inc. v. Limelight Networks, Inc.*, Nos. 2009-1372, 2009-1380, 2009-1417, Aug. 13, 2015 (Fed. Circ.)

⁷⁵ (Holbrook 2014) page 14

⁷⁶ (Handa 2007) page 81

⁷⁷ (Gramenopoulos og Italiano 2006)

⁷⁸ (T. R. Holbrook 2009) page 503

§ 271(a) does not necessarily suggest such a distinction⁷⁹. The rule established in Akamai makes it easier to establish liability in more situations of divided or joint infringement with the possibility of considering multiple factors. Applying the rule from Akamai, or a similar one, to divided infringement situations across borders, would make it easier to establish liability where there is an attributable party localizing the infringing activity inside the U.S by looking at a totality of circumstances.

⁷⁹ (T. R. Holbrook 2009) page 499

4.2 EUROPE

To get some perspective on the issue of divided infringement I will look at how the problem has been solved in some European countries. Both Germany and the UK are influenced by the special provision regarding choice of law⁸⁰, where it is the law of the county where protection is claimed that determines how far national patent legislation extends as applicable law. European patent law is also governed by the European Patent Convention(EPC) which I will go into more detail later.

4.2.1 GERMANY

4.2.1.1 Direct and Indirect patent infringement in Germany

Germany distinguishes between direct and indirect infringement, which most countries in the EPC do⁸¹. There is no difference in the enforceability of these two types of patent infringement⁸².

Direct infringement of a system or product patent requires the infringer to manufacture, offer, put on the market or use a system/product realizing all features of an independent claim. For method patents infringement requires that someone practices every element of a patent claim⁸³.

⁸⁰ 2007 Rome II Regulation and art. 8.1 which is the special provision on infringement of intellectual property rights cf. (Trimble, Global Patents: Limits of Transnational Enforcement 2012) page 117

⁸¹ (Quinn Emanuel Urquhart & Sullivan, LLP 2011)

⁸² (McDermott Will & Emory 2012) page 2

⁸³ (Quinn Emanuel Urquhart & Sullivan, LLP 2011)

For indirect infringement Section 10 of the German Patent Act⁸⁴ requires the supplied means to relate to an essential element of the invention in order for there to be indirect infringement. The supplied means also needs to be *purpose oriented*. This is not to say that the contributory infringement must lead to direct infringement. The patentee is only required to show that the supplied means are suitable and intended for infringing use⁸⁵, which is often the case when infringing activity is the only suitable use. Indirect infringement provides a remedy to actions that happen before an actual direct infringement.

Based on the territoriality principle, the infringing activity has to take place inside Germany in order for it to constitute infringement. However, German courts have found that liability can also be established in the mentioned situations where performance is partially performed in other countries. For example, a computer or smartphone can be located in Germany, while the server is located outside German borders.

4.2.1.2 Establishing direct infringement with cross-border performance of claims in German case law

The German courts have not seen then need to use indirect infringement to determine liability in cases of divided infringement across borders, and have rather relied on direct infringement.

German Federal Supreme Court has a fairly low threshold for determining direct infringement, only requiring support of a third party's infringing activities. A direct infringer can be someone

⁸⁴ (McDermott Will & Emory 2012) page 2.

⁸⁵ (McDermott Will & Emory 2012) page 2-3

that enables or facilitates the implementation of the infringing act by a third party⁸⁶. It does not require that the infringer controls or directs the steps of the method, or that it “controls the systems and obtains the benefits from it”, which is the standard for system claims in U.S. case law. Even though not all the steps are facilitated, an actor in Germany can still directly infringe a method patent if a third party performs some essential elements of the claims⁸⁷.

In the German court case “**Rohrschweissverfahren**”, the initial steps of a patented process involving a control method for the elevation of temperature were performed outside of Germany, in Switzerland. The later steps were performed inside of Germany, where the method was patented. The court stated that the patent was infringed in Germany through the final steps of the process.

The approach is affirmed in “**Prepaid-Karten**” from the Appeal Court of Dusseldorf. The case involved a method patent for prepaid phone cards. The different steps in the method claim described a system with a prepaid card consisting of a dial-in-number and a scratch-off layer with PIN. When the dial-in number was called it connected to the service provider with a computer system that enabled connection to a third party. The computer system established a connection until the prepaid credit is ran out. Some of the method claims were performed inside Germany, and the remaining took place outside German territory⁸⁸. The computer system keeping track of the remaining credit did not take place in Germany.

The court found that there was direct infringement. The conclusion was based on the rule that direct infringement of a method claim does not require all steps of the method patent to be

⁸⁶ Paragraph 9 of the German Patent Act.

⁸⁷ (McDermott Will & Emory 2012) page 3

⁸⁸ (McDermott Will & Emory 2012) page 4

performed inside German territory. It is sufficient for establishing direct infringement of the method patent that the abroad committed steps can be *attributed to the one performing* the remaining steps of the patented process inside German territory. For it to be attribution, it has to be a propose oriented activity, suitable and intended for infringing use, so that the *advantages of the claimed invention can take effect in Germany*. In this case, the court found that the steps practiced abroad were purposefully intended to have effect in the German marked⁸⁹. The court stated that according to the principle of territoriality infringement German Patent law does not extend to process patents that are conducted *in its entirety* outside of German borders.⁹⁰ This approach is referred to in Germany as the *economic-prescriptive approach*, where a method claim is infringed if⁹¹:

- (1) “The method steps committed abroad can be attributed to the defendant operating in the territory covered by the (...) patent”, and;
- (2) “The economic effects of the cross-border use occur in the territory covered by the asserted patent”

In other words, method patents are infringed even if some steps are performed outside the country if these can be attributed to the infringer in Germany with the advantages of the claimed invention taking place inside the country⁹². This approach resembles the “control and beneficial use test” from the U.S. However, the extraterritorial reach of German patent law seems to be

⁸⁹ (Romandini og Klicznik 2013) page 532

⁹⁰ (Trimble 2012) page 120

⁹¹ (Romandini og Klicznik 2013) page 532

⁹² (Kuhlen & Wacker 2013)

broader than what we find in the United States, considering the approach is also applicable for method patents⁹³.

Liability for divided infringement of *system* patents have not been formally addressed by the courts. Sec 9 of the German Patent Act states that liability for divided infringement of system patents in Germany can be established when domestic use is combined with the use of a foreign party to complete the system inside of German jurisdiction⁹⁴. In these situations, direct infringement is likely to be found if the supplied element represents an essential component of the claimed system that completes the system. According to some German legal practitioners⁹⁵ the approach for method patent taken by the courts seems to be equally applicable for system patents, since they both refer to an activity. There does not seem to be any reason this approach should not apply to system patents since the system as a whole would have effect inside Germany, even though some claims are performed elsewhere. This is the same reasoning the Federal Circuit used in *NTP. v. Research in Motion*. To take different approaches to these types of claims would not make sense, since they are often different ways of describing the same thing. In other words, it is likely that a German court will find infringement of a system with partial performance located abroad, as long as the acts committed in other jurisdictions can be assigned to one actor inside Germany and the advantageous effects are domestic.

In summary, German courts seem flexible in finding direct infringement on activities that happen outside of the country⁹⁶. The economic-prescriptive approach provides a pragmatic and

⁹³ (McDermott Will & Emory 2012) page 4 and (Romandini og Klicznik 2013) page 532

⁹⁴ Sec. 9 of the German Patent Act; "a person not having the consent of the patentee shall be prohibit form manufacturing, offering, putting on the market or using a product which is the subject matter of the patent or importing or stocking the product for such purposes" cf. (McDermott Will & Emory 2012) page 4

⁹⁵ (McDermott Will & Emory 2012) & (Kuhlen & Wacker 2013)

⁹⁶ (McDermott Will & Emory 2012) page 5

satisfactory solution for both system- and method patent holders to protect against divided infringement across borders.

4.2.3 THE UK

In the UK, there are three situations where liability for divided patent infringement can be determined. (1) direct infringement, (2) indirect infringement⁹⁷ or (3) liability as a joint tortfeasor with the user of the patented claims. The latter would be a similar situation as seen in the Akamai case, where liability was determined because the potential infringer of the patent provided help or service with installing and using the software or system.

Direct infringement has not been used in the UK to enforce divided infringement. There has been general reluctance in determining direct infringement outside national territory since the UK statute⁹⁸ requires that the usage happens “in the UK”. Similar to in U.S., the UK courts have not wanted to go against such a clear statutory requirement.

4.2.3.1 Establishing indirect infringement with cross-border performance of claims in UK case law

To determine patent infringement in cases where performance of the some of the patented claims happen outside of the UK, the courts have established liability through indirect infringement in fear of extending direct infringement too far from the clear requirement of territoriality in the UK Patent Act.

⁹⁷ (Thornham 2013) page 1

⁹⁸ Patents Act 1977 S.60(1)

For product or system claims the UK appellate court in the case of **Menashe Bus. Mercantile Ltd. V. William Hill Org. Ltd**⁹⁹ held that the abroad location of a computer that hosts software, did not imply that there was not use inside the UK. This was despite the host computer being located in the Caribbean¹⁰⁰. The Court found that indirect infringement could be used to impose liability, since supplying users with software, and thus creating the possibility for users to use the entire claimed system in the UK, constituted infringement even though the servers are located elsewhere¹⁰¹. The test established and used in the case is known as the *claim-based approach*¹⁰². The test is based on the UK Patents Act Section 60(2) and asks; (1) who uses? and (2) where is it used?¹⁰³, which in this case was (1) “the users” in (2) “the UK”.

The same test was applied to method patents in the case of **RIM v. Motorola** by the High Court of England and Wales. In the case, Motorola¹⁰⁴ alleged that RIM’s Blackberry Internet Solution(BIS) infringed their patent of a Message Communication System. The relevant factor in determining the location of the potential infringing activity was the location of the the server¹⁰⁵. With the answers to the mentioned test being “RIM” and “in Canada”, the BIS system was found to not infringe the patent inside the UK¹⁰⁶. RIM did not offer the method for use or supply the means to put the invention into effect inside the inside the UK¹⁰⁷. The court based the decision on how the claims were drafted. The claims asserted it from the perspective of the service provider, with the service provider controlling the execution. The crucial point was that since the

⁹⁹ (Thornham 2013) page 2 cf. 2002 EWCA Civ 1702

¹⁰⁰ (Lee 2010) page 37

¹⁰¹ (Thornham 2013) page 1

¹⁰² (Romandini og Klicznik 2013)

¹⁰³ (Sant og Beckett 2010)

¹⁰⁴ The High Court of England and Wales: EWHC 118 (Pat), Case No: HC08C02841

¹⁰⁵ (Romandini og Klicznik 2013) page 532

¹⁰⁶ (Sant og Beckett 2010)

¹⁰⁷ (EPLAW Patent Blog 2010)

method claims were drafted from the point of view of the server and those who performed the method, infringement did not occur inside the UK¹⁰⁸.

In summary, both system and process claims will be subjected to the same test when determining divided infringement. However, the type patent claim will determine how infringement is assessed¹⁰⁹. This makes claim construction the deciding factor in determining liability. The test established in the *Menashe* case for both types of patent claims, keeps the possibility for determining infringement open when there is cross-border performance. On the other hand, the solution seems unpredictable for the patent holder. If method claims are drafted in a way that localizes the invention outside the UK, the patent holder is deprived from protecting his right even though the invention has substantial effect and economic benefits inside UK territory. For patents it is important to have clear and predictable rules. An open-ended test that is not equally effective for determining infringement for both types of patent claims is far from ideal for ensuring clear and enforceable rules for patent holders.

4.3 SUMMARY OF THE APPROACHES TO ENFORCEMENT OF DIVIDED PATENT INFRINGEMENT IN INTERNATIONAL CASE LAW

There have been different attempts of imposing liability in these scenarios internationally. The U.S. courts have taken a more careful approach, with not creating a doctrine for beneficial or advantageous effect for method patents. The same is true for the UK. Even though the *claim-based approach* creates a possibility of asserting infringement of method- and system patent

¹⁰⁸ (Romandini og Klicznik 2013) page 532

¹⁰⁹ (Sant og Beckett 2010)

claims performed in different jurisdiction, it can have very different outcomes depending on the type of claim and how they are drafted.

Germany has a long and vigorous tradition of protecting inventors, as well as having a strong tradition of German law reaching activates abroad¹¹⁰. The U.S. does not have such a presumption. According to the approach taken by the U.S. Court of Appeals for the Federal circuit, a patent is not infringed unless all steps of the patented method are performed within the country where the patent is valid.¹¹¹ The German *economic-prescriptive approach* states that infringement inside the country can occur if the advantages of the claimed invention take place inside Germany, even though the server or some of the claims are practiced abroad. The *claims-orientated approach* in the UK used on method patents seems to differ from the German approach by not looking at where the economic benefits are obtained. However, both the economic-prescriptive and the claims-orientated has at least the possibility of determining infringement domestically if all the claims are performed collectively, which is not the same with the U.S approach¹¹². The German solution is the one that seems to provide a pragmatic solution that can protect national patent rights against divided infringement by considering if the advantages of the claimed invention can be attributed to a party in Germany. Since the test does not discriminate against method patents, and is equally applicable for both types of claims, it seems like an advantageous approach to dealing with cross-border divided infringement.

With the implementation of the Unitary Patent Regulation (UPR) which I will go into more detail on later, it will be interesting for the state of the law in the European area too see

¹¹⁰ (Trimble 2012) page 123

¹¹¹ (Lee 2010) page 37

¹¹² (Romandini og Klicznik 2013) page 533

what sort of approach will be adopted concerning divided infringement. If the Unitary Patent Court have a stricter approach to extending direct or indirect infringement, they might create a loophole for competitors which can place servers or perform other claims outside of Europe and the jurisdiction of the European Unitary Patent System¹¹³.

5. POSSIBLE SOLUTIONS FOR PROTECTING INVENTIONS

INTERNATIONALLY FROM DIVIDED PATENT INFRINGEMENT

5.1 INTRODUCTION

As shown, strict national patent protection might not be suitable for protecting transnational technology¹¹⁴. There are huge costs connected to these types of infringing activities, and there is a need for enforcement mechanisms that hinders infringers to be protected by patents national limits¹¹⁵.

5.2 CLAIM CONSTRUCTION

One possible solution to the problem is to protect each step of the process in the patent. That would make it possible to enforce infringement wherever the process is taking place, if the patentee has obtained a patent in that geographical area.

¹¹³ (Thornham 2013) page 2

¹¹⁴ (Handa 2007) page 93

¹¹⁵ (Luce 2007) page 286

The problem with this is that it may not fulfill the requirement for patenting such as novelty or non-obviousness and therefore not be able to be patented independently¹¹⁶. This is especially true with inventions in the field of computer technology which are often based largely on combinations of prior art or common components. It might be the combination or the composition itself that make up the patented invention. Thus, there is a need for protection that does not require changing the claim construction or the nature of the patented material.

Drafting unitary patent claims is also a possibility to stop potential infringers from circumventing the patent system. By having method patents confined into a system or reducing the number of steps would make it more difficult to perform the steps of a patented method separately to evade liability¹¹⁷. Still, you run into the same problem as patenting each step, since it might not be possible for the invention to meet the patentability requirements.

In summary, changing the way claims are constructed would make it more difficult for divided infringement to occur. However, it is not an adequate solution to the problem considering the patentability challenges.

5.3 A STANDARD OF “BENEFICIAL USE” FOR BOTH SYSTEM AND METHOD PATENTS

In the analysis of international case law, I have shown that extraterritorial reach can be obtained through judicial interpretation by extending the application of domestic patent law¹¹⁸. As seen in the German Patent Act, an essential part of an invention can contribute to an act of direct

¹¹⁶ Id page 10

¹¹⁷ (Wasserman 2007) page 300 cf. Mark A. Lemley. ”Divided Infringement Claims”, 33 AIPLA ”Q.J. 255, 256 (2005)

¹¹⁸ (Trimble, The Extraterritorial Enforcement of Patent Rights 2015) page 12

infringement that has effect inside Germany¹¹⁹. German courts can then create liability for patent infringement both when initial or final steps are completed outside of Germany, as long as it can be attributed to the infringer in Germany¹²⁰.

The problem of enforcement of divided patent infringement from partial use between countries, or divided transnational infringement, is related to *localization* of the invention. Localization is where the patent is performed or has effect, and is what needs to be determined for courts to find infringement. Patent law is territorial, which also means that the ground rule is that it is only the court of the patent-issuing country that has jurisdiction over the potential infringer¹²¹.

Modern technology can make it difficult to determine where the effect of the invention is obtained, or where there is an offer to sell. This was shown in *Menashe*, as well as the mentioned U.S. case of *RIM v. NTP*¹²². In the latter case a doctrine of beneficial use or effect was used on the system patent. This meant that since there was sufficient beneficial effect domestically, liability for infringement could be determined since the effect of the system was within the United States. In other words, a system is potentially infringed if the control and beneficial use lies within the U.S.¹²³. Such a rule was not applied on NTP's method patent. The courts have stuck to the initial and deeply rooted basis that all steps of the method must be performed, and carried out by the same alleged infringer or entity. With § 271 (f) not being applicable¹²⁴

¹¹⁹ (Trimble, *The Extraterritorial Enforcement of Patent Rights* 2015) page 12.

¹²⁰ (Trimble, *The Extraterritorial Enforcement of Patent Rights* 2015) page 17

¹²¹ (Trimble, *The Extraterritorial Enforcement of Patent Rights* 2015) page 14

¹²² (Trimble, *The Extraterritorial Enforcement of Patent Rights* 2015) page 17

¹²³ (T. R. Holbrook, *Method Patent Exceptionalism* 2016) page 39

¹²⁴ *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, Nos. 07.1296,-1349 (Fed. Cir. Aug. 19, 2009)(en banc) and *AT&T Corp. v. Microsoft Corp.*, 414 F.3d 1366, 1367 (Fed. Cir. 2005)

combined with only the slight exception provided by the Akamai case, method patents are rendered without sufficient protection against divided infringement across international borders.

It is unclear why a method claim could not be infringed by using the same reasoning as one does for system claims¹²⁵. The clear distinction between method patents and system patents made by the courts in the United States are suggested to not have any real legal basis¹²⁶, especially when The Supreme Court in *Alice Corp*¹²⁷ notes that they are “no different from the method claims in substance”¹²⁸. It would make more sense to interpret “invention” homogeneously, concerning both those patented through methods and system claims¹²⁹. Software is often patented as both a method and a system. If NTP in the RIM case only had the method patent, they wouldn’t have prevailed in the case. The standard of “where control of the (method) is exercised and beneficial use is obtained”¹³⁰, could also be applied for method patents. Especially when they are both essentially the same thing described in different ways¹³¹. The court decision to not apply it to method patents is founded on the belief that the “use” of a method is fundamentally different from the use of a system patent¹³². In Germany, they have not made such a distinction, which makes enforcing liability on this type of infringement easier.

In my opinion, the best solution would be to establish a standard of beneficial use for both types of patent claims, and not try to differentiate between them in the context of divided infringement.

¹²⁵ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 32

¹²⁶ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 32

¹²⁷ *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347. 2360 (2014)

¹²⁸ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 34

¹²⁹ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 35

¹³⁰ (Wasserman 2007) and *NTP, Inc v. Research in Motion, Ltd.*, 418 F.3d 1282 and 1317

¹³¹ (Luce 2007) page 280

¹³² (Wasserman 2007) page 290

A method would then be infringed when someone puts it into effect and obtaining beneficial use inside the country¹³³. As seen in Germany, and partially in recent U.S. case law, there is a more lenient attitude among the courts to extend patent law by looking at where the invention is actually being practiced or through where it has beneficial use, as long as the infringer has control of the process. It would require for U.S. courts not to differentiate method patent and system patents when it comes to divided infringement¹³⁴. The *claims-orientated approach* in the UK uses the same test for both method and system claim. However, it ends up having very different results, and creates unpredictability for the patent holder. Having a consistent approach to these two types of patents is the first step of making effective enforcement of cross-border patent infringement possible. Treating method and system claims the same would create a consistent test for all cases concerning divided patent infringement and be “beneficial for the development of the law”¹³⁵. In the U.S. this could even be done by making reapplying § 271 (f) to method patents, by loosening the constrained interpretation of “component” and allowing software to be incorporated into systems or apparatuses as any other component. This would allow methods to have the equal protection against cross-border divided infringement as system patents¹³⁶.

However, this does not come without challenges. The beneficial use standard can be considered unpredictable or unclear for courts and patent holders. It is said that the test is open-ended, with courts giving little guidance to how this rule should be applied to foreign activities. “Control”

¹³³ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 32

¹³⁴ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 39

¹³⁵ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 29

¹³⁶ (T. R. Holbrook , Method Patent Exceptionalism 2016) page 38

and “benefit” are not obvious standards to determine. How much control or benefit would be enough to localize the invention inside the jurisdiction¹³⁷? These are questions that the legislator or the court would have to address for such a doctrine to work in a predictable way for all parties.

With these kinds of extensions of domestic patent law, you also risk hindering other nations from effectively controlling and implementing their own patent policy. Under international law, countries have sovereignty and jurisdiction within their territory. Extension of national legislation can potentially disrupt other nations’ ability to regulate their own affairs, and be the basis of conflict between patent systems abroad¹³⁸. These types of comity issues have the potential to cause problems by affecting a nation’s sovereignty, which is a fundamental principle of international law. This is also partially the reason the United States has been very cautious when extending its own patent law, as well as affirming the clear and strict basis of territoriality of patent rights.

It is especially important to avoid extending jurisdiction too far beyond a country’s borders and making others liable for performing part of a method patent that should not be prosecuted. With creating a doctrine of beneficial use for all types of patents, one risk’s creating liability to an innocent defendant who is not trying to exploit patents from other countries by circumventing the system.

Unilateral extraterritorial extension of domestic patent law upon foreign jurisdiction has the potential of violating the can principles of international law such as sovereignty and self-determination, and thus might not be sustainable. This shows that in the age of globalization an

¹³⁷ (Handa 2007) page 60

¹³⁸ (Handa 2007) page 122

effective form of extraterritorial extension of domestic patents may require some form of mutual agreement or treaty¹³⁹. The following will explore the alternatives to extending national patent law to deal with the problem, and the challenges of an international legislation approach.

5.4 INTERNATIONAL PATENT PROTECTION AND HARMONIZATION

The change in the nature of innovative technologies have led to a shift towards a need for national- to international patent protection. In the early days of the patent regime, conventional inventions were largely physical products. Now many as inventions are intangible and more capable of easily crossing borders to cross jurisdictions, such as software platform accessed across different countries¹⁴⁰.

Today securing international patent rights is an extensive and expensive process. Given the patent rights restriction to domestic jurisdiction, separate patents in each jurisdiction is the only way to secure international protection¹⁴¹. A patent application must be filed in each country where one wants protection, which results in global protection sometimes costing close to a million USD¹⁴². With this being extremely costly and with technological advancement in production making production easier, there is now a bigger risk for foreign manufacturers to be able to exploit the technology at a very low price¹⁴³. Even though patent law remains national and territorial at its core, there have been efforts to harmonize patent law globally and

¹³⁹ (Handa 2007) page 100

¹⁴⁰ (Handa 2007) page 96

¹⁴¹ (Handa 2007) page 94

¹⁴² (Bender 200) page 53

¹⁴³ (Handa 2007) page 94

regionally¹⁴⁴. National patent protection might no longer be a satisfactory approach to regulating transnational technologies¹⁴⁵ since it does not protect infringement in cases where no entire performance is done within either country¹⁴⁶. Additionally, there are high costs affiliated with enforcing patent rights in multiple jurisdictions due to litigation costs. This essentially makes international patent protection only available to the bigger corporations, and individuals or small businesses will have little or no chance of competing or going against multinational companies that can protect and enforce their international patent rights¹⁴⁷.

International extension through international agreements is one way of securing economic interests and advancing enforceability internationally¹⁴⁸. There is a risk of giving domestic patents effect beyond national borders, since they can go against the legal sovereignty of other countries and create problems with enforcement¹⁴⁹. Therefore, it might be a better solution to get sufficient protection through bilateral or multilateral treaties than to extend domestic patent law. International patent protection could be a way of disarming several of the problems with cross-border patent protection and enforcement.

Existing international patent law harmonization attempts have resulted in some substantial conventions. However, they have been partially criticized for not adequately coping with emerging technologies¹⁵⁰. In the following, I will look at the current international

¹⁴⁴ (Bender 200) page 53

¹⁴⁵ (Handa 2007) page 93

¹⁴⁶ (Handa 2007) page 100

¹⁴⁷ (Handa 2007) page 110 cf. Donald Chisum.

¹⁴⁸ (Handa 2007) page 94

¹⁴⁹ (Handa 2007) page 83

¹⁵⁰ (Handa 2007) page 105

harmonization efforts, and how international legislation concerning this problem could be effective.

5.3.1 THE PARIS CONVENTION AND TRIPS

The Paris Convention(PC) from 1883 is the first substantial effort in making a limited international harmonization of patent laws¹⁵¹. The PC makes it possible to apply for a patent in the other member jurisdictions within twelve months after the original filing to ensure international protection, without having to worry about prior art preventing international protection. Still, one needs to send an application to each country individually which can be an expensive and complicated process¹⁵². However, it makes it possible for the patent holder to consider where to seek patent protection without filing for patents in unnecessary jurisdictions¹⁵³.

In addition, the PC establishes a national treatment principle where the member state must grant international filers the same protection as it would its own citizens. It also provided an early codification of the principle of comity. This principle was adopted as a fundamental part of the TRIPS agreement¹⁵⁴, and is a legal principle that nations and courts in different jurisdictions will mutually recognize each other's legislative, executive and judicial acts¹⁵⁵.

The TRIPS agreement, which is a part of the WTO, is the biggest patent harmonization initiative in the world to date¹⁵⁶. TRIPS require WTO members to implement minimum

¹⁵¹ (Handa 2007) page 106

¹⁵² (Trimble 2012) page 82

¹⁵³ (Bender 200) page 55

¹⁵⁴ (Handa 2007) page 105

¹⁵⁵ (Cornell University Law School (unkown year published))

¹⁵⁶ Before TRIPS international intellectual property regulation was a mix of national laws and smaller conventions cf. (Handa 2007) page 106

standards of IP regulation into their legislation. The member states are free to choose in which way they want to incorporate the TRIPS, and there is only a minimum set of standard protection, procedures and remedies for enforcement and dispute settlement procedures that must be followed¹⁵⁷. Thus, it allows for non-conformity and does not ensure complete and substantial patent law harmonization¹⁵⁸ Further, divided patent infringement is not mentioned in the TRIPS agreement. TRIPS is also made on the basis that all technologies should be treated equally under domestic patent law¹⁵⁹.

Enforceability is one of the main problems as well. Trans-border enforcement is basically absent on a multi-national level. Enforcement generally happens in the form of trade sanctions from the WTO, but the TRIPS agreement does not require that countries have an adequate administration for sufficient enforcement. This has been criticized by the U.S. when states fail to meet the minimal enforcement standards of the TRIPS agreement¹⁶⁰. However, this is the problem with most international conventions and treaties; efficient enforcement mechanisms are absent.

TRIPS does not regulate the situation of divided patent infringement. If TRIPS as international legislation was going to be an adequate solution for dealing with the possibilities of escaping by transnational performance of claims, it would ideally require participating countries to adopt a doctrine of beneficial use for both types of patent claims where patent holders could protect enforce their rights in a predictable way. Secondly, there would need to be

¹⁵⁷ (Handa 2007) page 106

¹⁵⁸ (Handa 2007) page 118

¹⁵⁹ TRIPS Ch. 3, note 7, Part II, section 5, art. 27 (1) "patent rights (should be) enjoyable without discrimination as to the place of the invention and the field of technology" cf. (Handa 2007) page 95

¹⁶⁰ (Handa 2007) page 107

some way of forcing countries to meet the standards of the agreement. As I will explain later, there are conflicting legislative identities present in these types of global agreements. Since every participation country has different opinions and legal traditions, it difficult to create uniform legislation, standards or doctrines that everybody can agree to.

5.3.2 THE PATENT COOPERATION TREATY (PCT)

The Patent Cooperation Treaty (The PCT) was initiated in 1970 and provides patent applicants with the possibility of filing one single patent application that will give a patent in each of the member countries. After going through the local Patent Office¹⁶¹, a PCT application is then submitted to each of the relevant national patent offices where it is examined for patentability. Still, this is not a unitary international patent since it only results in a bundle of patents subject to different national laws¹⁶². In other words, it does not deal with the problems of divided infringement, with circumscision of the patent system still being possible since the territorial limits of each country's patent law still apply¹⁶³.

5.3.3 GLOBAL UNITARY PATENT SYSTEM - THE WORLD PATENT

Another solution to the problems with divided infringement of patents across borders is to create a uniform protection through a multilateral convention that could enforce foreign intellectual property right related judgments¹⁶⁴.

¹⁶¹ First the international application goes to a national patent office, and after a screening process varying in thoroughness from country to country, it goes to the “national stage” cf. (Stembridge 2016)

¹⁶² (Stembridge 2016)

¹⁶³ (Wasserman 2007) page 301

¹⁶⁴ (Lee 2010) page 24

There has been an attempt to establish a European patent system with a binding court that can enforce patent infringement across borders creating a possibility for sufficient protection in the European market. It started with the European Patent Convention, which led to an agreement of a supranational Unitary Community Patent that has not yet been implemented¹⁶⁵. Currently, there is a possibility of obtaining patent protection in the EU through a single application process. By applying to The European Patent Office (EPO) directly or through a national European Patent Office, one can receive national patents to each member state in EPC. Still, this is not a EU patent in the form of a single instrument. These are national rights that require enforcement on a country to country basis as if each nation issued a patent individually¹⁶⁶. Thus, it has the same problem with infringement issues having to be resolved on a national rather than regional level¹⁶⁷.

The new initiative for The Unitary Patent Regulation started in 2012 and is close to realization, making the effort of creating a unitary EU patent system ultimately successful¹⁶⁸. The unitary patent system in the EU will consist of a unitary EU-patent as well as a litigation mechanism in the form of a court made up by three organs¹⁶⁹. The new court, “The Unified Patent Court” (UPC)¹⁷⁰, will enforce the regional patent inside the EU under one unified system. This would deal with the problem of divided infringement across borders inside the region, as well as other enforcement issues in the EU due to jurisdiction limits. The Unitary Patent

¹⁶⁵ (Bender 200) page 57

¹⁶⁶ (Trimble, Extraterritorial Intellectual Property Enforcement In The European Union 2011) page 234.

¹⁶⁷ (Bender 200) page 58

¹⁶⁸ (Romandini og Klicznik 2013) page 525

¹⁶⁹ (Stembridge 2016) The patent would be valid in all the 26 participating countries and through one single application within one month of grant with a “Request for Unitary Effect together with a translation, and (Romandini og Klicznik 2013) page 526

¹⁷⁰ (Stembridge 2016)

Regulation (UPR) is now close to becoming a reality and could potentially have huge implications for the future of international patent law. A successful adaptation of a European Union patent would be beneficial for the countries when it comes to enforcement, and will be a chance to see how such a system would work if put into work on a larger scale with Europe being the biggest global economy in the world¹⁷¹.

If one applies the idea of a European patent system on a larger scale one could potentially have a global unitary patent system which would solve a lot of these problems, and ensure a fair and cost-efficient system globally. Such a system would render patents as global instead of national, and borders would not limit enforcement. It would be beneficial for the global intellectual property community to enjoy a simpler and less costly procedure for enjoying worldwide protection in a world where borders are less important.

The downside of a unitary patent system is that patent policy differs from country to country. This includes how patent systems are structured, views on patentability and other assessments. Because patent law globally has many differences, it is difficult to make a complete worldwide patent without overhauling every contributing country's national patent law and removing a lot of national self-determination. It also requires divided infringement being a pressing issue in all involving participating countries, because of the time and cost in developing such an extensive system. However, Europe is close to implementing a system that will deal with cross-border enforcement, and the new system in the EU will be the first unitary solution ever tested on such a

¹⁷¹ (Stembridge 2016) & 2014 GDP figures from *International Monetary Fund* at <http://www.imf.org/external/index.htm>

big regional scale¹⁷². The initiative for a European patent system shows that a global patent system might be a possibility in the future.

Although some degree of harmonization might be inevitable in the future, this does not mean that it should consist of major international treaties binding many countries or a uniform global protection through an international unitary patent system patent. Rather countries could come together on a regional scale with only a few countries that are often involved¹⁷³.

5.3.4 FRAMING IDEAL INTERNATIONAL LEGISLATION TO DEAL WITH THE ENFORCEMENT ISSUES OF

DIVIDED INFRINGEMENT

In summary, conventional methods of international patent protection fall short of ideal for dealing with divided infringement. Agreements such as TRIPS are meant to ensure international extension of patent across borders, but it is clear that they are inadequate for dealing with the emerging modern technologies, securing national autonomy as well as providing satisfactory enforcement possibilities for divided infringement¹⁷⁴. Even though extensive progress has been made in patent law harmonization, significant differences persist concerning the view of patent policy and -law which prevents a more deeply harmonized or unified patent law¹⁷⁵.

The challenge of establishing an efficient system that is beneficial for many countries internationally is that each nation has its own “patent identity”, which is the way that it

¹⁷² (Trimble, *Global Patents: Limits of Transnational Enforcement* 2012) page 189

¹⁷³ (Trimble, *Global Patents: Limits of Transnational Enforcement* 2012) page 190

¹⁷⁴ (Handa 2007) page 114

¹⁷⁵ (Trimble, *Global Patents: Limits of Transnational Enforcement* 2012) page 187

formulates, interprets and enforces patent protection¹⁷⁶. Therefore, when trying to find common ground and harmonizing, each nation is likely to push its own interests and policies forward, and wants to extend them across their own borders internationally¹⁷⁷. This has the potential of creating conflicts. Mutual recognition of other countries patent law requires some form of a give-and-take attitude between the participating nations. A principle of comity is a key premise for international legislation in any area. This is especially true intellectual property since the whole point is for it to be some form of legislative harmony¹⁷⁸.

There is a balance to achieve when shaping international legislation in this area. Unilateral extension of patent law abroad may lead to undermining other countries national interests, but at the same time so will extensively harmonizing national patent regimes to a global unity. A balance between the correct level of self-determination and internalization is needed to achieve an ideal harmonization of patent law¹⁷⁹. Therefore, international agreements on a smaller scale might be less receptive to the problems of territorial differences in legal and economic traditions¹⁸⁰. The ideal solution for international legislation would be a consensus-based agreement standardizing national patent policy and regimes through a joint international agreement or some form of global patent system enforced by a court with complete jurisdiction¹⁸¹. A unitary system removes patent's territorial boundaries for, and makes it easier to assign liability for infringement to one actor when performance of claims occurs in several countries¹⁸². If International cooperation is the goal in global intellectual property law,

¹⁷⁶ (Handa 2007) page 102

¹⁷⁷ (Handa 2007) page 103

¹⁷⁸ (Handa 2007) page 104

¹⁷⁹ (Handa 2007) page 109

¹⁸⁰ Rish Handa suggest this in his paper from 2007 cf. (Handa 2007) page 108

¹⁸¹ (Handa 2007) page 113

¹⁸² (Romandini og Klicznik 2013) page 534

harmonization efforts should not stop with agreements that just grant rights in multiple jurisdictions through agreements like TRIPS¹⁸³.

However, a global or near-global consensus would be tough to achieve. A regional approach which seeks to ensure nations' economic interest and respecting their sovereign legal authority¹⁸⁴, with bilateral or multilateral agreements, would be a more realistic solution if international legislation is the objective and not an extension of domestic patent law¹⁸⁵. This would mean establishing international agreements that are based on mutual recognition and enforcement of patent rights of the participating member nations, rather than a more intrusive extraterritorial approach¹⁸⁶. A global system on any scale is unlikely to reach a successful conclusion without accommodating the variety of national patent systems on some level¹⁸⁷.

The problem with a near global or territorial agreement, like the UPC, when dealing with the issue of divided patent infringement, is that it would give a potential infringer the opportunity to make sure he operates or performs the steps outside the grasp of the agreement. A unitary patent system on a limited territorial level, however big it may be, is still subject to the international principle of territoriality. This means when one or more steps of a patented method or system is performed outside of the EU, the unitary patent can still be infringed¹⁸⁸. In that sense, it does not fully deal with the problem. Even though it will likely limit the extent of the problem of divided infringement, it is still possible to intentionally circumcise the system by deliberately performing

¹⁸³ (Trimble, *Global Patents: Limits of Transnational Enforcement* 2012) page 186

¹⁸⁴ (Handa 2007) page 122

¹⁸⁵ (Handa 2007) page 113

¹⁸⁶ (Handa 2007) page 113

¹⁸⁷ (Handa 2007) page 111 - 112

¹⁸⁸ (Romandini og Klicznik 2013) page 537

steps outside of the jurisdictional boundaries of the UPC.

In summary, creating harmonization with fewer countries can be an easier way of trying to obtain a common area for jurisdiction, rather than being overly ambitious with trying to create a uniform system on a global scale. However, mutual recognition of global patents is not sufficient to creating a complete solution to cross-border patent infringement, neither is a semi-global or territorial agreement. A global unitary patent system would be the only way of removing the risk of unenforceable divided infringement, and with the huge challenge it poses to implement such a system it is only a hypothetical solution today. Enforceability and the problems of varying economic interest makes comity difficult, and it is unlikely that these types of agreements in the global IP space will be any more efficient anytime soon.

6. CONCLUSION

The answer to the problem of divided infringement across national borders is complicated. Both the extension of national patent law, as well as establishing international legislation or harmonization, are solutions that deal with the problem; but neither are without disadvantages and challenges. It is evident that having strict geographical rules concerning patents has not proven to be very effective in the protection of inventions in an interconnected world. “The

territoriality of {patent law} was well suited to a world rigidly divided into national entities (...)”¹⁸⁹, which is no longer the case in today’s digitalized and globalized world.

Even though a global patent with an international patent court would solve many problems with enforcing cross-border patent infringement, the diverse patent identities and interest of participating countries makes this far from realistic. Ideally some form of international or regional harmonization to deal with enforcement of divided infringement should be created, but there is also a problem with having the sufficient incentive from the participating countries to do so. In addition, smaller uniform systems are still open to divided infringement for those intentionally wishing to exploit the weaknesses.

The best solution in my opinion is the approach used by Germany, which is creating a standard of domestically beneficial use applicable for both method and system patents. Extending national legislation too far has the potential of colliding with the fundamental principle of sovereignty in international law, but as long as the claims can be considered utilized in totality inside the jurisdiction, enforceability is justifiable.

Extension of domestic patent law through a beneficial use test might not be sustainable. The problem with current international legislation is that it lacks an essential part of a successful international system; effective enforcement possibilities. Ideally, a form of international legislation with the possibility of adequate enforcement opportunities would be beneficial, but constructing global legislation with an effective way of enforcement currently poses many challenges for it to be a realistic solution to the problem as mentioned in this thesis. It will be

¹⁸⁹ Prof. Mario Frazosi & Dr. Guistino de Sanctis, *Are national IP rights Becomine Obsolete, IP Worldwide, May/June 1996 through* (Bender 200) page 67

interesting to see how the European UPC will be received. If the system proves to be successful and efficient, it could be a viable solution for dealing with divided infringement on a bigger scale at some point in the future.

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