

Park, Jae-il (2013) Non-practising entities (NPEs) and patent remedies for future infringement. PhD thesis, University of Nottingham.

Access from the University of Nottingham repository:

http://eprints.nottingham.ac.uk/13146/1/phd_2013_Jaeil_Park.pdf

Copyright and reuse:

The Nottingham ePrints service makes this work by researchers of the University of Nottingham available open access under the following conditions.

This article is made available under the University of Nottingham End User licence and may be reused according to the conditions of the licence. For more details see:
http://eprints.nottingham.ac.uk/end_user_agreement.pdf

A note on versions:

The version presented here may differ from the published version or from the version of record. If you wish to cite this item you are advised to consult the publisher's version. Please see the repository url above for details on accessing the published version and note that access may require a subscription.

For more information, please contact eprints@nottingham.ac.uk

**Non-practising Entities (NPEs) and Patent Remedies
for Future Infringement**

Jae-il Park

**Thesis submitted to the University of Nottingham
for the degree of Doctor of Philosophy**

July 2013

ABSTRACT

This research establishes a new patent remedy (injunction) system against future infringements in such a way as to discourage trolling behaviours of non-practising entities (NPEs) without chilling inventors' incentives to innovate. For this research target, this thesis reviewed the general characteristics of NPEs in the current and past patent system, the current patent remedy laws in different countries (the US, UK and Germany), the patent holdups caused by NPEs' patent enforcement against manufacturers, and various solutions which have been proposed so far.

In doing so, it addresses important findings that the major cause of NPE problems stems from the inherent uncertainty nature of patent, that the courts' discretion of whether to grant or deny an injunction needs to be clearly defined, and that the new injunction system should skilfully balance the short-term as well as the long-term transaction costs which are caused by NPEs' patent enforcements.

Considering these findings, this thesis proposes a new injunction model, *alias* a 'three-tiered remedy system.' Unlike the present two-tiered system, it divides the remedies into three different types: (1) granting an unqualified injunction against wilful infringers; (2) granting a suspended injunction against innocent infringers; and (3) denying injunctions in exceptional circumstances. The most differentiated feature of this model is to award a suspended injunction as a default remedy in order to mitigate the patent holdup arising from the uncertainty problem of patent. Since the suspension period is determined in proportion to the required time for designing around the infringed patent, this new model can provide a very useful solution to mitigate the harmful effect of NPEs' patent enforcement without jeopardizing the integrity of exclusive right of patent at the same time.

ACKNOWLEDGEMENTS

Enter into His gates with thanksgiving
And into His courts with praise
Be thankful to Him, and bless His name
For the LORD is good
His mercy is everlasting
And His truth endures to all generations.
(Psalm 100:4-5)

I thank God for all the blessings He has provided me with in carrying out my research. I confess that He did everything and so I love to offer this thesis to His glory.

My deepest gratitude is to my supervisors, Professor Paul Torremans and Dr Estelle Derclaye, who both have guided the entire journey of my research and provided very valuable advices and inspirations. Thanks to their supports, I was able to go straight toward the finish line without wasting much time. In addition, I would like to thank the examiners of my viva examination, Professor Uma Suthersanen (Queen Mary, University of London) and Dr Ping Wang (University of Nottingham), for their precious comments, and also thank Professor Ansgar Ohly (University of Bayreuth, Germany) and Dr Martin Chakraborty (Lovells LLP, Germany) who provided me with German court cases.

I also need to mention the great supports that I enjoyed from my fellow researchers in the PhD office. Even though I cannot thank them all individually, I need to make a special note to my best friend Mehmet Kaya, Kalliopi Stathopoulou, Paula Bordalo Faustino, Stephenson Chow, Tosaporn Leepuenqtham, Pei-Lun Tsai and Into-on Garnjana-qoonchorn.

Most importantly, this achievement would have not been possible without the full support and patience of my family. My special thanks should go to my wife Serhee and lovely kids, Kiboong and Hyowon. Lastly I want to specially mention the grateful supports of Rev. Joseph Kil, Rev. Woosong Kwak and all other brothers and sisters of the Nottingham Korean Church.

TABLE OF CONTENTS

LIST OF FIGURES	x
LIST OF TABLES	xi
Chapter 1 Introduction	1
1.1. A Preliminary Note on Terminology	1
1.2. Background of the Research	2
1.3. Research Questions	6
1.4. Outline of the Thesis	7
1.5. Methodology	10
1.6. Limitations	12
Chapter 2 NPEs and Critical Issues	13
2.1. Introduction	13
2.2. Recent Controversies over Patent Trolls	14
2.2.1. Definition of Patent Trolls: a Chaotic State	14
2.2.2. Emergence of Patent Trolls	18
2.2.2.1. Breeding Grounds for Patent Trolls in the US	18
2.2.2.2. The <i>Modus Operandi</i> of Patent Trolls	22
2.2.2.3. Alleged Examples of Patent Trolls in the US	24
2.2.2.4. Patent Trolls in Europe and their Distinctiveness	27
2.2.3. Controversies over Patent Trolls	30
2.2.3.1. Negative Views	31

2.2.3.2.	Positive Views	32
2.2.4.	Recent Developments in Dealing with Patent Trolls	33
2.2.4.1.	The US Patent Reform Attempts	34
2.2.4.2.	Judicial Counteractions	36
2.2.5.	Summary	38
2.3.	NPEs in the Patent System	39
2.3.1.	Introduction	39
2.3.2.	Patent Trolls v NPEs	40
2.3.3.	Various Types of NPEs and Their Characteristics	42
2.3.3.1.	Individual Inventors	43
2.3.3.2.	Research-oriented Entities	45
2.3.3.3.	Patent Intermediaries	48
2.3.3.4.	Manufacturers not Practising Relevant Patents at Issue	50
2.3.3.5.	Implications	51
2.3.4.	NPEs in the Patent Law History	52
2.3.4.1.	Restrictions to Patent Rights	53
2.3.4.2.	Restrictions to Ownership	59
2.3.4.3.	Patent Sharks in the 19 th Century	60
2.3.4.4.	Implications	62
2.3.5.	Conclusions	62
2.4.	A Fundamental Issue for NPEs: Injunctive Relief	63
2.5.	Conclusions	66
Chapter 3	Injunctive Relief for NPEs across Jurisdictions	69
3.1.	Introduction	69

3.2. The US Law	70
3.2.1. Statutory Law	70
3.2.1.1. Patent Remedies for Future Infringement	71
3.2.1.2. Statutory Compulsory Licence	72
3.2.2. Case Law	73
3.2.2.1. Before the Establishment of the CAFC (~1982)	73
3.2.2.2. The CAFC Era until the <i>EBay</i> Case (1982~2006)	77
3.2.2.3. The <i>EBay</i> Case (2006)	82
3.2.2.4. Post- <i>eBay</i> Period (2006 ~ present)	89
3.2.3. Evaluations and Implications	122
3.2.3.1. The Appropriateness of the Four-factor Test for Injunctive Relief	122
3.2.3.2. Attenuation of Patent’s Exclusive Right due to the Abandonment of Presumption of Irreparable Harm	124
3.2.3.3. Rising Concerns over the Discrimination against NPEs	125
3.3. The UK Law	129
3.3.1. Statutory Law	129
3.3.1.1. Remedies for Future Infringements of a Patent	129
3.3.1.2. Statutory Compulsory Licences	131
3.3.2. Case Law	136
3.3.2.1. <i>Shelfer</i> ’s Guidelines for Injunctive Relief in the Property Law	137
3.3.2.2. Injunctive Relief in the Intellectual Property Law	140
3.3.2.3. NPE-related Intellectual Property Cases	149
3.3.3. Evaluations and Implications	155
3.3.3.1. Two-tier Control on Non-practising a Patent	155
3.3.3.2. Court’s Significant Discretionary Power for an Injunction	156

3.3.3.3.	Alternative Remedy to an Injunction: Damages	157
3.3.3.4.	Active Exercise of Discretion When Tailoring an Injunction	158
3.3.3.5.	NPE Patent Holder’s Waning Chances of Getting an Injunction	158
3.4.	The German Law	160
3.4.1.	Statutory Law	160
3.4.1.1.	Remedies for Future Infringement	161
3.4.1.2.	Statutory Compulsory Licences	162
3.4.2.	Case Law	165
3.4.2.1.	The <i>IPCom</i> Cases	166
3.4.2.2.	The ‘ <i>Orange Book Standard</i> ’ Case	170
3.4.3.	Evaluations and Implications	172
3.4.3.1.	Limited Roles of Compulsory Licence on NPE Patent Holders	173
3.4.3.2.	Slight Movement to Mitigate Inflexibility of the German Law	173
3.5.	Comparative Analysis across the Jurisdictions	176
3.5.1.	Discretion Necessary for Effective Operation of Injunctive Relief	176
3.5.2.	Injunction Criteria and Problems in Exercising Wide Discretion	177
3.5.3.	Effective Legal Tools: Delaying an Injunction and On-going Royalties	181
3.5.4.	Statutory Compulsory Licence: A Limited Solution for NPE Problems	183
3.6.	Conclusions	184
Chapter 4	Analysis of NPE-related Theoretical Issues	187
4.1.	Introduction	187
4.2.	Invention, Commercialisation and NPEs	188
4.2.1.	Fundamental Functions of Patent Law for Sustainable Innovation	189
4.2.2.	Proper Approaches to the NPE Issue from the Innovation Viewpoint	191

4.2.3. Conclusions	195
4.3. Exclusive Right of Patents and Proper Governing Rules	196
4.3.1. An Overview of Property and Liability Rules	197
4.3.2. Law and Economics Approaches	199
4.3.3. Short-term <i>Ex Ante</i> Transaction Costs	202
4.3.3.1. Costs from the Difficulty of Locating Ownership	202
4.3.3.2. Costs from the Uncertain Validity of Patent Rights	203
4.3.3.3. Costs from the Uncertain Scope of Patent Rights	205
4.3.3.4. Valuation and Negotiation Costs	206
4.3.3.5. Summary	207
4.3.4. Long-term <i>Ex Post</i> Transaction Costs	207
4.3.4.1. Low Transaction Costs after the First Mover Litigation	208
4.3.4.2. Long-term Costs on Innovation under Dominant Liability Rules	208
4.3.5. Balancing the Static and Dynamic Costs of the Patent System	210
4.3.6. Conclusions	214
4.4. Patent Hold-up by NPEs and Its Economic Interpretation	215
4.4.1. Economic Implications of Injunctive Relief and Patent Hold-ups	215
4.4.2. Economic Views of the Patent Hold-ups	218
4.4.2.1. The Lemley-Shapiro Hold-up Model	218
4.4.2.2. Critiques and Refinements of Lemley-Shapiro Hold-up Model	225
4.4.2.3. Summary and Implications	230
4.4.3. Patent Hold-ups in the Context of Technical Standards	232
4.4.4. Conclusions	235
4.5. Conclusions	236

Chapter 5 Identified Problems and Review of the Proposed Solutions	239
5.1. Introduction	239
5.2. Identified Problems to be Solved	239
5.3. Review of the Suggested Solutions	242
5.3.1. Limiting the Exclusive Right of Patents: Towards Liability Rules	242
5.3.1.1. Expansion of the Current Statutory Compulsory Licence	243
5.3.1.2. Limiting Injunctive Relief	245
5.3.1.3. Strengthening <i>Ex Post</i> Liability Rules	246
5.3.1.4. Evaluations and Implications	249
5.3.2. Adhering to the Exclusive Rights of Patents: Maintaining Property Rules	250
5.3.2.1. Chung’s Proposal	250
5.3.2.2. Evaluations and Implications	253
5.3.3. Application of Various Doctrines or Laws	254
5.3.3.1. Adoption of the Doctrine of Accession in Property Law	255
5.3.3.2. Application of the Patent Misuse Doctrine	262
5.3.4. Improving the Current Patent Law Structure or Procedure	274
5.3.4.1. Sichelman’s ‘Commercialisation Patents’ Model	274
5.3.4.2. Hovenkamp’s ‘Timely Notice’ Model	280
5.4. Conclusions	285
Chapter 6 Towards A New Injunction Model	289
6.1. Introduction	289
6.2. Main Objectives and Basic Principles	289
6.3. Design of the New Injunction Model	293
6.3.1. An Overview of the Model	294

6.3.2. The Specific Framework of the Model	296
6.3.2.1. Classification of Wilful/Innocent Behaviours in Patent Infringements	296
6.3.2.2. Designing the Model	299
6.3.3. Summary	310
6.4. Advantages of the Model	311
6.5. Possible Criticisms	317
6.6. Implementations	319
6.7. Conclusions	324
Chapter 7 Conclusions	327
Bibliography	339

LIST OF FIGURES

Figure 1. The scope of exceptional circumstance against injunctive relief	140
Figure 2. Property and liability rules for tangible properties and patents	213
Figure 3. The relationship between patent value and patentee's profit	216
Figure 4. Negotiated royalties	223
Figure 5. The theoretical patent holdup graph by the Model	313

LIST OF TABLES

Table 1. Circumstances affecting the injunctive relief	125
Table 2. Injunction criteria comparison between three jurisdictions	178
Table 3. Delay of an injunction and alternative remedies in three countries ..	181
Table 4. The infringers' (would-be users') possible behaviours	297
Table 5. Summary of the structure of the Model	311

Chapter 1 Introduction

1.1. A Preliminary Note on Terminology¹

To begin, the key term ‘non-practising entity’ (hereinafter ‘NPE’)² used in this thesis needs to be defined with respect to related terms so as not to cause any confusion over the upcoming discussions.

It seems there has been no commonly agreed definition upon NPEs so far. This research defines an NPE as a patent owner who holds patents either through initial grants to themselves or through purchase from previous owners, and enforces her patents against a manufacturing company or ‘practising entity’ (hereinafter ‘PE’)³ with a view to earning royalty revenues by licensing out rather than making a profit by commercialising the patented inventions. For instance, NPEs may include individual inventors, universities, research institutes, research firms, patent trading firms, licensing firms, and so forth. Sometimes, manufacturing patent holders could be regarded as NPEs only if they do not practise the relevant patents in dispute even though they work on other patents.

In spite of the fact that the term NPE was initially created so as to find a neutral alternative to the term ‘patent troll’ which has pejorative or biased connotations, it is important that NPE is strictly distinguished from patent troll in this research. Whilst NPEs refers to patent owners who do not practise their patents in the literal meaning of the term, patent trolls refer only to those, among NPEs, who abuse

¹ More detailed explanations are discussed in chapter 2.

² The term ‘non-practising’ seems to be originated from the legal word ‘practice’ being used in the US Patent Act (e.g. 35 USC 102(g), 201(f)(g) and etc.). Here, the term ‘practise’ could be equated to ‘exploit’.

³ ‘Practising entity’ is referred to as ‘PE’ in contrast with the term, NPE.

the patent system. Therefore, the concept of NPE includes that of patent troll in the thesis.

1.2. Background of the Research

This research shall offer a solution to the problems which NPEs cause in the current patent system. More precisely, it seeks an optimal patent remedy regime for future patent infringement, by which NPE problems could be resolved or greatly mitigated without triggering serious side effects. Then, what problems have occurred relating to NPE patent holders so far?

As the structure of modern society and industries becomes more complex and inter-dependent, we recognise the benefits of division of labour. Even though the integration between upstream research and downstream manufacturing still remains as a valid type of business, specialisation has become one of the dominant strategies to facilitate the efficient use of limited resources and survive fierce competition in the market. Evidence could be easily found, for instance, by looking at how many research-oriented firms in Silicon Valley have played an important role in conjunction with downstream manufacturing companies in the US. For the success of this specialisation, it is important for the government to provide fair rules for all players to abide by. In this sense, the patent system has played a crucial role by promoting innovation and then facilitating the patented technologies, which are the fruits of the innovation, to be diffused towards downstream manufacturers. In the heart of the system, injunctive relief against patent infringers has worked as a pillar to sustain the structure in the sense that its threat prevents free-riding practices and motivates potential infringers to negotiate voluntarily with patentees for a licence.

Historically, in the nineteenth century, some countries, particularly European countries, denied injunctive relief when the patentee failed to commercialise her patent, forfeiting the patent in some cases or granting a compulsory licence in others. By contrast, the US courts have awarded injunctive relief even to NPEs under the perception that the core nature of patent consists of the strong exclusive right to prevent others from using it without permission. This was clearly expressed by the US Supreme Court in the *Continental Paper Bag* case in 1908.⁴ This US position culminated in 1994 when the US pushed for the creation of the World Trade Organisation (WTO) and its Trade-Related Aspects of Intellectual Property (TRIPS) which provides a set of minimum global standards for member states to implement strong patent protection and enforcement provisions in their domestic patent laws by limiting compulsory licences only to exceptional circumstances. In particular, over the last two decades since the establishment of the US Court of Appeals for the Federal Circuit (CAFC)—the sole patent appeal court—in 1982, it has been a general rule that any patentee, regardless of whether she practices her own patent or not, should be awarded with injunctive relief except in limited exceptional circumstances.

Under that strong patent policy in the US, an increasing number of so-called patent trolls have sprung up since the turn of the 21st century. Their business model was highly criticised by downstream manufacturers as well as the public, because they were regarded as to be interested only in claiming high royalty payments by way of injunction threats rather than contributing to the technological innovation. Needless to say, a common and conspicuous characteristic of patent holders regarded as patent trolls is that they do not practise their patented inventions whatsoever. A typical strategy is to buy a number of cheap patents from original patentees who are

⁴ *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 US 405 (1908).

bankrupt or in a serious financial situation, wait until downstream manufacturers invest substantial amounts of money to produce the patented products, and then sue the manufacturers for patent infringements. Whilst, due to the heavy investment already made, the alleged infringers would suffer great losses if they were to stop production by an injunction, they do not have a chance to counterattack patent trolls by filing a separate infringement suit because patent trolls do not practise any patent whatsoever. It is quite a different situation to the litigations between PE patentees and PE infringers, where in many cases both parties have incentives to conclude a cross-licence agreement to avoid mutual destruction by cross-litigations. In this kind of litigation dynamic, alleged infringers are in a more unfavourable situation than patent trolls, and therefore, provided that an infringement is established, they have little choice but to pay extremely high royalties to patent trolls to continue production. In this respect, the strong patent policy encouraged an increasing number of NPE patent holders to jump into the patent troll business and let patent trolls flourish in the US.

In the midst of the uprising of patent trolls, without doubt, serious concern has arisen on whether the injunctive relief should be a necessary remedy for patent trolls. As a repercussion of the concern, the US Supreme Court, in *eBay v. MercExchange*⁵ in 2006, rejected the Federal Circuit's general rule which favoured an injunction whenever a valid patent was found to be infringed, and ordered the lower courts to apply the traditional equity test in determining whether to grant or deny an injunction. The *eBay* case turned the tide by substantially lowering the patent trolls' chances of obtaining injunctive relief. Since *eBay*, the US district courts have applied the traditional equity test in almost every patent infringement case and, even

⁵ *eBay, Inc. v. MercExchange, L.L.C.*, 126 S.Ct. 1837 (2006).

though the US Supreme Court warned against the categorical denial of an injunction, they have denied permanent injunctions against NPEs at a much higher rate than before the *eBay* decision.⁶ The problem with those post-*eBay* cases is that injunctive relief has not been refused selectively to only patent trolls but also to ordinary NPEs. This means that whether a patent holder and an alleged infringer are competing in the relevant market has become the most important factor in granting or denying an injunction.

Again, this new NPE-unfriendly environment has aroused serious concern that innocent NPE patent holders may be discriminated against other PE patentees because the patent enforcement of the former will be much more difficult than that of the latter. Without injunction threats, potential infringers would not voluntarily negotiate with patentees for a licence but opt for going into blind infringements with an expectation of court-ordered royalties at most instead of a permanent injunction even if they were sued for infringement. This may ultimately stifle the NPE inventors' incentives to invent and innovate.

What draws our attention here is that, despite those post-*eBay* decisions disfavouring NPEs, the seemingly patent troll activities have never been greatly mitigated but rather they still persist. This implies that the approaches of the *eBay* case, as well as subsequent post-*eBay* decisions, did not provide proper solutions to NPE problems but only serve to undermine the legitimate rights of NPE patent holders. Therefore, setting up a new appropriate patent remedy system internalising

⁶ Empirical studies show that courts awarded injunctions to patentees 95% of the time before the *eBay* case, but that has fallen to 72%. Specifically, for the all patent infringement cases in the US between 15 May 2006 and October 2008, PEs competing with accused infringers in the market got injunctions 79.6% of the time, but it has dipped to only 33.3% in the case of NPEs. See LIM, *et al.* (2009) 'Injunctions Enjoined; Remedies Restructured', *Santa Clara L. R.*, Vol. 25. at 798 (2009).

the above NPE problems is an urgent task which the current patent system must achieve.

Meanwhile, even though the above controversies have not been hotly debated in European countries as they have in the US, these NPE problems might appear in Europe in the future as a few patent infringement cases similar to the US patent trolls have been reported recently.⁷

1.3. Research Questions

From the above background, it is clear that the central question of the research should be how to establish a universally applicable patent remedy system for future infringements in such a way as to discourage the trolling behaviours of NPEs without chilling the innovation incentives of inventors.

In order to find the solution to this question, several sub-questions should also be answered. Most of all, the general characteristics of NPE patent holders need to be examined in the current patent system so as to correctly diagnose the problems that NPE patent holders may cause. In specific, this question includes what types of NPEs are operating, how NPEs contribute to innovation, and how the ‘non-practising’ behaviours of NPEs have been treated in the history of patent law with respect to patent remedies and injunctive relief in particular. In addition, it is necessary to

⁷ See, for example, SUBRAMANIAN (2008) 'Patent trolls in thickets: who is fishing under the bridge', *European Intellectual Property Review*, vol. 30(5), pp. 182-188; MAISTER (2008) 'German Court Sees First Signs of European Patent Trolls', *LAW.COM*, available at <http://www.law.com/jsp/article.jsp?id=1202424954133&slreturn=1&hbxlogin=1>; IPEG (2006) 'Who is going to stop Europe's Patent Troll?', available at <http://ipgeek.blogspot.com/2006/09/who-is-going-to-stop-europes-patent.html>; MACDONALD (2005) 'Beware of the troll', *The Lawyer*, available at <http://www.thelawyer.com/beware-of-the-troll/116783.article>.

examine how courts have granted patent remedies in actual NPE-involved cases. Even though NPE or patent troll problems are prominent in the US as will be seen in chapter 3, other countries' laws also need to be explored in order to see how NPE cases are affected in different legal systems and to let the new patent remedy model proposed in this thesis be applicable in other countries which have different legal backgrounds. Besides, from the theoretical perspective, the research needs to answer the question whether, to what extent, and in what circumstances NPE patent holders may cause a serious impediment to innovation. Lastly, in order to reach a more appropriate patent remedy system for resolving NPE problems, this research has to examine what solutions have been proposed so far and what could be improved. The research questions in the thesis are summarised as follows:

- (1) What are NPEs and what characteristics do they have in the patent system?
- (2) How have patent remedies been awarded to NPE patent holders in actual patent infringement suits in different countries with different legal backgrounds?
- (3) What theoretical implications do NPEs carry in patent infringement suits?
- (4) What solutions have been proposed and what could be further improved?
- (5) How should a universal patent remedy regime be set up in order to curb the patent trolling activities of NPEs without serious side effects?

1.4. Outline of the Thesis

Besides the introduction (chapter 1) and conclusion (chapter 7), the thesis is composed of five chapters.

Chapter 2 examines the nature of NPEs and the roles which they play in the

patent system. Firstly, following a brief overview of how and why NPEs have come to appear on the stage and draw the attentions of the public, this chapter attempts to categorise various NPEs into several types and discusses their basic characteristics. Then, it reviews how NPEs have been treated in patent law history. The purpose of this chapter is to evaluate whether NPE patent holders are necessary players in the patent system and whether they undermine the integrity of the patent system.

Chapter 3 investigates the patent remedy laws in three major jurisdictions: the US, UK, and Germany. Examining the patent statutory and case laws in those countries, it particularly focuses on how injunction criteria have been established and applied in NPE-related patent infringement cases in each country. In addition, it is discussed whether or how compulsory licence could be awarded against NPE patent holders if they failed to practise their patents. More efforts are exerted toward the analysis of the US law because the patent troll or NPE problems are prevalent and related cases are replete in the US rather than in any other countries. Alongside the change in the US case law, the analysis divides the US patent history into four time slots: before the establishment of the CAFC (~1982); the pre-*eBay* period (1982~2006); the *eBay* case (2006); and the post-*eBay* period (2006~present). With respect to the UK and German law, some notable NPE-related cases are discussed.

The comparative analysis across the above jurisdictions not only shows the similarities and differences between them, but also identifies a few important problems of the current injunction criteria.

Chapter 4 provides a theoretical background or justification for the new patent remedy model proposed in the research. This chapter examines mainly two major issues in terms of NPEs. Firstly, it discusses whether patents should be governed by property or liability rules. In specific, according to the prominent theory

of transaction costs, it points out some characteristics of patent rights distinct from tangible properties and seeks to identify circumstances which demand the application of either property or liability rules. Secondly, this chapter discusses the patent holdup problems which are generally regarded as one of the significant sources of NPE or patent troll problems. This chapter critically reviews a prominent economic holdup model which Lemley and Shapiro proposed in 2007,⁸ together with several scholars' counterarguments against the model. In so doing, this chapter provides some critical points which a new patent remedy model would need to take into account to ensure its success.

Chapter 5 reviews various prominent patent reform proposals which have been suggested so far by prominent scholars with regard to NPE problems. For convenience sake, they will be reviewed under several categorisations: limiting exclusive right of patents; adhering exclusive right of patents; applying various legal doctrines or law; and improving current patent law structure. By critically analysing how much each proposal satisfies the objectives of the thesis, this chapter evaluates the effectiveness or efficiency of each proposal in resolving NPE problems. In doing so, it not only discovers the deficiencies associated with the current approaches but also provides important preliminary work for the consideration of a new possible patent remedy model.

Based on valuable findings in previous chapters, chapter 6 then proposes a new patent remedy model which is expected to not only effectively mitigate the incentives of NPE patent holders to carry out strategic behaviours undermining the efficient operation of the patent system, but also enhance the overall soundness of the patent system.

⁸ LEMLEY, *et al.* (2007) 'Patent Holdup and Royalty Stacking', *Texas Law Review*, vol. 85, p. 1991.

1.5. Methodology

Basically, a doctrinal approach, by examining relevant statutory and case laws, will be applied so as to elucidate how patent remedies have been awarded and formulated towards NPE patent holders for future infringements. It needs to accompany a comparative analysis between the US, UK and German law for the purpose of finding how different criteria have been used in each jurisdiction as well as what lessons can be drawn. Even though the recent NPE problems, without no doubts, are specifically conspicuous in the US rather than in other countries, particularly in Europe, there are three reasons why the comparative jurisdictional study are required in this thesis. Firstly, as a few European-based NPE licensing companies (e.g. IPCom and Papst Licensing) have recently started their patent enforcement businesses in Europe, the worries from NPE originated from the US increases in Europe which is the second largest market in the world. Particularly, the UK and Germany are the largest and important jurisdictions in Europe in relation to patent infringement lawsuits and above NPEs are more active in these two countries. Secondly, if the Unified European Patent Court is established in the future,⁹ it could provide a very attractive single market for patent holders by facilitating them to easily enforce their patents by a single litigation. Then it is possible that the US-based as well as European-based NPE patent holders could actively participate in this new European market and as a result the current NPE problems in the US could occur in Europe as well. In this sense, the evaluation of the general perspectives

⁹ Recently, the negotiation for establishing a new Unified Patent Court made a significant progress. EU leaders reached an agreement on the location of the Unified Patent Court on 29 June 2012, which will be split between three seats, with Paris, London and Munich. See EUCO 76/12 EUROPEAN COUNCIL Brussels, 29 June 2012.

towards NPE patent holders in the UK and Germany, representative nations among European countries, is prerequisite for this research in order to suggest a universal patent remedy system which could be applied to the European system. Thirdly, the UK law shares the same legal background of common law traditions as the US law and is useful for direct comparison with the US law. By contrast, since German law is based on a civil law system and Germany is the largest jurisdiction for patent infringements among European countries, it will illuminate NPE issues from a different angle than that of the US or UK.

This doctrinal approach with comparative analysis is mainly used in chapter 3, and its results are used in building up a new injunction model and in implementing the model in each different legal system in chapter 6.

In addition, a law and theory approach is necessary. As noted, legal theories on the nature of patent rights need to be correctly established, whether they are property or liability rights, because patent remedies (injunctive relief or monetary damages) are highly dependent upon where the patent law stands between these two extremes. Another theoretical approach from an economics perspective is required to establish a theoretical basis for patent remedies available to NPE patent holders. Intellectual property, in particular patent rights, cannot be fully explained just by law itself without consideration of the surrounding economic circumstances (e.g. relevant markets) because the patent system has been established so as to promote innovation by securing the exclusive rights of patents in the market in return for disclosing the patented invention to the public. Therefore, a law and economics approach is indispensable in that sense. These approaches are applied mainly in chapter 4 to define the nature of patent rights, as well as to discuss whether or to what extent injunctive relief awarded to NPEs would cause patent holdups. They are also used

partly in chapter 5 and 6 in the course of finding an appropriate remedy model.

1.6. Limitations

The legal scope of the research is limited to patent law, leaving behind other intellectual property laws which are not directly related. However, some features of copyright law and competition (antitrust) law will be referred to only to the extent that they are necessary for the furtherance of the main discussions on patent law. The geographic scope of the research is mainly confined to the US, UK and Germany. However, besides the above three countries' domestic law, the EU law (Enforcement Directive 2004/48/EC) and international treaties (the Paris Convention, the TRIPS Agreement) will be mentioned when necessary.

With respect to source materials, even though the research uses those primarily from the US and Europe, the door is still open to any literatures from other countries if they are relevant to the research topic. Regarding relevant court cases, the thesis uses those disclosed in the US, UK and Germany by 31 December 2011 through major databases¹⁰ and the media.

¹⁰ Westlaw and LexisNexis.

Chapter 2 NPEs and Critical Issues

2.1. Introduction

As industries and markets have been diversified and globalised over the past few centuries, the patent system and its related market have also changed accordingly. In particular, one of the conspicuous features of the change is that patent is no longer limited to a tool to protect one's patented invention from others' unauthorised use, rather it has become a commodity to be transacted in the market and thereby an important source of revenue.

This has been possible with the appearance of 'new market players' who bridge patent suppliers and users. They have created the patent market evolution by reducing transaction costs as well as benefiting all market participants on the one hand,¹¹ yet, on the other hand, unfortunately they have also triggered serious concerns that the patent system might be abused in a *legitimate* way and be unable to achieve its ultimate goal, i.e. the encouragement of technological innovation and the dissemination of new technologies.¹² Those concerns have been sparked off by the advent of patent trolls, this term having been widely used to criticise their alleged unfair business model. Although some people have defended patent troll businesses as being legitimate, patent trolls have been viewed as public enemies, which have further extended to encompass all NPEs because the borderlines between patent trolls and innocent NPEs are obscure and subjective.

Then, it is pre-requisite to examine basic characteristics of NPEs or patent

¹¹ MCDONOUGH III (2007) 'The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy', *Emory Law Journal*, vol. 56, pp. 189-228.

¹² Art. 7 of the TRIPS Agreement.

trolls in detail. In this respect, this chapter overviews general issues surrounding NPEs in relation to patent trolls and ultimately seeks to evaluate whether they are necessary players in the patent system and whether they might damage the patent system. In specific, section 2.2 overviews recent controversies over patent trolls to illustrate that the current patent system has faced a big challenge. It shows how the problems concerned with patent trolls have developed and what kinds of attempts have been made to resolve the problems. Subsequently, section 2.3 explores the roles NPEs perform in the patent system by examining various types of NPEs and how they were viewed in the patent law history. For this, it redefines the two terms, patent troll and NPE, and explains the relationship between them. Lastly, section 2.4 not only explains how important injunctive relief is to the NPE patent holders' business, but also shows that injunctive relief is a key factor of NPE problems and its solutions alike.

2.2. Recent Controversies over Patent Trolls

This section discusses patent trolls which made their debut at the turn of this century and have triggered tantalising problems in the patent world. For this, it examines various definitions of patent trolls attempted so far, historical backgrounds of their emergence, their general characteristics and examples, some on-going debates over whether they are beneficial or detrimental to the patent system and the society as a whole, and recent attempts to reduce the harmful impacts of patent trolls.

2.2.1. Definition of Patent Trolls: a Chaotic State

Originally, a 'troll' referred to, in early Scandinavian folklore, a giant and monstrous

creature, sometimes possessed with magic powers.¹³ It was said to have been hostile to human beings, sometimes stealing maidens.¹⁴ Connoting the negative nuance of troll, ‘patent troll’ was coined by Peter Detkin, Intel’s Assistant General Counsel back in 2001 when TechSearch LLC, a client of Raymond Niro who was working as an attorney in Niro, Scavone, Haller & Niro (Chicago-based law firm specialising in Intellectual Property), bought a patent from a bankrupt firm and sued Intel for patent infringement. After being sued for defamation when the outraged Detkin had called the claimant an ‘extortionist,’ he skilfully came up with the term ‘patent troll’ instead.¹⁵ He defined a patent troll as ‘somebody who tries to make a lot of money off a patent that they are not practicing and have no intention of practicing and in most cases never practiced,’¹⁶ and since then this definition has built up a negative image to the public and more malicious terms followed, such as ‘patent parasite,’ ‘patent pirate,’ ‘patent speculator,’ ‘patent mafia,’ ‘patent rascal,’¹⁷ ‘ambulance chasers,’¹⁸ and ‘patent system bottom feeders.’¹⁹

However, after he joined Intellectual Ventures in 2002, which is generally regarded as one of the big patent trolls in the US, Detkin redefined a patent troll as ‘[s]omeone who takes a single patent or a small number of patents and makes an

¹³ *Encyclopaedia Britannica*, retrieved on 11 July 2012 from Encyclopaedia online: <http://www.britannica.com/EBchecked/topic/606347/troll>.

¹⁴ *Ibid.*

¹⁵ SANDBURG (2001) 'You may not have a choice. Trolling for Dollars', *The Recorder*, July 2001.

¹⁶ *Ibid.*

¹⁷ For *supra* terms, see OHKUMA, et al. (2007) 'Patent Trolls in the US, Japan, Taiwan and Europe', *CASRIP Newsletter (a digested version)*, available at <http://www.tokugikon.jp/gikonshi/244kiko1e.pdf>, at 76.

¹⁸ CHAN, et al. (2005) 'Footsteps of the Patent Troll', *Intell. Prop. L. Bull.*, vol. 10, pp. 1-11, at 1.

¹⁹ BAKER (2005) 'Troll or No Troll? Policing Patent Usage with an Open Post-Grant Review', *Duke Law & Technology Review*, vol. 9, at para. 7.

assertion of clearly dubious merit either because the patent is invalid on its face or does not bear on the product it's being asserted against, typically seeking nuisance value.²⁰ Compared with his original definition, this greatly narrowed the scope. He expressed his changed position by saying: 'Patent troll has been hijacked and used in many circumstances where it's not appropriate. People see trolls in every shape they want to.'²¹

These two definitions by a single person epitomise how differently two groups—'manufacturing companies' faced with patent attacks and 'non-practising patent owners' enforcing the patents—perceive patent trolls. The former group tries to expand the scope of patent trolls to every entity who does not practise their own patents and it abuses this term to show that they are innocent underdogs and unduly attacked. By contrast, the latter group interprets the term patent troll as narrow as possible so as to emphasise that they are not trolls. Furthermore, some people argue that the term patent troll should be eliminated because it disregards the legitimate rights bestowed on patent holders.²² They maintain that a patent holder receives an exclusive right for an invention itself, not for a product or service, and therefore 'whether a patent is actually practised or manufactured into products is irrelevant to the right to assert a patent.'²³ Accordingly, they lead to the belief that entities being called trolls 'legitimately and legally operate within the legal system and within the

²⁰ CIO INSIGHT (2005) 'Intellectual Security: Patent Everything You Do, Before Someone Else Does', available at <http://www.cioinsight.com/c/a/Trends/Intellectual-Security-Patent-Everything-You-Do-Before-Someone-Else-Does>.

²¹ SLIND-FLOR (2006) 'IV moves from myth to reality', *Intellectual Asset Management August, September 2006*, issue 19, pp. 28-34, at 31.

²² LUECK, et al. (2005) "'Patent Troll:" A Self-Serving Label that Should be Abandoned', *Articles (Robins, Kaplan, Miller & Ciresi L.L.P.)*, available at http://www.rkmc.com/Patent_Troll_A_Self-Serving_Label_that_Should_be_Abandoned.htm.

²³ Ibid.

mechanisms put in place to remedy any abuses of the system.’²⁴

There are also other definitions which lie somewhere in the middle ground between the two extremes, either by limiting only to the entities who do not involve inventive works or by focusing on the malevolent behaviours and intentions. These stances are normally based upon the perception that some innocent patent holders (e.g. universities or public research institutions) who are involved with innovative activities and want to protect their inventions by the patent system do not necessarily impair the patent system and therefore they should not be considered as patent trolls by the mere fact that they seek to license their patents rather than to exploit them.²⁵ For instance, the Intellectual Property Owners Association (IPO) defined a patent troll as a ‘company or business function whose primary business activity is to acquire patents for the purpose of offensively asserting them against other companies.’²⁶ Steven Pearlstein, a columnist of The Washington Post, delineated patent trolls as ‘[t]hose unsavoury characters who buy up obscure patents to extort money from innovative and law-abiding companies.’²⁷

In spite of various attempts to define patent trolls so far, there is no definition unanimously agreed upon. Furthermore, in response to those attempts to pinpoint patent trolls, some alleged patent trolls have shrewdly tried to escape from those accusations by establishing their own manufacturing subsidiary companies or research departments. They intend to appear as though they commercialise their

²⁴ CHUANG (2006) 'Fixing the failures of software patent protection: Deterring patent trolling by applying Industry-specific patentability standards', *Southern California Interdisciplinary L.J.*, vol. 16, pp. 215-251, at 219.

²⁵ Ibid. at 218-219.

²⁶ Ibid. citing BEYERS (2005) 'Rise of the Patent Trolls', *CNET NEWS.COM*, available at http://news.cnet.com/Rise-of-the-patent-trolls/2010-1071_3-5892996.html.

²⁷ CIO INSIGHT, n 20.

patents by themselves and/or directly contribute to innovation. A typical example is the US company Alliacense (in operation since 1988) wholly owned by TPL Group which founded the manufacturing company IntellaSys in 2005.²⁸ These reactions of formerly alleged patent trolls make it much more difficult to properly define the patent troll. Nonetheless, two important implications could be drawn from those controversies over patent trolls. Firstly, the patent troll issue reflects that there have been growing concerns of the possibility that the current patent system might be abused even in the legitimate framework of patent law. Secondly, the non-practising characteristic of patentees is lying at the heart of every dispute over the issue of patent trolls.

2.2.2. Emergence of Patent Trolls

As noted, patent trolls drew public attention in the US from the beginning of 2000 and they have since permeated to other parts of the world such as Europe. As one would suggest there is no effect without cause, and patent troll problems are also believed to stem from certain backgrounds. First of all, even though more precise and fundamental causes of patent trolls are explored later in chapter 4, introduced here are some generally-mentioned backgrounds of their emergence in the US. These discussions will provide basic knowledge and understanding of patent trolls for further developments of the thesis.

2.2.2.1. Breeding Grounds for Patent Trolls in the US

As noted, patent troll problems originated in the US and they are more serious and

²⁸ POHLMANN, *et al.* (2010) 'The Patent Troll Business: An Efficient model to enforce IPR', *MPRA Paper No. 27342*, available at <http://mpra.ub.uni-muenchen.de/27342>, at 7.

conspicuous in the US than in any other countries. Therefore, in order to analyse the problems correctly, it is necessary to scrutinise the specific situations in the US when patent trolls initially happened to come into being. Several factors have been referred to in their emergence.

Firstly, the pro-patent policy line provided fertile soil for the advent of patent trolls. Undergoing deep economic depressions in the 1970s along with the threat of losing dominance in the global market to Japan and Europe's flourishing economies, the US under the Reagan Administration shifted the economic policy from the previous anti-patent stance²⁹ toward a pro-patent one in the hope of restoring Pax Americana through strong enforcements of intellectual property rights (IPR).³⁰ This rudimentary policy change is deeply rooted in the perception not only that the US technology innovation was hindered as a result of patent-restricting antitrust policy and would be revitalised by strong patent policy, but also that strong patent protection could provide a legitimate protective shield for domestic industries to regain international competitiveness.³¹ It includes six major measures:³² (1) the budget boost of the US Patent & Trademark Office (USPTO) and the elevation of its status in the government, (2) the creation of the Court of Appeals for the Federal Circuit (CAFC) in 1982,³³ (3) the important patent reform including the introduction of the re-examination system and the extension of patent protection period, (4) the

²⁹ During the period from the two World Wars to the 1970s, patent enforcement was under strict restrictions because any patent holders' use of patents for the purpose of gaining competitive advantage was regarded as an anti-competitive behaviour.

³⁰ KIHARA (2000) 'U.S. Pro-Patent Policy: A Review of the Last 20 Years', *CASRIP Newsletter - Winter 2000*, pp. 11-17, at 11-12.

³¹ Ibid.

³² Ibid. at 13-14.

³³ Federal Court Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25.

expansion of patentable subject matters, such as biotechnology and computer software, (5) the legislation for the technology transfer from government-funded research and development institutes to private sector, such as the Bayh-Dole Act,³⁴ and (6) the trade policy integrating IPR.

The soaring vitalisation of the patent community and industries as a consequence of this new policy line was mainly attributed to the CAFC's enforcing strong patent protection from the beginning. The CAFC, in case after case, continued to come down on the side of patentees at least until the US Supreme Court's *eBay* decision in 2006.³⁵ It led to the shaping of the CAFC's 'general rule' which gives a patentee a near automatic injunction for a patent infringement when absent of exceptional circumstances.³⁶ Especially, based on the decision of the *Continental Paper Bag* case³⁷ in 1908 where the US Supreme Court proclaimed that any patentee is entitled to enjoy the exclusive right of a patent regardless of whether he or she exploits it or not, the CAFC equally awarded injunctive reliefs to NPEs at the same level of PEs. This non-discriminatory treatment by the courts encouraged NPEs to enforce their patents more aggressively.

Secondly, patent troll problems could be ascribed to the surge of software and business method patents. Both patent applications and grants explosively increased due to the boom of the internet industry in the 1990s as well as the CAFC's official confirmation of them as patentable subject matters by the momentous *State Street Bank*³⁸ case in 1998. However, when the so-called 'dot-com' industry

³⁴ Codified in 35 USC §200-212 and implemented by 37 C.F.R. 401.

³⁵ *Infra* chapter 3 deals with the *eBay* case and its aftermath in detail.

³⁶ LIM, *et al.*, n 6, at 790.

³⁷ 210 US 405 (1908).

³⁸ *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed.Cir.1998).

collapsed in the late 1990s and many patents from the bankrupted companies were out for sale at a very low price, the speculative capitals or law firms which anticipated their potential as a lucrative asset bought them up and used them as a strategic tool for collecting excessive licensing fees from manufacturing companies.³⁹

The third factor concerns the soaring number of bad patents granted by the USPTO and the difficulty of revocation. While the annual increase rate of the US patent grants from 1930 to 1982 (when the CAFC was established) remained less than one percent, it soared up to about 5.7 percent during the period between 1983 and 2002, together with a soaring number of patent applications.⁴⁰ This alarming increase, however, is not regarded as a sheer result of innovative activities. International comparison shows not only that the growth rate of the US-origin patents with worldwide significance was, during the same period, less than a half of that of the domestic patents⁴¹, but also that the ultimate grant rate (over 90%) in the USPTO is too high compared with those (around 65%) of European Patent Office (EPO) and Japan Patent Office (JPO).⁴² It implies that lots of bad patents have been issued in the US.⁴³ Once a patent was granted, it was difficult for others to revoke it in the US. Since ‘a patent shall be presumed valid’ according to the US Patent Act⁴⁴ and accordingly an alleged infringer (defendant) must show ‘clear and convincing

³⁹ MELLO (2006) 'Technology Licensing and Patent Trolls', *B.U. J. Sci. & Tech. L. vol. 12, p. 388.*

⁴⁰ JAFFE, *et al.* (2007) 'Innovation and Its Discontents-How our broken patent system is endangering innovation and progress, and what to do about it', Princeton University Press, at 11-12.

⁴¹ *Ibid.*

⁴² Testimony of David M. Simon, Chief Patent Counsel Intel Corporation Before the House Subcommittee on Courts, the Internet and Intellectual Property, July 24, 2003. Available at <http://judiciary.house.gov/legacy/simon072403.pdf>.

⁴³ *Ibid.* (Simon testified that about 40,000 patents seemed to be improvidently granted each year.)

⁴⁴ 35 USC §282

evidence' before court to invalidate the patent,⁴⁵ great endeavours and resources for the revocation were essentially required. This principle of presumption of validity is based on the presumption of administrative correctness,⁴⁶ but this principle has faced serious doubt when the poor standard of works for patent examination in the USPTO was considered.

Besides the aforementioned factors, it is believed that other factors have also been associated with the issue, such as (1) 'forum shopping' whereby patentees can file a lawsuit before a court favourable to them; (2) the continuation application which enables patentees to keep their inventions secret; (3) the excessive litigation costs and the uncertainty of the litigation result; (4) the increased damages (up to three times) upon a finding of wilful infringement; and (5) a contingent fee plan by which the litigation fee is only payable to an attorney if there is a favourable result, which as a result provides patentees with opportunities to initiate lawsuits with a small sum of money.⁴⁷

2.2.2.2. The *Modus Operandi* of Patent Trolls

Under the favourable grounds for patent trolls as discussed above, it is generally believed that patent trolls generally set up a strong patent portfolio either by being granted with their own patents or by purchasing patents from other patentees. They approach manufacturing companies for excessive licence fees when the product or service incorporating the patented technology fully matures in the market, and then

⁴⁵ JAFFE, *et al.*, n 40, at 108.

⁴⁶ *Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1569 (Fed.Cir.1996); *Superior Fireplace Co. v. Majestic Prods. Co.*, 270 F.3d 1358, 1380-1381 (Fed.Cir.2000).

⁴⁷ OHKUMA, *et al.*, n 17, at 80-82.

compel the manufacturers to settle a licence agreement by threatening to file an infringement lawsuit for permanent injunction (or preliminary injunctions in some cases) unless it accepts the offered licence. In case of a dispute with a PE patent holder, the alleged infringers generally have an important option to countersue the PE claimant for a patent infringement of their own patents, which leads to a peaceful cross-licence agreement in many cases. However, if the counterpart is an NPE patent holder, this option is not valid anymore because NPEs can never infringe any patent by the nature of non-practice.⁴⁸ Due to the imbalance of bargaining power, alleged infringers could be stuck in an embarrassing situation: to pay extremely high royalties or to carry on infringement litigation by taking a risk of factory closure and enormous litigation costs. It should be noted that, despite their seemingly strong will to deter further infringements, their ultimate goal is to conclude a behind-the-scenes licence negotiation because the infringement litigation is also a burden for them.

Even though the patent trolls' general strategy as described above appears simple, their specific tactics have become and will be more and more shrewd and subtle. For instance, patent trolls hardly ever access more than two companies at the same time because it may bring about solidarity between the other parties which would increase resistance and the chance of going to litigation. They particularly endeavour to make a 'first victim' in light that, if a company succumbs to them, others tend to follow suit.

In certain industries, such as the Internet industry, where a technology sometimes tends to be widely used by numerous companies, patent trolls use quite an opposite strategy. It is not a new story anymore that some patent trolls frequently access manufacturing companies offering licensing fees less than the estimated

⁴⁸ SUBRAMANIAN, n 7, at 183.

litigation costs and menace as many target companies as possible to take a licence offer or face a costly and lingering litigation. These accused infringers, being worried of worsening public reputation and high litigation costs, can hardly resist the threat and cannot but accept the ‘nuisance patent settlement’⁴⁹ even when they think the asserted patents are invalid or not infringed. A good example is the US company E-Data, which owns a patent in connection with financial transaction via the Internet.⁵⁰ This company sent letters to as many as 75,000 companies requesting them to pay royalties between \$5,000 and \$50,000 for their infringements of the patent.⁵¹

2.2.2.3. Alleged Examples of Patent Trolls in the US

There have been a number of entities and cases alleged as patent trolls in the US, for example Lemelson’s foundation, Intellectual Ventures, Forgent Networks, Acacia Research, etc. One important thing to keep in mind, however, is that we should not consider any example as a patent troll without absolute confidence. The examples given here simply show a high probability of being viewed as patent trolls in the sense that they may be treated or evaluated quite differently by different groups of people with different backgrounds or perspectives.

Since the purpose of this section is to show the general characteristics of a patent troll instead of introducing various alleged examples collectively, introduced here is only one prominent example, the NTP case. NTP is a Virginia-based patent

⁴⁹ SUDARSHAN (2009) 'Nuisance-value Patent Suits: An Economic Model and Proposal', *Santa Clara Computer & High Tech Law Journal*, vol. 25, pp.159-189, at 159.

⁵⁰ MEURER (2003) 'Controlling Opportunistic and Anti-Competitive Intellectual Property Litigation', *B.C.L. Rev.*, vol. 44, p. 509, at 517.

⁵¹ *Ibid.*

holding company founded by an inventor Thomas Campana, Jr. in 1992.⁵² NTP had no plan or capability to commercialise its patented inventions by itself.⁵³ Its primary business target is to seek royalties by administering its patent portfolio which includes a number of patents in the field of wireless email and RF Antenna design. In the beginning of 2000, NTP offered to license its wireless email patents to a number of companies, including Research In Motion (RIM), who were believed to exploit those patented inventions, but none of them accepted the licence offer.⁵⁴

In 2001, NTP filed a complaint of patent infringement on its eight patents before the US District Court for the Eastern District of Virginia. RIM is a Canadian company founded in 1984 which became highly successful. In particular, the handheld device BlackBerry, rolled out in 1999 in the US and Canada, was a breakthrough product and brought huge success to RIM. During the litigation, being convinced itself of the invalidity of the patents and non-infringements of its product on those patents, RIM expanded its market to Europe and Asia. At the end of 2002, the jury reached a verdict that the patents are valid and have been wilfully infringed by RIM. The Judge ordered an increase of the jury-set damages (\$33 million) for the past infringements up to \$53 million as a punitive measure for the wilful infringement, and issued an injunction against future infringement acts in the US. However, the injunction order was stayed pending appeal made by RIM to the CAFC. In 2005 during the appeal process, a settlement (\$450 million) was reported to have taken place. However, the negotiations broke down and RIM took legal action to enforce the parties' settlement agreement. After the CAFC ruled that the settlement

⁵² PIKE (2006) 'Blackberry: Lawsuit and Patent Reform', *Information Today*, vol. 23, no. 5.

⁵³ WESTON (2008) 'BlackBerry', *A Teaching Case for WIPO by Intellectual Property Research Institute of Australia (IPRIA)*, at 3.

⁵⁴ Ibid.

agreement is unenforceable, RIM appealed to the US Supreme Court but the Court refused to hear the appeal in 2006. In the course of the above litigation, the number of BlackBerry service subscribers, including politicians, government employees, emergency service personnel, and others, greatly increased due to its outstanding versatility and reliability. Therefore, serious concerns were expressed by the public, particularly by the US Justice Department and the US Department of Defence. In the end, in March 2006, RIM and NTP reached a final settlement to their dispute under the terms of RIM's payment of \$612.5 million to NTP. It should be noted that, during the litigation with RIM, other companies such as Good Technology, Nokia and Visto entered into voluntary licence agreements with NTP because they expected litigations would be inevitable.⁵⁵ NTP also recently filed patent infringement lawsuits against Apple, Google, HTC, LG, Microsoft and Motorola over mobile email patents.⁵⁶

This incident epitomises how alleged patent trolls use their patents to earn licence revenue from downstream manufacturers or service providers. Particularly, it should be noted that the amount of final settlement increased conspicuously higher than the previously negotiated amount. Without doubt, this resulted from the fact that RIM did not have any option but to take NTP's offer in order to avoid the shut-down of its production line. Therefore this story shows that the injunction threat is the most powerful tool for patent trolls to compel the alleged or adjudged infringers to enter into a licence agreement. Other alleged strategies of patent trolls are not significantly

⁵⁵ See <http://www.blackberrycool.com/2005/03/11/good-technology-and-ntp-enter-into-license-agreement/>; <http://www.techdirt.com/blog/wireless/articles/20040614/160518.shtml>; http://news.cnet.com/NTP-signs-license-deal-with-Visto/2100-1047_3-5995412.html.

⁵⁶ See <http://www.businessinsider.com/ntp-sues-apple-google-htc-microsoft-and-motorola-over-email-patents-2010-7>.

different from that of the NTP case.

2.2.2.4. Patent Trolls in Europe and Their Distinctiveness

A limited number of alleged patent trolls have been reported in Europe so far. Several of them are introduced here. Yet, we should once again remember that any judgement of whether a certain NPE patent holder is a patent troll or not is not absolute but in the eye of the beholder.

The first example is Document Security Systems (DSS) which, in 2005, filed a patent infringement suit in the European Court of First Instance (CFI)⁵⁷ against European Central Bank (ECB) claiming that ECB's Euro banknotes infringed its anti-counterfeiting patent.⁵⁸ The fact that the DSS did not dedicate itself to research and development and not have any considerable assets other than its patents was a major reason that it was considered as a patent troll.⁵⁹ The CFI refused to hear the case due to the lack of jurisdiction and the case has been focused on the validity of the patent as ECB filed a series of invalidity litigations in about nine European countries.⁶⁰

Similar examples are Papst Licensing GmbH & Co. KG and IPCom.⁶¹ Papst Licensing (since 1993) is a German based but globally operating company whose business is to earn royalties from manufacturing companies by asserting their patents bought from original patentees or by representing other patent owners. IPCom (since

⁵⁷ The name of this court changed to the General Court (EGC) on 1 December 2010.

⁵⁸ News Release by Document Security Systems, '*Document Security Systems Announces the German Federal Patent Court Confirms Patent Validity*' 27 March 2007; SUBRAMANIAN, n 7, at 185.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ For more information, see POHLMANN, *et al.*, n 28, at 5-6.

2007) is also a German based patent holding company but funded by the US investment company Fortress. ICom purchased a patent portfolio (over 1,000 mobile communication patents) from Bosch, and sued mobile phone manufacturers and service providers such as HTC, Nokia and T-Mobile for patent infringement charges. The best known litigation cases are with HTC and Nokia and they will be discussed in chapter 3.

There have been other alleged patent troll cases in which patent holders have provoked anti-competitive issues: for example, the Sisvel case where Sisvel, the holder of many MP3 technology patents which are essential to the relevant technical standard, blocked SanDisk's products outside of Europe by relying on the European Border Detention Regulation and criminal proceedings; the Rambus case where, in 2007, Rambus received a Statement of Objections (SO) from the European Commission stating that claiming unreasonable royalties for the deceptive patent⁶² was an abuse of its dominant position under Art. 82 of the EC Treaty⁶³; the Qualcomm case where the European Commission initiated a formal proceeding against Qualcomm in the charge of abusing its dominant position.⁶⁴

Despite some examples introduced as above, various sources, such as academic articles, newspapers, analyst reports and so forth, show that patent trolls appear to be more frequent in the US than in Europe.⁶⁵ Some factors described below are believed to have affected this result.

First of all, the different litigation system in Europe is one of the crucial

⁶² Rambus did not disclose the presence of the patents during the standardisation process, but later it claimed that the patents were adopted in the established industry standard.

⁶³ Current Art.102 of the TFEU (Treaty on the Functioning of the European Union).

⁶⁴ SUBRAMANIAN, n 7, at 186.

⁶⁵ Ibid. at 186-187.

factors that deter patent trolls. Since, in Europe, the patent litigation for infringement remains within the jurisdiction of each country, patent enforcers need to carry out different lawsuits in different countries (sometimes against the same alleged infringer) in parallel with different strategies. This is quite a burdensome and costly affair for patent owners, and more importantly unified decisions from each country are not guaranteed.⁶⁶ Europe is not, at least in the present state, attractive for patent trolls compared with the US which provides a unified huge market covered by a single lawsuit.

Secondly, Europe, by the European Patent Convention (EPC)⁶⁷, has not allowed the grant of business method patents and software patents in industries where patent trolls are rampant.⁶⁸ Even though there have been discussions to allow those kinds of patents in the European patent system, for instance the 'EU software patent directive' proposed in 2002⁶⁹ which was, however, eventually rejected by the European parliament in 2005, those types of patent still have not received an overall approval.⁷⁰

The third factor bears upon patent fees. Whilst small patent enforcers in the US generally rely upon the contingent payment basis to overcome the barrier caused by expensive patent litigation costs, such a fee arrangement for litigations has not been widely adopted in the European countries.⁷¹ Another point is that European

⁶⁶ Ibid. at 187.

⁶⁷ Art. 52(2)(c).

⁶⁸ SUBRAMANIAN, n 7, at 186-187.

⁶⁹ Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, COM (2002) 92 final, dated 20th February 2002.

⁷⁰ SUBRAMANIAN, n 7, at 187; OHKUMA, et al., n 17, at 85.; TORREMANS (2008) 'Intellectual Property Law', 5th ed. Oxford University Press, at 84-85.

⁷¹ SUBRAMANIAN, n 7, at 187.

countries, unlike the US, have the ‘loser-pays-system’, by which the losing party is basically required to pay the litigation cost including the attorney fees of the winning party.⁷²

Despite the above factors restraining the uprising of patent trolls in Europe, it is too early to make a hasty conclusion that patent trolls are not expected to be prevalent in Europe and other parts of the world in the future. It has been suggested that the relatively lower litigation costs in European countries than in the US may incentivise patent trolls to actively engage in their opportunistic patent enforcements in Europe,⁷³ even though this also, on the other hand, would increase the likelihood of the alleged infringers fighting against trolls by asserting patent revocation claims. Furthermore, if the unified EU patents and the Unified Patent Court (UPC) are to be successfully established in the future,⁷⁴ we cannot rule out the possibility that Europe would provide favourable environments to the current and potential patent trolls. This research, in this sense, is quite meaningful to prepare the possible prevalence of patent trolls in Europe in the future.

2.2.3. Controversies over Patent Trolls

Whilst patent trolls are generally depicted and regarded as the entities who deteriorate the innovation incentives of manufacturing companies and undermine the patent system’s ultimate goal to enhance the public welfare by technological progress, their patent enforcement, from the perspectives of the patent owners, is a basically

⁷² Ibid. For the situation in the US, see 35 USC §285 which stipulates that courts may award reasonable attorney fees to the prevailing party in exceptional cases, as well as *National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1197 (Fed.Cir.1996).

⁷³ Ibid.

⁷⁴ ALLEN & OVERY (2009) 'Thinning the Patents Thicket', *ALLEN & OVERY Bulletin, August 2009*. See also EUROPEAN COUNCIL (2012) ‘Conclusions’, *EUCO 76/12, Brussels, 29 June 2012, at 2*

legitimate action which any patent law does not preclude. In this sense, this thorny patent troll issue has aroused controversies for the last decade.

2.2.3.1. Negative Views

Many people believe that patent trolls abuse the patent system by taking advantage of the vulnerable points in the patent system. They decry that patent trolls, instead of being involved in the process of technology innovation, snatch up a favourable settlement by way of obtaining ambiguous and broad claimed patents whose validity is seriously questioned, as well as making the best use of the principle of ‘presumption of validity’ and the very high litigation cost.⁷⁵

Opponents of patent trolls argue that these opportunistic behaviours, in turn, eventually deter innovation. They emphasise that, when a patent troll, not only never working the patent by themselves but also blocking others to do so, files a baseless suit against manufacturing companies, the target companies tend to waste their precious time and resources defending the suit, redirecting their efforts towards the litigation instead of investing in the further development of products or services.⁷⁶ This, particularly when an injunction is (wrongly) granted, not only deprives the public of the right to fully enjoy or access the patented invention, but also generates unnecessary social costs.⁷⁷ Even when a settlement is reached, the royalty paid together with any unexpected litigation costs incurred can affect the financial stability of the manufacturing companies and, in some cases, lead to a price increase

⁷⁵ CHAN, *et al.*, n 18, at 4; HARKINS (2007) 'Fending off paper patents and patent trolls: A novel "cold fusion" defense because changing times demand it', *ALB.L.J. SCI. & TECH.*, vol. 17, pp. 407-479, at 430-442.

⁷⁶ CHUANG, n 24, at 232-234.

⁷⁷ *Ibid.*

of their products.⁷⁸ It has been claimed that patent trolls work against the primary goal of the patent system.⁷⁹

2.2.3.2. Positive Views

Proponents basically argue that the patent trolls' business model is necessary to allow individual inventors and small businesses to maintain their innovative efforts.⁸⁰

Recognising that most small inventors are rarely able to raise the necessary capital for high litigation costs (\$2 million on average in the US), large manufacturing companies often strategically drag the negotiation for settlement and the litigation proceedings, hoping to outlast the patentee and cause them to give up the enforcement.⁸¹ They claim that the patent trolls play a critical role which is to overcome the imbalance in patent enforcement which exists by the great disparity of resources.⁸² The new levelling power of patent trolls is said to lower the market entry barrier for small entrepreneurs who were, in the past, unable to compete with existing big competitors due to a lack of resources and experience in manufacturing and marketing. They argue that this will increase competition in the market and ultimately lead to scientific and technological advancement and public welfare.⁸³

McDonough, a forerunner among proponents, maintains that patent trolls act as 'a market intermediary' bridging the gap between inventors and commercialisers and play a positive role, especially for small inventors and firms, by (1) promoting

⁷⁸ HARKINS, n 75, at 438.

⁷⁹ CHUANG, n 24, at 220.

⁸⁰ LATEEF, *et al.* (2007) 'A Supreme End to Patent Trolls?', *Orange County Lawyer*, August 2007.; STETTNER (2004) 'Meet the Patent Enforcers', *Wisconsin Lawyer*, vol. 77, no. 4.

⁸¹ LATEEF, *et al.*, n 80.

⁸² *Ibid.*

⁸³ *Ibid.*

transactions and licensing, (2) making patents more liquid commodities, and (3) furthering market clearing ‘through risk pooling and equalised pricing.’⁸⁴ He highlights that the emergence of patent trolls is a necessary step in the evolution of the patent market, just as markets for intangibles, such as capitals, debt and risk, have experienced in the past.⁸⁵

Proponents commonly argue that the term patent troll was strategically coined by the large manufacturing companies to defend themselves in facing an increasing number of infringement suits from non-practising patent holders, and that the concept of a patent troll distorts reality and does not provide any clear criteria governing which behaviours or entities belong to this category. They argue that the patent troll label is nothing but an offensive and unsubstantial concept.⁸⁶ In this sense, a few new labels have been proposed to replace the term patent troll, such as ‘white knight,’⁸⁷ ‘patent dealer,’⁸⁸ or ‘patent licensing firm.’⁸⁹

2.2.4. Recent Developments in Dealing with Patent Trolls

If the first half of the 2000s saw the proliferation of patent trolls predominantly in the US, the second half could be described as a period of steady efforts to suppress them. The efforts have been salient in Congress as well as in the courts. These efforts are

⁸⁴ MCDONOUGH III, n 11, at 211-215. *See also* WATANABE (2009) 'Patent Licensing and the Emergence of a New Patent Market', *Houston Business and Tax Journal*, vol. 9, pp. 445-479, at 459.

⁸⁵ MCDONOUGH III, n 11, at 227.

⁸⁶ GREGORY (2007) 'The Troll Next Door', *J. Marshall Rev. Intell. Prop. L.* vol. 6, pp. 292-309, at 309.

⁸⁷ LATEEF, *et al.*, n 80.

⁸⁸ MCDONOUGH III, n 11.

⁸⁹ LE (2007) 'What is Not a Patent Troll, In the Negative Sense', *The Progress & Freedom Foundation's Center for the Study of Digital Property*, available at http://weblog.ipcentral.info/archives/2007/02/what_is_not_a_p_1.html.

briefly discussed below.

2.2.4.1. The US Patent Reform Attempts

In the course of the fierce debates on the roles and effects of patent trolls, there have been continuous efforts to revise the US patent statute in such a way as to weaken the right of a patent. Those attempts were strongly supported by information and communication technology (ICT) sectors which have been under the serious influence of patent troll attacks due to the prevalence of the ‘patent thicket’ problems in those industries. Those attempts, without doubt, came to face strong oppositions from other interest groups or industries who benefit from strong patent protection, e.g. pharmaceutical industries or non-practising patent owners’ groups. Since the first patent reform attempt in 2004,⁹⁰ prompted by the pressure from industry groups suffering from patent trolls and by the two significant reports⁹¹ from the Federal Trade Commission (FTC) and the National Research Council of the National Academies, both of which addressed the seriousness of the patent troll problem, patent reform has been proposed each year in the US Congress⁹² until the Leahy-Smith America Invents Act (AIA) was finally passed the Congress in September 2011.⁹³ The AIA is regarded to be the most significant overhaul of the US patent

⁹⁰ Patent Quality Assistance Act of 2004 (H.R. 5299).

⁹¹ FTC (2003) 'To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy', available at <http://www.ftc.gov/os/2003/10innovationrpt.pdf>, Federal Trade Commission; MERRILL, et al. (2004) 'A Patent Systems For The 21st Century', The National Academies Press, Washington, D.C.

⁹² H.R. 2795 (2005); S. 3818 (2006); S. 1145/H.R. 1908 (2007); S. 3600 (2008); S. 515/S. 610/H.R. 1260 (2009); Amendment to S. 515 (2010); S. 23 (2011).

⁹³ H.R. 1249. It passed the Senate on 8 September 2011 and President Obama signed the Act into law on 16 September 2011.

statute since 1952.⁹⁴

Although the AIA includes a number of significant changes, here the main provisions closely related with patent troll issues are introduced.

First of all, the AIA introduces a few new rules constraining the relative power of patentees in the patent infringement litigation practice. A newly introduced ‘joinder rule’ renders patent owners unable to accuse multiple infringers in one action as co-defendants unless those infringers are either jointly and severally liable, or each infringement arises from the same transaction(s) or occurrence(s) and have common questions of fact.⁹⁵ This will substantially limit the patent trolls’ ability to bring multiple defendants into a single lawsuit where the defendants bear no relation except for allegedly infringing the same patent.⁹⁶ Another change significantly affecting the litigation practice is the expansion of the ‘prior commercial use’ defence. It allows an alleged infringer to defend herself from infringement charges by providing clear and convincing evidence that she, acting in good faith, commercially used the claimed invention at least one year before the effective filing date of the patent.⁹⁷

Secondly, the AIA created two new post-grant review provisions to provide quicker and less costly administrative alternatives for parties to challenge the validity of issued patents: post-grant review and *inter partes* review,⁹⁸ which are to be

⁹⁴ GUPTA, *et al.* (2012) 'The US Patent System After the Leahy-Smith America Invents Act', *European Intellectual Property Review*, vol. 34, issue 1, pp. 60-64, at 60.

⁹⁵ S. 10 of the AIA.

⁹⁶ GUPTA, *et al.*, n 94, at 61.

⁹⁷ S. 5 of the AIA.

⁹⁸ S. 6 of the AIA. Whilst post-grant review must be initiated during the nine months after grant or issuance, on any grounds (e.g. non-patentable subject matter, novelty, non-obviousness, written description and enablement), the *inter partes* review could be initiated only after nine months from

conducted by the new Patent Trial and Appeal Board (PTAB).⁹⁹ It is manifest that these post grant review proceedings provide alleged infringers with more convenient tools to challenge the validity of patent than in the previous patent system.

Lastly, the AIA installs special measures to eliminate or curtail certain patentable subject matter. For example, ‘any strategy for reducing, avoiding, or deferring tax liability’ is deemed to be prior art,¹⁰⁰ and ‘no patent may issue on a claim directed to or encompassing a human organism.’¹⁰¹

It is without saying that the AIA would significantly change many aspects of the US patent system and affect the businesses and strategies of patent trolls in the future. However, it remains to be seen whether or how effectively this patent reform would mitigate the patent trolling problems.

2.2.4.2. Judicial Counteractions

In addition to the US patent reform from the Congress, there have been a few significant advancements in the judicial branch to counteract patent trolls.

In *eBay* which has been positioned as a most significant turnaround, the US Supreme Court overruled the CAFC’s near-automatic injunction rule (the ‘general rule’) by maintaining the traditional four-factor injunction test. The Court held that a plaintiff seeking a permanent injunction ‘must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of

patent issuance or after termination of a post-grant review, only on the grounds of novelty or non-obviousness based upon prior art patents or printed publications.

⁹⁹ S. 7 of the AIA.

¹⁰⁰ S. 14 of the AIA.

¹⁰¹ S. 33 of the AIA.

hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.’¹⁰²

Although the Court expressly held that ‘in successful patent infringement action, patent holder’s willingness to license its patents and lack of commercial activity in practicing patents do not preclude permanent injunction,’ this decision has been widely applied by lower courts to deny injunctive relief against NPE patent holders.

The *eBay* case is generally accepted as a heavy blow to the patent troll business because they are expected to hardly ever pass the four-factor test, particularly the first and second prongs of the test, in the sense that they do not practise the patent and are only interested in licensing.¹⁰³

Another US Supreme Court case is *MedImmune*¹⁰⁴ which has dramatically altered declaratory judgement jurisdiction in patent cases. If patentees including patent trolls once enjoyed aggressive patent enforcements and licensing agreements without worries of declaratory judgement actions by alleged infringers, they have now come to face the possibility of those actions and validity challenges of patents in a forum of the accused infringer’s choice.¹⁰⁵ The *MedImmune* case has caused patent trolls to take cautious actions when approaching alleged infringers.¹⁰⁶

Moreover, in *KSR*,¹⁰⁷ the US Supreme Court lowered the bar of ‘obviousness’ standard in patent invalidity challenges. Rejecting the rigid application of the Federal Court’s overly formulaic ‘teaching, suggestion, and motivation’ (TSM)

¹⁰² 126 S.Ct. 1837, 1839 (2006).

¹⁰³ MAYERGOYZ (2009) ‘Lessons from Europe on How to Tame U.S. Patent Trolls’, *Cornell Int’l L. J.*, vol. 42, p. 241, at 255.

¹⁰⁴ *MedImmune, Inc. v. Genentech, Inc.*, 127 S.Ct. 764 (2007).

¹⁰⁵ MAYERGOYZ, n 103, at 255.

¹⁰⁶ LATEEF, *et al.*, n 80.

¹⁰⁷ *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007).

test for determining the obviousness of a patent, the Court held that a patent could be regarded as obvious by the prior art as well as by the ‘ordinary skill and common sense’ of a person in the art.¹⁰⁸ This means that ‘incremental and mere modernisation of existing technology would generally not rise to the level of invention necessary for a valid patent.’¹⁰⁹ By this decision, alleged infringers now have a stronger legal tool to invalidate the plaintiff’s patent at issue, especially weak patents.¹¹⁰

In spite of these endeavours in the US Supreme Court, it should be noted that there has been no report of a decrease in patent trolls since then.

2.2.5. Summary

The emergence of patent trolls mostly in the US at the turn of this century is said to have been caused by various factors, such as the government’s patent policy, the changing industrial structure, and the peculiar judicial system. Having aroused serious concerns that the patent system could be badly abused, the troll issue, after all, has been dealt with by the government (especially by the legislative and judicial branch) as one of the significant problems to solve in the patent system.

However, from the mere fact that even the definition of the patent troll has not reached a general consensus so far and that there have been fierce debates surrounding its role or impact on technological innovation, it is quite obvious that the troll issue is not at all simple but in fact quite complicated. The complexity of the

¹⁰⁸ Ibid. at 1742. See also WALLACE JR. (2007) ‘Are Patent “Trolls” Wrongly Named and Maligned? Do They Have a Future?’, *AIPLA Annual Meeting, Washington, DC, 18 October 2007*; LATEEF, *et al.*, n 80.

¹⁰⁹ LATEEF, *et al.*, n 80.

¹¹⁰ Ibid.

patent troll issue being considered, it is not quite certain whether the change of the patent statute such as the AIA could provide a proper way to deal with patent troll problems in that any politically compromised solution might hardly satisfy all conflicting interests of each participant in the patent system but inevitably sacrifice a certain group for the benefits of other groups. Furthermore, in spite of the US Supreme Court's endeavour to change the case law in a way to abate the patent trolling for the past several years, the patent trolls do not appear to be on the wane but prompt another concern that innocent NPE patent holders might face prejudice. This implies that the Court might have neither analysed the root causes of the patent troll problems in a proper way, nor applied correct approaches in dealing with the problems.

2.3. NPEs in the Patent System

2.3.1. Introduction

The previous section reviewed the general information and background relating to patent trolls. It revealed that the concept of patent trolls is quite controversial and the patent troll problems are basically rooted in the non-practising characteristics of patent holders. In this respect, patent trolls should be discussed within the overall boundaries of NPE patent holders and therefore this research, for more balanced and correct analyses, focuses on the overall NPE issues rather than merely on the patent trolls themselves.

This section discusses the general characteristics of NPEs and their portrayal in the patent history. More specifically, in order to avoid any possible confusion with respect to the terminology in this thesis, 'patent trolls' and 'NPEs' are defined here

again together with the relationship between the two terms. The discussion then continues to examine what sorts of NPEs exist and how differently they operate in the patent system. Lastly, this section examines not only what kind of restrictions NPEs have received in the patent history due to their non-exploiting nature, but also whether there were similar examples of patent trolls in the past. Those discussions will provide an overall picture of the NPE patent holders themselves as well as some fundamental issues surrounding them.

2.3.2. Patent Trolls v NPEs

As many scholars or commentators have defined the two terms, patent troll and NPE, in different ways, it is necessary to make a clear distinction between them to prevent any confusion by the terminology. Considering the previous discussion, let us redefine those terms and set up their relationship in a practical way.

Despite the absence of any unanimous definition of patent trolls, two important common elements in determining patent trolls can be drawn from the various existing definitions. The first element is a ‘non-practising characteristic’ of patent owners, which means that they do not use the patented inventions but are interested in licensing out or selling the patents. The second is the ‘abuse of patent system’ against its ultimate goal. Even though it is not easy to define the term ‘abuse’ because of its case-specific nature, it can be exemplified as, for example, claiming high licence fees or damages way beyond the true value of a patent, asserting infringement claims with dubious or invalid patents, and/or unreasonably rejecting others’ requests for a licence.

By combining the above two elements, a patent troll could be defined as ‘a non-practising patent holder who abuses the patent system by enforcing her patent(s)

in such a way against its ultimate goal.’ It is seemingly simple but still too broad. However, if we consider that one of the chief reasons why other previously proposed definitions were not readily accepted was a profound disagreement over how to understand the term ‘abuse’, it is more practical to adopt that conceptual meaning of abuse in the definition but to leave its specific interpretation in a domain where only official authorities may decide *ex post* in each specific case. It is because, whilst the first element, non-practising, is rather obvious by looking into each patent holder’s business strategy, the second element, abuse, has such a subjective nature. In this respect, this definition of patent troll is quite normative and suspends any hasty judgement as to whether a certain NPE patent holder is a patent troll or not until the official authorities’ final decision. To reiterate, this new definition implies that the term, patent troll, should not be used to prejudge any NPE patent holders as patent trolls before any objective and sufficient evidence comes from official authorities.

Then, the relationship between patent trolls and NPEs becomes clear. An NPE refers to any patent holder whoever does not practise her patents at the point of patent enforcements, whereas a patent troll is an NPE patent holder who enforces the patents in such a way as to abuse the patent system. It is obvious that the term NPE is a wider concept than the patent troll. Here, whilst the outer boundaries of the term NPE could be easily determined by the patentees’ business model and its status is quite steady, patent trolls exist within the NPE’s boundary with an irregular and unpredictable pattern in that they are highly dependent upon the evaluation of their behaviours.

Even though there are opponents to the use of the term patent troll by reason of its ambiguous meaning and pejorative image, it may be allowed insofar as, observing the above new definition, it is strictly used only to refer to patent abusing

behaviours of NPE patent holders in its widest sense rather than to peg specific entities as patent trolls. The rest of the thesis will use both terms in accordance to the above definition and relationship between the two.

2.3.3. Various Types of NPEs and Their Characteristics

Recent empirical studies show that concerns over NPE patent holders have been escalating over the last decade. Shartzter showed that the number of patent litigations filed in the US courts has gradually increased over the period of 2001-2007, soaring up to 18.3% in 2007 (2,905 cases) over the cases filed in 2000 (2,464 cases).¹¹¹ Further, according to analysis by Allison et al., NPEs account for more than 80% of the patent infringement suits under the ‘most-litigated patents’ in the US and they own over 50% of the above patent group while taking up 16% of the ‘once-litigated patents.’¹¹² In order to see whether those NPE patent holders cause inevitable harm to the patent system, this section seeks to categorise NPE patent holders and review their general characteristics.

In fact, diverse classifications of NPEs are possible by different people and criteria.¹¹³ However, since the purpose of that classification is to see whether they

¹¹¹ SHARTZER (2009) 'Patent Litigation 101: Empirical support for the patent pilot program's solution to increase judicial experience in patent Law', *Federal Circuit Bar Journal*, vol. 18, p. 189, at 210.

¹¹² ALLISON, et al. (2009) 'Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents', *University of Pennsylvania Law Review*, vol. 158, no.1, pp. 101-137, at 132. (They identified 106 ‘most-litigated patents’ which have been litigated more than eight times during 2000-2007, and randomly chose 106 ‘once-litigated patents,’ which been litigated only once during the period, as a control group for the analysis.)

¹¹³ For example, see Ibid. at 110. (Authors classified NPEs as eleven entities according to the microscopic criteria, which are ‘acquired patents’, ‘university heritage or tie’, ‘failed startup’, ‘corporate heritage’, ‘individual-inventor-started company’, ‘university/government/NGO’, ‘startup, pre-product’, ‘individual’, ‘IP subsidiary of product company’, and ‘undetermined’).

play a positive or negative role in the patent system in a general perspective rather than to single out possible patent trolls in the overall NPEs, any kind of classification might suffice to achieve that purpose. Here, NPEs are categorised according to macroscopic characteristics of their organisational structures and business styles, such as individual inventors, research-oriented entities, patent intermediaries, and manufacturers not commercialising relevant patents.

2.3.3.1. Individual Inventors

The inception of the patent system began from the concept of protecting mainly individual inventors because most of the products at that time were simple and industries were not diversified enough. During that time, the industrial innovation and development were highly dependent upon the ingenuity of individual inventors. In a contemporary society where products became much more complicated and R&D costs increased, it is undeniable that the relative importance of independent inventors has gradually declined over corporate inventions.¹¹⁴ However, the rhetoric that the individual inventors have played and are still playing a crucial role is being strongly upheld.¹¹⁵ Many people believe that independent inventors can provide amazing technological breakthroughs which are rather difficult under the conventional way of thinking and the bureaucratic corporate culture.¹¹⁶ This attitude is especially reinforced when it comes to the prominent examples of revolutionary innovators, i.e. Thomas Edison, Steve Jobs and Bill Gates.

¹¹⁴ For example, in the United States the number of patents granted to independent inventors (domestic only) over total patents granted in 2008 has decreased by almost half (16.2%) from that of in 1992 (30.7%). See <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>.

¹¹⁵ COTROPIA (2009) 'The Individual Inventor Motif in the Age of the Patent Troll', *Yale J.L. & Tech. vol. 12, pp. 52-84*.

¹¹⁶ *Ibid.* at 54.

Here, two facts of individual inventors in the current patent system are worthy of note. Firstly, individual inventors are most active in the industries where they can easily participate in without much investment, such as IT industries or business method inventions.¹¹⁷ It is regarded that these industries provide great incentives for NPE patent holders to go into patent trolling. IT products are generally composed of many associated patents like a tightly-woven net ('patent thickets') such that any patent holder may be able to prevent the manufacture of the product in principle. However simple and small the patented inventions held by individual inventors may be, manufacturers or service providers cannot ignore them whatsoever once they are legally granted. As for business method patents, the claimed inventions generally have very vague boundaries in many cases and thereby manufacturers may hardly ever manage to locate the patents before making a decision to invest.¹¹⁸ This provides individual inventors with strong leverage power for a licence with a high royalty rate. The other fact is that, although many independent inventors still have strong intentions to commercialise their patents by themselves, some of them have showed much stronger desires to monetise their patents through licensing or selling the patents. This may be ascribed to their hardships in entering an existing market, other NPE patent holders' eye-opening success stories obtaining a large sum of royalties or damages by patent enforcements, and so forth.

These behaviours, in the midst of patent troll controversies, have changed the sentiment towards individual inventors in a slightly negative way. According to Cotropia's recent study on how the patent troll hunt affected individual inventors in

¹¹⁷ Ibid. at 55.

¹¹⁸ In fact, all patents have the problem of ambiguity to a degree because they cannot be claimed in a perfect language. However, this problem is much more serious with business method patents.

the US, recent court decisions, e.g. the *eBay* case, which made it much more difficult for independent inventors to enforce their patents ‘have not damaged the individual inventor’s image, but [they] certainly created substantive changes that cut against small inventors.’¹¹⁹

2.3.3.2. Research-oriented Entities

Research-oriented entities could be further divided into public research institutions and private research firms according to whether they are established for a non-profit or profit earning purpose.

Traditionally, public research institutions which include universities and non-profit research institutions have been regarded as not only pursuers of scientific and technological research merely for the sheer quest for knowledge and public good but also knowledge disseminators for social welfare and industrial development. Their roles in terms of scientific and technical innovations are crucial in the sense that they deal with seminal technologies in their early stages and diffuse them into extensive downstream industries.

Regarding patenting, they are quite new players. Before the 1980s in the US, patents were one of the tools for the performance evaluation of an organisation or its researchers, and the notion of patents as a source of revenue was rare. Since the US Bayh-Dole Act¹²⁰ was adopted in 1980, a big change has begun. The Act gave universities and non-profit organisations funded by federal government the exclusive right to own the resulted patents from the funding and to license them to others. This US legislation, in turn, has triggered EU countries to adopt similar laws since the

¹¹⁹ COTROPIA, n 115, at 80.

¹²⁰ 35 USC § 200-212, 37 C.F.R. 401.

mid-1990s, e.g. the UK National Health Service circular of 1998 and Germany in 1998.¹²¹ Even though we may not say these new legislations are the only factor for the subsequent massive surge of patenting, it is widely perceived that they have been a main driver for the change. For example, in the US in 2004, the amount of university patents sharply increased by sixteen times compared with 1980,¹²² and EPO also experienced patent filing from public research institutions substantially soaring up to 3.5 percent of all applications in the mid-2000s from 0.5 percent in the beginning of the 1980s.¹²³ Further, they are also deeply engaging in patent enforcements through licence agreements or, at times, litigations. According to the annual surveys by the Association of University Technology Managers (AUTM), an increasing number of non-profit research institutions (mainly universities) have formed 151 Technology Licensing Offices (TLOs) or Technology Transfer Offices (TTOs) up to 2004 (21 before 1980) for the efficient and effective management of patenting and licensing activities.¹²⁴

As public research institutions are building up their influence over industries, some concerns have been raised with respect to their patent enforcing behaviours. The first criticism against them (primarily universities) is that they are deterring innovations by their licensing strategies. Most TLOs opt for exclusive rather than non-exclusive licences because the royalty rate of the former plan is normally higher than the latter, licensees often want exclusivity to secure their business from

¹²¹ GUELLEC, *et al.* (2007) 'The economics of the European patent system: IP policy for innovation and competition', Oxford University Press, Oxford, at 185.

¹²² LEMLEY (2007) 'Are Universities Patent Trolls?', *Stanford Public Law Working Paper No. 980776*. SSRN, available at <http://ssrn.com/paper=980776>, at 2.

¹²³ GUELLEC, *et al.*, n 121, at 186.

¹²⁴ THURSBY, *et al.* (2007) 'University licensing', *Oxford Review of Economic Policy*, vol. 23, no. 4, pp. 620-639, at 620-621.

competitors, or exclusive licensees bear the cost and risk of future patent litigations.¹²⁵ This inevitably resulted in stunningly high rates of exclusive licences.¹²⁶ When it is considered that a substantial share of patents granted to public research institutions are basic building blocks for further development, exclusive licences can possibly deter the effective dissemination of new technologies by depriving other innovators of the opportunities to develop different applications.¹²⁷

Secondly, public research institutions are also active in patent enforcements.¹²⁸ They were rather reluctant to file patent infringement lawsuits in the past when budgets were relatively tight. However, as they can stockpile a certain amount of revenues earned from licence agreements for costly future litigations, they can now brandish their new weapon of patent litigation to let downstream patent users ultimately buy a licence. A number of recent high-profile patent litigations by universities in the US epitomise this change.¹²⁹

Meanwhile, private research firms are different from the above public research institutions in light that their primary business is to make profits from the results of their research, which means that private research firms tend to be more active in enforcing their patents than public institutions. Yet, when it is considered that nowadays more and more public institutions are interested in making a profit, the above accounts about public research institutions could be valid to private research firms as well.

To sum up, the research conducted by research-oriented entities is crucial to

¹²⁵ LEMLEY 'Are Universities Patent Trolls?', n 122, at 5.

¹²⁶ Ibid. The author maintains that between 95-100% of licences are exclusive in the nanotechnology he studied.

¹²⁷ Ibid.

¹²⁸ Ibid. at 7.

¹²⁹ Ibid. A good example is *Eolas Technologies v. Microsoft*, 399 F.3d 1325 (Fed.Cir.2005).

the scientific and technological developments due to their critical influence to the follow-on innovations. Nevertheless, the possibility of aggressive patent enforcements casts concern that they might use patents merely for financial returns and that their old image as frontrunner innovators is now being tainted.

2.3.3.3. Patent Intermediaries

Patent Intermediaries are not a conventional type of NPE but a recently thriving one in the patent transaction and enforcement market. Their common feature is that they rarely acquire patents by themselves. Rather, they generate profits by using patents issued to other original owners in such a way as to either intermediate between patent sellers and buyers or purchase those patents and license them to downstream manufacturers. In this respect, patent intermediaries are sometimes called ‘patent brokers,’¹³⁰ ‘patent aggregators,’¹³¹ ‘patent licensing companies,’¹³² ‘patent holding companies,’¹³³ or ‘patent assertion entities.’¹³⁴

Then, do patent intermediaries play a positive or negative role in the patent system? First of all, as far as their brokerage functions between patent owners and users are concerned, they provide a safety net for inventors to easily monetise the intangible labour required in order to invent a new technology.¹³⁵ They facilitate

¹³⁰ WANG (2010) 'Rise of the Patent Intermediaries', *Berkeley Technology L. J.*, vol. 25, issue 1, pp. 159-200, at 160.

¹³¹ STERN, *et al.* (2011) 'Trends and Developments Regarding Nonpracticing Entities in the U.S.', *Chizai Kanri*, vol. 61, no. 4, pp. 445-454, at 448.

¹³² BALL, *et al.* (2009) 'Transaction Costs and Trolls: Strategic Behavior by Individual Inventors, Small Firms and Entrepreneurs in Patent Litigation', *U Illinois Law & Economics Research Paper No. LE09-005*, at 14.

¹³³ MULLIN (2008) 'Tempting Terrain', *IP Law & Business*, vol. 6, issue 9.

¹³⁴ STERN, *et al.*, n 131, at 447.

¹³⁵ WANG, n 130, at 167-171 (e.g. Inflexion Point Strategy, iPotential, Ocean Tomo, PatentFreedom,

those patent transactions by determining fair market value of each patented invention. In some cases, patent intermediaries acquire patents from others and use them in a defensive way, which means that they collect relevant patents and license the acquired patents to their fee-paying members at reasonable licence fees.¹³⁶ By preempting patents which could go into the hands of patent trolls, these intermediaries not only promote patent transactions but also reduce the member manufacturers' potential risks of being attacked by patent trolls. In this respect, the intermediaries engaging in pure patent brokerage or defensive patent enforcements play a positive role in the patent system in principle.

By contrast, if these patent intermediaries use the acquired patents in an offensive way through asserting them against alleged infringers, their behaviours could be counter to the purpose of patent law.¹³⁷ These types of NPEs are generally regarded as patent trolls because they tend to use the threat of litigation or injunction for the purpose of collecting high licensing fees without yielding any net gain in innovation for the public. In principle, however, those patent intermediaries' business strategies of 'purchase and litigate' cannot be said to be totally harmful to the patent system, provided that they purchase technically important patents from original patent holders incapable of enforcing the patents against infringers and then enforce those patents in a reasonable way. This may assist smaller inventors by properly compensating them and also promote overall incentives to innovate or invent by providing proper protection of valuable patented inventions. If they purchase a valuable patent at a petty price and earn excessive licence fees from manufacturers,

or Thinkfire).

¹³⁶ Ibid. at 176-177 (e.g. Allied Security Trust, Open Invention Network, or RPX).

¹³⁷ Ibid. at 180-181 (e.g. Acacia Technologies, Constellation Group, Intellectual Ventures).

however, then those offensive intermediaries are nothing but patent trolls; causing harmful effects to the patent system in light that inventors are not properly compensated, manufacturers pay unnecessary extra expenses and finally the public is likely to pay an increased price for the related product. Those intermediaries take away too big a portion of the fruit of innovation in the patent system than their actual contributions.

Therefore, it is not correct to conclude that every patent intermediary plays a beneficial role in the patent system and *vice versa*. Rather, individual behaviours of those patent intermediaries should be closely examined in order to decide whether they are patent trolls or not.

2.3.3.4. Manufacturers not Practising Relevant Patents at Issue

The emergence of patent trolls has let patent holders recognise the patent as an important revenue source. Manufacturing companies are no exception. Manufacturing companies have showed a greater willingness to monetise unused patents in their portfolio that they once overlooked or kept holding for only defensive purposes.¹³⁸ A number of manufacturers, such as IBM, Texas Instruments, Motorola, Kodak, and so forth, began to enforce their patents more aggressively by licensing them out or suing alleged infringers.¹³⁹ Whilst they tend to commercialise by themselves and exclude others for the patents which are competitive in the product market, they choose to license other patents which they think to be less profitable when they exploit them on their own.

With respect to their licensing strategies, they enforce their unused patents

¹³⁸ STERN, *et al.*, n 131, at 445.

¹³⁹ *Ibid.*

either by their own licence or litigation department or by creating independent licensing companies or subsidiaries. If the former strategy is a conventional method, the latter is a new trend whereby they adopt the aforementioned patent intermediaries' business model.¹⁴⁰ In an industry such as IT where so many patents are related to a single product, multiple manufacturers use the latter strategy by jointly investing capital as well as patents because it provides much more powerful negotiation power for a licence over prospective patent users. MobileMedia Ideas LLC founded in 2010 is a good example of that strategy. Sony and Nokia, the partial owners of this company, assigned their 122 patents to it so that their patent portfolio may be enforced in a more efficient manner.¹⁴¹

From this account, two things at least seem to be clear. Firstly, even manufacturing companies could be classified as NPEs if they opt for licensing rather than commercialising their patents. Thus, no manufacturing company can be totally exempted from the possible accusation of being a patent troll by the mere fact that they are making a product. Secondly, sometimes the patent enforcements by manufacturers not practicing the patents at issue could be much more serious patent troll activity than the aforementioned other types of NPEs. Since they are generally better funded and supported with plenty more resources than other relatively small-scale NPEs, they can put strong pressure upon potential patent users and alleged infringers to succumb to their absurd licence offers.

2.3.3.5. Implications

The above overview of various types of NPEs illustrates that the core factor in

¹⁴⁰ Ibid. at 447.

¹⁴¹ Ibid. at 448.

determining whether a certain NPE is a patent troll or not should be surrounding specific behaviours rather than their business styles, and hence any NPE should not be pre-judged as a patent troll merely by its business model. Any varieties of NPEs have shown mixed possibilities that they might play both positive and negative roles. Whilst the individual inventors, research-oriented institutions or companies, or manufacturers not exploiting their patents may contribute directly to technological improvement through their endeavours to invent new technologies, patent intermediaries may do so in an indirect way by bridging the gap between original inventors and manufacturers, facilitating proper financial rewards to inventors, and thereby leading to further investments. On the contrary, all NPEs, more or less, have the characteristics to possibly abuse the patent system, conceptually when their profits from patent enforcements exceed the overall benefits which the patented invention yield to patent users and the public.

2.3.4. NPEs in the Patent Law History

It is generally said that history repeats itself. The history of the patent system, in particular in terms of the NPE issue, is no exception. This section overviews how the world patent system has evolved by examining the NPE-related issues, in particular in terms of the ‘practising requirement,’¹⁴² the ‘patent trade, assignment and licensing’, and the ‘patent sharks’ in the 19th century. This study will show that the non-practising characteristic of NPEs is not a totally new topic but has been a hot issue throughout patent history, whose problems surfaced repeatedly whenever pro-patent policies moved from lying latent to a position of primacy.

¹⁴² In the patent history, the term ‘working’ was used more frequently than ‘practising.’ However, the latter term is used in this thesis for consistency except where the former term is stipulated in a statute.

2.3.4.1. Restrictions to Patent Rights: Practising Requirement & Compulsory Licensing

Patent laws in the world rarely treat certain entities differently from others in an explicit way, but the history of patent law shows that in practice many countries have seen NPEs with different perspectives even from the very beginning of the patent system. There was a ‘practising requirement’ by which patent owners were forced to commercialise their patents in each country lest they should lose their patent rights or receive only limited remedies against patent infringements. Since the Paris Convention—the first multinational treaty for the treatment of intellectual property, the practising requirement has experienced a significant change and is discussed here by dividing the history into two parts, before and after the Convention, for convenience’s sake.

Prior to the Paris Convention

From the first patent statute of Republic of Venice issued in 1474 to the mid 19th century when most of the industrialised countries came to be equipped with patent statutes, most of the countries demanded a local practising requirement from the patentees. At the early stage of patent history in Europe, the patent system was adopted for the purpose of attracting skilled craftspeople and artisans from other countries not only to supply useful products into the territory but also to transfer their technologies to the local industries by apprenticeships.¹⁴³ The basic concept of

¹⁴³ CHAMP, *et al.* (2002) 'Patent Rights and Local Working Under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute', *Yale Journal of International Law*, vol. 27, p. 365, at 370-371.

patent in Europe was primarily based on the ‘national self-interest or industrial progress’¹⁴⁴ and, therefore, it is not surprising that a practising requirement was strongly demanded in most of the European countries.

For example, the Venetian Patent Act of 1474 requested a patentee to exploit her patents actively otherwise the patent could be cancelled.¹⁴⁵ The British Statute of Monopolies in 1623 similarly demanded patent owners practise the patented invention within one year.¹⁴⁶ In France, since the 1791 patent statute, patentees should implement the patented invention within two years after the grant; otherwise the patent could be repealed save unavoidable circumstances.¹⁴⁷ The German law of 1877, the first unified federal patent law, also had a similar clause that a patent could be revoked if the patentee failed to practise it, if she rejected to grant of licences for a patent which was linked to the public interest, or if the patented technology was primarily put into practice in other countries.¹⁴⁸

However, the US maintained an opposing stance to the European countries, even though there was a temporary aberration from 1832 to 1836 demanding foreigners (not domestic inventors) to exploit their inventions within eighteen months after the patent grant.¹⁴⁹ The fundamental presumption of the US patent system is that ‘social welfare coincide[s] with the individual welfare of inventors,’ which means that any restrictions on the inventors are deemed to be against the

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

¹⁴⁶ GUELLEC, *et al.*, n 121, at 41.

¹⁴⁷ Ibid. Also see KHAN (2008) 'An Economic History of Patent Institutions', *EH.Net Encyclopedia*, edited by Robert Whaples, available at <http://eh.net/encyclopedia/article/khan.patents>.

¹⁴⁸ GUELLEC, *et al.*, n, 121, at 41; KHAN, n 146.

¹⁴⁹ WEGNER (2006) 'Injunctive Relief: A Charming Betsy Boomerang', *Northwestern Journal of Technology and Intellectual Property*, vol. 4, at 159.

philosophy of the US.¹⁵⁰

As the discussion of the international harmonisation of the patent system progressed in the late 19th century when the cross-border businesses expanded and many countries came to feel that patent forfeitures against patent holders' importation¹⁵¹ or non-practising behaviours as well as discriminations against foreigners were too harsh measures, the controversies over the practising requirement were unfolded in a way of a head-on clash between European countries and the US. The first clash was at the Vienna Congress of 1873, where a practising requirement was accepted as a national right in spite of the strong objection by the US.¹⁵² The debate continued into the Paris Convention.

After the Paris Convention

Under the European countries' strong support for the practising requirement against the US,¹⁵³ the original Paris Convention of 1883, as a compromise, forbade the automatic forfeiture on the basis of importation whilst imposing the obligation on the patentee to exploit her patent instead.¹⁵⁴ However, it was not until the 1925 Hague

¹⁵⁰ KHAN, n 147.

¹⁵¹ Before the Paris Convention, some countries' patent laws 'stipulated that a patentee was not allowed to import *any* of the patented material, despite the fact that the patent was for the most part being worked locally.' See HALEWOOD (1997) 'Regulating Patent Holders: Local Working Requirements and Compulsory Licences at International Law', *Osgoole Hall Law Journal*, vol. 35, no. 2, pp. 243-287, at 252.

¹⁵² WEGNER, n 149. The German Patent Law of 1877 was influenced by this Vienna Congress and it included the clause of the working requirement.

¹⁵³ *Ibid.* At the 1880 conference, Great Britain, Russia and Turkey also joined the US side requesting abolition of the working requirement.

¹⁵⁴ Art. 5 '(1) The importation by the patentee into the country where the patent has been granted of articles manufactured in any of the States of the Union shall not entail forfeiture of the patent. (2) Nevertheless, the patentee shall remain under the obligation to exploit his patent in accordance with

Revision that the forfeiture provision was replaced by a compulsory licence by permitting each country to take ‘legislative measures to prevent the abuses’ such as non-practising and also prohibiting forfeiture of the patent unless a compulsory licence was an insufficient remedy.¹⁵⁵ It is noteworthy that this Revision articulated ‘failure to practise’ as ‘abuse’. The current version of the Paris Convention (The Stockholm Revision of 1967) after six subsequent revisions from the first 1883 version, also maintains the aforementioned ‘compulsory license over forfeiture’ clause, further limiting the conditions for issuing compulsory licence — the period of restriction of three years from the patent grant or four years from the filing date, whichever expires last; the refusal of a compulsory licence if patent holders justify their legitimate reasons for non-practise; and the non-exclusive and non-transferrable characteristics of the licences.¹⁵⁶

By the Paris Convention, the traditional drastic measure, forfeiture, for the failure to practise has been substantially weakened to compulsory licenses, but each country is still able to pass a legislation to mandate patent holders to practise their patents within its territory. For example, the UK and German patent statutes allow the grant of a compulsory licence in cases where any patent is not or insufficiently exploited by the patent holder.¹⁵⁷

Under the regime of the WTO Agreement on Trade-Related Aspects of

the laws of the country into which he introduces the patented articles.’

¹⁵⁵ Art. 5 ‘(2) Nevertheless, each contracting country shall have the right to take the necessary legislative measures to prevent the abuses which might result from the exclusive rights conferred by the patent, for example, failure to work. (3) These measures shall not provide the forfeiture of the patent unless the grant of compulsory licenses is insufficient to prevent such abuses.’

¹⁵⁶ The Paris Convention as revised in Stockholm in 1967, Art. 5A.

¹⁵⁷ UK Patent Act 1977 (as amended) s. 48B; German Patent Act (as amended by the Laws of 16 July 1998) s. 24(4).

Intellectual Property Rights (the TRIPS Agreement) of 1994, one of the most significant cornerstones in the patent history, the provisions of the practising requirement and the compulsory licence set forth in the Paris Convention Art. 5A is still valid because the Convention is incorporated into the TRIPS Agreement.¹⁵⁸ Art. 31 of TRIPS sets strictly required conditions for the imposition of compulsory licences, yet leaves room for cases where compulsory licences can be allowed. The compulsory licence on the grounds of failure to practise or insufficient practice according to Art. 5A of the Paris Convention is possibly subject to the specific limitations set by Art. 31 of TRIPS.¹⁵⁹

Another important issue surrounding the interpretation of the TRIPS Agreement is whether importation is sufficient to meet the practising requirement. As Bodenhausen, once the Director of BIRPI (the precursor to WIPO), interpreted it under the 1967 version of the Paris Convention,¹⁶⁰ the traditional scope of ‘practising’ was confined to the actual use of the patent in the country where it had been granted, excluding any importation into that country. However, it is now

¹⁵⁸ TRIPS Art. 2. ‘(1) In respect of Parts II, III and IV of this Agreement, Members shall comply with Articles 1 through 12, and Article 19, of the Paris Convention (1967). (2) Nothing in Parts I to IV of this Agreement shall derogate from existing obligations that Members may have to each other under the Paris Convention ...’

¹⁵⁹ GERVAIS (2008) ‘The TRIPS AGREEMENT: Drafting History and Analysis’, 3rd ed. SWEET & MAXWELL, at 390. There are different interpretations where the abuse by non-practising should be placed among TRIPS Art.30, Art.31, or Art.40, however this issue will not be discussed further as it is beyond the scope of this thesis.

¹⁶⁰ BODENHAUSEN, G.H.C. (1968) ‘*Guide to the Application of the Paris Convention for the Protection of Industrial Property*’, as Revised at Stockholm in 1967. Geneva: BIRPI. (‘Normally, working a patent will be understood to mean working it industrially, namely, by manufacture of the patented product, or industrial application of a patented process. Thus, importation or sale of the patented article, or of the article manufactured by a patented process, will not normally be regarded as ‘working’ the patent.’).

generally accepted that importation is sufficient to meet the practising requirement under the TRIPS regime by TRIPS Art. 27(1) which demands member states not to discriminate imported products against locally produced ones,¹⁶¹ as well as Art. 28(1)(a) which defines the exclusive right of patents as even preventing importation by others of infringed products.¹⁶² For example, the German Patent Act stipulates that ‘importing shall be deemed to constitute use of the patent in Germany.’¹⁶³ Under these interpretations, it is obvious that the revocation or the grant of compulsory licences for non-practising patents has become more substantially weakened than ever before, even though granting compulsory licences on the ground of ‘abuses other than non-practising,’ such as anti-competitive practices, unreasonable rejections to give licences, or public interests, are still available to member states. With respect to NPEs, however, it is still possible that, as far as the fact that they do not normally import any patented products into the country is considered, their patents may be subject to cancellations or compulsory licences on the grounds of non-practising.

Meanwhile, the US has kept its unique position with both statutory and case law, opposing any imposition of the aforementioned restrictions upon NPE patent holders. Despite its awareness of the fact that European patent laws requested the practising requirement and the ongoing negotiation for the Paris Convention was highly expected to uphold that requirement, the US Supreme Court, in the *Continental Paper Bag* case of 1908, repudiated the European practising requirement

¹⁶¹ TRITTON (2008) 'Intellectual Property in Europe', 3rd ed. Sweet & Maxwell, London, at 64.

¹⁶² GERVAIS, n 159, at 340, 395. There also exist different opinions arguing that the TRIPS Agreement should be interpreted according to the traditional definition. See HALEWOOD, n 151, at 259.

¹⁶³ German Patent Act (as amended by law of 16 July 1998) s. 24(4).

by saying that ‘... such exclusion may be said to have been of the very essence of the right conferred by the patent, as it is the privilege of any owner of property to use or not use it, without question of motive.’¹⁶⁴ This fundamental stance has continued as the Supreme Court confirmed in its subsequent cases, such as in *Hartford-Empire*¹⁶⁵ and *Special Equipment*,¹⁶⁶ even though there were also some arguments for allowing compulsory licences for non-practising.¹⁶⁷ Even after the TRIPS Agreement, no change was made with the US patent statute insofar as compulsory licensing was concerned, for the US negotiators of TRIPS believed that the US patent law was already in conformity with the Agreement.¹⁶⁸ Therefore the US model set up by the *Continental Paper Bag* case persisted and influenced other countries’ patent laws.¹⁶⁹

In terms of NPEs, the US patent law provided a much more favourable environment for them to participate in the patent system than that of any other countries. However, this trend came to face serious challenges, as discussed in the previous section, by the advent of patent trolls over the last decade.

2.3.4.2. Restrictions to Ownership: Collective Ownership and Trade

¹⁶⁴ 210 US 405, 429 (1908). Without doubt, the Court was fully aware that its decision was contrary to that of the European countries from the statement: ‘In some foreign countries the right granted to an inventor is affected by nonuse. This policy, we must assume, Congress has not been ignorant of nor of its effects.’

¹⁶⁵ *Hartford-Empire Co. v. US*, 323 US 386, 417 (1945).

¹⁶⁶ *Special Equipment Co. v. Coe*, 324 US 370, 379 (1945). See also *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 US 100, 135 (1969); *Kewanee Oil Co. v. Bicron Corp.*, 416 US 470, 497 (1974); *Dawson Chemical Co. v. Rohm & Haas Co.*, 448 US 176, 215 (1980).

¹⁶⁷ WEGNER, n 149. (The 1941 Final Report and Recommendations of the Temporary National Economic Committee suggested the compulsory licensing of patents for Congress to adopt, but it was not accepted. In *Special Equipment*, ‘Justice Douglas, citing a Congressional study commenced during the Great Depression, urged that *Continental Paper Bag* be overruled’).

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

Across history we can find that there existed some restrictions to patent ownership as well. The fundamental reasoning for the restrictions came from the awareness that owners other than true individual inventors could be highly involved with speculative activities.¹⁷⁰ One of the measures was imposing a certain limitation on collective ownership. In England, the Bubble Act of 1720 which was resulted from the South Sea Bubble burst, limited the number of allowed owners of a patent to five investors (increased to twelve later) until 1832.¹⁷¹ France, influenced by England, also introduced this into the patent law of 1791, upholding it until 1806.¹⁷²

Another restriction to patent ownership was on the trade or assignment of a patent right. Changing ownerships was subject to government permission in some countries. Perceiving that speculative behaviours were mostly done by those who purchase patents from other patentees, France under the *Ancien Régime* forced the patent owners to obtain the government's permission before selling or assigning their patents to others.¹⁷³

These restrictions are hardly found in any modern form of patent laws worldwide. However it is noteworthy that our ancestors not only have already experienced some speculative endeavours by some entities who were more interested in patent enforcements rather than exploitations, but also have perceived that the patent system could be abused in an uncontrolled environment.

2.3.4.3. Patent Sharks in the 19th Century

The recent patent troll problem is not the first and only case in patent history. In the

¹⁷⁰ GUELLEC, *et al.*, n 121, at 34.

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Ibid.

19th century, there once were entities very similar to the patent trolls of today. They were called ‘patent sharks’ who purchased agricultural patents from individual patentees and extracted a lot of money in the form of settling fees from farmers who had been using the patented technologies unknowingly.¹⁷⁴ From the second half of the 19th century, the US entered into the first pro-patent phase¹⁷⁵ under Abraham Lincoln, the 16th President of the US (March 1861~April 1865), as signified by his famous saying, ‘The patent system added the fuel of interest to the fire of genius.’ More importantly, since the early 1870s when the US Patent Office lowered the standard for the design patent by granting a design patent for any conceivable change of form, patent applications and patent grants surged.¹⁷⁶ Under this situation, patent sharks, most of whom are specialists in litigation, bought up dormant patents for agricultural tools and threatened farmers across the country with patent infringement lawsuits, offering them settlements between \$10 and \$100.¹⁷⁷ Ignorance of patent law, inability to determine whether the infringement claim could be justified or not, and high litigation costs compared to the proposed licence fees forced the farmers to accept the offer.¹⁷⁸ With regard to the solutions of the patent sharks’ opportunistic behaviours, there was a clash on the ‘patent reform’ between the two extremes: anti-patent groups (e.g. farmers’ organisations) and pro-patent supporters (e.g. industrialists and Thomas Edison). Finally, patent sharks disappeared in the late 1880s when the Patent Office raised the bar for design patents again and Congress

¹⁷⁴ MAGLIOCCA (2007) 'Blackberries and Barnyards: Patent Trolls and the Perils of Innovation', *Notre Dame Law Review*, available at <http://ssrn.com/paper=921252>, at 21-33.

¹⁷⁵ This pro-patent policy lasted until the 1920s when the Great Depression followed.

¹⁷⁶ MAGLIOCCA, n 174, at 23.

¹⁷⁷ *Ibid.* at 29.

¹⁷⁸ *Ibid.*

revised the design patent statute back to the state where it had been.¹⁷⁹

Patent sharks have a lot in common with the current patent trolls. Their *modus operandi* and the controversies over them are quite similar to those of current patent trolls, save the fact that patent sharks chose the strategy to attack end-users (farmers) rather than tool manufacturers.

2.3.4.4. Implications

The world patent law history has developed with serious and long discussions regarding the roles of NPEs and the remedies thereof. Especially, the history of the practising requirement and the appearance of patent sharks indicate not only that the patent system has harboured some level of apprehension of the vulnerability by NPEs' malicious acts, but also that some NPEs, while generally lying dormant, can possibly turn into vicious patent trolls abusing established patent rules whenever some conditions meet. This implies that, even if the current patent trolls disappear by any chance, they may reappear anytime in the future unless sufficient legal frameworks for controversial NPE issues are implemented into the patent system.

2.3.5. Conclusions

This section discussed the general characteristics of NPEs and their portrayal in the patent history. As a preliminary work, this section defined the two terms 'patent trolls' and 'NPEs,' and clarified the relationship between them. In this thesis at least, the two terms should be used distinctively in such way that, while NPEs includes all patent holders who do not practice the patent in dispute, patent trolls refer to non-practising patent holders who 'abuse' the patent system by enforcing their patents

¹⁷⁹ Ibid. at 54.

against its ultimate goal.

Then, in order to see how NPEs play their roles in the patent system, this section examined the characteristics of various types of NPEs. It shows that any NPEs should not be prejudged as patent trolls by the mere fact that they are not practising, but rather should be evaluated by the criteria of whether their specific behaviours constitute patent abuses. This result comes from the fact that any kind of NPEs may show mixed potential that they might play both positive and negative roles. For instance, individual inventors or universities which have been traditionally regarded to be beneficial players in the patent systems may abruptly turn into patent trolls, and even patent intermediaries who have generally been criticised as patent trolls may contribute to technological developments by facilitating patent transactions and providing a way for inventors to easily monetise their patents.

This section also explored the patent history so as to examine how NPEs have been treated. The long history of the practising requirement in a number of patent statutes and international treaties as well as the appearance of patent sharks in 19th century in the US, show that the past patent system has already been aware of its vulnerability of being abused by the opportunistic behaviours of NPEs. Hence, the current patent troll problems should be understood as a resurrection of the past controversies over how the patent law should deal with non-practising patent holders, which further implies that the historically thorny NPE issues have not been resolved whatsoever by any measures taken so far in the long patent history.

2.4. A Fundamental Issue for NPEs: Injunctive Relief

As discussed in the previous section, it is without saying that, even though some NPEs recently raised substantial concerns over the possible abuse of the patent

system, NPEs have played and are still playing a significant role in the chain of innovative activities in every country. They supply innovative ideas and technologies to downstream manufacturing companies, and also add value to the existing knowledge database for further research and development (R&D), even when their inventions are not exploited offhand into products or services. Unlike PEs who are either vertically integrated (doing both R&D and manufacturing) or in only the manufacturing layer, NPEs specialise only in R&D. From the perspective of economics, the division of labour and specialisation is much more efficient now than in the 1700s when Adam Smith founded the theory by illustrating pin manufacturing, being a far simpler product than today's complex technologies.¹⁸⁰ Therefore, profit takings take place at different points from the inception of idea to product delivery to consumers, and NPEs' profit occurs at the point of sale or licence of their invented technologies to other manufacturing companies.

As a safeguard for NPEs' active participation in the technological innovation, the patent system provides them with injunctive relief. It is one of the most significant remedies for NPEs in the sense that the threat of injunctive relief causes manufacturing companies to not only pay special attention that they do not infringe others' patents, but also voluntarily seek licence agreements from the NPEs. The injunction threat provides NPEs with some opportunities to let them penetrate the strong market barrier already established by existing manufacturing companies, or to get profits from their patents themselves. This is possible because an injunction for patent infringement—especially when the patent is so powerful that other companies cannot ignore it—enables NPEs to terminate PEs' production lines, which often

¹⁸⁰ DENICOLO, et al. (2007) 'Revisiting Injunctive Relief: Interpreting eBay in High-Tech Industries with Non-Practicing Patent Holders', available at <http://ssrn.com/paper=1019611>, at 16.

eventually leads to licensing agreements or patent transactions. It grants Davids chance to defeat formidable Goliaths, which makes a market more dynamic through competition.

As already seen in section 2.2, however, opposing arguments also exist regarding patent trolls in particular, albeit even those opponents do not deny the fact that injunctive relief is a crucial element in the patent system and provides substantial benefits in many patent cases. The major complaints about NPEs can be found from two aspects. First of all, many people argue that there is an asymmetry with a bargaining leverage between NPEs and PEs. Although vertically integrated PEs overcome the patent thicket problem through cross-licensing deals with one another, this traditional cross-licensing paradigm cannot be applied in the cases in which NPE patent holders are involved. Secondly, in conjunction with the first aspect, it is often claimed that injunction threats by NPEs may cause a serious ‘hold-up’ problem¹⁸¹ in the downstream product market, enabling them to collect licence royalties much higher than the real value of the patent from manufacturers worrying about their production line being shut down. In this respect, the injunctive threat as a tool for patent holdups has provided a reason for the necessity of limiting injunctive relief for NPEs so as to keep hold of the strong negotiation leverage over PEs.¹⁸²

As far as it is considered that NPEs do not always abuse the patent system, it seems that the above two opposite arguments have polarised to extremes. While too high a frequency of injunctive relief granted to NPEs could increase the possibility of patent abuse, too low a frequency of injunctions, on the other hand, could

¹⁸¹ The hold-up problem refers to the state whereby PEs cannot easily escape the NPEs’ infringement claims because of sunken costs for their production and too much financial loss in case of product changes in a way not to infringe the patent. This is discussed in chapter 4 in detail.

¹⁸² For example, see LEMLEY, *et al.* ‘Patent Holdup and Royalty Stacking’, n 8.

substantially impair the NPEs' initiatives for R&D and only encourage free-riding by PEs. In this sense, it seems clear that our task lies in finding the middle ground somewhere between the two extremes.

In dealing with patent troll or NPE problems, as previous discussions have revealed, they are so complex that a number of causes and solutions have been suggested so far accordingly. This implies that the patent troll problem does not arise from merely a few factors but is intertwined with every element of the patent system. Likewise, the solutions should be multi-dimensional, as the proposed US patent reforms and many scholarly proposals for solutions have already showed. Yet, among those various issues, the above injunctive relief is the most direct and crucial factor and thus any endeavours to curb patent trolls may not lead to satisfactory results without properly addressing the injunctive relief issue, a fundamental cause of the patent troll problems. Even though other issues addressed in former sections, e.g. the pro-patent policy, the patent quality, the examination and revocation system, or the patentable subject matters, are also very important in discourse of the patent troll or NPE topic, they are subservient to the issue of injunctive relief.

Hence, along with the practical consideration that it is impossible to deal with those secondary issues in the limited space of this thesis, the rest of the thesis primarily focuses on the injunctive relief in patent infringement lawsuits.

2.5. Conclusions

This chapter examined general issues surrounding NPEs in relation to patent trolls and ultimately sought to evaluate whether they are necessary players in the patent system and how they might damage it.

An overview about the backgrounds and controversies over patent trolls

showed that the patent troll issue is so complicated that no consensus has been reached on its definition so far, and there have been fierce debates on its role or impact on the technological innovation. The discussion on the recent legislative and judicial response to patent trolls also shows the fact that the government and the public have taken the patent troll problem seriously. It remains to be seen how effective the new US patent reform, i.e. the AIA, would be in solving the problem. In addition, the fact that worries over patent trolls have not been abated despite the US Supreme Court's recent decisions to mitigate patent trolling for the past several years, reflects that these judicial approaches have not yet provided satisfactory solutions.

Then, this chapter examined how the NPE patent holders may play a role in the patent system. Firstly, the analysis of the characteristics of each different type of NPE patent holders shows that any kinds of NPE have double sides of potentially beneficial or harmful effects and thus whether or not any NPE is a patent troll should be determined by their specific behaviour rather than by the mere fact that they are not practising. The exploration of the patent law history so as to find how NPE patent holders have been treated in the long history of patent law, showed the interesting point that the non-practising strategy of NPE patent holders has been one of the critical issues from the inception of patent law, and that patent sharks similar to the current patent trolls appeared in 19th century in the US. This implies that, despite various attempts, the NPE problems have not been sufficiently solved and there is potential for them to spring up again at any time in the future unless their fundamental root causes are not sufficiently cured.

Lastly, this chapter discussed why and how injunction threat in patent infringement lawsuits, among other a variety of related issues, is the most direct and crucial issue in the study of NPEs or patent trolls. Hence, any solutions to the patent

troll problems cannot be satisfactory without dealing with how to design the injunctive relief in such a way that mitigates NPEs' incentives to seek trolling businesses and provides proper protection for NPE patent holders' legitimate rights at the same time. Therefore, this thesis seeks a solution to NPE or patent troll problems from the side of injunctive relief.

The following two chapters discuss injunctive relief in patent infringement lawsuits from the legal and theoretical perspectives respectively.

Chapter 3 Injunctive Relief for NPEs across Jurisdictions

3.1. Introduction

This chapter examines how courts have awarded injunctive relief to NPE patent holders in patent infringement lawsuits through comparative analysis between different major patent jurisdictions. This will reveal how the criteria of whether to grant or deny injunctive relief has been established and applied in the NPE-related patent infringement cases in each country and what merits and demerits they hold.

In specific, the statutory and case laws of the US, UK, and Germany in terms of injunctive relief towards NPEs are examined. The discussion of statutory law includes the general provisions for injunctive relief and compulsory licences. The reason for looking into compulsory licences in each target country is that, as discussed in chapter 2, they have been a major tool for controlling NPE patent holders. Sections 3.2 ~ 3.4 investigate the US, UK, and German law respectively. The US law demands a closer look because the US is replete with NPE-related cases compared to the other two countries. All of the US court cases are examined by classifying them according to the major law changes. For the UK and German law, of which neither has experienced many NPE-related patent infringement cases, the analysis is more focused on individual NPE-related cases, some of which are copyright cases where situations similar to patent trolls have unfolded. Following the individual examinations of the law in each country, section 3.5 performs a comparative analysis in order to locate similarities and differences between those three laws as well as to identify the problems of the current injunction criteria.

Lastly, it should be noted that, even though there are two types of injunctions

available in patent infringement lawsuits, i.e. a permanent and preliminary injunction, the case analysis in this chapter concentrates mainly on permanent injunction cases. Preliminary injunction cases will be addressed only when they are necessary to understand the permanent injunction more clearly. There are two reasons for excluding preliminary injunction from the scope of this research. One is that, since this research aims at setting up a new injunction model only after courts find the patent in suit to be valid and infringed, the preliminary injunction does not match with the research target in the sense that its purpose is only to preserve the existing state between the parties under the ‘likelihood’ of success on the merits of the case. The other is the practical reason that the NPE-related preliminary injunction cases are extremely rare.

3.2. The US Law

This section closely looks into the past and current patent remedial practices, mainly focusing on the relationship between injunctive relief and NPEs in the US where a variety of profound and rich relevant cases exist. The section for statutory law deals with the history of the injunctive relief in the US Patent Act. The section for case law explores meaningful court decisions by dividing the whole patent history into four time slots: (1) before the establishment of the CAFC (~1982); (2) the CAFC’s operation period until the US Supreme Court’s *eBay* ruling (1982~2006); (3) the *eBay* case (2006); and (4) the post-*eBay* period (2006~present). Based on that analysis, some important implications unique in the US shall be drawn out.

3.2.1. Statutory Law

3.2.1.1. Patent Remedies for Future Infringement

Empowered by the US Constitution ‘[t]o promote the Progress of Science and useful Arts, by securing for limited Times to ... Inventors the exclusive Right to their respective ... Discoveries,’¹⁸³ the US Congress has enacted the ‘Patent Act’ to set up the US patent system.¹⁸⁴ For the purpose of effective protection and enforcement of patent rights conferred, the Patent Act provides the patentee with two major remedies through ‘civil action for infringement of his patent’¹⁸⁵: injunctive relief and monetary damages.

In terms of injunctive relief, the Congress has granted the federal courts authority for this remedy only from the Patent Act of 1819,¹⁸⁶ which means that initially remedy at law (damages) was granted against the infringement of the right, and a remedy in equity (injunction) was not available before 1819.¹⁸⁷ Even though Congress has revised this Clause several times thereafter until the latest wording was adopted by the Patent Act of 1952, the essence is that the courts may grant injunctions according to the principles of equity which have remained unchanged.¹⁸⁸ The current provision of the injunctive relief states in s. 283 of the Patent Act:

¹⁸³ US Const. Art. 1, § 8, Cl. 8.

¹⁸⁴ The first Patent Act was established in 10 April, 1790 by ch. 7 §1, 1 Stat. 109 and consecutive revisions have followed.

¹⁸⁵ 35 USC §281, as amended.

¹⁸⁶ Patent Act of 1819, ch. 19, 3 Stat. 481.

¹⁸⁷ CONRAD (2007) 'Mining the Patent Thicket: The Supreme Court's Rejection of the Automatic Injunction Rule in eBay v. MercExchange', *The Review of Litigation*, Vol. 26, pp. 119-154, at fn. 17.

¹⁸⁸ Patent Act of 1836, ch. 357, §17, 5 Stat. 117; Patent Act of 1870, ch. 230, §55, 16 Stat. 206; and Patent Act of 1897, ch. 391, §6, 29 Stat. 694.

The several courts having jurisdiction of cases under this title *may* grant injunctions in accordance with *the principles of equity* to prevent the violation of any right secured by patent, on such terms as the court deems reasonable (*emphasis added*).

This gives two important guidelines to the federal district courts when they examine the availability of imposing injunctions against infringing activities. The first is that the patent’s exclusionary right is not absolute and therefore the courts ‘may’ exercise their discretion in weighing the equities of an injunction. The second is that when the courts grant an injunction they can formulate its conditions suitable for each specific circumstance. The form and scope of an injunction is governed by Rule 65(d) of the Federal Rule of Civil Procedure which insures that an injunction should not be too broad or vague in scope and in application.

It was a traditional common law practice ‘with a background of several hundred years of history’ for the courts to apply equitable consideration before issuing an injunction in other areas of law.¹⁸⁹ Accordingly it has been firmly regarded that an injunction is an equitable remedy rather than a remedy which is issued as a matter of course.¹⁹⁰

3.2.1.2. Statutory Compulsory Licence

As noted in the previous chapter, traditionally the US has opposed the idea of compulsory licence. Therefore it is not surprising that compulsory licences are not stipulated in the US patent statute. However, statutory compulsory licences are

¹⁸⁹ *Hecht Co. v. Bowles*, 64 S.Ct. 587, 591-592 (1944).

¹⁹⁰ *Harrisonville v. W.S. Dickey Clay Mfg. Co.*, 53 S.Ct. 602, 603 (1933).

currently available by other two laws, such as the Atomic Energy Act¹⁹¹ and the Clean Air Act,¹⁹² in circumstances where they are needed for the public interest. Even though compulsory licences have been exacted by the US antitrust authorities in some circumstances where patents were used in an anticompetitive way by a cartel, or for the purpose of obtaining a monopolistic position in the market, the US antitrust law does not grant compulsory licences by the mere fact that NPE patent holders do not practise their patented inventions or refuse to license them to others.

3.2.2. Case Law

3.2.2.1. Before the Establishment of the CAFC (~1982)

Under the long history of equity as well as its stipulation in the patent law, the US federal courts have to balance the exclusionary right of patent with the principle of equity before awarding injunctive relief.¹⁹³ Despite the equitable considerations applied in the courts, this period can be generally characterised as one where courts added heavier weight on the exclusionary rights of patent rather than on the equity. This atmosphere in the federal courts culminated in the *Continental Paper Bag* case (1908).¹⁹⁴ In this case, even though the patent holder, Eastern Paper Bag, was a paper bag manufacturing company, it did not exploit its patented invention because the expense for further investment was considerable and rather opted for continuing

¹⁹¹ 42 USC §2184.

¹⁹² 42 USC §1857 h-6.

¹⁹³ SUBRAMANIAN (2008) 'Different Rules for Different Owners: Does a Non-Competing Patentee Have a Right to Exclude? A Study of Post-Ebay Cases', *International Review of Intellectual Property and Competition Law*, vol. 39(4), pp. 419-451, at 424-425.

¹⁹⁴ 210 US 405 (1908).

use of the old machines. The district court granted an injunction to restrain Continental Paper Bag's infringement and the Appeal Court affirmed it.¹⁹⁵ Continental Paper Bag contended that the non-use of an invention for an extensive time was against the policy of the patent law to promote the progress of the useful arts, and that equity should not give aid to the patentee and that the legal remedy is enough. Affirming the lower courts' grant of an injunction, the Supreme Court made its position clear on the issue of non-use of patent by stating:

As to the suggestion that competitors were excluded from the use of the new patent, we answer that such exclusion may be said to have been of the very essence of the right conferred by the patent, as it is the privilege of any owner of property to use or not use it, *without question of motive*.
(emphasis added).

The *Continental Paper Bag* case greatly influenced subsequent patent infringement cases, more importantly providing strong foundations for the CAFC's so-called 'general rule' as will be seen in the following section. As a consequence, courts, in a number of cases, enjoined the infringer's violations by issuing injunctions whenever a valid patent was infringed, even when the patentee did not use the patent. This inclination is not surprising if we recall the peculiar US patent history, as already seen in chapter 2, which was averse to the compulsory licence.

Despite strong sentiment in favour of the exclusive right of patent, there exist some notable exceptional cases where the patentees' motion for an injunction

¹⁹⁵ 142 F. 479 (Circuit Court, D. Maine. 1905); 150 F. 741 (Circuit Court of Appeal, First Circuit. 1906).

was declined, particularly where non-practising patentees were involved. In *Electric Smelting & Aluminum Co. v. Carborundum Co.*,¹⁹⁶ the district court refused to issue an injunction and awarded a compulsory licence instead on the finding of infringement of the patent at issue, under the reasoning that if an injunction issues, it would destroy the defendant's business while providing no gain to the patent holder. The fact that the patentee had not engaged in any manufacture and had licensed the patent to others, provided the court with a basis for declining an injunction and determining compulsory license. Although this is regarded as one of the early cases held long before the modern future damages doctrine, the compulsory licence for future infringement was set by the patentee's previous licence rate to others in the past or the average licence rate in the industry, without considering the change of patentee's bargaining power after the jury's finding of the infringement of valid patent.¹⁹⁷ In *Hoe v. Boston Daily Advertiser Corp.*, the court clearly drew the line on the limitation of injunctive relief by saying that '[an injunction] is not intended as a club to be wielded by a patentee to enhance his negotiation stance.'¹⁹⁸

The most conspicuous aberration from the main flux in this period was the Second Circuit's doctrine of denying NPE patentees' compensation via the bargaining leverage.¹⁹⁹ The Second Circuit consistently rejected NPEs' injunction claims by reasoning that an injunction could provide NPEs with too strong negotiation power over manufacturing defendants and thereby eventually allowing

¹⁹⁶ 189 F. 710 (C.C.W.D. Pa. 1900).

¹⁹⁷ VENKATESAN (2009) 'Compulsory Licensing of Nonpracticing Patentees After eBay v. MercExchange', *Virginia Journal of Law & Technology*, Vol. 14, No. 26, at 37.

¹⁹⁸ 14 F. 194 (C.C. Mass. 1883).

¹⁹⁹ VENKATESAN, n 197, at 37-38.

additional compensation greater than they should justly receive,²⁰⁰ and sometimes by considering the public interest.²⁰¹

All in all, this period may be summarised as: while the federal courts generally put more weight on the exclusivity right of patent over the principle of equity, mostly by the influence of the *Continental Paper Bag* case, they, in certain circumstances, actively considered the equity particularly in terms of patentees' non-practising businesses and the public interest. In particular, the Second Circuit's sceptical views on the necessity of injunctive relief for NPEs show that it was quite worried about the NPEs' possession of too strong negotiation leverage by an injunction.

Meanwhile, in other areas of law other than patent (or intellectual property) law, the US Supreme Court has long viewed injunction as an extremely powerful remedy and therefore generally confined to the circumstances where irreparable injuries lacking appropriate remedy at law could be expected.²⁰² It means that the Court saw the injunctive remedy as being subject to the historically longstanding equity test which 'seek[s] to flexibly accommodate competing private claims and the public interest in each particular case.'²⁰³ These common equity practices for granting injunctions have been sifted out into 'four equitable factors' by the US Supreme Court's *Weinberger v. Romero-Barcelo*²⁰⁴ decision in 1982. Here, the so-

²⁰⁰ *American Safety Device Co. v. Kurland Chemical Co.*, 68 F.2d 734 (2d Cir. 1934); *Nerney v. New York, N.H. & H.R. Co.*, 83 F.2d 409 (2d Cir. 1936); *Foster v. American Mach. & Foundry Co.*, 492 F.2d 1317 (2d Cir. 1974).

²⁰¹ *City of Milwaukee v. Activated Sludge*, 69 F.2d 577 (7th Cir. 1934); *Vitamin Technologists, Inc. v. Wisconsin Alumni Research Foundation*, 146 F.2d 941, 944 (9th Cir. 1945)

²⁰² LIM, *et al.*, n 6, at 789 (citing *Cavanaugh v. Looney*, 248 US 453, 456 (1919)).

²⁰³ *Ibid.* at 789-790.

²⁰⁴ 456 US 305 (1982) (a water pollution case).

called ‘four factor test’ for an injunction which has been widely applied in other areas of law, has been summed up as follows:

- (i) whether the plaintiff would face irreparable injury if the injunction did not issue, (ii) whether the plaintiff has an adequate remedy at law, (iii) whether granting the injunction is in the public interest, and (iv) whether the balance of the hardships tips in the plaintiff’s favour.²⁰⁵

As will be seen *infra* sections 3.2.2.3 and 3.2.2.4 later, this traditional four-factor test officially came to be applied in patent cases after the *eBay* case in 2006.

3.2.2.2. The CAFC Era until the *eBay* Case (1982~2006)

The creation of the CAFC in 1982 led to a significant change in patent infringement suits. Refusing to adopt the Second Circuit’s doctrine and rather upholding the *Continental Paper Bag* case, the CAFC remarkably broadened patentees’ right and this eventually boiled down to a ‘general rule’ that an injunction should be issued once infringement had been adjudged, absent a sufficient reason for denying it, more importantly without any discriminations against NPEs.²⁰⁶ The preference for granting injunctions against patent infringement is said to be directly associated with the property theory that ‘the right to exclude recognised in a patent is but the essence of the concept of property.’²⁰⁷

²⁰⁵ URBANEK (2008) 'A Postmortem For Permanent Injunctions Against Business Method Patent Infringement In The Wake Of *eBay v. MercExchange*', *DePaul L. Rev.*, vol. 57, p. 607, at 615.

²⁰⁶ *Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1247 (Fed.Cir.1989); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1281 (Fed.Cir.1988).

²⁰⁷ *Honeywell International, Inc. v. Universal Avionics System Corp.*, 397 F.Supp.2d 537, 540 (D.

In *Smith International, Inc. v. Hughes Tools Co.*,²⁰⁸ a seminal case which became the basis for future cases to follow, the CAFC articulated its basic rule concerning the right to exclude of patent and injunctive relief. It asserted that ‘[w]ithout the right to obtain an injunction, the right to exclude granted to the patentee would have only a fraction of the value it was intended to have,’²⁰⁹ and also that where the validity and continuing infringement of a patent were *clearly* established, immediate irreparable harm would be presumed due to the very nature of the patent’s exclusionary right.²¹⁰ The CAFC explained that this presumption derived from the fact that a patent has only a limited lifetime and the passage of time during litigation can cause irrecoverable damage to the patent holder.²¹¹ As a consequence, although it was rebuttable by clear evidence,²¹² this presumption of irreparable harm played a crucial part in the CAFC’s general rule by placing the ultimate burden of proof for the question of irreparable harm onto the alleged infringers.²¹³ In this sense, the overall likelihood of obtaining an injunction for successful patent holders after trial became much higher in this period than in the past.

As the CAFC articulated, even under the general rule regime there were exceptional circumstances where an injunctive relief could be rejected. The analysis

Delaware 2005) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed.Cir.1983)).

²⁰⁸ 718 F.2d 1573 (Fed.Cir.1983).

²⁰⁹ *Ibid.* at 1581. See also *Schenck v. Norton Corp.*, 713 F.2d 782 (Fed.Cir.1983); *Richardson*, 868 F.2d 1246-1247 (1989).

²¹⁰ *Roper Corp. v Litton Systems, Inc.*, 757 F.2d 1266, 1272 (Fed.Cir.1985).

²¹¹ *H.H. Robertson Co. v. United States Deck, Inc.*, 820 F.2d 384, 390 (Fed.Cir.1987).

²¹² *Roper*, 757 F.2d 1272 (1985); *Rosemount, Inc. v. United States Int’l Trade Comm’n*, 910 F.2d 819, 821 (Fed.Cir.1990).

²¹³ *Roper*, 757 F.2d 1272 (1985); *Reebok Int’l Ltd. v. J. Baker, Inc.*, 32 F.3d 1552, 1556 (Fed.Cir.1994); *Pfizer, Inc. v. Teva Pharms. USA, Inc.*, 429 F.3d 1364, 1381 (Fed.Cir.2005).

of the CAFC rulings reveals two types of exceptions. The first was under some circumstances which might negate the presumption of irreparable harm, e.g., (i) infringer’s cessation or its plan to cease of infringing activities, (ii) patentee’s grant of numerous licences, (iii) patentee’s unreasonable delay of bringing a suit (latch).²¹⁴ Nevertheless, the CAFC made it clear that ‘infringement of a valid patent inherently causes irreparable harm in the absence of the above exception[s].’²¹⁵ The first situation is quite straightforward and does not require any particular explanation. However the remaining two factors were quite case-specific, which means that they were hardly treated as an absolute, but rather as one of the factors to be weighed in each particular case, and, actually in some cases, injunctions were granted despite those settings.²¹⁶

The second type of exception was where the public interest was expected to be severely damaged.²¹⁷ However, only a few examples were found in the industry related to public health, e.g. medical or pharmaceutical inventions.²¹⁸ Courts generally believed that the public interest would be better served when protecting the patent right, and placed more stress on the long-term consequences of an injunctive relief than the immediate benefits from the protection of certain consumer groups or

²¹⁴ *T.J. Smith & Nephew Ltd. v. Consol. Med. Equip., Inc.*, 821 F.2d 646, 648 (Fed.Cir.1987); *Nutrition 21 v. United States*, 930 F.2d 867, 872 (Fed.Cir.1991); *High Tech Medical Instrumentation, Inc. v. New Image Indus., Inc.*, 49 F.3d 1551, 1556 (Fed.Cir.1995); *Cordis Corp. v. Boston Scientific Corp.*, 99 Fed.Appx. 928, 933-934 (Fed.Cir.2004).

²¹⁵ *Polymer Technologies, Inc. v. Bridwell*, 103 F.3d 970, 975 (Fed.Cir.1996).

²¹⁶ *Motorola, Inc. v. Alexander Mfg.Co.*, 786 F. Supp. 808, 814 (N.D. Iowa 1991); *Young v. Lumenis, Inc.*, 301 F. Supp. 2d 765, 774 (S.D. Ohio 2004); *Rosen Entertainment's Sys. V. Icon Enters., Inc.*, 359 F.Supp.2d 902, 911 (C.D. Cal. 2005).

²¹⁷ *Rite-Hite Corp. v. Kelley, Inc.*, 56 F.3d 1538, 1547 (Fed.Cir.1995); *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858, 865-866 (Fed.Cir.1984).

²¹⁸ *Datascope Corp. v. Kontron, Inc.*, 786 F.2d 398, 401 (Fed.Cir.1986); *Ethicon Endo-Surgery v. United States Surgical Corp.*, 855 F.Supp. 1500, 1517 (S.D. Ohio 1994).

a defendant's business.²¹⁹

Meanwhile, in NPE-related cases, the injunctive relief was not precluded only by the mere reason of non-practice. The CAFC maintained that injunctions are not reserved only for practising patentees and the statutory right to exclude should be equally available to both NPEs and PEs²²⁰ unless there were any patent holders' guilty of wrongdoings (e.g. laches or anticompetitive behaviours) with their patent enforcement or serious damage to the public interest. Therefore it viewed NPEs' additional bargaining power in licensing by an injunction as a natural consequence of the exclusionary aspect of patent right.²²¹ Even though the irreparable harm for NPEs was also presumed when the validity and infringement of a patent was found, they could further prove irreparable harm by showing that their ability to license their patents or to enter the market would be severely hindered by the existing infringement.²²² In some cases, the CAFC held that appropriate injunctive relief should be issued to the non-practising patentee even when the patent at issue was supposed to expire in near future.²²³

The courts' general attitude toward NPEs in terms of eligibility for injunctive relief culminated in a high-profile lawsuit between NTP and Research in Motion (RIM), which aroused a bitter controversy over the patent troll issue. Granting an injunction, the district court, without any supporting reasons in detail, briefly

²¹⁹ *Shiley, Inc. v. Bentley Laboratories, Inc.*, 601 F.Supp. 964, 970 (C.D. Cal. 1985). *Eli Lilly & Co. v. Medtronic*, 7 U.S.P.Q.2d 1439, 1445 (E.D. Pa. 1988); *Windsurfing International, Inc. v. AMF Inc.*, 782 F.2d 995 (Fed.Cir.1986); *Polaroid Corp. v. Eastman Kodak Co.*, 641 F.Supp. 828 (D. Mass. 1985) & 789 F.2d 1556 (Fed.Cir.1986).

²²⁰ *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1339 (Fed.Cir.2005).

²²¹ *Ibid.*

²²² *Roper*, 757 F.2d 1273 (1985).

²²³ *Richardson.*, 868 F.2d 1247 (1989); *Atlas Powder Co. v. Ireco Chemicals*, 773 F.2d 1230 (Fed.Cir. 1985).

mentioned that NTP would incur irreparable harm if an injunction was denied, that NTP had no adequate legal remedy for future infringement, that promoting protection of the patent right was consistent with the public interest, and that the balance of hardships weighed more heavily toward NTP.²²⁴ Even though an actual injunction was not imposed after all as the parties reached a historic settlement (\$612.5 million),²²⁵ this case typically shows the court's favourable attitude toward NPEs in this period of time.

However, despite the CAFC's general rule which turned its back on the traditional four-factor test, not all of the district courts tagged along with it. Some district courts, emphasising the broad equitable power given by the Statute (35 USC §283), actively applied the traditional four-factor test when deciding whether to grant or deny an injunction.²²⁶ One important example where a district court revolted against the general rule of the CAFC was the US District Court for the Eastern District of Virginia, where the seminal *eBay* case began. This court denied the NPE's (MercExchange) motion for an injunction against a defendant (eBay) after considering the traditional four-factor test, despite the jury's finding of the infringement of the valid patents.²²⁷ Nonetheless, in most other cases, the results of the four-factor test for injunctive relief were mostly tipped towards granting it. In a sense, it was a natural outcome considering that most of the district courts' judges would not challenge the CAFC's persistent pro-patent policy line in the face of the

²²⁴ *NTP, Inc. v. Research in Motion, Ltd.*, 2003 WL 23100881 (E.D. Va. 2003).

²²⁵ *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282 (Fed.Cir. 2005).

²²⁶ *Odetics, Inc. v. Storage Tech. Corp.*, 14 F.Supp.2d 785, 794-797 (E.D. Va. 1998); *Jeneric/Pentron, Inc. v. Dillon Company, Inc.*, 259 F.Supp.2d 192, 194-197 (D. Con. 2003); *NTP*, 2003 WL 23100881 (2003); *MercExchange, L.L.C. v. eBay, Inc.*, 275 F.Supp.2d 695, 711-715 (E.D. Va. 2003); *Kemin Foods v. Pigmentos Vegetales*, 369 F.Supp.2d 1075, 1080-1085 (S.D. Iowa 2005).

²²⁷ *MercExchange*, 275 F.Supp.2d 695 (2003).

risk of their decisions being reversed.

To sum up, it is undeniable that a general rule favouring injunctive relief against patent infringement was extremely dominant in this period, particularly guaranteeing almost the same level of patent protection even for non-practising patent holders. At the same time, it should be noted that the CAFC's general rule did not mean the entire denial of the long standing equity traditions and the district courts' discretionary power bestowed by the US patent statute.²²⁸ That is why some district courts applied the traditional four-factor test when deciding whether to grant an injunction.

3.2.2.3. The *eBay* Case (2006)

3.2.2.3.1. Background

In April 1995, five months prior to the launch of eBay's online auction business, electrical engineer and patent attorney Thomas Woolston, the future founder of MercExchange, filed his first patent application concerning online marketing technology.²²⁹ Even though Woolston's goal was to set up a company practising his patents, MercExchange shifted its strategy to licensing program as a strong competitor, eBay, flourished and thereby the chances to succeed in the market became too slim.²³⁰ Meanwhile, eBay began to file relevant patent applications from 1998 citing Woolston's patents as prior art, but they were rejected by USPTO.²³¹ Even though eBay know the existence of Woolston's patents, it implemented the

²²⁸ *Joy Technologies, Inc. v. Flakt, Inc.*, 6 F.3d 770, 772 (Fed.Cir.1993).

²²⁹ Brief of Respondent, at 1, *eBay*, 126 S.Ct. 1837 (2006).

²³⁰ *Ibid.* at 3-4.

²³¹ *Ibid.*

fixed-price feature called ‘Buy it Now’ into its internet auction site without clearing the way of probable patent infringement.²³² eBay approached MercExchange to purchase the patents, but the negotiation fell through because eBay only wanted to buy them whilst MercExchange offered to license them.²³³

In September of 2001, MercExchange filed a lawsuit in the US District Court for the Eastern District of Virginia against eBay on the charge of wilful infringement of its patents.

3.2.2.3.2. The District Court — Denying an injunction

At the conclusion of the trial, the jury found that eBay wilfully infringed MercExchange’s valid patents, and that eBay was liable for \$ 16 million for damages.²³⁴

However, the district court denied MercExchange’s motion for a permanent injunction after applying the traditional four-factor equity test.²³⁵ In reviewing each of the factors, the district court believed that the evidence of the patent holder’s willingness to license its patents, the lack of commercial activities exploiting the patents, the numerous media comments on its intent seeking appropriate remuneration rather than enjoining eBay, and no filing for a preliminary injunction, were sufficient to rebut the presumption of irreparable harm.²³⁶ The Court also found that the claimant’s past licence to third parties and the willingness to license to the

²³² Ibid.

²³³ *EBay*, 126 S.Ct. 1839 (2006) & Brief of Petitioners, at 3.

²³⁴ *MercExchange*, 401 F.3d 1325 (2005).

²³⁵ *MercExchange*, 275 F.Supp.2d 711-715 (2003) (citing *Odetics*, 14 F.Supp.2d 794 (1998)).

²³⁶ Ibid. at 712.

defendant also implied the adequacy of monetary remedy instead of an injunction.²³⁷ With respect to the balance of hardships, again the patent holder's lack of commercial activities and sole purpose to license the patents, the adequacy of monetary damages in lieu of an injunction, in addition to the strong likelihood of continued contentious battle in case of injunction grant, tipped the balance in favour of the defendants.²³⁸ Lastly, the Court found that the public interest factor equally supported the granting and denying of an injunction by saying that, insomuch as the protection of the patent holder's right is important, the public's full enjoyment of the patented inventions would be substantially diminished by an injunction, especially when the patent holder did not practise and have any intention to practise the patent.²³⁹

Among other facts, at least it is evident that the patent holder's non-practising characteristic strongly influenced the evaluation of the four factors as a primary ground of the refusal of a permanent injunction.

3.2.2.3.3. The CAFC—Reversing the District Court's denial of an injunction

On the defendant's appeal and the claimant's cross appeal, the CAFC in March 2005 affirmed the jury's verdict on the validity and infringement of the patent.²⁴⁰

With respect to the injunctive relief, after reiterating the general rule that an injunction would issue once the valid patent was found infringed, as well as the district courts' discretion which had been exercised in rare instances, the CAFC held that this case was not sufficiently exceptional to the general rule and any persuasive

²³⁷ Ibid. at 713.

²³⁸ Ibid. at 714-715.

²³⁹ Ibid. at 714.

²⁴⁰ *MercExchange*, 401 F.3d 1330-1331 (2005).

reasons did not justify the denial of an injunction.²⁴¹ Without doubt, the CAFC did not mention the four-factor equity test the district court had applied but merely reviewed a few specific reasons which the district court had brought up in each part of the four-factor test.

Most importantly, the CAFC emphasised that injunctions were equally available to both NPEs and PEs without discrimination, and further that the additional leverage in licensing as a result of an injunction was the natural consequence of the right to exclude of patent and therefore was not an inappropriate reward to NPEs.²⁴² In this sense, the CAFC concluded that MercExchange's willingness to license should not deprive it of the right to a permanent injunction.²⁴³ In addition, a general concern over business-method patents was not regarded to be the public need justifying the denial of an injunction,²⁴⁴ and the district court's concern of the likelihood of continuous dispute over another infringement after the defendants' design-around, as well as extraordinary costs by this prolonged procedure, were also firmly excluded in the sense that the continuing dispute is common and it would continue even in the absence of an injunction.²⁴⁵ Finally, the CAFC also held that MercExchange's failure to move for a preliminary injunction does not take away its right to a permanent injunction because these two forms of remedies are distinct and have different purposes.²⁴⁶

²⁴¹ Ibid. at 1338-1339.

²⁴² Ibid. at 1339.

²⁴³ Ibid.

²⁴⁴ Ibid.

²⁴⁵ Ibid.

²⁴⁶ Ibid.

3.2.2.3.4. The US Supreme Court—no categorical and no general rule: Applying the traditional four-factor test

Reviewing the lower courts' decisions, on 15 May 2006, the US Supreme Court unanimously rejected the approaches by both of the lower courts.²⁴⁷ First of all, the Court set up a new legal standard for injunctive relief in the area of patent law: the traditional four-factor test which was well-established principles of equity in other areas of law should apply with equal force to the patent infringement disputes when determining whether to issue or deny an injunction.²⁴⁸ It is based on the fact not only that s. 283 of the US Patent Act expressly provides that injunctions 'may' be granted in conformity with the principles of equity, but also that the Court had consistently let district courts apply traditional equitable considerations in disputes arising under the Copyright Act, which has almost the same clauses for the exclusive right and injunctive relief as the Patent Act does.²⁴⁹ In particular, despite acknowledging the statutory right to exclude which basically had formed the CAFC's general rule, the Court differentiated the creation of the right from the provision of remedies for infringement of the right, and thereby held that the general rule stood on wrong ground and is no longer valid.²⁵⁰

Examining this specific case by applying the traditional four-factor test, the Court concluded that neither the district court nor the CAFC fairly applied these principles in deciding whether to grant an injunction or not.²⁵¹ Firstly, even though the district court correctly recited the traditional four-factor test, the Court pointed

²⁴⁷ *EBay*, 126 S.Ct. 1837 (2006).

²⁴⁸ *Ibid.* at 1839-1841.

²⁴⁹ *Ibid.* at 1840.

²⁵⁰ *Ibid.*

²⁵¹ *Ibid.*

out that it was flawed when the district court used the patentee's willingness to license and lack of commercial activities as main reasons to deny an injunction, thereby adopting a categorical rule, i.e. denying the motion for injunctions from non-practising patent holders. The Court mentioned that some NPEs, for example university researchers or self made inventors, may be able to satisfy the traditional four-factor test, although they prefer to license their patents rather than participate in commercial exploitations.²⁵² Second, the Court observed that the general rule which the CAFC had uniquely applied in patent disputes departed in the opposite direction from the four-factor test, and accordingly the CAFC also erred in its categorical grant of injunctive relief according to the general rule.²⁵³

There were two concurring opinions which agreed on the application of the traditional four-factor test in patent cases but diverged in their specific reasoning. These opinions show somewhat different perspectives on how to deal with NPEs in terms of injunctive relief.

Chief Justice Roberts, joined by other three Justices, maintained that the long history of equity practices which have granted injunctive relief in the vast majority of patent cases shows the inappropriateness of monetary damages instead of an injunction for protecting the exclusive right of patent.²⁵⁴ He argued that the difficulty of protecting a right to exclude often implicates the first two of the four factors,²⁵⁵ i.e. irreparable harm and inadequacy of legal remedy. At the same time, highlighting that exercising the established four-factor equity test does not mean 'writing on an entirely clean slate,' he proposed that lower courts should refer to a similar case in

²⁵² Ibid. at 1840.

²⁵³ Ibid. at 1841.

²⁵⁴ Ibid.

²⁵⁵ Ibid.

history when applying the four-factor test.²⁵⁶ This opinion, in a sense, seems to support the CAFC's previous practice of 'presumption of irreparable harm' upon finding an infringement. Consequently Chief Justice Roberts' concurrence is rather favourable to NPEs.

On the other hand, Justice Kennedy, joined by three other Justices, expressed a slightly different opinion. While agreeing with Chief Justice Roberts that history is instructive in applying the four-factor test, he pointed out that it is not always pertinent to apply in all modern patent litigations whose nature is quite different from those of the past.²⁵⁷ He raised three issues to consider in modern patent disputes: NPEs, component infringement and business method patents.²⁵⁸ Firstly, he voiced concern that NPEs can employ an injunction order 'as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent.'²⁵⁹ Secondly, in a case where an injunction threat against the infringement of a small component patent of a product is used for an unjustified leverage in negotiations, 'legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.' Thirdly, he also proposed that district courts may consider 'the potential vagueness and suspect validity' of some business method patents when applying the four-factor test.²⁶⁰ Even though he agreed that the district court incorrectly applied the four-factor test, it is not difficult to see that Justice Kennedy substantially supports the decision of the district court.²⁶¹

²⁵⁶ Ibid.

²⁵⁷ Ibid. at 1842.

²⁵⁸ Ibid.

²⁵⁹ Ibid.

²⁶⁰ Ibid.

²⁶¹ JONES (2007) 'Permanent Injunction, A Remedy by any other Name is Patently Not the Same: How eBay v. MercExchange Affects the Patent Right of Non-Practicing Entities', *GEO. MASON L.*

As far as the application of the traditional four-factor test is concerned, we can notice that two different minority opinions provide, seemingly at least, the opposite approaches for lower courts to take: whether to refer to the past similar case laws in history which are based on strong patent rights or whether to apply new criteria loosening the patent's property right. This lack of clarity, as seen in the following section, has promulgated the confusion in the district courts over how to apply the four-factor test, at least for a few years hence, resulting in the uneven application of the test in *eBay*.²⁶²

3.2.2.4. Post-*eBay* Period (2006 ~ present)

The Supreme Court's decision in *eBay* led the US to experience significant changes in patent infringement suits, particularly in the context of injunctive relief. Since *eBay*, district courts, in almost every case,²⁶³ have applied the traditional four-factor test in accordance with the *eBay* ruling when they decide whether to grant or deny an injunctive relief. In addition, the CAFC also reviewed the four-factor test to decide whether district courts abused their discretionary power.

As previously noted, the Supreme Court in *eBay* did not show specific guidelines for district courts to apply the four-factor test, rather it only held that district courts should apply the test under case-by-case analysis rather than categorically or by the general rule. Therefore, since then, district courts have been

REV., vol. 14, p. 1036, at 1059.

²⁶² SOLOMON (2009) 'Analysis of the Four-Factor Test in Patent Cases Post-eBay', *SSRN*, available at: <http://ssrn.com/abstract=1623978>, at 35.

²⁶³ Only a few exceptional cases have not applied the four-factor test. See *Monsanto Co. v. Maurice Parr*, 545 F.Supp.2d 836 (N.D. Ind. 2008); *Monsanto Co. v. Vernon Hugh Bowman*, 686 F.Supp.2d 834 (S.D. Ind., 2009); *Ocean Innovations v. Quarterberth, Inc.*, 2010 WL 1957486 (N.D. Ohio).

left with the formidable task of how to specifically apply the test in each specific case. After experiencing turbulence for the last several years, we can now see specific circumstances which may affect each prong of the test, or their overall effect on the test. Below, each prong of the four-factor test will be analysed individually in detail. For this, similar elements or circumstances will be reviewed together, and, more importantly, much will be devoted to the impacts on PE and NPE patent holders in particular.

3.2.2.4.1. The first factor: irreparable harm

3.2.2.4.1.1. The presumption of irreparable harm

To begin, it is meaningful how the presumption of irreparable harm upon finding patent infringements, which once provided a theoretical basis for the CAFC's general rule, has changed since *eBay*. Considering that not only the core value of patent rights rests on the right to exclude others from using the patented invention but also that the presumption of irreparable harm is intimately related to the right to exclude, whether and how much irreparable harm is presumed is a reliable barometer of the protection of the exclusive right of patent.

A number of district courts have addressed that *eBay* eliminated the former presumption of irreparable harm,²⁶⁴ whilst others have still adhered to that

²⁶⁴ PEGUES, *et al.* (2007) 'Infringement? Yes. Injunction? It depends.', *AIPLA Annual Meeting, Washington, DC, 18 October 2007*. Also see *z4 Tech. Inc. v. Microsoft Corp.*, 434 F.Supp.2d 437, 440 (E.D. Tex. 2006); *Canon Inc. v. GCC Int'l Ltd.*, 450 F.Supp.2d 243, 254 (S.D.N.Y. 2006); *Paice L.L.C. v. Toyota Motor Corp.*, 2006 WL 2385139 at 4 (E.D. Tex.); *Voda v. Cordis Corp.*, 2006 WL 2570614 (W.D. Okla.) at 5; *Voile Mfg. Corp. v. Dandurand*, 551 F.Supp.2d 1301, 1306; *Sun Optics, Inc. v. FGX Int'l, Inc.*, 2007 WL 2228569 (D. Del.); *Tiber Labs., LLC v. Hawthorn Pharm., Inc.*, 527 F.Supp.2d 1373, 1380 (N.D. Ga. 2007); *Torspo Hockey Int'l, Inc. v. Kor Hockey Ltd.*, 491 F.Supp.2d 871, 881 (D.

presumption²⁶⁵ or shrewdly avoided mentioning the issue.²⁶⁶

In *Abbott Labs. v. Andrx Pharms.* (one month after the Supreme Court’s *eBay* decision)²⁶⁷ and in *Acumed LLC v. Stryker Corp.* (30 December 2008),²⁶⁸ the CAFC implied that the presumption of irreparable harm might still be valid. In other cases, however, it showed an equivocal stance, being hesitant to address whether *eBay* precluded the application of a presumption of irreparable harm or not.²⁶⁹ However, it recently turned in the opposite direction. In *Automated Merchandising Systems Inc. v. Crane Co.*,²⁷⁰ rejecting the district court’s reliance on the cases which suggested that an irreparable harm from patent infringement was presumed, it unequivocally ruled that the law has changed by the Supreme Court’s decision in *eBay*. It articulated that ‘the presumption of irreparable harm, based just on proof of infringement, was discarded’ and ‘the burden is now on the patentee.’²⁷¹

Eventually, the CAFC made its position clear in *Robort Bosch LLC v. Pylon Manufacturing Corp.* in 2011 by directly confirming that ‘*eBay* jettisoned the

Minn. 2007); *Chamberlain Group v. Lear Corp.*, 2007 WL 1017751 at 5 (N.D. Ill.); *Bushnell, Inc. v. Brunton Co.*, 673 F.Supp.2d 1241, 1261 (D. Kan. 2009); *EZ Gard Indus., Inc. v. XO Athletic Co.*, 2008 US Dist. LEXIS 33483 at 11-12 (D.Minn.); *Humanscale Corp. v. CompX International Inc.*, 2010 WL 1779963 at 3 (E.D. Va.); *Red Bend Ltd. V. Google, Inc.*, 2001 WL 1288503 at 18 (D. Mass.).

²⁶⁵ *Christiana Indus. v. Empire Elecs., Inc.*, 443 F.Supp.2d 870, 884 (E.D. Mich. 2006); *Quantronix, Inc. v. Data Trak Techs., Inc.*, 536 F.Supp.2d 1039, 1049-50 (D. Minn. 2008); *PHG Techs. v. Timemed Labeling Sys.*, 2006 WL 2670967 at 18 (M.D. Tenn.); *Laminations, Inc. v. Roma Direct Mktg. LLC.*, 516 F.Supp.2d 404, 419 (M.D. Pa. 2007); *Abbott Lab. V. Sandoz, Inc.*, 500 F.Supp.2d 807, 842 (N.D. Ill. 2007); *Sundance, Inc. v. DeMonte Fab. Ltd.*, 2007 WL 3053662 at 1 (E.D. Mich.).

²⁶⁶ *Precision Links Inc. v. USA Prod. Group., Inc.*, 2009 WL 3076114 at 8 (W.D.N.C); *Everett Labs., Inc. v. Breckenridge Pharm., Inc.*, 573 F.Supp.2d 855, 867 (D.N.J. 2008).

²⁶⁷ *Abbott Labs. v. Andrx Pharms., Inc.*, 452 F.3d 1331, 1347 (Fed.Cir.2006).

²⁶⁸ *Acumed LLC v. Stryker Corp.*, 551 F.3d 1323, 1328 (Fed.Cir.2008).

²⁶⁹ *Sanofi-Synthelabo v. Apotex, Inc.*, 470 F.3d 1368, 1383 n. 9 (Fed.Cir.2006); *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 702 (Fed.Cir.2008).

²⁷⁰ 357 Fed.Appx. 297, 301 (C.A.Fed. 2009) (unpublished opinion).

²⁷¹ *Ibid.*

presumption of irreparable harm as it applies to determining the appropriateness of injunctive relief.’²⁷² Since this case, the controversy over the validity of the presumption of irreparable harm seems to no longer exist, and courts now request patentees to present convincing evidence demonstrating that irreparable harm is likely rather than either relying upon the presumption of irreparable harm or pointing to merely possible harm.²⁷³

Now, we shall look into what elements or circumstances have played positive or negative roles in the consideration of the first prong of the four factor test, the irreparable harm.

3.2.2.4.1.2. Competition in the marketplace

A number of courts have focused on whether each party competes in the relevant market when they evaluate irreparable harm or inadequacy of legal remedy.²⁷⁴ It is because ‘market competition’ is relatively easier not only for patentees to present concrete evidence for possible injuries, but also for courts to assess the amount of irreparable harm, than to struggle with the fundamental question of the presumption of irreparable injuries. Without doubt, this analysis shows that the results of the four-factor test applied by the district courts are highly dependent upon whether the parties in suit are competing in the same market.

Direct Competition²⁷⁵

²⁷² 659 F.3d 1142, 1149 (Fed.Cir.2011).

²⁷³ *Enpat, Inc. v. Pavel Budnic*, 773 F.Supp.2d 1311, 1316 (M.D. Florida 2011).

²⁷⁴ *TruePosition Inc. v. Andrew Corp.*, 568 F. Supp. 2d 500, 531 (D. Del. 2008); *K-TEC v. Vita-Mix*, 765 F.Supp.2d 1304, 1318 (D. Utah. 2011).

²⁷⁵ ‘Direct competition’ means the situation where plaintiff and defendant ‘offer essentially the same

When they compete directly, courts were easily persuaded by the patent owner's claim that she would suffer irreparable harm.²⁷⁶ Courts seem to assume that patent

product or service' in the same market (BusinessDictionary.com at <http://www.businessdictionary.com>).

²⁷⁶ For cases granting injunctive relief to competing patent owners after finding irreparable harm, see *Wald v. Mudhopper Oilfield Servs.*, 2006 US Dist. LEXIS 51669 (W.D. Okla.); *TiVo Inc. v. Echostar Communs. Corp.*, 446 F. Supp. 2d 664 (E.D. Tex. 2006); *PHG Techs.*, 2006 WL 2670967; *3M Innovative Proprs. Co. v. Avery Dennison Corp.*, 2006 US Dist. LEXIS 70263 (D. Minn.); *Visto Corp. v. Seven Networks, Inc.*, 2006 US Dist. LEXIS 91453 (E.D. Tex.); *Transocean Offshore Deepwater Drilling, Inc. v. GlobalSantaFe Corp.*, 2006 WL 3813778 (S.D. Tex.); *Muniauction, Inc. v. Thomson Corp.*, 502 F.Supp.2d 477 (W.D. Pa. 2007); *Johns Hopkins Univ. v. Datascope Corp.*, 513 F.Supp.2d 578 (D. Md. 2007); *MGM Well Services, Inc. v. Mega Lift Systems, LLC.*, 505 F.Supp.2d 359 (S.D. Tex. 2007); *Sanofi-Synthelabo v. Apotex, Inc.*, 492 F.Supp.2d 353 (S.D.N.Y. 2007); *O2 Micro International Ltd. v. Beyond Innovation Technology Co.*, 2007 US Dist. LEXIS 25948 (E.D. Tex.); *Humanscale*, 2010 WL 1779963; *MGM Well Services*, 505 F.Supp.2d 359 (2007); *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295 (Fed.Cir. 2007); *Martek Biosciences Corp. v. Nutrinova Inc.*, 520 F.Supp.2d 537 (D. Del. 2007); *Acumed LLC v. Stryker Corp.*, 2007 WL 4180682 (D. Or.); *Fresenius Med. Care Holdings Inc. v. Baxter Int'l, Inc.*, 2008 US Dist. LEXIS 79689 (N.D. Cal.); *Power-One, Inc. v. Artesyn Techs., Inc.*, 2008 US Dist. LEXIS 30338 (E.D. Tex.); *Monsanto*, 545 F.Supp.2d 836 (2008); *EZ Gard Indus.*, 2008 US Dist. LEXIS 33483; *Emory Univ. v. Nova BioGenetics, Inc.*, 2008 US Dist. LEXIS 57642 (N.D. Ga.); *TruePosition*, 568 F. Supp.2d 500 (2008); *Everett Lab.*, 573 F.Supp.2d 855 (2008); *Becton Dickinson & Co. v. Tyco Healthcare Gr. LP*, 2008 WL 4745882 (D. Del.); *Cummins-Allison Corp. v. SBM Co., Ltd.*, 584 F.Supp.2d 916 (E.D. Tex. 2008); *Callaway Golf Co. v. Acushnet Co.*, 585 F.Supp.2d 600 (D. Del. 2008); *Funai Electric Co., Ltd. v. Daewoo Electronics Corp.*, 593 F.Supp.2d 1088 (N.D. Cal. 2009); *US Philips Corp. v. Iwasaki Electric Co. Ltd.*, 607 F.Supp.2d 470 (S.D.N.Y. 2009); *Mass Engineered Design, Inc. v. Ergotron, Inc.*, 633 F.Supp.2d 361 (E.D. Tex. 2009); *Transamerica Life Insurance Company v. Lincoln National Life Insurance Company*, 625 F.Supp.2d 702 (N.D. Iowa 2009); *Finjan Software, Ltd. v. Secure Computing Corp.*, 2009 US Dist. LEXIS 72825 (D. Del.); *Spectralytics, Inc. v. Cordis Corp.*, 650 F.Supp.2d 900 (D. Minn. 2009); *Cummins-Allison Corp. v. SBM*, 669 F.Supp.2d 774 (E.D. Tex. 2009); *Bushnell*, 673 F.Supp.2d 1241 (2009); *Baker Hughes Inc. v. Nalco Co.*, 676 F.Supp.2d 547 (S.D. Tex. 2009); *I-Flow Corp. v. Apex Medical Technologies, Inc.*, 2010 WL 141402 (S.D. Cal.); *Arlington Industries, Inc. v. Bridgeport Fittings, Inc.*, 2010 WL 817519 (M.D. Pa); *I4i Ltd. v. Microsoft Corp.*, 598 F.3d 831 (Fed.Cir.2010); *Smith & Nephew, Inc. v. Arthrex, Inc.*, 2010 WL 2522428 (E.D. Tex.); *RPA International PTY Ltd. v. Compact Intl Inc.*, 2010 WL 3184311 (S.D. Cal.); *Robert Bosch*, 659 F.3d 1142 (2011); *Midtronics, Inc. v. Aurora Performance Products LLC*, 800 F.Supp.2d 970 (N.D. Ill., 2011); *K-TEC*, 765 F.Supp.2d 1304 (2011); *Sanofi-Aventis Deutschland GmbH. v. Glenmark*

right ‘enjoys its highest value when it is asserted against a direct competitor in the plaintiff’s market’ because a loss of profits, market share, brand name recognition, or customer goodwill could be irreparably harmed by the competitor’s infringement and not easily quantifiable only through simple monetary damages.²⁷⁷ To determine whether a patentee has suffered an irreparable injury warranting injunctive relief, courts generally consider past harm to market share, revenues, brand recognition and so forth.²⁷⁸ However, the more important factor is that the patentee should provide courts with enough evidence for future injury because an injunction is by definition a prospective remedy.²⁷⁹ In granting injunctions, they used to not only highlight the importance of the right to exclude competitors from using the patented invention,²⁸⁰ but also emphasise the possible encouragement of would-be infringers to attempt to enter the market, thereby undermining the value of the patent.²⁸¹

Without doubt, the chances of finding irreparable harm are definitely higher in the case of ‘head-to-head’ competition,²⁸² i.e. two-supplier competition, than in the multi-competitors market.²⁸³ Patent holders’ winning chances are getting much

Pharmaceuticals Inc., 2011 WL 4594205 (D.N.J).

²⁷⁷ *Visto*, 2006 US Dist. LEXIS 91453 at 12; *LaserDynamics v. Quanta Computer, Inc.*, 2010 WL 2574050 at 2 (E.D. Tex.); *O2 Micro International*, 2007 US Dist. LEXIS 25948 at 7-8; *Zen Design Group, Ltd. v. Clint*, 2009 WL 4050247 at 5 (E.D. Mich.); *Smith & Nephew, Inc. v. Synthes*, 466 F.Supp.2d 978, 982 (W.D. Tenn. 2006).

²⁷⁸ *I4i*, 598 F.3d 862 (2010); *K-TEC*, 765 F.Supp.2d 1318 (2011).

²⁷⁹ *Whirlpool Corp. v. LG Electronics, Inc.*, 798 F.Supp.2d 541, 563 (D. Del. 2011).

²⁸⁰ *Fresenius Med. Care Holdings*, 2008 US Dist. LEXIS 79689 at 11; *Transamerica Life Insurance*, 625 F.Supp.2d 719 (2009). However, this reference is hardly ever found in NPE-related cases.

²⁸¹ *Amgen, Inc. v. F. Hoffman-La Roche Ltd.*, 581 F. Supp. 2d 160, 212 (D. Mass. 2008).

²⁸² For example, *Fresenius Med. Care Holdings*, 2008 US Dist. LEXIS 79689; *Baker Hughes*, 676 F.Supp.2d 547 (2009); *Arlington Industries*, 2010 WL 817519.

²⁸³ *IGT v. Bally Gaming International Inc.*, 675 F.Supp.2d 487 (D. Del. 2009). Meanwhile, as an example of granting injunctive relief under the market situation with multiple competitors, see *Visto*, 2006 US Dist. LEXIS 91453.

higher when these market competition settings are united with the situations where the patented invention is at the core of the plaintiff’s business, and/or where the market for the relevant patented technology is nascent and still developing.²⁸⁴

Nonetheless, not all of the courts found irreparable harm in direct competition settings. Courts would reject injunctive relief by not finding irreparable harm in some cases where not enough specific evidence for the injuries, e.g. sales or market data, was provided,²⁸⁵ where the competing patentee showed the willingness to licence its patent to others,²⁸⁶ where an infringer’s infringement has not necessarily affected the patentee’s future market position in a multi-competitor market,²⁸⁷ where the public interest was expected to be seriously disserved,²⁸⁸ and so on.²⁸⁹ Certain courts declined the irreparable injury argument even in a direct competition situation, noting that economic loss, such as lost sales, loss of profits and lost market share, may be compensable by monetary damages.²⁹⁰ The CAFC, in *Automated Merchandising System*, once observed that lost sales are presumed to be compensable by monetary damages and therefore they alone are insufficient to prove

²⁸⁴ *Martek Biosciences*, 520 F.Supp.2d 558-559 (2007); *TiVo Inc.*, 446 F. Supp. 2d 669-70 (2006); *Cordance Corp. v. Amazon.com, Inc.*, 730 F.Supp.2d 333, 338 (D. Del. 2010).

²⁸⁵ *Praxair, Inc. v. ATMI, Inc.*, 479 F. Supp. 2d 440 (D. Del. 2007); *IMX, Inc. v. LendingTree, LLC*, 469 F. Supp. 2d 203 (D. Del. 2007); *Presidio Components*, 2010 WL 1462757 at 44; *Novartis Pharm. Corp. v. Teva Pharm. USA, Inc.*, 2007 WL 2669338 at 14 (D.N.J.); *ResQNet.com, Inc. v. Lansa, Inc.*, 533 F.Supp.2d 397, 421 (S.D.N.Y. 2008); *Hypoxico Inc. v. Colorado Altitude Training*, 630 F.Supp.2d 319 (S.D.N.Y. 2009); *Medtronic Sofamor Danek USA, Inc. v. Globus Medical, Inc.*, 637 F.Supp.2d 290 (E.D. Pen. 2009); *Humanscale*, 2010 WL 1779963.

²⁸⁶ This issue is discussed in the following section.

²⁸⁷ *Belden Technologies Inc. v. Superior Essex Communications LP*, 2011 WL3555890 at 17-18 (D. Del.); *Whirlpool Corp.*, 798 F.Supp.2d 563 (2011)

²⁸⁸ *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 2009 WL 920300 at 5 (D. Ariz.).

²⁸⁹ *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1379-1380 (Fed.Cir.2008).

²⁹⁰ *Novartis Pharm.*, 2007 WL 2669338 at 14); *Bettcher Industries, Inc. V. Bunzl USA, Inc.*, 692 F.Supp.2d 805, 821 (N.D. Ohio 2010); *Automated Merchandising Systems*, 357 Fed.Appx. 301 (2009).

irreparable injuries because, if it were, irreparable harm would be found in every case where competing patentees are involved.²⁹¹

Notwithstanding, it is undeniable that district courts have shown a strong tendency to grant injunctions by finding irreparable harm for the competing patent holders.

Indirect competition²⁹²

Under the circumstances where the parties compete indirectly, irreparable harm also could be found, provided that sufficient evidence is presented. Even though the cases involved with indirect competition are not common, there are a few meaningful examples. In *Broadcom v. Qualcomm*,²⁹³ each party indirectly competes with different underlying technologies (WCDMA and CDMA2000) for a chipset market for the 3G mobile phone service and these technologies are substitutable by the mobile phone customers' choice of service carriers. The court found irreparable harm by observing that Broadcom's effort to be dominant in the competition with another standard would be impaired, even though Broadcom was not practising the claimed inventions.²⁹⁴ In the *Mytee Product v. Harris Research* case²⁹⁵ where the patentee, Harris, operates a chain of carpet-cleaning franchises and sells vacuum heads embodying its patented technology to its franchisees, and the infringer, Mytee, sells

²⁹¹ *Automated Merchandising Systems*, 357 Fed.Appx. 300-301 (2009).

²⁹² 'Indirect competition' occurs when plaintiff and defendant supply 'different types of product that satisfy the same needs,' e.g. a pizza and fried chicken (BusinessDictionary.com at <http://www.businessdictionary.com>).

²⁹³ *Broadcom*, 543 F.3d 683 (2008). Patentee, Broadcom, is a manufacturing company, but it was not practising the patent at issue in this case.

²⁹⁴ *Ibid.* at 701-704.

²⁹⁵ *Mytee Products, Inc. v. Harris Research, Inc.*, 439 Fed.Appx. 882 (Fed.Cir. 2011).

its own infringing products to independent carpet cleaners that compete directly with Harris’s franchisees. The court found that the indirect competition would cause irreparable harm to the patentee Harris by acknowledging that Harris’s franchisees relied upon the advantages of Harris’s patented invention to gain an edge in the market and thus the market share enjoyed by Harris’s franchisees would be threatened by the presence of a competitor using the same technology.²⁹⁶

The relative importance of patented products to a patentee’s business

Infringers tend to argue that the injuries to a patentee are not irreparable when the patented invention relates to a portion of the patentee’s overall business. Without doubt, the fact that the patented product is at the core of the patentee’s business affects positively for granting an injunction.²⁹⁷ However, the opposite does not compel denial of an injunction. The fact that an infringer’s harm affects only a portion of a patentee’s business says nothing about whether that harm can be rectified.²⁹⁸ The CAFC made it clear that injuries affecting a ‘non-core’ aspect of a patentee’s business are equally capable of being irreparable as ones that affect more significant operations²⁹⁹ and thus the patentee is able to exclude infringing competitors regardless of the proportion that the infringing products make up a patentee’s total business.³⁰⁰

²⁹⁶ Ibid. at 887-888. For a similar example, see *ActiveVideo Networks, Inc. v. Verizon Communications, Inc.*, 2011 WL 5878365 (E.D. Va.).

²⁹⁷ *TruePosition*, 568 F. Supp. 2d 531 (2008).

²⁹⁸ *Hoffmann-LaRoche, Inc. v. Cobalt Pharma, Inc.*, 2010 WL 4687839 at 12 (D.N.J.).

²⁹⁹ *Robert Bosch*, 659 F.3d 1152 (2011).

³⁰⁰ *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1330 (Fed.Cir.2008).

NPEs and market competition

Meanwhile, unarguably the market competition factor has worked against NPEs in proving irreparable harm because they do not engage in any product (service) market and thereby can hardly provide any evidence of such actual market-related injuries.³⁰¹ From the very first NPE-related case after *eBay*³⁰² and as time goes on, this trend has gained firm ground in the test for irreparable harm. After all, many district courts tend to directly mention that ‘[c]ourts awarding permanent injunctions typically do so under circumstances where the plaintiff practices its invention and is a direct market competitor.’³⁰³ Particularly in a circumstance where the presumption of irreparable harm is no more valid as previously noted, NPEs are in a much more disadvantageous situation than PEs when it comes to persuading courts.

3.2.2.4.1.3. Patent holder’s licensing history or willingness to license

In principle, according to the majority opinion of the Supreme Court in *eBay* as well as the CAFC’s ruling in *Acumed v. Stryker*, NPE patent holders may still be eligible to get injunctive relief against infringers although they licensed in the past and/or

³⁰¹ *LaserDynamics*, 2010 WL 2574050 at 2; *Ricoh Company, Ltd. V. Quanta Computer, Inc., et al.* 2010 WL 1607908 at 1 (W.D. Wis); *Amado v. Microsoft Corp.*, 2007 US Dist. LEXIS 96487 at 39 (C.D. Cal.).

³⁰² *z4 Tech.*, 434 F. Supp. 2d 437 (2006).

³⁰³ *Advanced Cardiovascular Sys., Inc. v. Medtronic Vascular, Inc.*, 579 F. Supp. 2d 554, 558 (D. Del. 2008). See also *Brooktrout, Inc. v. Eicon Networks Corp.*, 2007 WL 1730112 at 1 (E.D. Tex.); *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 592 F. Supp. 2d 727, 747 (D. Del. 2009); *Fresenius Med. Care Holdings*, 2008 US Dist. LEXIS 79689 at 10-11; *Mass Engineered Design*, 633 F.Supp.2d 393 (2009); *IGT*, 675 F.Supp.2d 489 (2009); *Bendix Commercial Vehicle, Systems LLC. v. Haldex Brake Products Corp.*, 737 F.Supp.2d 854, 860 (N.D. Ohio 2010); *Belden Technologies Inc.*, 2011 WL3555890 at 16; *Versata Software Inc. v. SAP America, Inc.*, 2011 WL 4017944 at 2 (E.D. Tex.).

bears a desire to license the patent in suit to others.³⁰⁴ Nonetheless, a number of courts exhibited an inclination, in NPE-related cases in particular, to interpret the patent holder's past licensing and willingness to license (hereinafter 'licensing activities' collectively) as waiving the right to exclude for monetary compensation and thereby this substantially weighed against finding irreparable harm, ultimately leading to denial of an injunction.

PEs

This sort of reasoning has also had a negative impact as one of the unfavourable factors even with PE patent holders.³⁰⁵ In an unusual and extreme case, a court has once seen the competing plaintiff's cross-license even for the purpose of litigation settlements with competitor(s) or acquisition of competing technologies as foregoing its exclusive right of patent.³⁰⁶ However, the majority of PE-related cases stand on the opposite side. The argument of the patent holder's licensing activity has been occasionally overwhelmed by the finding that the patentee was competing with the infringing defendant and irreparable injuries were expected by the infringement.³⁰⁷

The *Finjan Software* case epitomises this attitude of the courts. It maintained that, although a patentee's licensing activities do not harmonise with the patent's

³⁰⁴ *EBay*, 126 S.Ct. 1840 (2006); *Acumed*, 551 F.3d 1328 (2008).

³⁰⁵ *IMX*, 469 F. Supp. 2d 203 (2007); *ResQNet.com*, 533 F.Supp.2d 417-418 (2008); *Belden Technologies*, 2011 WL 3555890 at 18.

³⁰⁶ *Advanced Cardiovascular Sys.*, 579 F. Supp. 2d 558-561 (2008). But the court of *Johnson & Johnson Vision Care, Inc. v. CIBA Vision Corp.*, 2010 WL 1730819 at 1 (M.D. Fla.) denied that reasoning.

³⁰⁷ *Transocean Offshore Deepwater Drilling*, 2006 WL 3813778; *Muniauction*, 502 F.Supp.2d 482 (2007).

exclusive right, it is ‘certainly not a dispositive factor,’³⁰⁸ which means that the gravity of licensing activities should be weighed together with other factors, e.g. possible injuries from direct or indirect competition.³⁰⁹ Of course, in a situation where a patentee showed direct competition with an alleged infringer and displayed sturdy policy against licensing its patented technology, it is in no doubt that an injunction is highly guaranteed.³¹⁰

NPEs

Meanwhile, the impact is much greater to NPE patent owners because their main sources of revenue are licensing programs. Unlike PE patent holders, NPE plaintiffs, by nature, have very limited options to persuade courts that they may suffer ‘actual’ irreparable harm, unless the irreparable harm is presumed. In the current situation where courts have discarded the presumption of irreparable harm, NPEs cannot help focusing on the licensing issues. This has been the most critical issue discussed in the consideration of the first prong of the test.

One of the primary grounds that NPEs assert to prove irreparable harm is the possible disruption of their licensing efforts and/or R&D opportunities by infringement. They frequently argue that their licensing program will suffer because potential licensees ‘will be tempted to roll the dice’ and infringe the patent, should an injunctive relief be denied in the present suit.³¹¹ However, while acknowledging that

³⁰⁸ *Finjan Software*, 2009 US Dist. LEXIS 72825 at 35.

³⁰⁹ For an indirect competition case, refer to *ActiveVideo Networks*, 2011 WL 5878365 at 4-5.

³¹⁰ *MGM Well Services*, 505 F.Supp.2d 379 (2007); *I-Flow*, 2010 WL 141402 at 1; *Arlington Industries*, 2010 WL 817519 at 4.

³¹¹ *Ricoh Company*, 2010 WL 1607908 at 2; *Paice*, 2006 WL 2385139 at 4-5; *Telcordia Techs.*, 592 F.Supp.2d 747-748 (2009); *Commonwealth Scientific and Indus. Research Org. v. Buffalo Tech., Inc.*, 492 F.Supp.2d 600, 603 (E.D. Tex. 2007).

monetary compensation instead of injunctive relief could result in a lower licensing rate than where an injunction is issued, most of the district courts have not accepted the above arguments because they generally assumed that ‘infringing one’s right to exclude, alone, is insufficient to warrant injunctive relief.’³¹² Rather they requested more concrete and direct evidence for the injury claimed.³¹³

With regards to NPEs’ licensing business, their licensing activities in particular have performed as a more convenient yardstick against issuing an injunction than where PE patentees were involved. Many courts considered the NPEs’ willingness to license, while not dispositive, as one of the adverse factors to their analysis of irreparable harm as well as inadequacy of legal remedy.³¹⁴ A typical situation for that is where the NPE patentee has entered into non-exclusive multiple license agreements³¹⁵ and/or once offered a license to others, including the defendant.³¹⁶ Even where the patent holder’s licensees compete with the infringing defendant and they may be exposed to a competitive disadvantage by the infringement, it was not easy for the plaintiff patent owner to gain the courts’ confidence on the matter of irreparable harm if there existed other competitors and alternative products in the market.³¹⁷

Meanwhile, even though many NPE patent holders have failed to overcome this hurdle, there are a few exceptional cases where NPE patentees passed the

³¹² *Telcordia Techs.*, 592 F.Supp.2d 747-748 (2009), citing *IMX*, 469 F.Supp.2d 225 (2007); *Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 518 F.Supp.2d 1197, 1214-15 (C.D. Cal. 2007).

³¹³ *Voda*, 2006 WL 2570614 at 5; *Paice*, 2006 WL 2385139 at 4-5; *Telcordia Techs.*, 592 F.Supp.2d 747-748 (2009).

³¹⁴ *Telcordia Techs.*, 592 F.Supp.2d 748 (2009).

³¹⁵ *LaserDynamics*, 2010 WL 2574059 at 2; *Ricoh*, 2010 WL 1607908 at 2.

³¹⁶ *Paice*, 2006 WL 2385139 at 5.

³¹⁷ *Sundance*, 2007 WL 37742 at 2.

irreparable harm test and a permanent injunction was ultimately awarded.

The first situation is where an NPE patent owner grants an exclusive or sole licence rather than non-exclusive and/or multiple licences and the NPE patentee and its licensee collectively seek an injunction. This is similar to the PE patentee cases because at least the exclusive licensee competes with the alleged infringer, thereby having an equally high chance of obtaining an injunction.³¹⁸ However, the NPE plaintiff should present proper and sufficient evidence for the harm to the relationship with the licensees.³¹⁹ If the NPE patentee shows her persistent and faithful relationship with the exclusive or sole licensee, or she firmly holds intention to keep the licensee's business secured through the exclusive right of patent, irreparable harm could be recognised by the court. In *Judkins v. HT Window Fashions Corp.*³²⁰ where the individual inventor, Judkins, had maintained a long term licensing relationship with the same companies rather than collecting royalties from random licensees and also particularly promised his licensee not to license the patent at issue to any other companies, the court concluded that '[f]ailure to enter a permanent injunction in this case would result in Judkins's unwilling violation of that promise, which would have an unavoidable and undeniable effect on Judkins's future licensing negotiations.'³²¹

The other situation is the NPE patent holder is a research-oriented institution which offers non-exclusive and multiple licences to other entities. A good example is

³¹⁸ E.g. *Emory Univ.*, 2008 US Dist. LEXIS 57642; *Ocean Innovations*, 2010 WL 1957486; *Chamberlain*, 2007 WL 1017751.

³¹⁹ *Voda*, 2006 WL 2570614 at 5-6.

³²⁰ 2010 WL 1292158 (W.D. Pa.).

³²¹ *Ibid.* at 3. For another example, see *Novozymes A/S v. Genencor Int'l.*, 474 F. Supp. 2d 592 (D. Del. 2007).

the *Commonwealth Scientific and Industrial Research Organisation (CSIRO) v. Buffalo Tech.* case,³²² where CSIRO is a principal research-oriented organisation of the Australian federal government. It develops technology for industrial companies, and relies heavily on a patent license program to finance further research projects.³²³ CSIRO obtained a key patent concerning Wi-Fi technology and this was incorporated into international standards with a precondition for offering licenses to the patent on the fair, reasonable and non-discriminatory ('FRAND') terms.³²⁴ After none of the potential licensees accepted CSIRO's license offer, CSIRO brought suit against defendant Buffalo, one of the potential licensees. In its opinion for granting injunctive relief, the court primarily paid attention to the crucial aspect of patent licensing for CSIRO's R&D program, and it found that if the defendant's infringement were not enjoined, CSIRO's licensing revenues would be diminished by other potential licensees' reluctance to enter into license agreements, which would not only harm its research capabilities and the opportunities for new research, but also marginalise it from the highly competitive research market worldwide, causing the deterioration of reputation as a leading research organisation.³²⁵ It concluded that those lost opportunities would lead to irreparable harm to its R&D programs.³²⁶ It obviously looks as if the court tried to differentiate the NPE patentee in this suit from 'patent trolls' who use patents as a vehicle for collecting extremely high licence royalties, by highlighting its similarity to the US National Science Foundation and

³²² 492 F.Supp.2d 600 (2007).

³²³ *Ibid.* at 601 & 604.

³²⁴ *Ibid.* at 601-602.

³²⁵ *Ibid.* at 604.

³²⁶ *Ibid.*

the National Institute of Health.³²⁷

Even though there have been a few cases where NPE patent holders were successful, it should be noted that the overall likelihood of NPE patent holders to pass the first factor of the test has definitely been lower than that of PE patent owners.

3.2.2.4.1.4. Other circumstances

Other circumstances considered in the courts include (1) jury's finding of wilful infringement,³²⁸ (2) infringer's inability to pay future damages,³²⁹ (3) imminence of patent expiration,³³⁰ (4) delay in filing suit and seeking injunctive relief,³³¹ and (5) cessation of infringement. The first two situations above generally support irreparable injury, whilst the third goes against it. If the patentee delayed bringing a suit for injunctive relief, it militates against the finding of irreparable harm in the preliminary injunction context.³³² However, its impact on the permanent injunction is not significant.³³³ It is basically due to the fact that urgency is a much more crucial factor for preliminary injunction than permanent injunction. Moreover, the failure to seek a preliminary injunction is not considered as a factor weighing against a court's

³²⁷ *Ibid.* at 601. For a similar example, see *Harris Corp. v Federal Express Corp.*, 2011 U.S. Dist. LEXIS 96257 (M.D. Fla.).

³²⁸ *Visto*, 2006 US Dist. LEXIS 91453 at 2 & 12-13; *O2 Micro International*, 2007 US Dist. LEXIS 25948 at 9; *K-TEC*, 765 F.Supp.2d 1312 (2011).

³²⁹ *Sundance*, 2007 WL 3053662 at 1; *Bushnell*, 673 F.Supp.2d 1260-61 (2009); *O2 Micro International*, 2007 US Dist. LEXIS 25948 at 7-8; *Robert Bosch*, 659 F.3d 1156 (2011).

³³⁰ *Humanscale*, 2010 WL 1779963 at 4.

³³¹ *Sundance*, 2007 WL 37742 at 2; *Tiber Labs.*, 527 F.Supp.2d 1382 (2007).

³³² *Tiber Labs.*, 527 F.Supp.2d 1382 (2007); *Laminations*, 516 F.Supp.2d 419 (2007); *Quad/Tech, Inc. v. Q.I. Press Controls B.V.*, 2010 WL 1292476 at 11 (E.D. Pa.); *Bettcher Industries*, 692 F.Supp.2d 822 (2010).

³³³ *K-TEC*, 765 F.Supp.2d 1318 (2011).

issuance of a permanent injunction.³³⁴ Lastly, in terms of the termination of infringement, the rule had been established before *eBay*.³³⁵ The mere fact that the infringer stopped the use of the patent is not a sufficient reason to deny injunctive relief. Rather courts tend to focus on whether the evidence is persuasive enough to show that further infringement is not likely to happen again.³³⁶ All of these circumstances are neutral in the context of PE or NPE issues.

3.2.2.4.2. The second factor: inadequacy of legal remedies

Basically, irreparable harm is recognised only where the harm cannot be rectified by the remedies at law (monetary damages) and therefore the ‘inadequacy of legal remedies’ inquiry is essentially the reflection of the ‘irreparable harm’ analysis. For such a reason, a number of district courts examined the first and second factors simultaneously,³³⁷ and there existed hardly any cases where the results of both prongs of the test were different to each other. In this sense, most of the issues that dealt with the first factor could be equally applied to this second factor and, here, it is enough to check only the issues particular to this prong of the test.

First of all, similarly as discussed before, it is noteworthy that a number of district courts have expressly conceded, mostly in the cases where the patent holders were competing with infringers and irreparable harm was found, that the relief in the

³³⁴ *Mytee Products, Inc.*, 439 Fed.Appx. 888 (2011); *ActiveVideo Networks*, 2011 WL 5878365 at 6.

³³⁵ *W.L. Gore & Associates*, 842 F.2d 1282 (1988).

³³⁶ E.g. *Rosco v. Mirror Lite Co.*, 2006 US Dist. LEXIS 73366 at 10-11(E.D.N.Y.); *Mass Engineered Design*, 633 F.Supp.2d 393 (2009); *I-Flow*, 2010 WL 141402 at 1.

³³⁷ E.g. *3M Innovative Props.*, 2006 US Dist. LEXIS 70263 at 4; *Sanofi-Synthelabo*, 492 F.Supp.2d 397 (2007); *Muniauction*, 502 F.Supp.2d 482 (2007); *Acumed*, 2007 WL 4180682 at 3-6; *Power-One*, 2008 US Dist. LEXIS 30338 at 5-6; *Amgen*, 581 F. Supp. 2d 210-212 (2008); *Funai Electric*, 593 F.Supp.2d 1111 (2009); *Brooktrout*, 2007 WL 1730112 at 1; *Arlington Industries*, 2010 WL 817519 at 3-4; *Johnson & Johnson Vision Care*, 2010 WL 1730819 at 4.

form of monetary damages alone is generally an inappropriate remedy against future infringement because the core value of patent is the right to exclude others from using the patented invention.³³⁸ However, in contrast, they hardly ever do so in the cases where NPE plaintiffs were seeking injunctive relief. This reflects a new atmosphere in courts that the exclusive right of patent is being applied somewhat differently depending upon the types of entities.

Secondly, one issue that draws attention in the second factor analysis is whether monetary award instead of injunctive relief is sufficient when the patent is a small component of an entire product or service.³³⁹ As Justice Kennedy warned in *eBay*,³⁴⁰ courts' concern over a small component patent is that an injunction in this circumstance can cause overcompensation to the patent holder beyond her contributions to the patent by permitting them to acquire additional gain through settlements.³⁴¹ Courts which encountered a situation where the infringed patent was nothing but a small component of the entire product and was not related to the core functionality which affects the customer's willingness to purchase the product, found monetary damages to be appropriate and thereby declined the irreparable harm claim as well.³⁴² However, it is interesting to note that all of these cases were related to the NPE plaintiff. Not a single case can be found so far where irreparable harm or

³³⁸ *Smith & Nephew*, 466 F. Supp. 2d 984 (2006); *Visto*, 2006 US Dist. LEXIS 91453 at 13; *Johns Hopkins Univ.*, 513 F.Supp.2d 586 (2007); *Martek Biosciences*, 520 F.Supp.2d 558-559 (2007); *Transamerica Life Insurance Company*, 625 F.Supp.2d 719 (2009).

³³⁹ Even though this issue is discussed here, it is also similarly applied in the first factor analysis.

³⁴⁰ 126 S.Ct. 1842 (2006).

³⁴¹ CHAO (2008) 'After Ebay, Inc. v. MercExchange: The Changing Landscape for Patent Remedies', *Minnesota Journal of Law, Science & Technology*, Vol. 9, No. 2, at 559.

³⁴² *z4 Tech.*, 434 F.Supp.2d 441 (2006); *LaserDynamics*, 2010 WL 2574059 at 2; *Paice*, 2006 WL 2385139 at 5; *Sundance*, 2007 WL 37742 at 2.

inadequacy of legal damages against a PE plaintiff was rejected in this setting.³⁴³ Even though this factor, by nature, should affect both PEs and NPEs with equal force and it may be premature to conclude due to the limited number of relevant cases, it, in practice, seems to be weighed against NPEs for the assessment of inadequacy of money damages (and irreparable harm as well) if it is jointly examined with the market competition factor.

Lastly, “a patent holder’s refusal to grant a licence and its engagement in lengthy litigation to protect that business decision” is a factor weighing in favour of finding the remedy at law inadequate.³⁴⁴ Since the interests to refuse to grant a licence are mostly with PE patentees rather than NPE counterparts, NPE patent holders are in a more disadvantageous state than PEs to satisfy the test for inadequacy of legal remedies.

3.2.2.4.3. The third factor: balance of hardship

With respect to the third factor, the CAFC has provided a few important guidelines to district courts on how to analyse this factor. Firstly, in *Acumed* it articulated that the balance should be considered only between the parties in suit and therefore ‘the effect on other persons is irrelevant’.³⁴⁵ Secondly, in *Verizon*, it implied that allowing an alleged infringer time to redesign the infringing product before entering into

³⁴³ There was one case where the issue of small component patent was discussed when both parties were competing entities, but the court, finding the patented part’s contributions to the core functionality, ultimately granted an injunction. See *Transocean Offshore Deepwater Drilling*, 2006 US Dist. LEXIS 93408 at 17.

³⁴⁴ *Sanofi-Aventis Deutschland GmbH.*, 2011 WL 4594205 at 11, citing MENELL, et al. (2009) ‘Patent Case Management Judicial Guide’, *UC Berkeley Public Law Research Paper No. 1328659*, available at <http://ssrn.com/paper=1328659>, at Table 9.1.

³⁴⁵ 551 F.3d 1330 (2008).

injunction may mitigate the hardship the infringer would incur.³⁴⁶ This is an *ex post* analysis by tailoring the specific terms of injunctive relief rather than dealing with *ex ante* situations. Lastly, in *Broadcom* the CAFC also made it clear that courts should not examine the infringer's costs and expenses related to the infringing product, by saying that 'one who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected.'³⁴⁷ Since the first guideline is straightforward and the second will be discussed in the *infra* section in detail,³⁴⁸ let us discuss further the last guideline.

The CAFC's decision in *Broadcom* was, in fact, nothing but a reconfirmation of its position before *eBay* when the sentiment for patent rights was quite strong. In this regard, a question may arise whether this rule can chime with the traditional four-factor criteria addressed in *eBay*, considering a district court, before the CAFC's *Broadcom* decision, once examined each party's investment status on the patented invention as one of the circumstances for weighing the balance of hardship.³⁴⁹ However, this decision does not preclude the consideration of other circumstances, such as 'the parties' size, products, and revenue sources,' as the CAFC expressed in *i4i*.³⁵⁰ Rather, it should be understood as the CAFC emphasised that, if an infringer could be exempted from the consequences of infringement by reason of substantial investment on the infringing product, the patent system would be rendered useless by

³⁴⁶ 503 F.3d 1311 at n 12 (2007).

³⁴⁷ 543 F.3d 704 (2008).

³⁴⁸ Section 3.2.2.4.5.

³⁴⁹ *Power-One*, 2008 US Dist. LEXIS 30338 at 5-6.

³⁵⁰ 589 F.3d 1277 (2009).

encouraging infringing products to flood the market.³⁵¹ In this sense, the CAFC's decision in *Broadcom* can be compatible with the discretionary four-factor test in *eBay*.

Next, we need to examine whether courts have treated NPEs differently from PE patent holders in the context of balance of hardship. Most importantly, it should be noted that the third factor has been generally tipped in favour of the party who prevailed in the foregoing two factors.³⁵² In a similar vein, like the analysis of irreparable harm, the fact of whether plaintiffs are competing with infringing defendants in the market seems to have influenced the balance of hardship factor with almost the same weight: relatively disadvantageous effects on NPE patent holders.

For example, courts generally found that the PE plaintiff's expected hardship was severer than infringers' once sufficient evidence was provided, such as the loss of market share or lost sales.³⁵³ Those courts reasoned that, under the direct/indirect competition setting between parties, the balance, absent exceptional circumstances, generally tips in favour of PE patent owners because not only does monetary reward in lieu of injunctive relief deprive them of the right to exclude a direct competitor, but also their significant investment in time and resources spent on their patented inventions may not be sufficiently recouped.³⁵⁴ The *Presidio Components* court, even though it found the balance of hardships tipping in the NPE plaintiff's favour,

³⁵¹ *EZ Gard Indus.*, 2008 US Dist. LEXIS 33483 at 14.

³⁵² NEWCOMBE, et al. (2008) 'Prospective Relief For Patent Infringement in a Post-eBay World', *NYU Journal of Law and Business*, vol. 4, pp. 549-577, at 567.

³⁵³ Refer to the cases previously quoted for the irreparable harm factor when discussing the direct competition.

³⁵⁴ *Finjan Software*, 2009 US Dist. LEXIS 72825 at 36-37; *Power-One*, 2008 US Dist. LEXIS 30338 at 5-6.

also addressed that the only harm that an NPE patentee may suffer is based on ‘tangential benefits’ in the sense that the NPE, Presidio, neither practises the patent nor has any intention or plan to do so in the future.³⁵⁵ However, the balance of hardship may weigh in favour of an NPE patent holder if she presents evidence that it invested substantial amount of money in research and development relating to the patent in suit and that an infringer has hindered her ability to recoup this investment.³⁵⁶

The circumstances where the impact of an injunction is not significant on the alleged infringer, e.g. when the alleged infringer markets alternative non-infringing products³⁵⁷ or when an alternative technology or the design-around is affordable for the alleged infringer,³⁵⁸ are advantageous factors for patent holders. Also the relative importance of the patented invention for each party’s business or products where the patent was embodied has been considered in the balance test. When the infringing product is a small part of the alleged infringer’s business whilst the patent holder’s primary source of revenue is from the patented invention, the balance of hardship weighs in the plaintiff’s favour.³⁵⁹ Similarly, where the patent holder’s product heavily relies on the patented invention but the technology is merely a small fraction

³⁵⁵ *Presidio Components Inc. v. American Technical Ceramics Corp.*, 2010 WL 1462757 at 46 (S.D. Cal.).

³⁵⁶ *Harris*, 2011 U.S. Dist. LEXIS 96257 at 42.

³⁵⁷ *O2 Micro International*, 2007 US Dist. LEXIS 25948 at 7-8; *MGM Well Services*, 505 F.Supp.2d 379 (2007); *Callaway Golf*, 585 F.Supp.2d 619-621 (2008); *TruePosition*, 568 F. Supp. 2d 532 (2008); *800 Adept, Inc. v. Murex Securities, Ltd.*, 505 F.Supp.2d 1327, 1337-38 (M.D. Fla. 2007).

³⁵⁸ *Muniauction*, 502 F.Supp.2d 483 (2007); *TruePosition*, 568 F. Supp. 2d 532 (2008); *ActiveVideo Networks*, 2011 WL 5878365 at 8.

³⁵⁹ *Martek Biosciences*, 520 F.Supp.2d 558-559 (2007); *ActiveVideo Networks*, 2011 WL 5878365 at 8.

of competitor’s product, the balance test tips to the patent holder’s side.³⁶⁰ To the contrary, in the cases where the patent holder’s sales represent a small portion of its total earnings and its market share is much bigger than the infringer’s, the balance test weighs against the patent holder.³⁶¹

The short remaining life of a patent tilts the scale of the balance of hardship towards the infringing defendant.³⁶² But the infringer’s successful exploitation of the patented invention does not support the alleged infringer.³⁶³ Even where the alleged infringer has stopped infringing behaviours, courts generally do not stand on the infringer’s side absent strong evidence that the alleged infringer would not infringe again in the future.³⁶⁴

3.2.2.4.4. The fourth factor: public interest

The public interest, as we have already seen, has been considered as an important deterring factor against granting an injunction even during the pre-*eBay* period. The cornerstone of this factor is to balance the rightful enforcement of a patentee’s valid patent against the adverse effect on the public by the enforcement,³⁶⁵ or, in other words, to balance between the short term gain of the public due to free competition and the public’s long term benefit through enforcing a valid patent.³⁶⁶ In fact this is nothing but the fundamental question: how can we implement the patent system in a society whilst minimising negative side-effects. In a sense, this task is the

³⁶⁰ *I4i*, 598 F.3d 862-863 (2010); *Humanscale*, 2010 WL 1779963 at 4.

³⁶¹ *Whirlpool*, 798 F.Supp.2d 564 (2011).

³⁶² *Humanscale*, 2010 WL 1779963 at 4.

³⁶³ *Broadcom*, 543 F.3d 704 (2008).

³⁶⁴ *Emory Univ.*, 2008 US Dist. LEXIS 57642 at 13.

³⁶⁵ *I4i*, 598 F.3d 863 (2010).

³⁶⁶ *Christiana Indus.*, 443 F.Supp.2d 882 (2006); *Everett Labs.*, 573 F.Supp.2d 970 (2008).

conciliation between short-term benefit of competition and long term innovation, and thus this fourth factor mostly deals with whether certain short-term circumstances due to an injunction are serious enough to surpass the benefits of patent enforcement. In this regard, a number of post-*eBay* courts highlighted that the public interest is best served by protecting the exclusionary right of a valid patent against unlawful infringement unless any of the above short-term grave situations are expected to occur.³⁶⁷

Then, what circumstances have led the post-*eBay* courts to find disservice to the public interest? In principle, the harm should be of unique or socially valuable nature.³⁶⁸ In specific, whether a patent is related to the public health, national security, or other critical public interest has been an important consideration in the long history of the patent system.³⁶⁹ When the infringing products were crucial to the public health or safety, courts used to find that the public interest lay on the preservation of the *status quo*. For instance, when the infringing drugs have been prescribed by doctors for a substantial period of time and it is unreasonable to disrupt the supply of such medications,³⁷⁰ when the alleged infringer's products are associated with life-saving technologies,³⁷¹ or when so many people have been using the infringer's products that substantial cost and inconvenience would be incurred

³⁶⁷ *Funai Electric*, 593 F.Supp.2d 1111 (2009); *Abbott Labs*, 452 F.3d 1348 (2006); *O2 Micro International*, 2007 US Dist. LEXIS 25948 at 9; *Presidio Components*, 2010 WL 1462757 at 47; *Chamberlain Group*, 2007 US Dist. LEXIS 23883 at 23-24; *MGM Well Services*, 505 F.Supp.2d 379-380 (2007); *Johns Hopkins Univ.*, 513 F.Supp.2d 586 (2007); *EZ Gard Indus.*, 2008 US Dist. LEXIS 33483 at 14; *Emory Univ.*, 2008 US Dist. LEXIS 57642 at 14; *Amgen*, 581 F. Supp. 2d 210-12 (2008); *I4i*, 598 F.3d 863 (2010); *Versata Software*, 2011 WL 4017944 at 3.

³⁶⁸ *Presidio Components*, 2010 WL 1462757 at 47; *ActiveVideo Networks*, 2011 WL 5878365 at 9.

³⁶⁹ *Rite-Hite*, 56 F.3d 1547 (1995).

³⁷⁰ *Tiber Labs*, 527 F.Supp.2d 1383 (2007).

³⁷¹ *Bard Peripheral Vascular*, 2009 WL 920300 at 5.

should they be replaced,³⁷² injunctions were denied. However, the mere fact that the infringer's product was related to the public health or safety by itself has not always led to a finding of inappropriateness of an injunction. Even when the infringing products are closely related to the public health or safety, numerous courts found that an injunction would not harm the public interest provided that the patent holder could satisfy the current demand,³⁷³ or there were alternative products already available in the market.³⁷⁴

In areas other than medical or pharmaceutical business, it is not common that courts have found public harm by an injunction. A number of courts have often found an injunction to serve the public interest if the technology was not related to the public health or safety.³⁷⁵ It is the same here that courts hardly ever regard the public interest being in danger by infringement if alternative products are available on the market either by both parties in suit or by other third competitors.³⁷⁶ On the contrary, when plaintiffs have enough manufacturing capacity to fill the public demand despite the enjoinder of infringer's products, the public interest, without doubt, was placed

³⁷² *Johnson & Johnson Vision Care*, 2010 WL 1730819 at 6-7.

³⁷³ *Amgen*, 581 F. Supp. 2d 210-212 (2008).

³⁷⁴ *Fresenius Med. Care Holdings*, 2008 US Dist. LEXIS 79689 at 17-18; *Innogenetics, N.V. v. Abbott Labs.*, 2007 US Dist. LEXIS 3148 at 1-2 (W.D. Wis.); *Smith & Nephew*, 466 F. Supp. 2d 984 (2006).

³⁷⁵ E.g. *TiVo*, 446 F. Supp. 2d 670 (2006) (DVRs); *3M Innovative Props.*, 2006 US Dist. LEXIS 70263 at 6 (commercial graphics used for advertising); *CSIRO*, 492 F. Supp. 2d 607 (2007) (wireless network technology); *Mass Engineered Design*, 633 F.Supp.2d 393 (2009) (dual display stands); *Ren Judkins v. HT Window Fashions Corp.*, 2010 WL 1292158 at 4 (W.D. Pa.) (window blinds); *Arlington Industries*, 2010 WL 817519 at 5 (quick-connect electrical conduit fittings); *Callaway Golf*, 585 F.Supp.2d 619-621 (2008) (golf balls).

³⁷⁶ E.g. *Novozymes*, 474 F. Supp. 2d 613 (2007); *Ren Judkins*, 2010 WL 1292158 at 4; *Acumed*, 551 F.3d 1327-1331 (2008); *Belden Technologies*, 2011 WL3555890 at 19; *ActiveVideo Networks*, 2011 WL 5878365 at 9.

on the strong enforcement of a patent.³⁷⁷ Even though they are few, there also exist circumstances which led to finding public injuries. For instance, the *z4 Technologies* court, denying an injunction claim, recognised that not only redesign and re-release of Microsoft's software could have a negative impact on the public because an enormous number of people rely upon the product, but also cessation of the infringing 'software activation function' in the defendant servers could result in increase in pirated software in the market.³⁷⁸

In terms of NPE issues, basically it would be neutral if this factor focuses only on how the infringing products affect the public by an injunction. However, in the sense that courts routinely have considered whether there were alternatives to the infringing product in the market, NPE patent holders would be in a more disadvantageous condition than PE patent owners because it is impossible for them, unlike PE patent holders, to meet the demand of the public.

3.2.2.4.5. Injunction design and prospective relief

If previous sections have explored how the four-factor test has been applied in the US courts since the *eBay* case, this section, as a next step, examines how courts have tailored the scope of injunction when an injunction was issued and what actions courts have taken after an injunction was denied.

3.2.2.4.5.1. Injunction design

As the US Patent Statute indicates, district courts can formulate an injunction 'on

³⁷⁷ In this situation, the plaintiffs are inevitably PEs. See e.g. *Johns Hopkins Univ.*, 513 F.Supp.2d 586 (2007).

³⁷⁸ *z4 Tech.*, 434 F. Supp. 2d 444 (2006).

such terms as the court deems reasonable.³⁷⁹

During the post-*eBay* period, several courts have shown meaningful examples in which, when an injunction was necessary by the four-factor test, some transition period before entering into an injunction was allowed for a infringer to minimise the adverse impact on both the infringer and the public.³⁸⁰ This injunction tailoring according to each case’s specific circumstances can retroactively influence the evaluation of the balance of hardship and the public interest. A finely tuned injunction can mitigate the hardship of the infringer and the public and thus let patent holders overcome the hurdle of the four-factor test even though *ex-ante* circumstances weigh against them. The CAFC supports this approach. In *Verizon*, while affirming the district court’s injunction grant, the CAFC suggested that district courts should consider allowing enough time to implement a design-around to avoid an infringement when they analyse the balance of hardship factor.³⁸¹ The perception leading to this suggestion is that the patentee’s interest is in putting an end to the infringement rather than driving the infringer out of business by an injunction.

This has been confirmed again in some subsequent cases. In *Broadcom*, the district court allowed a twenty-month ‘sunset provision’ in its injunction order from the date of the jury verdict, acknowledging that an immediate permanent injunction would harmfully affect the infringer Qualcomm as well as the network carriers and handset manufacturers employing the patent infringing chips.³⁸² The CAFC,

³⁷⁹ 35 USC § 283.

³⁸⁰ This does not mean that there were no cases allowing the transition period before *eBay*. See e.g. *Shiley*, 610 F. Supp. 971 (1985).

³⁸¹ *Verizon*, 503 F.3d 1311 at n.12 (2007).

³⁸² *Broadcom*, 543 F.3d 704 (2008); *Fresenius Med. Care Holdings*, 2008 US Dist. LEXIS 79689 at 18-20.

affirming the district court's decision, articulated that the sunset provision awarding Qualcomm time to prepare a non-infringing product was not an abuse of discretion, and also that the third and fourth equity factors were neutral due to this well-fashioned injunction.³⁸³ Again in *i4i v. Microsoft*, the district court confined the scope of the injunction only to users who purchase or license the MS Word Software program *after* the injunction takes effect, and at the same time delayed the injunction's effective date until sixty days after the date of injunction in order to minimise the adverse effects on the market and the public.³⁸⁴ The CAFC affirmed the injunction grant itself and its limited scope, only modifying the effective date of the injunction to five months after the date of injunction order.³⁸⁵

From these examples we see that well-defined injunctive relief may not only alleviate the possible bad effects on both infringers and the public by sudden entering into an injunction, but also increase the patent owners' chances to obtain injunctive relief at the same time. Therefore, it seems to be important, in practical context, that the wise application of injunction design is a good way to balance between protecting the integrity of the right to exclude of patent and securing the public right to access and enjoy the patented technology.

3.2.2.4.5.2. Prospective compensation after denial of injunctive relief

If the question about how to apply the traditional four-factor test was the first task that federal courts faced after *eBay*, another subsequent question was how to formulate the prospective relief when an injunction was found to be inappropriate

³⁸³ *Broadcom*, 543 F.3d 704 (2008).

³⁸⁴ *I4i*, 598 F.3d 861-864 (2010). For a similar example, see *Smith and Nephew*, 2010 WL 2522428 at 4.

³⁸⁵ *I4i*, 598 F.3d 864 (2010).

under the *eBay* framework. However, the Supreme Court in *eBay* did not provide any guideline for the non-injunctive future relief, and most of the post-*eBay* courts have been struggling to get through this uncultivated land.

The first question to be answered was what kinds of future remedies courts could award to the patent holders whose motion for injunctive relief was denied. Some courts have opted not to do anything, only letting patent holders collect damages for future infringement in a separate litigation. For instance, the *z4 v. Microsoft* court held that any future infringement by Microsoft could be compensated by monetary damages and ordered *z4* to file an appropriate complaint for the future infringement by Microsoft.³⁸⁶ The Court also ordered Microsoft to file quarterly reports of infringing sales data in a new action.³⁸⁷ However, courts expressly requesting a plaintiff to file another suit for damages such as in the *z4* case have been extremely rare. Rather, a number of courts including *eBay* on remand³⁸⁸ have remained silent without providing an alternative relief. Considering, in this circumstance, the plaintiff cannot but file another action for damages in case the infringement continues, those cases are basically in line with the *z4* case.

The other choice is to award prospective compensation, either by the form of lump-sum damages³⁸⁹ or, more preferably, running royalties.³⁹⁰ The CAFC, in *Paice v. Toyota Motor*, addressed its view on whether this type of remedy for future

³⁸⁶ 434 F. Supp. 2d 444 (2006).

³⁸⁷ *Ibid.*

³⁸⁸ *MercExchange L.L.C. v. eBay, Inc.*, 500 F.Supp.2d 556 (E.D. Va. 2007).

³⁸⁹ *Innogenetics*, 512 F.3d 1380-1381 (2008).

³⁹⁰ *Finisar Corp. v. DirectTV Group, Inc.*, 2006 U.S. Dist. LEXIS 76380 at 4-5 (E.D. Tex.); *Voda.*, 2006 WL 2570614 at 6; *Hynix Semiconductor, Inc. v. Rambus Inc.*, 609 F.Supp.2d 951, 986-987 (N.D. Cal. 2009); *Presidio Components*, 2010 WL 1462757 at 45.

infringement would be appropriate and then how district courts should apply it.³⁹¹ It basically admitted the necessity of the continuing royalties (it used the term ‘on-going royalty’) by holding that, ‘[u]nder some circumstances, awarding an ongoing royalty for patent infringement in lieu of an injunction may be appropriate.’³⁹² This means that the district courts’ longstanding authority to award enhanced damages for the past infringement according to 35 USC §284 and further for the infringement between the time of the jury verdict and the final judgement, has been extended under §283 to cover the infringement after the final judgement.³⁹³

Additionally, the CAFC in *Paice* also made it clear that the on-going royalty should not be awarded as a matter of course whenever an injunction was not warranted.³⁹⁴ Rather, it recommended that district courts give both parties a chance to negotiate a licence in the first place rather than directly impose an ongoing royalty.³⁹⁵ The rationale for this principle, as Judge Rader mentioned, seems to be derived from the perception that the evaluation of future damages is inevitably a speculative exercise and the parties are better situated than courts to reach fair and reasonable terms of a licence.³⁹⁶ However, there also exists scepticism for giving another chance to negotiate. Some scholars point out that there are little incentives for each party to reach an agreement because not only does there still exist another chance of fight on appeal, but also the patentee is not likely to agree on the royalty

³⁹¹ 504 F.3d 1293, 1316-1317 (Fed.Cir.2007).

³⁹² Ibid. at 1314. See also *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1361 (Fed.Cir.2008).

³⁹³ *Creative Internet Advertising Corp. v. Yahoo! Inc.*, 674 F.Supp.2d 847, 850-851 (E.D. Tex.2009).

³⁹⁴ *Paice*, 504 F.3d 1315 (Fed.Cir.2007).

³⁹⁵ Ibid. at 1316-1317. See also *Ricoh*, 2010 WL 1607908 at 4 (W.D. Wis.); *Telcordia Techs.*, 592 F.Supp.2d 748 (Fed.Cir.2010); *Presidio*, 2010 WL 1462757 at 47(S.D. Cal.); *Boston Scientific Corp. v. Johnson & Johnson*, 550 F.Supp.2d 1102, 1122-23 (N.D. Cal. 2008).

³⁹⁶ *Paice*, 504 F.3d 1317 (2007).

rate which is less than the reasonable royalty rate the jury awarded for the past infringement, and on the other hand the infringer would not agree on a sum over that amount.³⁹⁷

Courts also can award lump-sum damages rather than on-going royalties as future compensation. As the amount of future damages is determined at the time of judgement, this approach may be fundamentally inaccurate and eventually entails arguments over overcompensation or under-compensation of the patent holder in the later stages.³⁹⁸ This appears to be the reason why this approach has rarely been adopted.

There has been a controversy over the nature of prospective compensation (lump-sum damages or on-going royalty): whether it is nothing but a compulsory license which is an exceptional remedy set in the patent statutory law. The CAFC endeavoured to distinguish between them. In *Paice*, it was highlighted that, whilst a compulsory license is a constitutional right that may be awarded to whoever satisfies certain criteria, the on-going royalty is imposed only to the infringer in suit without allowing other manufacturers to get the same royalty license.³⁹⁹ But there was also ‘seemingly’ an opposing view among judges even within the CAFC. In *Innogenetics v. Abbott Lab.*, the CAFC viewed that the damages which were awarded to the patentee was a compulsory license if they included an upfront entry fee which was based upon future sales by the infringer for the rest of the patent life.⁴⁰⁰ This

³⁹⁷ NEWCOMBE, *et al.*, n 352, at 573. Actually, even though, on remand, the district court in *Paice* gave the parties full and fair opportunity to settle peacefully, the parties failed to reach an agreement.

³⁹⁸ GOMEZ-AROSTEGUI (2009) 'Prospective Compensation in Lieu of a Final Injunction in Patent and Copyright Cases', *Fordham Law Review*, vol. 78, at 1675.

³⁹⁹ *Paice*, 504 F.3d 1314 (2007).

⁴⁰⁰ *Innogenetics*, 512 F.3d 1380-1381 (2008); *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 882 (Fed.Cir.2010).

discrepancy, however, seems to spring from the different perception of a compulsory licence: whilst the *Paice* case interprets it from the legal viewpoint (patent law's perspective), the *Innogenetics* case sees it by literal meaning (licence against the patentee's will). In fact, both positions are not substantially different, taking into account the fact that the *Innogenetics* case is not interpreted as that, despite the licence conditions determined by the court in a present lawsuit, other potential infringers are necessarily expected to receive the same licence by the court in the future forthcoming infringement suits.

The next question is how the prospective compensation should be calculated should it need to be awarded. Unfortunately, the CAFC has not provided any specific guidelines so far, save a broad recommendation that district courts 'may take additional evidence if necessary to account for any additional economic factors arising out of the imposition of an on-going royalty.'⁴⁰¹ In *Paice*, the Court vacated and remanded the district court's order of \$25 on-going royalty per infringing vehicle—which was initially calculated based upon the jury's damages award for the past infringement—on the ground that the order lacked the consideration of the rate.⁴⁰² The purpose of that holding was that, although the jury's damages may be a good source for the calculation of the on-going royalty rate,⁴⁰³ new conditions after judgement, e.g. 'the changes in the parties' legal relationship,' should be considered to fashion future damages.⁴⁰⁴

Among those new conditions, the most controversial issue is whether the post-judgement infringement should be regarded as 'wilful infringement' from the

⁴⁰¹ *Paice*, 504 F.3d 1315 (2007).

⁴⁰² *Ibid.*

⁴⁰³ *Ariba, Inc. v. Emptoris, Inc.*, 567 F. Supp. 2d 914, 916 (E.D. Tex. 2008).

⁴⁰⁴ *Paice*, 504 F.3d 1317 (2007) (Judge Rader's concurrence).

standpoint that an infringer surely comes to be aware that she will infringe the patent at least from the moment of the court's finding of infringement. This is important because future damages could be enhanced based on the wilfulness in the US patent law. Even though certain courts have been reluctant to apply the wilfulness into the calculation of the future damages,⁴⁰⁵ it is meaningful that some recent courts came to hold that ongoing infringement by the adjudged infringer after the final judgement is wilful and therefore this wilfulness, along with other new circumstances, 'significantly change[s] the ongoing royalty negotiation calculus.'⁴⁰⁶

As the number of cases which award future damages instead of injunctive relief increases, one procedural issue arising is whether courts can instruct the jury to assess the reasonable royalty for future infringement damages along with those of the past. Certain courts, despite patentees' strong objections,⁴⁰⁷ instructed the jury to determine a royalty rate for future infringement damages as a separate question from past damages and maintained that this process is efficient in the sense that it may save the time and expense of another trial for future damages when an injunction is denied.⁴⁰⁸ Even though the CAFC has not squarely addressed this issue, it seems, at least so far, that it does not object to this practice in light of the fact that it, in *Innogenetics*, did not raise a question with the jury-determined damages covering future on-going royalty payment.⁴⁰⁹ In a sense, district courts are utilising the jury's future damage assessment as a way to meet the CAFC's demand, which asks district

⁴⁰⁵ E.g. *Voda*, 2006 WL 2570614 at 2-4 & 6; *ResQNet.com*, 533 F.Supp.2d 422 (2008).

⁴⁰⁶ *Paice L.L.C. v. Toyota Motor Corp.*, 609 F.Supp.2d 620, 626-627 (E.D. Tex. 2009); *ResQNet.com*, 594 F.3d 882 (2010).

⁴⁰⁷ Patentees generally argue that this jury instruction implies the court's weak willingness to grant injunctive relief. See *Ariba*, 567 F. Supp. 2d 916 (2008).

⁴⁰⁸ *Ibid.* See also *Cummins-Allison*, 669 F.Supp.2d 778-780 (2009).

⁴⁰⁹ *Innogenetics*, 512 F.3d 1380-1381 (2008).

courts to provide a ‘concise but clear explanation of its reasons for the [future royalty] fee award.’⁴¹⁰

Lastly, as far as the NPE issue is concerned, this analysis finds hardly any meaningful cases which treat NPE patentees in a different way to PE counterparts in awarding prospective compensation in lieu of injunctive relief, as well as in calculation of future damages in particular.

3.2.3. Evaluations and Implications

So far we have discussed how the injunctive relief in patent infringement suits has developed in the US patent history, dividing it into three time slots. Particularly, an intense analysis has been performed for the post-*eBay* period because this period has experienced the most drastic changes. From these foundational studies, this section attempts to draw some important implications.

3.2.3.1. The Appropriateness of the Four-factor Test for Injunctive Relief

It is undeniable that an injunction is an important form of relief for future infringement to implement a patent’s principal value: the right to exclude others. In other words, it is vital to protect the integrity of the patent system. As the CAFC confessed in *Smith int’l, Inc. v. Hughes Tool Co.*, ‘[w]ithout the right to obtain an injunction, the right to exclude granted to the patentee would have only a fraction of the value it was intended to have.’⁴¹¹

Even so, the exclusive right of patent is not viewed as absolute.⁴¹² This is

⁴¹⁰ *Amado*, 517 F.3d 1362 (2008).

⁴¹¹ 718 F.2d 1577 (1983).

⁴¹² MUELLER (2009) 'Patent law', *Aspen treatise series. 3rd ed. Aspen Publishers, New York*, at 482.

because we cannot ignore exceptional situations in which an injunction may be inappropriate despite the importance of the exclusive right. Particularly in a recent complex patent environment, a simple standard by which an injunction is virtually issued may sometimes result in unreasonable consequences. Recently, as discussed in chapter 2, a new patent market has been emerging and thereby its patent enforcement strategies have been diverse and complicated. As a product becomes highly sophisticated, multiple fragmented patents rather than a single patent are associated with it, in which an injunction might result in expansion of a patentee's small patent into the other patents which do not belong to her. Furthermore, if an infringement occurs in a nationwide network or the patented invention's impact on a society is critical, the impact of an injunction might sometimes cause serious social or economic problems which surpass the maximum benefit of an injunction.

It is not too much to say that the *eBay* case is an outcome of the Supreme Court's perception that the CAFC's general rule reached its limit to tackle recent various and complex patent infringement cases. The Supreme Court's demand to apply the traditional four-factor equity test in deciding the grant of an injunction in patent cases was to remind lower courts the fact that each case should be dealt with in its own individual context, rather than by certain generalised categorical rules. That is also in chime with the US patent statute. Although it declares that patents have attributes of personal property (§261) and patents entail the right to exclude others from using them (§154), the US Patent Act also implies that there might be exceptional cases whereby an injunction would be inadequate by saying that an injunction 'may' be granted (§283).

This new approach in applying the four-factor test is not inconsistent with statutory law and, all things considered, seems to be on the right track in principle.

However, as further discussed in following sections, the post-*eBay* cases have also showed that this theory does not always correspond with reality.

3.2.3.2. Attenuation of Patent’s Exclusive Right due to Abandonment of Presumption of Irreparable Harm

Under the regime of the pre-*eBay* rebuttable presumption of irreparable harm, an alleged infringer was required to prove that the patent holder would not suffer irreparable injuries. However, as the *eBay* court articulated that a plaintiff seeking a permanent injunction ‘must demonstrate’ each prong of the four-factor test,⁴¹³ it is generally accepted that a plaintiff (patent holder) now bears the burden of proof thereof. Subsequently, a number of district courts presumed that the presumption of irreparable harm has been eliminated by the *eBay* case and recently the CAFC has officially announced this in the *Robert Bosch* case.⁴¹⁴

If we remember that the presumption of irreparable harm is closely linked with the issue of the nature of a patent right and its protection level, the abandonment of such a presumption extends to the question of whether a patent right could be properly protected from unauthorised use. The strict interpretation of the four-factor test by district courts has led to frequent denials of injunction in a substantial number of cases (particularly in NPE-related cases) and has affected future damages set by the courts. This strongly suggests that practices in the post-*eBay* cases appear to be crossing the borderline from the former property rule to the liability rule.⁴¹⁵ However, if we consider that the *eBay* case was a repercussion of the so-called patent

⁴¹³ 126 S. Ct. 1839 (2006).

⁴¹⁴ 659 F.3d 1149 (2011).

⁴¹⁵ SOLOMON, n 262, at 27.

troll problem and that the US Supreme Court made it clear that even NPE patent holders who prefer to license their patents rather than exploit them, may satisfy the four-factor test, we may also take it as that the Court only intended to restrain the abusive practices relating of the patent system rather than to weaken the exclusive right of patent.⁴¹⁶

Whatever the reason, post-*eBay* district courts have shown a tendency to apply the four-factor test in a strict and fact-intensive way, thereby further weakening the constitutional exclusive right of patent compared with the pre-*eBay* period. Looking at the results, it cannot be said that the district courts’ application of the four-factor test is being carried out in a proper way and hence this calls for further scrutiny.⁴¹⁷

3.2.3.3. Rising Concerns over the Discrimination against NPEs

The analysis of the post-*eBay* cases gives us an impression that relative discrimination against NPE patent holders may exist in the courts in terms of injunctive relief. To ascertain if this gut feeling has reliable grounds, it seems helpful to recall the specific circumstances which have affected the courts’ decision for injunctive relief. Let us divide the meaningful circumstances for obtaining injunctive relief into two groups, positive and negative.

No.	Positives for an injunction	Negatives for an injunction
1	Patent holder’s involvement in market competition	Patent holder’s non-involvement in market competition

⁴¹⁶ In fact, however, a number of post-*eBay* cases were unfortunately influenced by the Justice Kennedy’s minority opinion rather than majority or Justice Roberts’s minority opinion.

⁴¹⁷ This will be discussed in the subsequent chapters.

2	Patent holder's sturdy policy not to license	Patent holder's past licensing history or obvious willingness to license
3	Patentee's business heavy relying on the patented invention	-
4	Presence of alternative products and availability of design-around	-
5	Infringer's financial difficulties and inability to pay future damages	-
6	Wilful infringement	-
7	-	Short remaining life of a patent
8	-	Patentee's delay in patent enforcement
9	-	Patent comprising a small part of an entire product
10	-	Patent's close link with public health and safety

Table 1. Circumstances affecting the injunctive relief

Among the above ten elements, no.1, 2, and 10 have been given a great deal of weight in the consideration of an injunction, and others except no.1 to 4 have rather neutral characteristics in the context of patent owners. Since the circumstances of no.3 and 4, in fact, may occur when a patent holder is involved in market competition (no.1), it is clear that the top two are the most influential elements for the causes of unwanted NPE problems.

Since a increasing number of courts consider, as a first yardstick, whether a patent holder is practising the patented invention and competing with the adjudged infringer (no.1), the centre of gravity of injunctive relief discussion seems to be moving from the patent right itself to the relevant market perspective. Not having direct participation in the product (service) market, NPEs cannot but face slim chances of obtaining injunctive relief. Furthermore, the fact that an increasing

number of district courts openly express that injunctions are typically awarded under the circumstances where a PE patent holder is directly competing with a competitor, satisfactorily supports that change.⁴¹⁸ These attempts on generalisation, in a sense, are directly against the Supreme Court's decision in *eBay*, just like the Court's rejection of the district court's categorical denial and the CAFC's categorical grant of injunctive relief in that case. This new approach is also not reconcilable with the long history of the US patent system, which has been strongly against discrimination between PE and NPE patent holders.⁴¹⁹

In addition, the patent holder's licensing activities (no. 2) are aggravating the above problem. Seeing the courts' repetitive use of this circumstance as one of the important criteria for denying injunctive relief, we encounter a fundamental question of whether the courts' rationale understanding a patent holder's licensing activities as abandoning the exclusive right of a patent for monetary reward is necessarily right. Even if patent holders license their patents to other manufacturing companies, we cannot assume that they have an intention to permit the same license to the other manufacturers. They may strategically license the patents to only a chosen few for certain purposes, e.g. to effectively control the unauthorised use or to maintain business with the licensees in the future. The licensing activities in those settings are legal and also not against the purpose of the patent system, and hence the patent holder has a substantial justification to hold the power to decline the other entities' request for license. This tendency in district courts may encourage patent holders (NPEs in particular) to hesitate to license their patent for fear of diminishing the value of their patents. It is definitely against one of the important functions of a

⁴¹⁸ Section 3.2.2.4.1.2.

⁴¹⁹ Section 2.3.4.1.

patent system: effective dissemination of new technologies. If district courts see the patent holder's licensing activities as an against-factor for an injunction, it is quite curious how they would interpret the NPE patent holders' strong policy not to license and whether they would treat this situation as the same as when they normally have done to PE patent owners (regarding it as a pro-injunction factor). This is not likely because courts may not only regard it as abuse of the exclusive right of patent, but also show concern for the situation whereby that no related products could be allowed in the market.

In this regard, NPE patent holders could be disadvantaged whether they choose licensing or not licensing. Considering that courts have been generous to grant PEs injunctive relief at least when they opt not to license, this raises a serious question whether they are correctly applying these factors in the four-factor test framework. Needless to say, even though some patent holders' use of an injunction as a leverage for obtaining exorbitant royalties should be deterred, the current US district courts' practice seems to have gone too far because courts have denied injunctive relief to many NPE patent owners who are not regarded as patent trolls.

The divergence of injunctive relief based on the market competition and licensing activities further leads to a controversy of whether these practices could eventually result in the difference in value of a patent according to the status of its owners.

In sum, the two elements (market competition and licensing activities) which have been significantly considered in the four-factor test framework (mostly for the prong of irreparable harm and inadequacy of legal remedy), raise concerns of whether these approaches accord with the goals or functions which the patent system is trying to achieve. These issues will be discussed in chapter 4 in detail.

3.3. The UK Law

This section examines the UK law to explore how it has dealt with NPE patent holders, particularly with respect to injunctive relief. For that, similarly as in the *supra* US section, the statutory and case laws are discussed followed by the analysis. Considering the NPE issue is a small part of the whole picture of the UK patent system, the discussion starts from broad perspectives encompassing the situations which relates to all patent holders, and then narrows the scope down to the issues with which NPEs are involved.

3.3.1. Statutory Law

The prime difference of the UK Patent Act from the US's is that the former has the provisions for compulsory licence while the latter does not. As those provisions are related to NPE patent holders to some extent, this section reviews the provisions for injunctive relief and compulsory licence.

3.3.1.1. Remedies for Future Infringements of a Patent

The primary remedy available against the infringement of a patent is injunctive relief which restrains the infringer from any further infringing acts.⁴²⁰ The grant of an injunction is always discretionary as an equitable remedy. By s. 37 of the Supreme Court Act 1981, the High Court may not only grant an injunction in all cases where it appears to the court to be just and convenient to do so, but also set the scope of the injunction as it sees fit. Further, s. 50 of the Act allows the court to 'award damages

⁴²⁰ S. 61, the UK PA 1977.

in addition to, or in substitution for, an injunction’ when it believes a general unqualified injunction to be inappropriate after exercising the discretion.

As for how the current Patents Court came to exercise the power of awarding not only damages for unlawful conducts done in the past, but also either injunctive relief or prospective damages for future infringement, it is worthwhile to briefly review the relevant legislation history. Traditionally, the only remedy that courts of common law could award was damages as a way of retrospective compensation for past injuries, which meant that wrongdoings may be repeated, leading to a new action by the injurer. This means that, if the wrongdoings were repeated, the injurer could not but take a new action. On the contrary, courts of equity were able to grant an injunction but could not award damages. The separate proceedings in law and equity came to merge from each side by two statutes: Common Law Procedure Act 1854⁴²¹ and Chancery Amendment Act 1858 (Lord Cairns’s Act).⁴²² If the former Act gave courts of common law a power to grant equitable relief as well as damages, the latter Act bestowed the parallel power of awarding damages on the Court of Chancery.⁴²³ The s. 2 of the Chancery Amendment Act 1858 said:

In all cases in which the Court of Chancery has jurisdiction to entertain an application for an injunction against a breach of any covenant, contract, or agreement, or against the commission or continuation of any wrongful act, or for the specific performance of any covenant, contract, or agreement, it shall be lawful for the same court, *if it shall*

⁴²¹ 17 & 18 Vict. c.125.

⁴²² 21 & 22 Vict. c.27.

⁴²³ JOLOWICZ (1975) 'Damages in Equity-A Study of Lord Cairns' Act', *Cambridge Law Journal*, vol. 34(2), pp. 224-252, at 224.

think fit, to award damages to the party injured, either in addition to or in substitution for such injunction or specific performance, and such damages may be assessed in such manner as the court shall direct. (emphasis added).

Once again, this Act allowed the Court of Chancery to award damages for past injuries together with an injunction for the future misconducts or prospective damages in lieu of an injunction. Although this act was repealed after all, those general principles are still valid and incorporated in s. 50 of the Supreme Court Act 1981.

3.3.1.2. Statutory Compulsory Licences

Ever since the Statute of Monopolies 1623, the first patent statute of the UK, it has been recognised that a patentee can possibly abuse her patent's exclusive right against the interest of the public if she uses it to prevent related products from being manufactured or circulated in the market by refusing either to self-exploit or to license.⁴²⁴ As a safety measure against that concern, compulsory licence provisions are first introduced into the UK patent law by the 1883 Act⁴²⁵ and they are now contained in the current Patent Act 1977 in line with the development of international treaties, such as the Paris Convention and the TRIPS Agreement.

The current Patent Act 1977 divides the situations where a compulsory licence could be granted into five categories: under general grounds (s. 48, the PA);

⁴²⁴ BENTLY, *et al.* (2009) 'Intellectual property law', 3rd ed. Oxford University Press, at 578.

⁴²⁵ The compulsory licence in this 1883 Act was very limited, and the Act was soon repealed in 1902. See BRAND (2007) 'The dawn of compulsory patent licensing', *Intellectual Property Quarterly*, Vol. 2, pp. 216-235, at 218.

for anti-competitive practices against public interest (s. 51, the PA); for Crown use (s. 55-59, the PA); for biotechnological inventions (Patents and Plant Variety Rights (Compulsory Licensing) Regulations 2002); and for public health (s. 128A, the PA). Among them, the compulsory licences set out in s. 48 of the Act are discussed here because they are closely related to NPE issues.

The Act puts limits on the patent right by letting compulsory licences be granted in some limited circumstances, i.e., where the patent is not (fully) worked or the domestic demand for the patented product is not met. Taking into account the international framework, in particular the TRIPS Agreement, the Act has taken different approaches depending on whether a patentee is a WTO proprietor (s. 48A) or non-WTO proprietor (s. 48B). Since most of the industrialised countries are the members of the WTO, the compulsory licence provisions for non-WTO proprietors are not likely to be applied very often in practice, and therefore it will be enough here to examine only the case of WTO proprietors.

A compulsory licence under s. 48 is available only after the expiration of three years from the date of the patent grant.⁴²⁶ This minimum time limit is to give a reasonable amount of time for patent owners to practise their inventions or let others to do so.⁴²⁷ As other additional preconditions for the invocation of a compulsory licence, an applicant, before the application, is required to make an effort to get a licence from the patentee on reasonable commercial terms and conditions and those efforts must have proven unsuccessful within a reasonable time period.⁴²⁸ For the specific grounds on which a compulsory licence may be granted, s. 48A(1) specifies

⁴²⁶ S. 48(1), the UK PA 1977, in line with Paris Convention Art.5.

⁴²⁷ BENTLY, *et al.*, n 424, at 579.

⁴²⁸ S. 48A(2).

them as follows:

(a) where a demand in the United Kingdom for the product is not being met on reasonable terms.

(b) where the patentee's refusal to grant a licence on reasonable terms either blocks later improvements which involves an important technical advance of considerable economic significance⁴²⁹ or unfairly prejudices the establishment or development of commercial or industrial activities in the UK.⁴³⁰ However, for a compulsory licence on the former ground, a condition that the dependant patent owner should be able and willing to grant a reasonable licence back to the patentee should be met simultaneously.

(c) where, due to the conditions imposed by the patentee on the grant of licences under the patent, or on the disposal or use of the patented product or on the use of the patented process, the manufacture, use or disposal of materials not protected by the patent, or the establishment or development of commercial or industrial activities in the UK, is unfairly prejudiced.

This compulsory licence is also subject to further restrictions, such as a non-exclusive nature, an assignment restriction, the predominant purpose to supply of the UK market, the patentee's adequate remuneration, and the limited scope and duration

⁴²⁹ S. 48A(1)(b)(i).

⁴³⁰ S. 48A(1)(b)(ii).

adequate to the purpose of the licence.⁴³¹

Other provisions attracting our attention is how and to what extent the comptroller's power should be exercised in determining whether to order or decline the compulsory licence. The comptroller 'may [] order the grant of a licence to the applicant on such terms as it thinks fit,'⁴³² which means that the comptroller's power is basically discretionary.

Further, the Act provides some guidelines that the comptroller ought to take into account when it exercises discretionary power in s. 50. Firstly, the comptroller ought to secure the following general purposes of the rule of compulsory licence: (a) inventions 'in the public interest' shall be worked 'without any delay' and 'to the fullest extent that is reasonably practicable; (b) patentees shall receive 'reasonable remuneration with regard to the nature of the invention; (c) the interests of the working parties also shall not be unfairly prejudiced.⁴³³ Secondly, subject to the above general purposes, the comptroller ought to take into account following matters: (d) the nature of the invention; (e) the time lag since the grant of the patent; (f) the measure taken by the patentee or licensees to make full use of the invention; (g) the ability of a would-be compulsory licensee to work the invention to the public advantage; (h) the risks to be undertaken by the would-be licensee in providing capital and working the invention.⁴³⁴ Even though various factors are listed as above in the Act, they could be categorised roughly into three groups by the interests (or risks) of the parties involved: the public (a); the patent owner and existing licensees (b, d-f); the would-be compulsory licensee (c, g, h). This implies that the equity test

⁴³¹ S. 48A(6)(a)-(e).

⁴³² S. 48(2)(a).

⁴³³ S. 50(1).

⁴³⁴ S. 50(2).

by the comptroller is to balance the competing benefits and costs of those three parties.

Then, how have the provisions for compulsory licence been applied in practice and how have comptrollers applied that discretionary power according to the guidance of s. 48 and s. 50 of the Act? In spite of those lengthy provisions of compulsory licence, in fact, it is generally recognised that they have not been frequently applied particularly under the current law scheme. It has been reported that a considerable number of applications had been filed before the amendment of 1999,⁴³⁵ but only one case⁴³⁶ in 2004 after that. Even in that case, the application was refused.⁴³⁷

There may be various factors which have affected the infrequent use of those provisions in recent years. Whilst further empirical studies seem to be necessary to find the correct answers, at least three reasons might be relevant to explain this phenomenon. Firstly, it is probable that the legislation which is in place acts as a deterrent. In carrying out the obligation by the patent statute to negotiate voluntarily, the licence seeker might have been successful in many cases obtaining a mutually-agreed licence from the patentee before taking up an alternative option; a compulsory licence. Secondly, it may be ascribed to the change of law. Due to the amendment in

⁴³⁵ CORREA (1999) 'Intellectual property rights and the use of compulsory licenses : options for developing countries', *NetAmericas*, available at <http://www.netamericas.net/researchpapers/documents/ccorrea/ccorrea3.doc>, at Sec. V (Seventy six compulsory licences were applied in the period of 1950-1972, 25 of which were granted. Between 1988 and 1990, 9 applications were filed.).

⁴³⁶ *Swansea Imports Ltd v Carver Tech Ltd*, BL O/170/04 (refusing a compulsory licence), available at http://www.ipo.gov.uk/p-challenge-decision-results-bl?BL_Number=O/170/04.

⁴³⁷ According to the author's private enquiry (28 April 2011) to UKIPO, a person in charge of compulsory licence affirmed that so far there has never been any case where a compulsory licence was granted.

1999, any compulsory licence against WTO proprietors cannot be sought any more on the ground that the patented invention is not being commercially worked or not to the fullest extent in the UK, but at most only on the ground of not meeting the demand in the UK which can now be easily satisfied even by importation. That might have diminished the incentives of would-be users to file an application. Lastly, as will be discussed in chapter 4, the uncertain nature of the patent's validity seems to be another reason. Considering the fact that a large percentage of patents are invalidated in the course of litigation and that the chances to get a compulsory licence have generally been slim, it is not unreasonable to imagine that, save the cases where the validity of patent is firmly established, would-be infringers would be quite reluctant to apply for a compulsory licence (or preliminarily buy an voluntary licence) which might spend substantial royalties upon the uncertain right. They may have reasonable incentives to opt for infringing the patent rather than buying a licence.

Nonetheless, without a doubt, the fact that the UK Patent Act contains those provisions clearly shows the legislature's strong position not only to constrain possible harm from a patent not being (fully) exploited in the UK, but also to stimulate patentees to proactively practise their patents or voluntarily license them to others.⁴³⁸

3.3.2. Case Law

An extensive search for patent infringement cases in this research reveals that the UK has rarely experienced cases directly concerned with NPE patent holders and

⁴³⁸ BENTLY, *et al.*, n 424, at 578. See also KERN (1996) 'Recent Federal Supreme Court decisions on Experimental Use and Compulsory Licensing', *CASRIP Newsletter - Summer 1996*, vol. 3, issue 2.

appropriate remedies (i.e. an injunction or damages) in circumstances where the valid patents were found to have been infringed. Nonetheless, there are very meaningful cases, even though indirect, which may show us the basic attitude of the UK courts towards NPE patent holders. They will let us come to form some ideas about how UK courts might be expected to respond to the true NPE cases in the future.

Discussion begins with a look into the guidelines for injunctive relief for the property law in general, and then moves to their applications to the intellectual property law. Then, it will be discussed, as a main part, how NPE patent holders have been treated by courts.

3.3.2.1. *Shelfer's* Guidelines for Injunctive Relief in the Property Law

In ordinary cases, an injunction would be granted where the infringement of a property right has been demonstrated and it is likely to happen in repetition in the future.⁴³⁹ The rationale for the rule is that ‘a person by committing a wrongful act (whether it be a public company for public purposes or a private individual) is not thereby entitled to ask the Court to sanction his doing so by purchasing his neighbour’s rights, by assessing damages in that behalf,’ and therefore the plaintiff whose ‘legal right has been invaded, is *prima facie* entitled to an injunction.’⁴⁴⁰

However, that will not be done as a matter of course because traditionally an injunction is regarded as discretionary relief. The well-known leading case, *Shelfer v City of London Electric Lighting Co* (a nuisance case), provides well-established guidelines to identify the situations where damages may be awarded instead of an

⁴³⁹ *Navitaire Inc. v EasyJet Airline Co. Ltd. (No.2)* [2005] EWHC 0282 (Ch) at 217.

⁴⁴⁰ *Shelfer v City of London Electric Lighting Co.* [1895] 1 Ch. 287, 322.

injunction.⁴⁴¹ However, the *Shelfer* case includes two divergent judgements concerning this issue. Lindley L.J. pointed out that the jurisdiction to award damages in substitution for an injunction should be exercised *only in exceptional circumstances*.⁴⁴² Even though he did not either specify them all or provide any rules on how courts should exercise the discretion, he gave some examples of exceptional circumstances: cases of trivial and occasional nuisances; cases where the claimant is only interested in money; cases where the claimant acts in such a vexatious and oppressive way or conducts himself as to render it unjust to award him anything more than pecuniary relief.⁴⁴³ This guideline provides a broader set of circumstances where damages are justified instead of an injunction.

Meanwhile, also acknowledging the well-known rule that a right holder is *prima facie* entitled to an injunction if her legal rights have been invaded by a defendant's wrongful acts, Smith LJ set out a rather narrow and cumulative checklist for a test of exceptional circumstances to award damages instead of an injunction. He described:

In my opinion, it may be stated as a good working rule that—

- (1) If the injury to the plaintiff's legal rights is small,
- (2) And is one which is capable of being estimated in money,
- (3) And is one which can be adequately compensated by a small money payment,
- (4) And the case is one in which it would be oppressive to the defendant to

⁴⁴¹ Ibid. at 322-323.

⁴⁴² Ibid. at 316.

⁴⁴³ Ibid. at 317.

grant an injunction:—

Then damages in substitution for an injunction may be given.⁴⁴⁴

It should be noted that the checklist should not be regarded as exhaustive. He acknowledged that although the above four requirements were met, damages in lieu of an injunction could be awarded by infringer's intentional bad conducts.⁴⁴⁵ With regard to the specific rule for each requirement, he confessed that it is impossible to lay down any rule because each case has its own unique circumstances to be considered, and that it should be left to the discretion of the court accordingly.⁴⁴⁶

The guidelines laid out in the *Shelfer* case have been applied in many later cases, not to mention the intellectual property cases as can be seen below. Now, as depicted in Figure 1 below, it is generally argued that when the four requirements set by Smith LJ are satisfied, courts are likely to choose damages instead of an injunction, and even though those requirements are not met, courts still may refuse an injunction by other exceptional circumstances.⁴⁴⁷

⁴⁴⁴ Ibid. at 322-323.

⁴⁴⁵ Ibid. See also *Jaggard v Sawyer* [1995] 1 WLR 269, 287-288.

⁴⁴⁶ *Shelfer*, at 323.

⁴⁴⁷ BERNIERI (2010) 'Ex-Post Liability Rules in Modern Patent Law', *Intersentia*, at 146.

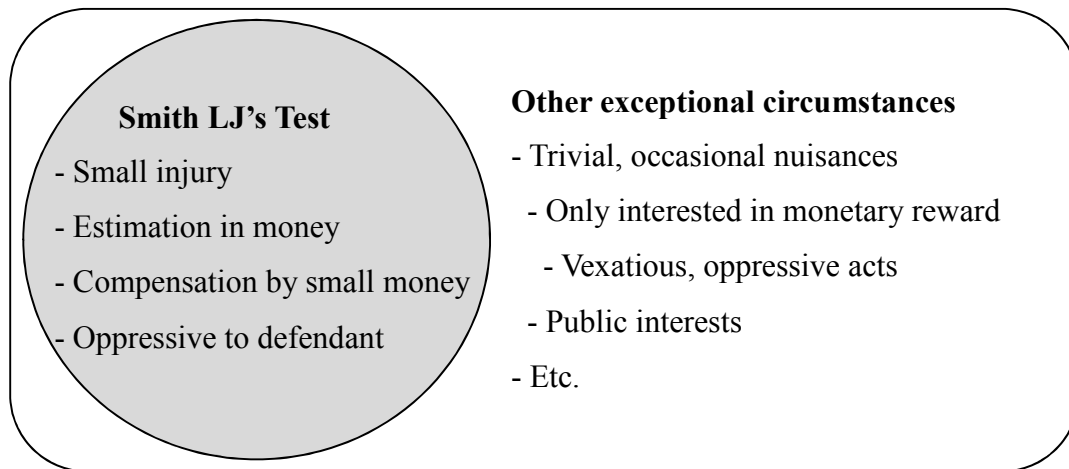


Figure 1. The scope of exceptional circumstances against injunctive relief

3.3.2.2. Injunctive Relief in the Intellectual Property Law

It is normally accepted that the general rule established in the property law is equally applied to the intellectual property law as well.⁴⁴⁸

Here, from the broad perspective regardless of the types of right holder, patent infringement cases (including other IP-related cases when relevant) are examined to find out how the discretion has been exercised, whether they show unique characteristics of their own, and in which circumstances and to what extent courts tend to grant damages in lieu of an injunction. This will provide a general picture of the UK case law in terms of injunctive relief.

3.3.2.2.1. Application of Smith LJ's test

Lord Justice Smith's four requirements specified in *Shelfer* can be divided into two groups according to the parties to which harms are directed: the injury test

⁴⁴⁸ *Macmillan Publishers Ltd. v Thomas Reed Publications Ltd.* [1993] FSR 455, 465; *Phonographic Performance Ltd v Saibal Maitra* [1998] FSR 749, 771; *Cantor Gaming Ltd. v Gameaccount Global Ltd.* [2007] EWHC 1914, para. 101.

(requirements 1-3) for patent holders and the oppressiveness test (requirement 4) for infringers. For convenience's sake, let us examine relevant court cases according to this categorisation rather than dealing with each requirement individually.

The injury test

With respect to the first injury test, it requires courts to check whether the injury to the patent holder is small, capable of being estimated in money, and payable by a small money payment. In a sense this test is somewhat closely related to the 'triviality' which Lindley L.J. raised for exceptional circumstances. These requirements show that the circumstances adequate to award damages instead of an injunction are strictly limited only to minor injury cases compensable by small money. On top of that, when courts test these requirements, they should reach a conclusion not by guess work but with sufficient information and concrete evidence. Aldous J. in *Chiron v Organon Teknika* emphasised that 'determination of the amount and sufficiency of the compensation is part of the decision whether to refuse an injunction and needs to be undertaken at the same time.'⁴⁴⁹

Indeed, by these reasons, it is very difficult to find any case which has passed this test. To see how courts have applied this test, let us briefly look into a few cases. In *Chiron* where an injunction was granted, it was decided that the injury to the patentee would not be small, that the compensation would not likely be small in amount, and that the compensation was not likely to be estimated because of the lack of evidence, the patent's long remaining lifetime (14 years), and the complicated competition situation with rival companies.⁴⁵⁰ Similarly, in *Banks v EMI Songs*

⁴⁴⁹ *Chiron Corp. v Organon Teknika Ltd. (No.10)* [1995] FSR 325, 335.

⁴⁵⁰ *Ibid.* at 336-337.

(*No.2*),⁴⁵¹ the court found that it was not the case where the claimant's copyright could be adequately compensated by a small money payment because the lifetime of the right might extend for another hundred years and sometimes substantial royalties are paid in the music industry.

A very relevant matter is how courts have dealt with the cases where the infringed patent (or copyright) constitutes only a small proportion of the whole product. There are a few cases where courts have found the right holder's favour by criticising the illegal infringement even in that situation. In *Mawman v Tegg*,⁴⁵² Lord Eldon made it clear that, even though the consequence of an injunction was expected to be severe for the infringer because the small infringing part of a whole encyclopedia published could not be separated from the other parts without destroying the value of them, the person who caused the piracy problem must suffer the consequences of so doing. In a more recent copyright case, *Macmillan v Thomas Reed*,⁴⁵³ citing *Mawman* as the law since 1826, Murrery J. granted an injunction by holding that, from the perspectives of fairness and common sense, an infringer who had behaved in such a bad way has only himself to blame for the serious consequences of his acts.

However, it should be noted that the infringement in those cases was far from trivial enough to fall into the exceptional circumstances described in the *Shelfer* case. For instance, the defendant in *Macmillan* infringed the copyright in a systematic way, and on top of that the infringement was intended to be repeated.⁴⁵⁴ Although it may be too early to conclude because we do not have any case in the

⁴⁵¹ [1996] EMLR 452.

⁴⁵² [1826] 2 Russell 385, 390 (copyright).

⁴⁵³ [1993] FSR 455, 466-467.

⁴⁵⁴ *Ibid.*

opposite situation to those above, it may not be guaranteed that courts would grant an injunction even in the circumstances where the infringement is nothing but trivial and concerned with only a small part of an entire product.

The oppressiveness test

With respect to the oppressiveness part, the term ‘oppressive,’ due to its unclear nature, demands a further specific definition to be applied in actual cases. As Pumfrey J. has put it in *Navitaire v EasyJet Airline (No.2)*, the expression, ‘oppressive’, should be understood as meaning that ‘the effect of the granting an injunction would be ***grossly disproportionate*** to the right protected.’⁴⁵⁵ The word ‘grossly’ indicates that the exercise of discretion is not merely to strike a balance of hardship of each party in suit.⁴⁵⁶

Then, in which circumstances has the UK court found the oppressiveness? First of all, the relative level of difficulties expected for the infringer to redesign the current infringing product so as not to infringe the patent seems to be a factor to be considered. In *Navitaire (No.2)*, it was held not to be oppressive because the migration of the history data from the right holder’s system into the infringer’s new database table would be possible in terms of technical and legal matters, even though much work for testing and checking might be needed and some risk may also exist for the operation.⁴⁵⁷

The defendant’s overall business status seems to be also taken into account for the test. For example, if the defendant’s business scale is substantially equipped

⁴⁵⁵ [2005] EWHC 0282 (Ch), para. 104.

⁴⁵⁶ Ibid.

⁴⁵⁷ Ibid. at para. 113.

with products other than the infringed one, it was not considered to be oppressive to the defendant even though she would be enjoined.⁴⁵⁸

3.3.2.2.2. Outside the boundary of the Smith LJ's test

As noted, even in certain circumstances out of the scope of Smith LJ's Test, an injunction might be refused and damages would suffice instead. Let us examine some salient situations which the UK courts have encountered so far.

No threats to infringe

Considering that the purpose of injunctive relief is to restrain repetitive infringing acts in the future as Neuberger L.J. once suggested in the *Landor* case,⁴⁵⁹ courts may refuse to grant an injunction if no threat to infringe exists at the time when the order is considered. However, this principle is not decisive. Even though the defendant has clearly and unequivocally agreed before trial not to undertake any actions which would be forbidden by an injunction, there are certain circumstances where the grant of an injunction is appropriate. Daniel Alexander QC in *Cantor Gaming v Gameaccount*, proposed some situations where the court's sanction by an injunction would be required to back up the assurances given by the defendant not to infringe any more: where a defendant has previously provided contractual undertakings not to undertake any infringing actions but has behaved in breach of those undertakings; and where there is a disagreement upon the scope of undertakings provided.⁴⁶⁰ He

⁴⁵⁸ *Chiron (No.10)*, at 336; *Proctor v Bailey and Son* [1889] 6 RPC 538; *Raleigh v Miller* [1949] 66 RPC 23.

⁴⁵⁹ *Landor & Hawa International Ltd v Azure Design Ltd* [2007] FSR 9.

⁴⁶⁰ *Cantor Gaming*, at para. 107. See also *British Telecommunications plc v Nextcall Telecom plc* [2000] FSR 697.

argued that, where the compliance of the defendant is not certain and the protection of the claimant's right is to be guaranteed, an injunction may be much more useful than contractual undertakings because of its greater effect in compliance than the latter way.⁴⁶¹ Likewise, if the defendant shows any intention to exploit the right in suit in defiance of any interest of the right holder, courts are likely to consider that as one of the factors to grant injunctive relief.⁴⁶²

Failure to seek interim relief

If a right holder failed to seek an interim injunction at an early stage even though she had realised the infringement and could have sought that relief, it might be regarded at first glance as oppressive to grant an injunction. However, a UK court suggests that the opposite situation of whether the defendant could have sought a declaration of right should be considered as well.⁴⁶³ If the infringer has acted in 'blatant and calculated disregard of the plaintiff's rights' which he was aware of, so to speak, this would work against a finding of oppression.⁴⁶⁴ In this sense, the mere fact that the patent holder failed to seek an interim injunction is not a decisive factor for the injunction test but only one of the factors to be balanced with the defendant's behaviour as well as other particular circumstances in the case.

Public interest

Courts have discretion to consider the public interest issue in a general patent infringement case. Even in a case where the *Shelfer* criteria are not met, a court may

⁴⁶¹ *Cantor Gaming*, at para. 109.

⁴⁶² *Fisher v Brooker* [2006] EWHC 3239 (Ch), paras. 87-89 (copyright).

⁴⁶³ *Jaggard*, at 283.

⁴⁶⁴ *Ibid.*

in certain circumstances take into account whether the interests of third parties (expansively, the public) are expected to be severely encroached by the grant of an injunction.⁴⁶⁵ As noted earlier, however, an injunction is regarded as a general form of remedy against repetitive infringements of a patent due to its generally accepted beneficial effect on technical progress, even though it would give the patentee with a monopoly power in the relevant market, which may lead to possible competition restraint and price control.⁴⁶⁶ This account implies that more convincing evidence other than the general effects from an injunction is required to persuade the court to award damages in lieu of an injunction on the ground of public interests by departing from the *Shelfer* guidelines.⁴⁶⁷

A life-saving drug is one of the examples where injunctive relief might be denied. As an extreme case where there is a unique life-saving drug without any precise equivalence, it is very unlikely that courts in their discretion would grant an injunction restraining its sales.⁴⁶⁸ It was recently considered whether the demand of the public could be satisfied if the defendant were to stop production by an injunction order. In *MMI Research Ltd v Cellxion Ltd*, an injunction was granted because the court did not find any evidence that the claimants could not supply the demand or that the claimant's product would not meet the requirement of users.⁴⁶⁹

3.3.2.2.3. Suspension of an injunction

If courts, after considering all circumstances available, find that the grant of an

⁴⁶⁵ Ibid. at 331.

⁴⁶⁶ Ibid. at 333-334.

⁴⁶⁷ Ibid.

⁴⁶⁸ *Roussel-Uclaf v G.D. Searle* [1977] FSR 125, 131.

⁴⁶⁹ [2009] EWHC 1533 (Pat), para. 34.

injunction is an appropriate remedy, it is important to see how they may fashion the injunction. As noted, the discretionary power of courts under s. 50 of the Supreme Court Act 1981 to award damages instead of an injunction also includes the power on how to fashion the injunctive relief, i.e. a qualified or unqualified injunction.⁴⁷⁰ Not to mention, in any case where courts grant a qualified injunction with certain limitations, it may also award damages to compensate for those limitations.⁴⁷¹ However it should be noted that, since the normal form of an injunction is general and unqualified, the defendant should justify the departure from the normal rule.⁴⁷²

Among various forms and situations with respect to fashioning injunctive relief, one issue which particularly draws our attention is the award of a ‘runoff’ period to the defendant allowing her to continue the infringing acts until the operation date of an injunction. This is normally considered either when there is an appeal to the higher court against a judgement, or when there exist special circumstances other than the motion for an appeal.

First of all, there is no doubt that courts have discretion to stay an injunction order pending an appeal by the defendant against the judgement. A good guiding principle was set out by Buckley L.J. in *Minnesota Mining*.⁴⁷³ He highlighted that, in exercising such discretion, ‘the object, where it can be fairly achieved, must surely be so to arrange matters that, when the appeal comes to be heard, the appellate court

⁴⁷⁰ *Chiron (No.10)*, at 326.

⁴⁷¹ *Ibid*.

⁴⁷² *Kirin-Amgen Inc v Transkaryotic Therapies Inc (No.3)* [2005] FSR 41, para. 26. The basic principles affecting the form of injunctive relief in the patent infringement case were well discussed by Laddie J. in *Coflexip SA v Stolt Comex Seaway MS Ltd* [1999] FSR 473 and again they have been well-arranged by Pumfrey J. in *Nutrinova Nutrition Specialties & Food Ingredients GmbH v Scanchem UK Ltd (No.2)* [2001] FSR 43.

⁴⁷³ *Minnesota Mining & Manufacturing Co v Johnson & Johnson Ltd* [1976] FSR 139.

may be able to do justice between the parties, whatever the outcome of the appeal may be.⁴⁷⁴ Even though a successful claimant is entitled to injunctive relief in the first instance upon the trial judge’s findings of facts and the law, Buckley L.J. said that the claimant’s entitlement to that relief should not be regarded as certain until the disposal of the appeal, provided that ‘the defendant in good faith proposes to appeal’ and ‘has a genuine chance of success on his appeal.’⁴⁷⁵ There are a variety of circumstances where putting an injunction into effect pending appeal could damage the defendant if she succeeds the appeal, or where, on the other hand, the delay of putting the injunction into effect could severely damage the plaintiff if the appeal fails. The appropriate action courts may take depends on the specific facts of each case.⁴⁷⁶ In many cases, as a practical approach, whether it orders a stay of the injunction or not, a court may tend to impose specific terms to secure against the possible damage of each party. For instance, a court may dismiss the motion for a stay upon the claimant’s cross-undertaking in damages,⁴⁷⁷ or in other cases it may accept the motion upon the defendant’s undertaking.⁴⁷⁸

In other situations than an appeal, courts may also award a certain period of ‘runoff’ before an injunction goes into effect, by letting the defendant pay appropriate damages for that period. The *Illinois Tool Works v Autobars* case⁴⁷⁹ is a good example. In determining whether an injunction should go into effect right away or whether a runoff period is necessary, Graham J. found that the latter is appropriate

⁴⁷⁴ Ibid. at 144-145. See also *Chiron (No.10)*, at 326.

⁴⁷⁵ *Minnesota Mining & Manufacturing*, at 144-145.

⁴⁷⁶ Ibid.

⁴⁷⁷ Ibid. at 146.

⁴⁷⁸ *Chiron (No.10)*, at 342-343.

⁴⁷⁹ [1972] FSR 67.

on the ground of public interests when otherwise two hundred or so employees would lose their jobs immediately.⁴⁸⁰ He, upon the defendant's undertaking, withheld the injunction for three months during which the defendant could launch a non-infringing product.

3.3.2.3. NPE-related Intellectual Property Cases

So far, though not direct, there have been five cases which give some important implications to this research: two for breach of confidence, two for copyright, and one for patent right (validity issue). Although all of them are not typical patent infringement cases where injunctive relief is at issue, they provide important implications to the purpose of the research because the claimants' business strategies and the core issues are very similar to the NPE-related patent infringement cases.⁴⁸¹ As it is inappropriate to draw any common issues from that limited number of cases, reviewing case by case is more desirable.

3.3.2.3.1. The *Seager v Copydex* case (1967)⁴⁸²

Seager, an individual inventor, invented a carpet grip and obtained a patent on that technology. With a view to marketing the grip, Seager initiated a negotiation with Copydex for the manufacture of the technology. During the negotiations, Seager

⁴⁸⁰ Ibid. at 74-75.

⁴⁸¹ Particularly, even though the following *Seager* and *Coco* cases are about confidentiality rather than patent right, they are reviewed here because they have substantial similarities with patent cases in the sense that the main fact was concerned with technical inventions and the legal issue was about whether to grant or deny an injunction. Therefore, by reflecting them to patent cases, we may be able to surmise how the UK courts could have taken their attitude against NPE patent holders in earlier times when NPE-related patent cases are so scarce.

⁴⁸² *Seager v Copydex Ltd* [1967] 1 WLR 923.

disclosed the detailed features of the patented grip to Copydex and also suggested an alternative grip. After the negotiations failed, Copydex manufactured a carpet grip which did not infringe the patent but embodied Seager's alternative suggestion. Finding the defendant Copydex had infringed the claimant Seager's right, Lord Denning M.R. held that '[i]t may not be a case for injunction ... , but only for damages, depending on the worth of the confidential information to him in saving him time and trouble.'⁴⁸³ Even though more detailed reasons for awarding damages instead of an injunction were not specified, this case is referred to be the first meaningful IP case in which the court recognised the principle: 'where an inventor wanted to sell his idea for money, money is what he got.'⁴⁸⁴

3.3.2.3.2. The *Coco v Clark* case (1968)⁴⁸⁵

This case is quite similar to the aforementioned *Seager* case. The claimant designed a moped engine and sought the defendant company as its manufacturing company. Even though the claimant had a sample of his design made by an Italian company, he did not enter into manufacture of the moped engine. A few years later a negotiation proceeded between him and the defendant company on whether the defendant would accept the claimant's proposal for the manufacture of the product. In the course of that negotiation, the claimant supplied the defendant with relevant information, drawings, and other aids for the production of the product. However, the parties fell out and the defendant chose to make its own moped. The claimant brought a motion for an interim injunction to stop the defendant from misusing the confidential

⁴⁸³ Ibid. at 932.

⁴⁸⁴ JACOB (2008) 'Patent Trolls in Europe-Does Patent Law Require New Barriers?', available at http://www.grur.de/cms/upload/pdf/Jahrestagung/2008/GRUR_JT2008_Rede_Jacob_2008-05-23.pdf.

⁴⁸⁵ *Coco v A.N. Clark (Engineers) Ltd* [1968] FSR 415.

information.

Finding the fact that, while the defendant was in production, the claimant was not in production at the time of trial and did not have any plan to do so at any foreseeable date, the Judge pointed out that one factor which should be considered for granting or refusing an injunction is what the claimant is trying to protect, a monetary reward in this case.⁴⁸⁶ In addition, the effect on the defendant company of granting an injunction was also considered, e.g. job losses due to the stoppage of the production line and expulsion of the only moped with a British-made engine from the British market.⁴⁸⁷ For these reasons, the Judge held that an injunction against using the information is not an appropriate remedy in this case.

3.3.2.3.3. The *Banks v EMI Songs (No.2)* case (1996)⁴⁸⁸

This is the only NPE-related IP (copyright) case where the Smith LJ's test in *Shelfer* was applied and at the same time other exceptional circumstances were also considered after the test criteria was not found to be met. The claimant Banks owns a copyright of a lyric of a song performed by the defendant band. Up until the plaintiff's complaint, the dependants had reasonable grounds to believe that the records were not infringing any copyright.

Applying the Smith LJ's criteria, Jacob J. found that this case did not satisfy the third requirement, i.e. whether the injury can be adequately compensated by a small money payment, on the grounds that the amount of royalty in the music industry would often be quite substantial and the lifetime of the copyright might last

⁴⁸⁶ Ibid. at 428.

⁴⁸⁷ Ibid.

⁴⁸⁸ [1996] EMLR 452.

for another hundred years. Despite that failure, he further held that this was a wholly exceptional case to withhold an injunction. In justification of the decision, he pointed out two particular situations of this case: (1) that what the claimant really wanted was a monetary payment equivalent to the amount of use of its work, (2) the defendants had been exploiting the lyrics for eleven years, which means that an injunction was nothing but an attempt to ‘shut the stable door after the horse has bolted.’⁴⁸⁹

This case is quite meaningful in the sense that it again confirms the fact which, as once put in *Jaggard*, the Smith LJ’s requirements in *Shelfer* are not exhaustive but merely guidelines.

3.3.2.3.4. The *Phonographic Performance v Maitra* case (1998)⁴⁹⁰

The copyright holder, Phonographic Performance Ltd (‘PPL’), is a licensing company which owned a number of sound recording copyrights. In the court of first instance, a limited injunction was granted against the defendant Maitra for a period of six months, thereby inviting PPL back to the court to extend the injunction period if necessary.⁴⁹¹ The very reason for the judge’s decision to limit the injunction in time was that an injunction with unlimited duration might be used by PPL as a lever to extract licence fees — a conduct that the judge viewed as an abuse.

However, the appellate court, allowing the appeal, expressed different views. It was pointed out that ‘[a] person who exploits his property right by licensing is entitled, unless there are special circumstances, to prevent another from using that

⁴⁸⁹ Ibid. at 459.

⁴⁹⁰ [1998] 1 WLR 870.

⁴⁹¹ [1997] 3 All E.R. 673. In addition, the injunction was also suspended for 28 days for the purpose of providing each party to negotiate for a licence.

property right without his licence and to refuse to grant a licence.’⁴⁹² In the circumstances where the defendant was well aware of the presence of PPL’s right, was infringing, and showed its intention to continue to infringe the right, the Court did not find any reasons to limit the injunction. The Court admitted that it would be an abuse if a right holder uses an injunction so as to obtain money beyond the amount which is not entitled, but it did not find that any evidence to show that would happen.

3.3.2.3.5. The *Aerotel v Wavecrest* case (2009)⁴⁹³

The issue of this case was the ‘revocation of a patent in suit’ which was counterclaimed in a patent infringement action, rather than injunctive relief. Nonetheless, this case provides great implications for us on how the UK courts might view NPE patent holders.

The claimant, Aerotel, is an Israeli firm which does not supply products or services (pre-paid telephone system and service in this case) but rather seeks royalty revenues by way of licensing and/or litigating its patents in various jurisdictions, mainly in the US.⁴⁹⁴ Discussing whether a commercial success indicates the non-obviousness of the patent,⁴⁹⁵ Jacob LJ exhibited his rather negative attitude to NPE business strategies. To feel the delicate temperature of his comment, it would be appropriate to quote rather than paraphrase it.

⁴⁹² *Phonographic Performance*, at 878.

⁴⁹³ *Aerotel Ltd v Wavecrest Group Enterprises Ltd* [2009] EWCA Civ 408.

⁴⁹⁴ [2008] EWHC 1180 (Pat), para. 1.

⁴⁹⁵ The Court of Appeal dismissed the claimant’s appeal against the High Court’s judgement that the claimant’s patent is invalid on the grounds of obviousness.

So how then did Aerotel make money from the patent? *By litigation and the threat of litigation against users.* And principally in the US. That is unimpressive, for it is notorious that at least from the middle-90s the US patent litigation scene had become immensely pro-plaintiff. A defendant faced with the possibility of litigation had to take into account all of the following matters: (1) the right of the patentee to insist upon jury trial (juries are apt to be pro-plaintiff); (2) the general level of damages awarded in the US by juries; (3) the real possibility of triple damages for wilful infringement; (4) the fact that even if a defendant won he would have to pay his own, very considerable, legal costs; and (5) the fact that until the decision of the Supreme Court in the US in *eBay Inc v MercExchange LLC* (2006) 547 US 388 there was a strong view that even a non-exploiting patentee who won would get an injunction as of right. We know that Aerotel entered into licensing arrangements. But we know little more than that. There is no evidence as to why people took licences. I see no reason to suppose they did so for any reason other than the considerable downside risk they would avoid (*emphasis added*).⁴⁹⁶

It is very interesting that Jacob LJ viewed NPEs' strategic uses of the threat of litigation and injunction as worrisome by recalling the US's recent controversial situations owing to NPEs. Despite limitations for generalisation, it shows that the UK courts perceive the possible problems related to NPE patent holders, particularly at least when they use patents as a vehicle to earn higher royalties from manufacturers

⁴⁹⁶ [2009] EWCA Civ 408, at paras. 32-33.

by way of the threat of litigation or injunction. Although this case did not proceed further to the injunction issue because the patent was affirmed to be invalid, as far as the negative sentiment against the claimant in this case is considered, it seems highly improbable that an injunction would have issued should the patent be found to be valid.

3.3.3. Evaluations and Implications

To investigate how the UK law deems that NPE patent holders should be treated in terms of injunctive relief, we have so far discussed the UK statutory and case law. Based on these discussions, this section seeks to evaluate the UK law and pull out some meaningful implications with respect to NPE patent holders' entitlement to injunctive relief. As seen above, the UK has not seen enough patent infringement cases in which NPE patent holders claimed patent infringements, not to mention so-called patent troll cases where the patentee's behaviours are thought to be extremely abusive. Nevertheless, some meaningful characteristics of the UK law can be drawn out from the previous discussions.

3.3.3.1. Two-tier Control on Non-practising a Patent

A striking feature of the UK law is that in its Patent Act it has statutory provisions of a compulsory licence against the non-practise of patent holders. By opening the door, through the vehicles of compulsory licence, to let a patented invention be exploited by willing parties unless the patent is practised enough in the UK, the UK law, at least in principle, minimises the possible risks which might exist when the exploitation of an important patent in terms of the public needs is blocked by the patent holder. Meanwhile, even if the patented invention has been exploited by

another party without any *ex ante* permission of use from the owner, the UK law also leaves the door open for the likelihood that a court, through the exercise of discretion, may allow the infringer to keep practising it by imposing damages instead of an injunction. While the statutory compulsory licence provisions provide would-be manufacturers with an *ex ante* way to do it legitimately before undertaking an exploitation, granting damages in lieu of an injunction in a infringement suit functions as an *ex post* absorbent of probable adverse consequences from the exclusive right of patent in a certain circumstance.

Even though it has never been frequently applied and, what is more, hardly granted, the *ex ante* statutory compulsory licence may be evaluated as a good legal instrument not only to rectify any unexpected worst situation, but also to encourage patent holders to exploit their patented inventions by imposing psychological pressure. In the circumstances where a patent infringer was not able to negotiate with the patent holder for a licence and/or to file an *ex ante* compulsory licence because she was not aware of the presence of patent or believed that the patent might be invalid and/or not be infringed, the *ex post* compulsory licence granted by a court in a infringement suit is an necessary instrument to redress an unfair patent enforcement by the patentee.

In this regard, in principle the two-tier compulsory system in the UK law may work as a good safeguard in the patent system, provided it is rationally operated.

3.3.3.2. Court's Significant Discretionary Power for an Injunction

The Smith LJ's test has very limited boundaries. Damages in lieu of an injunction may be given only when the injury from the infringement is quite minimal and trivial, and at the same time when the impact on the defendant by an injunction is 'grossly

disproportionate’. All four requirements, rather than only a few of them, should be satisfied. Furthermore, sufficient and concrete evidence should be presented to pass the test.

In practice, however, courts are not strongly bound to the Smith LJ’s rule in exercising their discretionary power. Upon grounds other than the Smith LJ’s requirement, as we have seen earlier,⁴⁹⁷ courts are able to award damages instead of an injunction. The most important aspect of the exercise of discretion in the UK court is that when refusing an injunction, they are free to consider just one single reason, or in some case in conjunction with other reasons or the Smith LJ’s test. For instance, a court may refuse an injunction, as in the *Roussel-Uclaf* case,⁴⁹⁸ on the grounds of public health only without consideration of Smith LJ’s test, or, as in the *Banks* case,⁴⁹⁹ it may consider other reasons, such as the real intention of the patentee, and long time exploitation by the infringer, after applying the Smith LJ’s test.

This shows that the UK court’s latitude in exercising discretion is much wider than the aforementioned US practice where an injunction may be refused only when all four factors should be satisfied.

3.3.3.3. Alternative Remedy to an Injunction: Damages

In the UK law, there doesn’t seem to have been any serious consideration on whether damages should be an appropriate remedy in cases where an injunction should not be granted. At least since the *Shelfer* case more than 115 years ago, damages have been regarded as an alternative to injunctive relief as a matter of course. Both Smith LJ

⁴⁹⁷ Section 3.3.2.2.2.

⁴⁹⁸ [1977] FSR 125.

⁴⁹⁹ [1996] EMLR 452.

and Lindley LJ proposed in a clear tone that damages may be awarded in substitution for an injunction in exceptional circumstances.

This is quite different from the US practice which has triggered serious controversies over what actions district courts should take after they confirmed an injunction to be an improper remedy, i.e. the prospective royalty, the lump sum payment, leaving parties to negotiate, or filing a new suit for damages.

3.3.3.4. Active Exercise of Discretion When Tailoring an Injunction

Even though the normal form of an injunction is a general and unqualified one, the UK courts seem to exercise their discretion in fashioning the injunction suitable to particular circumstances of each case. To minimise possible injustice caused by the wrong judgement, courts would order a stay of an injunction or impose an undertaking on a certain party after consideration of the various factors of each case. Besides, regardless of an appeal, courts may also award a certain period of ‘runoff’ time before an injunction order comes into effect if the immediate enforcement of an injunction may cause serious problems for either the defendant or the third parties.

3.3.3.5. NPE Patent Holder’s Waning Chances of Getting an Injunction

It is not easy to predict how the UK courts would react when they come to face similar NPE patent holder cases as have appeared in the US. Nevertheless, as far as the significant discretion of courts and the five NPE-related cases are considered, it is highly unlikely that they would grant an injunction to an NPE claimant to the same extent as they normally do to PE patent holders.⁵⁰⁰ In fact, as Jacob LJ once put it,

⁵⁰⁰ BAINBRIDGE (2009) 'Intellectual property', 7th ed. Pearson Longman, Harlow, Essex, England; New York, at 494.

the chances are quite slim indeed.⁵⁰¹ This prediction may be substantiated by the following backgrounds.

Firstly, as discussed above, the ample latitude of the courts in terms of exercising discretion may work against the grant of an injunction to NPE claimants. Courts may use the particular characteristic of NPE patent holders in a more convenient way to refuse injunctive relief, such as small injury due to non-practising, the ultimate purpose of patent enforcement (monetary reward), or the public interest.

Secondly, a common principle which flows in the cases of *Seager*, *Coco* and *Banks* is that where a monetary payment is what a right holder ultimately hopes to get, money damages should be her remedy for future infringement.⁵⁰² Considering many of the NPE patent owners' primary interest for obtaining a patent right is to earn royalty revenues from manufacturing companies for the value of the patented invention, a substantial number of NPE claimants is expected to fail this test.

Thirdly, even if only a few of them so far, the UK courts are aware of patent holders' abusive behaviours that use an injunction and/or litigation threat with a view to obtaining unreasonable reward from manufacturers. From the *Phonographic* case, we came to know that if a right holder uses an injunction to obtain money beyond the amount she is entitled to receive, the courts view this as an abusive behaviour. On top of that, as in *Aerotel*, courts seems to perceive that in some cases manufacturers buy licences from patent licensing companies after succumbing to threats of injunction and litigation.

⁵⁰¹ JACOB, n 484. ('a non-exploiting patentee is inherently much less likely to be awarded any provisional measure, especially one by way of an injunction. Why? Because such a party only holds the patent so as to extract money from others-money is his only desired remedy. He has no business to be protected by his patent').

⁵⁰² Section 3.3.2.3.

3.4. The German Law

The prominent features of the patent litigation in Germany that are different from those in the US and the UK are that the German law is based on the civil law system, and that the procedures for patent infringement and revocation (validity) are completely separated, which means that the patent infringement issue belongs to the specialised District Courts of civil law⁵⁰³ while the validity issue is only left to the German Federal Patent Court.⁵⁰⁴ Owing to these fundamental differences, the German law shows unique characteristics in terms of the issue of injunctive relief toward NPE patent holders.

Following the same method applied in the US and UK counterparts, this section views the German law from the perspectives of both statutory and case law. For the statutory law, besides provisions for injunctive relief, compulsory licence provisions are also discussed because, unlike the US but similar to the UK, the German patent statute allows the grant of a compulsory licence against patent holders' non-working or insufficient working of their patented inventions. For the case law analysis, only a few important cases are discussed forasmuch as the German courts are not allowed to exercise discretion in determining whether to grant or deny an injunction.

3.4.1. Statutory Law

⁵⁰³ Under provisions of the German Patent Act s. 143, patent infringement litigation suits may be applied to 12 district courts in Germany. However, it is well known that more than 80% of all patent infringement cases are dealt in the District Courts in Düsseldorf, Munich, and Mannheim.

⁵⁰⁴ German Patent Act s. 82.

3.4.1.1. Remedies for future infringement

In Germany, an injunction is a basic remedy to halt the infringer's prospective infringing acts. The statutory basis for the patent holder's injunction claim is s. 139 (1) of the German Patent Act, which reads: '[a]ny person who exploits an invention contrary to Section 9-13⁵⁰⁵ may be sued by the injured party to enjoin such use.'

Meanwhile, it is interesting to note that the German Copyright Act allows courts to award pecuniary compensation to the injured party instead of a permanent injunction in certain exceptional circumstances where the infringing acts were neither intentional nor negligent, the injunction is expected to produce a serious and disproportionate injury to the infringer, and the injured party may reasonably be required to accept that money reward.⁵⁰⁶ However, oddly enough, the German Patent Act does not have that sort of provision. Accordingly, unlike the US or UK, German courts are not allowed to excise their discretion for the grant of an injunction.⁵⁰⁷ The court has to grant an injunction if the patent is found to have been infringed and the danger of future infringement exists. An injunction granted by district courts can be executed only if the claimant provides security which is for compensation to cover the damage of the defendant when the injunction is not sustained by higher courts, while the enforcement of decisions of the Court of Appeals does not require paying

⁵⁰⁵ S. 9, 10 and 11-13 stipulate the right of the patent holder, the contributory infringement, and certain exemptions to the effect of the patent, respectively.

⁵⁰⁶ S. 101(1) of the German Copyright Act. Art. 12 of the Enforcement Directive 2004/48/EC was modelled on this provision (see OHLY (2009) 'Three Principles of European IP Enforcement law: Effectiveness, Proportionality, Dissuasiveness', *Technology And Competition, Contributions In Honour of Hanns Ullrich*, pp 257-274, Josef Drexler, ed., Larcier 2009, at 259).

⁵⁰⁷ BARTH (1995) 'Remedies in German patent litigation', in Ropski (ed.) *Butterworths patent litigation : enforcing a global patent portfolio*. Butterworths, London, at 351-364.

security.⁵⁰⁸ Due to the claimant's liability burden to pay all damages of the defendant in case the court ruling is reversed,⁵⁰⁹ it is very rare that the judgements of first instance are enforced.⁵¹⁰ The winning claimant may wait for the deadline for appeal to expire, or, if the defendant appeals, she would normally wait until the final judgement comes out. As a matter of course, however, the claimant normally receives patent damages for the past infringement.

With regard to patent enforcement, another provision that draws our attention in the German Patent Act is that patent holders are required not only to keep an eye on any potential infringements, but also to actively enforce the patent rights once the infringement is detected. Otherwise some restrictions are imposed on the patent owners. After three years from the moment of his/her awareness of the infringement and the identity of the infringer, or, regardless of such knowledge, after 30 years from the infringement, the patent owner shall not be able to take actions for infringement of the patent right.⁵¹¹

3.4.1.2. Statutory Compulsory Licences

Germany, an export-oriented country similar to the US, has traditionally taken a negative attitude to the concept of compulsory licensing,⁵¹² which means that a compulsory licence has only been permitted if the use of the patented invention is indispensable for the public interest.⁵¹³ Under the old version of the German Patent

⁵⁰⁸ Ibid.

⁵⁰⁹ German Code of Civil Procedure, s. 717.

⁵¹⁰ BARTH, n 507.

⁵¹¹ S. 141 of the German Patent Act.

⁵¹² BEIER (1999) 'Exclusive rights, statutory licences and compulsory licences in patent and utility model law', *IIC*, vol. 30, issue 3, pp. 251-274, at 263-264.

⁵¹³ Ibid.

Act before the amendment in 1998, the public interest was the only ground for the grant of a compulsory licence when the patent holder refuses to permit other parties' exploitation of the invention against offering reasonable compensation and collateral.⁵¹⁴ Traditionally the German courts have interpreted the 'public interest' in a very narrow sense. Either the monopolistic position of the patent holder in the relevant market or the interest of consumers in obtaining patented products at the lowest price do not affect the consideration of public interests, rather more special circumstances should exist for the invocation of a compulsory licence.⁵¹⁵

In the current texts of the Act which has been revised in accordance with the TRIPS Agreement, it has now become easier to get a compulsory licence. Besides the general compulsory licence under s. 24(1) of the Act, which requires that the applicant has unsuccessfully negotiated with the patent holder for a licence with reasonable conditions during a reasonable period of time, and also that public interest commands a compulsory licence, other exceptional circumstances for justifying a compulsory licence are specified by s. 24(2)-(5)⁵¹⁶ of the Act. In particular, if a patent holder does not use, or does not predominantly use, the patented invention in Germany and an adequate supply of the related products into the German market is not guaranteed, a compulsory licence could be granted because making available of the patented product to the market is where the public interest is deemed to lie. However, since importing patented products is regarded as working the patent just like in the UK patent statute, the scope for granting a compulsory licence is substantially narrow, particularly in the current global market situation which is

⁵¹⁴ S. 24(1) of the German Patent Act (as amended by Law of 25 October 1994).

⁵¹⁵ BEIER, n 512, at 265 (quoting 83 RGZ 9, 14).

⁵¹⁶ S. 24(2)(3): dependant patents; s. 24(4): semiconductor patents; and s. 24(5): nonworking or insufficient working a patent.

highly dependent upon massive cross-border trade.⁵¹⁷ Other ancillary requirements of a compulsory licence, such as non-exclusive nature (s. 24(1)), being subject to restrictions and conditions, reasonable compensation (s. 24(6)) and so forth, are practically the same as those of the UK law.

As far as the use of those provisions in practice is concerned, it was once reported that 12 compulsory licence proceedings were initiated since the establishment of the German Federal Patent Court in 1961, none of which ended up with the grant of a licence.⁵¹⁸ Among them, there was one case where a compulsory licence was granted by the Federal Patent Court in June 1991 under the old law. The Federal Patent Court held that there was a public interest in the medical use of the applicant's pharmaceutical product ('polyferon' for treating rheumatoid arthritis) which had been developed upon the patent holder's dominant patent on human immune interferon, seeing that the applicant's drug had noticeably better effects and fewer side effects than comparable drugs.⁵¹⁹ However, whilst acknowledging that the Federal Patent Court was right in assuming that securing the availability of the drugs for treating serious illness to patents may infer a public interest, the German Federal Supreme Court revoked the compulsory licence on the ground that any evidence did not clearly indicate that the applicant's Polyferon was indeed the only effective therapy and rather the public interest could be satisfied with other, more or less equivalent, alternative drugs.⁵²⁰ Furthermore, no single case has yet been reported

⁵¹⁷ S. 24(5) para. 2 of the German Patent Act (as amended).

⁵¹⁸ CORREA, n 435, at Sec. V.

⁵¹⁹ Ibid. see also KERN, n 438.

⁵²⁰ Federal Supreme Court (BGH), 5 December 1995, GRUR 1996, 190. See also KERN, n 438; THOMAS (2007) 'Protecting Academic and Non-Profit Research: Creating a Compulsory Licensing Provision in the Absence of an Experimental Use Exception', *Santa Clara Computer and High-technology Law Journal*, vol. 23, issue 2, pp. 347-370, at 364-365.

since the amendment of the Patent Act in 1998 in which a compulsory licence provision for the non- or insufficient working of a patent or for a dependant patent was specifically codified and by which the criteria for the licence has become more lenient than before.

After all, due to the facts that traditionally German courts have not been favourable to the compulsory licence regime, and that domestic demands could be satisfied by importation in many cases, it is quite unlikely that a compulsory licence could be easily granted with respect to any patent held by NPEs on the grounds of non-working or insufficient working of the patent.

3.4.2. Case Law⁵²¹

To this day, it is a consistent belief in Germany that the unlawful use of a patent indicates the fault of the user⁵²² because negligent infringement is normally assumed on the basis of the doctrine that every person doing business is obliged to identify the existence of relevant patents and that any registered patent is regarded as valid.⁵²³ Since German courts, as stated earlier, are prevented from exercising discretion in terms of injunctive relief, a winning party is automatically warranted with an injunction against the adjudged infringer. This is a fundamental difference from the situations in the US and UK. For such a reason, it is no wonder that there have not been any conspicuous cases in which an injunction was denied even if infringement

⁵²¹ A substantial part of this analysis is indebted to Dr. Martin Chakraborty from Lovells LLP in Dusseldorf, Germany, as well as Professor Ansgar Ohly at the University of Bayreuth, Germany.

⁵²² SCHICKEDANZ (2009) 'Patentverletzung durch Einsatz von geschützten Bauteilen in komplexen Vorrichtungen und die Rolle der Patent-Trolle (Patent infringement by the use of proprietary components in complex devices and the role of patent trolls)', *GRUR Int* 2009, 901.

⁵²³ PITZ, *et al.* (2004) 'GERMANY Patent enforcement practice', available at http://www.buildingipvalue.com/n_eu/293_297.htm.

was found and further infringing acts were likely. In the framework of current German law, the only way a defendant may avoid the issuance of an injunction is to provide a court-enforceable undertaking under the promise that she would not go into any further infringing activities.⁵²⁴

Even in the scarcity of relevant cases in Germany, it is noteworthy that there have been three NPE-related cases in recent years, two of which are general patent infringement cases (*IPCom* cases) and the other is a competition law related patent infringement case in the context of technical standard patent (*Orange Book Standard* case). These recent cases suffice to give us an impression that some meaningful changes seem to be under-way in Germany.

3.4.2.1. The *IPCom* Cases

In the midst of the strong waves of the NPEs' patent assertion trend moving from the US to the rest of the world, Germany has also experienced NPE-related *IPCom* cases, including an instance where a court actually took the fact into consideration that the patent holder is a non-practising entity. This is sometimes regarded as the first European patent troll case to appear in court.⁵²⁵

IPCom GmbH & Co KG ('*IPCom*'), which was founded in 2007 and has about 10 employees, is a non-practicing entity with no business of manufacturing products covered by its patents.⁵²⁶ *IPCom*'s business model is to purchase patents from other patent holders and then persuade manufacturers to enter into licensing deals. In 2007, *IPCom* purchased a patent portfolio of *Bosch GmbH*, which consists

⁵²⁴ VON MUHLENDAHL (2007) 'Enforcement of intellectual property rights - is injunction relief mandatory?', *IIC*, vol. 38(4), p. 377-380, at 378.

⁵²⁵ MAISTER, n 7.

⁵²⁶ POHLMANN, *et al.*, n 28, at 9.

of more than 1,000 patents (about 160 patent families) in mobile telecommunication technology.⁵²⁷ It is known that one fourth of these patents are essential to the widely adopted technical standards (e.g. GSM, UMTS) used today and therefore any manufacturers implementing those standards in the mobile telephony sector cannot escape this patent net without infringing them.⁵²⁸

Initially, Bosch was in the mobile communication sector from the mid-1980s developing many pioneering mobile technologies and was also involved in the development of mobile and UMTS (WCDMA) standards as a member of the European Telecommunications Standards Institute (ETSI). In 2000, deciding to get out of the mobile industry, Bosch sold its mobile business sector to Siemens but retained its patent portfolio.⁵²⁹ With a view to license the patents to other manufacturing companies, first of all Bosch negotiated with Nokia but it ended in failure. In the end, the portfolio was sold to IPCom who then started to enforce the patents against mobile phone makers and operators. In Germany, two cases have been reported so far, in which IPCom claimed that the UMTS-enabled mobile phones supplied either by HTC or by Nokia have infringed its patents. In a defensive move against IPCom's attacks, all of the alleged infringers including above two phone makers have been seeking to invalidate IPCom's patents.⁵³⁰

IPCom v HTC⁵³¹

⁵²⁷ Ibid. See also http://www.ipcom-munich.com/home_en.html.

⁵²⁸ Ibid.

⁵²⁹ Ibid.

⁵³⁰ Telecom operators, T-mobile and Vodafone were also involved in this patent war. The revocation proceedings in respect of a number of IPCom's patents are under way in Germany and in the UK.

⁵³¹ LG Mannheim, Judgement of 27.02.2009 - 7 O 94/08; OLG Karlsruhe, Acceleration of 11.05.2009 - 6 U 38/09.

In the patent infringement proceedings, the District Court of Mannheim did not change the injunction criteria by reason of the fact that IPCom is a patent holding company, and granted an injunction by holding that non-practising IPCom can claim patent protection like everyone else. The court noted that the German legislator did not link the patent holder's exclusive right to the actual obligation to make use of the patent. Further, the court referred to the abovementioned fact that s. 139 of the German Patent Act does exclude any discretionary power of patent infringement courts.

However, on 11 May 2009, the Karlsruhe Court of Appeals suspended the execution of the injunction awarded by the district court.⁵³² Balancing the concurring interests of the judgement creditor IPCom and the debtor HTC, the court based its decision also on the fact that IPCom is a patent holding company that does not manufacture itself. The court classified the conflicting interests in the present case to be of such a particular nature that a provisional stay of execution was justified. The main argument of the court in this regard concerned the nature of IPCom as a patent holding company in that it neither manufactures mobile communications devices itself, nor does it participate in the mobile communications market in any other manner. Its business model is concluding licence agreements with HTC as well as other mobile service providers. The court observed that the legal system generally approves of such an approach by patent owners. However, when balancing the relevant interests in the present case, the court found that IPCom's interests vary from those of an intellectual property right holder who produces or offers products itself. A

⁵³² But it was held that HTC should deposit a guarantee of EUR 7.5 million. Meanwhile, the same court proceeded an appeal trial (OLG Karlsruhe 6 U 38/09) for this case, but HTC withdrew the appeal at the last moment (25 November 2011), which means that IPCom has been able to execute the injunction order.

patent holding company does not need to protect its own market position and therefore does not have any commercial interest in actually closing down HTC's production and supplying its own products instead. Since IPCom is not a market player itself, HTC's sales was viewed not to be detrimental to IPCom's market shares. The Court further maintained that if IPCom's infringement claim would be upheld in the appeal proceedings, IPCom would benefit from the continued supply because it would be able to claim accrued damages.

Furthermore, the court found that IPCom's interest in prompting HTC to agree on a licence deal before conclusion of the appeal proceeding is not worthy of protection. The same applies for IPCom's desire to avoid a 'role model effect' for other companies which have not yet agreed to a license agreement either.

This was the first time that a German court denied a patent holding company's enforcement of its claim for injunctive relief. However, it should be noted that, even though the court of appeal showed some sympathy to the defendant by suspending the enforcement of an injunction, it did not reject the decision of the first instance that even NPE patent holders are entitled to get an injunction.

IPCom v Nokia⁵³³

Similar proceedings have taken place between IPCom and Nokia alongside the *IPCom v HTC* case. It is a publicly known fact that initially IPCom claimed EUR 12 billion from Nokia during the *ex-ante* negotiations and since the failure of the negotiation the patent infringement claims have been filed in Italy, UK and Germany.

⁵³³ LG Mannheim, Judgement of 18.02.2011 - 7 O 100/10. In addition, the same court has also issued another injunction on 20 April 2012 after finding Nokia's infringement upon other patents concerning an emergency telecommunication service.

IPCom initiated patent infringement proceedings before the District Court of Mannheim, claiming that the UMTS mobile phones from Nokia infringed its key mobile communication patent. Again, the court ruled on 18 February 2011 that Nokia had infringed IPCom's patent, whose technology is about assigning priorities to mobile phone users and had been adopted as an industrial standard, and granted an injunction. The bases for this decision were the same as those in the case between IPCom and HTC. It is without saying that, by this judgement, NPE patent holder IPCom is in a strong negotiating position against Nokia.

3.4.2.2. The '*Orange Book Standard*' Case⁵³⁴

In *Orange Book Standard* case (6 May 2009), the German Federal Supreme Court handed down an important judgement on the issue of the conflict between patent exclusivity and access to technical standard. This case clarified the questions whether and how a defendant who produces a product according to a patented invention incorporated into a widely recognised technical standard without having obtained a licence, can raise a 'competition law defence' by way of a counterclaim against the claim for injunctive relief by a patent holder.⁵³⁵

One of the serious concerns in terms of standard patents arises when a patent holder enforces her patents essential to a technical standard against manufacturing companies who cannot use them without an infringement. This problem is primarily

⁵³⁴ Bundesgerichtshof (*Orange Book Standard*) (KZR 39/06) unreported 6 May 2009. The term 'Orange Book' is the informal name for the Recordable CD standard established by Philips and Sony.

⁵³⁵ The admissibility of competition law defence in a patent infringement suit has already been discussed in the *Standard Tight-Head Drum* case (13 July 2004, KZR 40/02). However these two cases are fundamentally different in that *Standard Tight-Head Drum* case was between market competitors and the claimant did not seek injunctive relief but damages.

caused by the network effects which potentially enable a patent holder to exclude her competitors from the relevant market and to exploit the lock-in situation of standard users by requesting exorbitant licence fees (so-called ‘patent hold-up’) at the same time.⁵³⁶

In this case, the claimant, Koninklijke Philips Electronics NV (Philips) is the owner of a patent essential for the implementation of CD-R and CD-RW (Orange book standard). Philips’s main interest is not in making related products but in selling licences, which means that it is an NPE in a broader sense. Feeling that the patent owner’s standard licence was unacceptable, the defendants sought more favourable terms but still continued the use of the patented invention. Therefore Philips sought a permanent injunction and the defendants, in return, counterclaimed with a compulsory licence objection by asserting that the patentee had abused a dominant position by requesting excessive and discriminatory licence fees.⁵³⁷ Both the district court and the appeal court dismissed the defendants’ counterclaims and issued an injunction.⁵³⁸

The Federal Supreme Court held that a defendant may raise a competition law defence against the patent holder’s filing for an injunction in patent infringement proceedings.⁵³⁹ However, the patent holder is regarded as abusing her dominant position only if two conditions are met: (1) the defendant has made an unconditional offer to conclude a licence contract that the patent holder cannot reject without

⁵³⁶ ULLRICH (2010) 'Patents and standards - A comment on the German Federal Supreme Court decision orange book standard', *IIC*, vol. 41(3), pp. 337-351, at 338.

⁵³⁷ KLAUSS (2009) 'Case Comment, Bundesgerichtshof (KZR 39/06): Germany - intellectual property rights', *ECLR*, vol. 30(11), pp. 181-182, at 181.

⁵³⁸ LG Mannheim - Judgement of 12 September 2002 - 7 O 35/02; OLG Karlsruhe - Case of 13 December 2006 – 6 U 174/02.

⁵³⁹ By Article 102 of TFEU and Sec. 19 and 20 of the German Act Against Restraints of Competition.

infringing the prohibition on discrimination or obstruction, (2) the defendant, if already using the patent, has to behave as if the patent holder has already accepted the licence offer. This guideline implies that the licence seeker, to rely on the competition law defence, needs to determine reasonable licence fees objectively, render account in regular intervals, and pay the hypothetical licence fees or at least deposit them. This pragmatic approach is appreciated to be able to alleviate the burden of the Court from having to decide whether the licence fee is reasonable during the patent infringement proceedings.⁵⁴⁰ Any dispute concerning the amount of a ‘reasonable’ licence fee to be offered or deposited can be resolved in a separate legal proceeding.⁵⁴¹

Returning to the present case, however, the Court dismissed the defendants’ appeal by holding that the Court did not have to decide whether the patent holder had discriminated against the defendants and in favour of other licensees, in light that the defendants had not settled reasonable licence fees and had failed to deposit them.⁵⁴²

It is meaningful that this Supreme Court’s decision opened up a way for technical standard users to avoid an injunction by way of raising a competition law defence in the patent infringement procedures.

3.4.3. Evaluations and Implications

Previous discussions indicate that the German law has its own distinctive

⁵⁴⁰ GÄRTNER, *et al.* (2009) 'Federal Supreme Court Rules in Orange Book Standard', *International Law Office (ILO)*, available at <http://www.internationallawoffice.com/newsletters/detail.aspx?g=abc44bef-50b0-4b0b-8c70-a28d7fa5502a>.

⁵⁴¹ *Ibid.*

⁵⁴² KLAUSS, n 537, at 182.

characteristics in comparison with the UK or US law in dealing with NPE patent holders or their non-practising behaviours. Two points can be raised as its uniqueness: (1) the compulsory licence regime under the German Patent Act, and (2) a slight movement to mitigate the inflexible injunctive relief regime.

3.4.3.1. Limited Roles of Compulsory Licence on NPE Patent Holders

With respect to the compulsory licence against non-working or insufficient working of a patent, the German law, despite some different embodiments in its statute, is quite similar with the UK law in the sense that a compulsory licence may be granted only under very exceptional circumstances in principle and, on top of that, it has never been widely used in practice. Accordingly, the same points discussed in the UK section are equally applied to the German law, without any need of further comment.⁵⁴³

3.4.3.2. Slight Movement to Mitigate Inflexibility of the German Law

The foremost different feature of the German law from the US or UK law is that infringement courts are precluded from exercising discretion in determining whether to grant or deny an injunction. In other words, according to s. 139 of the German Patent Act, an injunction is automatically granted whenever there has been an infringement which is likely to occur again. This problem basically stems from the fact that the civil law system (or continental legal system) does not distinguish between law and equity.

This long-standing history of German law being considered, *IPCom v HTC* and the *Orange Book Standard* case are remarkable advancements. The Karlsruhe

⁵⁴³ See section 3.3.3.1.

Court of Appeal's order staying the execution of the injunction in *IPCom v HTC* is unusual in that it is an exception of the general rule that courts give priority to the interests of the judgement creditor.⁵⁴⁴ It is a strong case law that the 'usual' consequences of an injunction, e.g. the cessation of production, do not meet the requirement for a stay under s. 712 of the German Code of Civil Procedure.⁵⁴⁵ More importantly, it is striking that this court squarely pointed out NPE issues as one of the fundamental grounds for that order. The *Orange Book Standard* case also opened up a way for patent infringement courts to deny patentee's injunction claim and grant a compulsory licence instead by way of considering competition law defence.

In fact, these two cases still hold restrictive meanings. For the *IPCom* case, more time seems to be needed to see whether many other German courts, especially the Federal Supreme Court, would affirm this approach because not only the Karlsruhe Court of Appeal made this decision leaving the question of patent infringement open, but also such stay has been traditionally considered only in exceptional circumstances in Germany. On the other hand, even though the *Orange Book Standard* case was affirmed by the Federal Supreme Court, the competition law defence is only available when the patent holder has a dominant position in the relevant market, most of which could be found in the context of technical standard patents. Both cases can hardly affect the ordinary patent infringement cases where, still, an injunction follows the finding of patent infringement as a matter of course.

⁵⁴⁴ The conditions for the stay of execution of an injunction have traditionally been strict. S. 712 of the German Code of Civil Procedure (ZPO) allow stays only when the enforcement of the injunction leads to the debtor's irreplaceable disadvantageous position.

⁵⁴⁵ OLG Dusseldorf, 1979 GRUR 188, 189, cited by OSTERRIETH (2009) 'Patent-Trolls in Europa - Braucht das Patentrecht neue Grenzen? [Patent trolls in Europe - Does patent law need new limits?]', *GRUR* 2009, 540.

Nonetheless, in a sense these rulings might be said to reflect the German courts' rising concerns that the inflexible German legal system with respect to injunctive relief might be ineffective in dealing with the patent abusing behaviours of so-called 'patent trolls', but rather provide good nourishment for their businesses.

Here it should be noted that, behind this new sign of changes in the German court, there have been broad discussions in Germany on how to swerve to find more flexible ways in terms of injunctive relief. Without doubt, they have been affected by the US Supreme Court's decision in *eBay* which directed courts to take into account the 'four factor test' when deciding an injunction. These discussions have been mainly focused on how to circumvent s. 139 of the German Patent Act when the German courts come to face such a so-called 'patent troll' situation as in the US *eBay* case. For example, professor Ohly has argued that, as Art. 3(2) of the Enforcement Directive (2004/48/EC) requires all remedies to be proportionate and thus an injunction (Art. 11) does not necessarily have to issue in every case of infringement, an injunction should not issue in Germany if its grant would be disproportionate.⁵⁴⁶ Osterrieth has also proposed two approaches to mitigate the rigidity of current injunctive relief regime: (1) the use of existing various defence mechanisms, e.g. the competition law objection, the principle of proportionality, abuse of legal position, etc. (2) the stay of execution of an injunction on an infringed patent.⁵⁴⁷

In sum, the general rule in Germany is that infringement courts have to grant an injunction whenever a patent is found to have been infringed and the risk of future infringement still exists, and it is still valid. However, the recent rulings in the *IPCom* and *Orange Book Standard* cases begin to reveal that some slight changes,

⁵⁴⁶ OHLY, n 506, at 266.

⁵⁴⁷ OSTERRIETH, n 545.

though still quite restrictive, are in progress toward mitigating the rigid regime of injunctive relief in patent infringement litigations.

3.5. Comparative Analysis across the Jurisdictions

Based on the laws of three jurisdictions (the US, UK and Germany) examined in the previous sections, this section, by way of the comparative analytical method, seeks to draw several important issues and conclusions. By doing this, some problems to be ultimately solved in this research will also be discovered.

3.5.1. Discretion Necessary for Effective Operation of Injunctive Relief

The fundamental and foremost different feature with respect to injunctive relief in the three countries studied is attributed to the different legal systems on which each country is based. Injunctive relief in patent infringement cases is an equitable remedy in common law jurisdictions (the US or UK), whereas civil law countries (Germany) are unfamiliar with the concept of equity. Under the traditional common law, an injunction is dependent upon the discretion of trial courts and may be granted only when the relief at law is neither available nor sufficient, or when an equitable relief is appropriate by other reasons. On the contrary, in civil law countries injunctive relief has always been subordinate only to the presence of a risk of further infringements, generally untouched by the discretion of courts. Therefore it is clear that the administration of injunctive relief of courts is more flexible in the common law countries than in civil law countries.

The previous study on the US case law demonstrates the fact that certainly there are various circumstances where the grant of an injunction despite the

infringement of a valid patent is inappropriate by all means in light of either the balance of conflicting interests between parties or the interest of the public at large. It has been also found that each case has its own unique circumstances and it is practically undesirable or impossible to lay down any detailed fixed rules for injunctive relief. For example, in a certain case even an NPE patent holder (e.g. the *CSIRO* case) strongly demands injunctive relief against the infringement of her valid patent even though she does not practise the patent and does not have any plan to do so, whereas it is inappropriate in other cases. Even for the same type of NPE patent holders (e.g. individual inventors or universities), patent remedies cannot necessarily be the same due to their own individualities with respect to each party's behaviour, the relationship between parties, the nature of the patent, etc.

Therefore, even though each common law or civil law system undoubtedly has its own merit, at least in terms of injunctive relief, the flexible approaches of the former system seem to be more effective in coping with extraordinary cases, particularly in recent situations where current patent systems are believed to be exposed to frequent abuses by so-called patent trolls. In a sense, the recent court cases in Germany such as *IPCom* and *Orange Book Standard*, as well as the various academic suggestions for relaxing the long-standing rigid rule for injunctive relief, might be explained by that line of thought.

Thus, it is advisable to give a certain level of discretionary power to courts so that they may effectively handle the unintended bad consequences by an injunction in certain exceptional and outrageous circumstances.

3.5.2. Injunction Criteria and Problems in Exercising Wide Discretion

If it is admitted that there is a necessity for a flexible approach by courts in

determining injunctive relief, then a question still remains: How widely should that discretionary power of courts be set? To see this question, let us examine the relative wideness of courts’ latitude in three jurisdictions in determining whether to grant or deny an injunction.

As discussed before, the injunction criteria that are currently in force in each country are now straightforward: the four-factor-test in the US, *Shelfer* guidelines in the UK, and s. 139(1) of German Patent Act in Germany. The comparative summary is as seen as in Table 2.

Country	Governing rules	Conditions for denial	Latitude
US	Four Factor Test <ul style="list-style-type: none"> - Irreparable harm - Inadequate legal damages - Balance of hardship - Public interest 	<ul style="list-style-type: none"> - When all four factors are satisfied. 	Wide
UK	<i>Shelfer</i> Guidelines <ul style="list-style-type: none"> - Smith LJ’s test <ul style="list-style-type: none"> · small injury & damages · money compensation · oppressiveness - Other exceptions <ul style="list-style-type: none"> · trivial infringement · interest only in money · public interest, etc. 	<ul style="list-style-type: none"> - When Smith LJ’s test is satisfied, and/or - When other exceptional requirements are met. 	Very wide
Germany	S. 139(1) of PatG	<ul style="list-style-type: none"> - Automatic grant upon finding infringement. * Exception: competition law defence 	Very narrow

Table 2. Injunction criteria comparison between three jurisdictions

Seen from the theoretical point of view, the courts’ latitude for denying an

injunction in the UK appears to be wider than that in the US in the sense that the UK courts are able to refuse an injunction claim by applying other individual exceptional circumstances other than the narrow Smith LJ's test, while US courts may do so only if all four prongs of the test are met. For example, in terms of public interest, UK courts may deny an injunction on that sole ground, whereas US courts should take it into account together with other factors. It is needless to say that the latitude in Germany is the narrowest because the German law does not allow courts to exercise discretion in terms of injunctive relief.

Nonetheless, it is not sure whether this theoretical result would appear the same in practice. Due to the scarcity of relevant cases in the UK, it is in fact affordable for us to predict how the UK courts will apply the *Shelfer* Guidelines in actual cases and thereby to measure which country between the UK and the US has wider latitude in practice. No one knows for sure whether the discretionary power in the UK court could be wider or narrower than that in the US in the actual world. It all depends upon how courts interpret the requirements for injunctive relief. The problem is that, despite the presence of governing rules, e.g. the four-factor test or *Shelfer* guidelines, these rules are too abstract and thereby the injunction test is ultimately resting on the judge's discretion after all.

This policy line seemingly looks like a plausible and convenient solution on the one hand, but it may possibly be subject to general public sentiment of the time and could be short-sightedly neglecting the long-term consequences on the other hand. This worry could be found in the US post-*eBay* trend. The foremost shortfall of the *eBay* case is the failure to provide more specific guidelines to be applied in actual cases. Due to that deficiency, since then US district courts have had serious difficulties in navigating unknown land. One of the salient phenomena during the

post-*eBay* period is the fact that the chances for NPE patent holders to get an injunction have sharply decreased. Whether a patent owner is practising the patent and whether she has once licensed or is willing to, have become crucial factors for the US courts' injunction evaluation processes.⁵⁴⁸

The perception that non-use of the patent leads to ineligibility for an injunction might not be necessarily blamed per se, provided that any safe measures are devised to contain possible side effects. However, as the number of cases which denied NPE patent holders' injunction claims increases, the manufacturers' incentive to infringe the patent rather than buying a licence *ex ante* also increases, which, in turn, diminishes the NPE patent holders' incentive to invent in the long run. Unfortunately no US court has ever proposed satisfying solutions for those long-term problems due to frequent denial of injunctive relief to NPE patent holders.

The sudden changes of rules in terms of injunctive relief after the *eBay* case, as can be found in the concurrence by Justice Kennedy in *eBay*, is largely influenced by the concerns of uprising patent troll problems. Ironically, the measure by *eBay* to curb patent trolls leads to an increase in the power of patent trolls. While many patent trolls have already grown up enough to survive just with litigation threats or by damages even though the injunction threat has disappeared, innocent NPE patent holders with limited resources may give up enforcing their own patents by themselves and sell them to real patent trolls. This assumption might be supported by the fact that patent troll problems in the US have never waned despite the gear-shifting measures during the post-*eBay* period. The courts' exercise of discretion with short-sighted perspective to solve imminent problems without taking into account long-term consequences can be also problematic.

⁵⁴⁸ This line of thought is also found in the UK case law. See section 3.3.2.3.

To sum up, in principle a certain level of discretion of courts is inevitable but the post-*eBay* experience in the US teaches us that ample discretion without a certain level of constraint could tend to be swayed by the short-term interests of society, digressing from the righteous path which the patent system intends to achieve. Therefore, rather than leaving all burdens only on the shoulders of judges, reasonable guidelines need to be delineated in a practicable way to make clear the boundaries of the discretion of the court. This will not only alleviate the workload of courts in exercising their discretion but also increase the expectancy of court rulings.

3.5.3. Effective Legal Tools: Delaying an Injunction and On-going Royalties

The comparative summary in terms of the suspension of an injunction going into force as well as alternative remedies in case an injunction is not to be awarded is shown in the following table.

Country	Delay of an Injunction	Alternative Remedies
US	- Stay on appeal - Injunction with ‘sunset provision’	- Damages in a separate litigation - Prospective damages · lump-sum damages · on-going royalties
UK	- Stay on appeal - Injunction with ‘run-off time’	- Prospective damages
Germany	- Stay on appeal (limited)	- None

Table 3. Delay of an injunction and alternative remedies in three countries

The US and UK laws, unlike German law, give courts discretionary power to fashion an injunction as they see fit once they have decided to grant an injunction. In

principle a stay on appeal is commonly possible in all three jurisdictions although it is much more difficult in Germany, whilst ordering an injunction with a certain period of delaying its execution is only allowed in the US and UK. The ‘sunset provision’ and ‘run-off time’ in the US and UK respectively are different only by name but the same in substance.

Even though it has been applied in just a few cases in the US⁵⁴⁹ and not in any IP cases in the UK so far, well-calibrated suspension of an injunction order could be one of the effective measures by which to overcome the abusive behaviours of patent holders including NPEs. Firstly, a properly-defined delay of an injunction does not impair the exclusive nature of a patent right; the core value of the patent system, thereby alleviating criticisms that frequent denials of an injunction even when the valid patent is infringed, could undermine the long-standing belief of equating a patent right with a property. Secondly, by providing infringers some time to design around the patented invention, the option to delay an injunction can alleviate the unexpected serious impacts on both infringers and the public from the immediate execution of an injunction. Lastly, from the theoretical perspective, the delay of an injunction lessens the hold-up effects by which patent holders, especially NPEs, can obtain extreme leverage power against infringers who are already locked in by their productions.⁵⁵⁰

Meanwhile, when the grant of an injunction is not appropriate, alternative remedies are available in the US and UK as a natural result of exercising discretion for an injunction. In the US, different kinds of alternative remedies have been granted while damages are known to be the only alternative to injunctive relief in the

⁵⁴⁹ Section 3.2.2.4.5.1.

⁵⁵⁰ This theoretical aspect of a hold-up problem is discussed in chapter 4.

UK so far. The post-*eBay* case law of the US shows that on-going royalties is the most preferred alternative because it may well reflect the changing market conditions in the future. It is reasonable in that other options have more shortfalls than advantages. Letting the patentee periodically file another claim for past damages could be troublesome for her in enforcing the patent, even though it may let the court calculate damages more accurately. Awarding lump-sum damages is not a good option because market conditions vary constantly and no one can predict future damages correctly, even though it appears rather simple.

In sum, from the previous study on the various court cases in three countries, granting an injunction with a finely-tuned delay of its execution gives a good insight for devising a new mechanism to solve the NPE patent holders' patent abuse problems, and in any case where an injunction should be denied, on-going royalties could be the most plausible alternative remedy for patent holders save exceptional circumstances.

3.5.4. Statutory Compulsory Licence: A Limited Solution for NPE Problems

Patent statutes of the UK and Germany have compulsory licence provisions, particularly on the grounds of non-working or insufficient working of a patent, whereas the US Patent Act does not.

Even though this statutory compulsory licence may be significant in the sense that it may correct possible bad consequences which arise from the strict operation of the patent system, it provides only limited solutions for the problems arising from the non-practising of a patent by its holder. Particularly, as importation is generally regarded to satisfy the working requirement within the territory of a nation, its significance has been substantially diminished. The uncertainty of patent

validity which may constrain the incentives of would-be users to negotiate for a licence, as well as, the very conservative operation by each government or court, has the effect of making resorting to compulsory licence more unpopular.

It is undeniable that the statutory compulsory licence may provide a solution to the NPE problems in an indirect way by putting pressure on them to practice their patented inventions and thereby reducing the risk of any future patent infringement suit claimed by NPEs. Nonetheless, it does not give much help to the dispute between the NPE patent holder and manufacturer once the latter party has infringed the patent, because the validity of the patent is contested in this situation. At this litigation stage, judicially granted compulsory licence rather than a statutory one may be thought of as one of the viable solutions.

3.6. Conclusions

This chapter examined the national laws of the US, UK and Germany with respect to the issues of NPE patent holders' patent enforcement and injunctive relief. The US has experienced the most drastic law change by the US Supreme Court's decision in the *eBay* case in 2006, letting district courts apply the four-factor equity test. Since then, a number of NPE patent holders have been unsuccessful in obtaining an injunction. Unlike the US, the UK and Germany have not experienced these kinds of eye-opening changes even though they came to encounter a few NPE cases arousing controversy in recent years.

From the comparative analysis between the laws of those three jurisdictions, several lessons can be drawn. First of all, to effectively deal with various circumstances, it is necessary to allow courts to exercise discretion in determining whether to grant or deny an injunction as well as in fashioning the injunction. A

flexible injunction rule rather than yes-or-no-styled uniform standard is well suited to the situation where patent abusing practices are believed to be rampant. Even though a flexible approach is required, however, allowing too much and too vague discretionary power to courts may possibly let them fall into the fallacy of not seeing the wood for the trees. As seen during the post-*eBay* period in the US, the persistent denial of an injunction against NPE patent holders may be an example of that concern in the sense that it would not curb patent trolls but only diminish innocent NPEs' incentives to invent new valuable technologies. Thus, reasonable and specific guidelines in which all anticipated side effects are fully considered should be proposed for courts to apply when exercising the discretion.

Another important lesson to learn is that delaying the execution of an injunction could be a viable solution for the patent abusing problems by the NPE patent holders because it does not greatly undermine the exclusiveness of patent right and also lessens the harmful consequences on both the infringer and the public by reducing the hold-up effects of an injunction. In any case where an injunction should be denied, it was also discovered that on-going royalties are the most viable alternative to an injunction. Lastly, it was also found that the statutory compulsory licence has limited sense in relation to this research topic and may be excluded from the list of viable solutions.

The aforementioned findings are meaningful in light that they are drawn from actual experience in the past. Some other issues which are crucial to the research topic will be discussed in the following chapter 4. All the findings in this chapter and the next will then be used as fundamental grounds and pillars for a new injunction evaluation model which will be proposed in chapter 6.

Chapter 4 Analysis of NPE-related Theoretical Issues

4.1. Introduction

If the previous chapter sought to find the problems and lessons regarding the NPE issues through the analysis of how NPEs have been dealt with in practice by statutory and case laws, this chapter seeks to draw other findings from theoretical perspectives. All of these findings will be used as basic principles or conditions for a new injunction model which will be designed in chapter 6.

The NPE problems occur mainly at junctures where (1) NPEs do not commercialise their patents, (2) they use an injunction as a main weapon for advantageous licence negotiations, and (3) they utilise the infringers' locked-in state caused by the heavy investment in commercialisation. Considering them, this chapter examines the various issues which arise at those junctures. As the NPEs issues are interconnected with all other participants and general aspects of patent law, it should be noted here that the following discussions seek to understand those issues within the overall picture of the patent system rather than focusing simply on NPEs.

More specifically, section 4.2 analyses the relative significance of invention and commercialisation within the innovation process. It reveals that the current NPE (patent troll) problems are partially attributable to the failure of our patent system to effectively bridge the gap between invention and commercialisation, as well as that hence restoration of this function should be taken into consideration in solving the NPE problems. Section 4.3, applying the analytical theory developed by law and economics scholars, discusses how the exclusive right of patents should be protected, i.e. either by the property or the liability rule. In comparison with tangible property

rights, it examines which characteristics of patent rights may support each rule in particular. Section 4.4 discusses the patent hold-up problem, the most critical issue in NPE discourse, mainly from economic perspectives. Considering the Lemley-Shapiro hold-up model along with criticisms by other scholars, it discovers in what circumstances the hold-up problem is serious and what measures may possibly mitigate the problem. It further extends its discussion to the technical standards area where hold-up effects are much more acute.

4.2. Invention, Commercialisation and NPEs

The primary aim of the patent system is generally believed to be to encourage technical innovation. Strictly speaking, ‘innovation’ should be distinguished from ‘invention.’ Whilst invention refers to ‘the act of conceiving the design for a new and non-obvious technological product or process,’ innovation is not restricted to the boundary of invention but encompasses an entire process from finding a problem to making a commercial product.⁵⁵¹ Even though the patent system mainly deals with inventions, there is no question as to the fact that its ultimate goal is to promote innovation through a vehicle of invention.

This section examines not only what kind of economic meaning NPEs have in the innovation process, but also what kind of approaches to curb NPEs’ abusive behaviours should be in the patent system. As a preliminary discussion, this section overviews the general process of technical innovation in a society and the attitude of patent law towards commercialisation of a patent, and then attempts to draw implications for the above questions.

⁵⁵¹ SICHELMAN (2010) ‘Commercializing Patents’, *Stan. L. Rev.*, vol. 62(2), p. 341, at 366.

4.2.1. Fundamental Functions of Patent Law for Sustainable Innovation

The term innovation generally refers to ‘renewal or improvement’ of the existing state. It does not happen instantly but rather through a certain chain of continuous steps. Even though the process of innovation does not appear in a uniform way across industries or upon entities, a conceptualised general process of technical innovation would be helpful to view the whole picture of the innovation process in relation to the patent system.

An innovation process is generally realised through the following simplified series of steps: (S1) identifying a problem to be solved - (S2) the conception of various plausible solutions – (S3) refining a solution and developing and testing a prototype – (S4) transforming the prototype into a commercially viable product – (S5) market testing and marketing – (S6) distribution of the product – (S7) the further improvement of the product (the repetition of previous steps).⁵⁵² Even though innovation happens at every step, important technological improvements eligible for patents mostly occur at steps (S2) – (S4) and many of the patents are applied particularly during stage (S2) and (S3) because most of the inventors tend to file them as early as possible once the technical solutions qualify for patenting. Identifying a problem at step (S1) is not generally protected by the patent system because any findings at this stage do not satisfy the patentability requirement, and the innovative improvements at the step of market testing (S5) and distribution of the product (S6) are, if not in every case, generally protected by ‘trade secret’ rather than by patent.

Here, PE patent holders go through the whole chain of the innovation

⁵⁵² Ibid. at 348-354.

process. In addition to the contribution through disclosure of the patented technology, they also directly contribute to the public welfare by supplying commercialised products or services. Furthermore, the concrete implementation into a product or service tends to provide even greater stimulus for further innovation than mere knowledge described in a patent does, in that discovering problems and making improvements are much easier when the invention is disclosed in a product visible to the naked eye rather than in a conceptual state. Compared with the invention stage, commercialisation faces much more time and investment under higher risk of failure. It is reported that, in a modern economy, the further development for commercialisation accounts for more than three-fourths of the total R&D costs of vertically integrated manufacturing companies.⁵⁵³ Furthermore, for the development of a commercial product, more sophisticated technologies and know-how other than the patented ones are necessary for the manufacture. In addition, there exist other market requirements or government's authorisations other than R&D factors. Whatever the reason, commercialisation tends to be risky due to many uncertain variables.

Meanwhile, NPEs do not proceed up to the commercialising step (S4), but they let their patents be commercialised by other manufacturers through a license deal or give up the exploitation unless the licence is available. This pre-commercialisation work for an invention contributes to the sustainable development of technology by providing the foundations for further technical advancements, as well as for downstream manufacturers. Even though we admit that NPEs carry out commercialising function in an indirect way via the licence scheme, it is obvious that

⁵⁵³ FTC (2011) 'The Evolving IP Marketplace, Aligning Patent Notice and Remedies with Competition', available at <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>, at 41.

the net innovation level produced by NPEs would be substantially lower than that of PEs if the quite low rate of commercialisation of issued patents is considered.

Then, should PE patent holders be protected by patent law more than NPEs so as to compensate their innovative attempts against the high risk? Despite the hardship of commercialisation, the reason why a large number of entities enter into product manufacturing is because of the possibility of high returns. By considering every factor for commercialisation, they decide whether and when they will enter the product market. This means that the compensation for their adventure is made by the market mechanism. If seen from the side of NPE patent holders, in principle those who do not commercialise their patents also pass up the opportunity of gaining high profits from commercialisation and just settle for revenues either by licensing or selling the patents. In this sense, there is no convincing reason that the patent system should give more favours to PE patent holders than NPEs.

Therefore, for the patent system to play a role in promoting innovation effectively, it should not only encourage invention in the early stage of the innovation process, but also encourage commercialisation of the product. This means that both functions of the patent system are equally important for sound innovation and one should not be sacrificed at the cost of the other.

4.2.2. Proper Approaches to the NPE Issue from the Innovation Viewpoint

If the patent system ought to encourage both the invention and its commercialisation, does it provide direct motivations for patent owners to commercialise their patents the same as it does for obtaining a patent right? In fact, no modern patent law requests patent applicants to commercialise their inventions as a precondition for the patent grant, and also, even after the grant, it does not impose any obligation of use

for keeping the right valid. Rather, mainly leaving that function in the hands of the relevant market, the current patent system encourages commercialisation only in an indirect way, e.g. by allowing the licensing of the patent to others who are capable and willing to commercialise it, or by putting the psychological pressure of compulsory licence to patent holders who do not exploit the patent.

This attitude of patent law keeping commercialisation at a distance may be attributable to a few theoretical grounds. Firstly, if the commercialisation of the invention were to be a requirement for the patent grant, a lot of inventions would remain in a secret state until the invented technologies are commercialised, and furthermore the NPEs' incentives to invent would be seriously damaged. Secondly, coercing commercial use is against the economic principle of division of labour. As discussed in chapter 2, in a modern complex economy a company cannot make a whole product without cooperation of others and, even if possible, it is undesirable from the point of economic efficiency. Even though there are a number of companies which are vertically integrated encompassing R&D and manufacturing, a number of firms oriented either only at research, manufacturing, or mediating firms are also increasingly important for a healthy and efficient economy. As a matter of course, mandating the commercialisation for acquiring or maintaining an exclusive right of patent may result in inefficient use of resources. Lastly, controlling commercialisation generates additional inefficiencies from the management perspective of the patent system. Since the success of commercialisation is surrounded by so many uncertain and changeable variables, it is, if not impossible, impractical to manage them by any fixed rules. Were it possible, substantial costs would accompany in many cases.

Let us take an example. Gwartney, with the purpose of encouraging the

commercial use of patents, once proposed a patent law reform by dividing the patent right into two periods: the period of exclusivity and the period of compulsory licence.⁵⁵⁴ According to this model, the initial period of exclusive patent right is given to the patentee (e.g. 3 years from the date of grant), and this exclusive period is renewed for the subsequent period of time (e.g. 3 years) only if the patentee qualifies the commercialisation test.

If she fails the test, the patent enters a state of mandatory licensing. Although the proposed model may increase the incentives to commercialise the patent on the one hand, it exposes the problems mentioned above on the other hand. This model would discourage early disclosure of invented technology in case the inventor expects the invention not to be commercially exploited in the near future and thereby decrease innovation. Once the patent is granted, in some cases the patentee may invest her resources for commercialisation only to defend the exclusive right even though she is not yet ready for that, thereby not using the resources efficiently. Furthermore, the government (national patent office) screening the qualification for the extension of exclusive period should spend a lot of resources to examine periodically whether all patents granted are commercially exploited. This burden is further transferred to courts because this matter would be a crucial factor to determine whether an injunction or compulsory licence is issued.

Many people do not feel at ease by the fact that a substantial number of the issued patents are not commercially exploited.⁵⁵⁵ They perceive it as a result of

⁵⁵⁴ GWARTNEY (2009) 'Harmonizing the Exclusionary Rights of Patents with Compulsory Licensing', *William and Mary Law Review*, vol. 50, p. 1395.

⁵⁵⁵ SICHELMAN, n 551, at 344, citing GAMBARDELLA, et al. (2005) 'The Value of European Patents: Evidence from a Survey of European Inventors', available at <http://www.alfonsogambardella.it/PATVALFinalReport.pdf>. (According to the survey funded by the

patent race, which is again the result of the current patent law which only encourages inventors to file for patents as early as possible regardless of whether they are practised.⁵⁵⁶ In fact, their uneasiness for the high rate of non-commercialisation of patents comes from the belief that patent abuse by so-called patent trolls is basically due to the increase of non-utilised patents and hence minimising or eliminating them is the most effective way to suppress the patent trolls' businesses.

It is undeniable that the substantial portion of issued patents is not commercially exploited in the current patent system. However, the high rate of non-use itself should not necessarily be taken seriously as long as the non-exploited patents are not unduly used in such a bad way as they might be by patent trolls. The commercially unexploited patents are not entirely meaningless in the light that they still contribute to innovation by enriching the existing knowledge, which again are utilised for producing more advanced products. In addition, if it is considered that the direct control of commercialisation by the patent law may do nothing but cause serious side-effects, the current patent system, which puts much more interest in the invention stage than the commercialisation stage, has justifiable reasons for taking that course and therefore should not be blamed as a prime source of NPE problems.

Then, together with devising a legal tool to contain the unjustified enforcement of patents,⁵⁵⁷ a certain efficient method to facilitate the patent transactions between patent owners (NPEs in particular) and manufacturing companies should be implemented to increase innovations as well as to attenuate the NPE problems. As will be discussed in the next section, however, the private

European Commission against 9,000 European inventors, about 38% of all patents were commercially exploited).

⁵⁵⁶ SICHELMAN, n 551, at 343.

⁵⁵⁷ This legal tool is mostly related to how to deal with the injunctive relief.

transaction of patents in the market certainly has its limits because of the intrinsic shortcomings of patent itself, such as uncertainty of validity, scope and value.

4.2.3. Conclusions

From the perspective of technical innovation, both the invention and the commercialisation are equally important and thus either value should be protected by the patent system in a balanced way. Due to the inappropriateness of directly controlling commercialisation through patent law, however, the patent law is concerned mainly with invention rather than commercialisation and thereby does not impose obligations to commercialise the inventions on the patent applicants and the right holders.

In practice, the market function to link inventors with manufacturers is not efficient enough due to the intrinsic nature of patent rights and the wide gap between invention and commercial use has partly influenced patent abuses by certain NPE patent holders. As a measure to restore this patent transaction function, one may think of a patent law reform exacting the commercialisation for a patent grant or its maintenance. However this kind of attempt can face serious risks unless it is perfectly designed.

These findings being considered, the improvement of the current inefficient market function to bridge the NPEs and manufacturers seems one of the key factors for the successful operation of the patent system. This implies that any solution model for the NPE problems should take into account the efficient patent market and thereby assist the voluntary negotiations between parties through the market function rather than by any strong interference of the government or courts.

Nonetheless, facilitating the voluntary transaction between parties, despite

its importance, remains as an auxiliary solution to NPE problems. The more direct solutions are related with other issues associated with injunctive relief, i.e. the exclusivity of patent right and the patent hold-up caused by an injunction. These issues are discussed in the subsequent sections, respectively.

4.3. Exclusive Right of Patents and Proper Governing Rules

The NPE problems are basically rooted on the fact that the current patent system awards the same level of exclusive right to all patent holders regardless of whether they exploit their patents or not. The exclusivity is closely related to the injunctive relief at the patent enforcement stage. This exclusive nature of patents and the protection scope thereof have generally been equated with those of tangible property rights. However, the patent right has many characteristics quite different from tangible property rights in many ways. As discussed below, they are never trivial enough simply to ignore and raises a question whether a patent right should be protected by strong property rules or weakened by applying liability rules.

The area of economic analysis of law has provided valuable frameworks for study on the relationship between the entitlement of patent rights (right to exclude) and their remedies. Among them, the application of the property and liability rule dichotomy in general areas of law into the patent law gives us some insights concerning when and to what extent the exclusionary right of patents may be transformed into either injunctive relief or monetary remuneration. This section starts with reviewing the patent system through a theoretical lens (the Calabresi-Melamed transaction costs theory) which is widely accepted in the field of law and economics, from both static and dynamic perspectives. Thereafter, it discusses whether the patent law should be governed either by the property rule or liability rule or by the mixed

form. From this, this section eventually seeks to find some pre-conditions which the solution model for NPE problems in this research should necessarily meet.

4.3.1. An Overview of Property and Liability Rules

The ownership and transference of entitlements (or rights) are the basic and fundamental rules in all of private law and the law provides two different means to protect entitlements.⁵⁵⁸ One is ‘property rules’ which simply prohibit certain types of infringing conduct, and the other is ‘liability rules’ which put a price on the victim’s injuries caused by infringements and let the infringers pay this price rather than suppress the wrong conducts.⁵⁵⁹ To put it simply, property rules, like a landowner’s right to evict trespassers, allow the entitlement holder to prohibit others’ encroachments on her entitlement without worries of incurring liability. If the infringer wants to use the land, the only way is to purchase or lease an entitlement at a subjectively set price by the owner. Liability rules, by contrast, simply take away the ability to exclude others from the right owner, so that anyone may take the right upon payment of the price which is objectively determined equal to the actual injuries the right holder received.⁵⁶⁰ This situation can be found, for example, when a factory is permitted to emit pollutants so long as it reimburses afflicted neighbours for the harm caused.

The conspicuous differences between these two rules are that an injunction is a form of remedy under the property rule regime while damages are under liability

⁵⁵⁸ KRAUSS (1999) 'Property Rules vs. Liability Rules', *Encyclopedia of Law and Economics (3800)*, available at <http://classweb.gmu.edu/mkrauss/prop-liab.htm>.

⁵⁵⁹ HYLTON (2005) 'Property Rules and Liability rules, Once Again', *Boston Univ. School of Law Working Paper No. 05-17*, at 1.

⁵⁶⁰ DEVLIN (2009) 'Indeterminism and the Property-Patent Equation', *Yale Law & Policy Review*, vol. 28, issue 1, pp. 61-106, at 67.

rules, and that the value of the right is decided subjectively through parties' voluntary negotiation under the property rules while the amount of compensation by the liability rules is objectively determined by collective determination, e.g. by courts.⁵⁶¹ The choice between these two rules is fundamental for shaping a variety of rules governing each law, e.g. property, tort, and criminal law.

With regard to patent law, traditionally the preference for property rules has been widely recognised for protecting the exclusive right of patent.⁵⁶² The supporting grounds for the property rules are not only that the patent rights are similar to the tangible property rights for which injunctive relief is an effective remedy to protect the right to exclude others from using without permission, but also that, from the economic standpoint, injunctive relief, which spurs *ex ante* incentives to innovate and for efficient voluntary bargaining, is less costly than court ordered damages of which an optimal amount is intrinsically difficult to calculate.⁵⁶³ However, since the emergence of patent trolls and the *eBay* case in particular, the voices for the supremacy of liability rules over property rules have gained increasing support. The proponents of liability rules emphasise that the high transaction costs (leading to 'patent market failure') are inherent in the patent system and strategic hold-up threats are expected under a strong property rule regime.⁵⁶⁴

⁵⁶¹ POLINSKY (1980) 'On the Choice Between Property Rules and Liability Rules', *Economic Inquiry*, vol. 18, pp. 233-246, at 233.

⁵⁶² BERNIERI, n 447, at 121.

⁵⁶³ *Ibid.* at 121-122.

⁵⁶⁴ DEVLIN, n 560, at 67, quoting BENKLER (2000) 'An Unhurried View of Private Ordering in Information Transactions', *Vanderbilt Law Review*, vol. 53, issue 6, pp. 2063-2080. See also DEPOORTER (2008) 'Property Rules, Liability Rules And Patent Market Failure', *Erasmus Law Review*, vol. 1, issue 1, pp 59-74; REICHMAN (1994) 'Legal Hybrids Between the Patent and Copyright Paradigm', *Columbia Law Review*, vol. 94, p. 1501. (suggesting 'off-the-rack liability rule' regime).

In the midst of those great discords is the ‘transaction costs theory’ whose importance was recognised by the ‘law and economics’ movement. In this regard, the quest for an optimal rule of body in patent law should start from the correct understanding of the law and economics approach in the first place.

4.3.2. Law and Economics Approaches

The terminology, ‘law and economics’ or ‘economic analysis of law,’ refers to the application of various economic theories and methods to ‘evaluate the formation, structure, processes and impact of the law and legal institutions.’⁵⁶⁵ Even though it is relatively new, starting from the early 1960s, the law and economics movement has played an important role in patent law as well, with respect to designing patent policies and shaping legal or judicial doctrines.⁵⁶⁶

A starting point for the discussion of property and liability rules is the Coase Theorem.⁵⁶⁷ The Theorem says that in a situation of zero or low transaction costs, efficiency will be achieved through private bargains regardless of the initial rights allocations. In other words, an efficient result cannot be attained in a circumstance with high transaction costs. After all, the Coase Theorem arouses our awareness of high transaction costs with the allocation of property rights and governing rules for the exchange of those rights.⁵⁶⁸

Applying the main idea of the Coase Theorem, Calabresi and Melamed, in their seminal article put forth in 1972, provided the categorisation of legal

⁵⁶⁵ BERNIERI, n 447, at 15.

⁵⁶⁶ Ibid.

⁵⁶⁷ COASE (1960) 'The Problem of Social Cost', *Journal of Law and Economics*, vol. 3, pp. 1-44.

⁵⁶⁸ MERGES (1994) 'Of Property Rules, Coase, and Intellectual Property', *COLUMBIA LAW REVIEW*, vol. 94, issue 8, pp. 2655-2673, at 2656-2657.

entitlements into property and liability rule dichotomy upon the concept of transaction costs.⁵⁶⁹ They elaborated the distinction and relative superiority of property and liability rules according to the extent and nature of transaction costs in each particular setting. The authors see that an entitlement given to ‘private property’ is protected by a property rule in many cases, but they also argue that there are circumstances where liability rules are better-suited than property rules for an efficient trade.⁵⁷⁰

Their main claim to justify this shift to liability rules is where the subjective market valuation of a property under property rules ‘is either unavailable or too expensive compared to a collective valuation’ due to, for example, the involvement of many parties in bargaining and the likelihood of the right holder’s strategic behaviour, thereby causing economic inefficiency.⁵⁷¹ In other words, from the economic efficiency standpoint, property rules are superior to liability rules when transaction (or bargaining) costs are low, while liability rules would be preferred in circumstances where high transaction costs are expected.⁵⁷² In specific, liability rules could be invoked easily in the existence of multi-party involvement in bargaining and the likelihood of strategic behaviours such as ‘holdout’ problems.⁵⁷³

⁵⁶⁹ CALABRESI, *et al.* (1972) ‘Property Rules, Liability Rules, and Inalienability: One View of the Cathedral’, *Harvard Law Review*, vol. 85, no. 6, pp. 1089-1128.

⁵⁷⁰ *Ibid.* at 1105.

⁵⁷¹ *Ibid.* at 1110.

⁵⁷² *Ibid.* at 1106-1108.

⁵⁷³ The ‘holdout’ refers to the property owner’s strategic behaviour to delay an agreement with potential users expecting the value increase of the object for future deals. In the patent field, certain commentators argue that the ‘holdout’ in real property has converted into the term ‘hold-up’ in patent law (see SOLOMON (2010) ‘Adverse Effects of Moving from Property Rules to Liability Rules in Intellectual Property: A New View of the Cathedral Without the Disintegration of Property Rights in Patent Law’, *SSRN*, available at <http://ssrn.com/abstract=1623977>. fn. 74).

Even though some scholars have questioned some parts of Calabresi and Melamed's theory in recent years, it should be noted that they do not challenge the theory's fundamental point that transaction costs determine the choice of the proper entitlement between property and liability rules.⁵⁷⁴ Overall, Calabresi and Melamed get the credit for developing a framework which integrates 'various legal relationships which are traditionally analysed in separate subject areas such as Property and Torts'⁵⁷⁵ and their theory is still holding a strong footing among scholars and policy makers.

Applying the Calabresi-Melamed theory, the following sections discuss which rules between property and liability rules would be a more efficient choice in the patent law context by examining the true level of transaction costs as well as by discovering some exceptional circumstances which should be considered in that calculus. For more accurate assessment of transaction costs, care should be taken not to fall into a fallacy overlooking the wood for the trees. This attitude is particularly important because the patent rights, unlike tangible properties, are not just limited to the interest of the right holders but, more importantly, for the promotion of technological innovation ultimately benefiting the public as a whole. In this sense, our assessment of the transaction costs should not cover only *ex ante* transaction costs (a static efficiency perspective) which Calabresi and Melamed's theory is mainly interested in, rather it also should assess long-term consequential costs (a dynamic efficiency perspective). The final conclusion upon which rule is more appropriate in the patent system should be drawn only after carefully balancing these

⁵⁷⁴ For the relevant articles of these scholars, see HYLTON, n 557; KAPLOW, *et al.* (1996) 'Property Rules versus Liability Rules', *Harvard Law Review*, Vol. 109, No. 4.

⁵⁷⁵ CALABRESI, *et al.*, n 569, at 1089 (editor's comment).

two types of transaction costs.

4.3.3. Short-term *Ex ante* Transaction Costs

For either licensing or sales of a patent right, just like with tangible properties (e.g. a parcel of land), negotiating parties should have information about (1) who owns the required technology, (2) whether the detected patent is valid, (3) what boundaries the patent has (and further whether infringement can be established), and (4) how much the patent can be valued at for bargaining.

4.3.3.1. Costs from the Difficulty of Locating Ownership

First of all, it is not easy for potential negotiators to find owners of patents required for a technology. Due to their intangible nature, patents do not provide sufficient tools to signal ownership to third parties, unlike tangible properties whose physical occupation is relatively conspicuous.⁵⁷⁶ Even though every patent system equips a disclosure or recordation requirement and patent documents are published to the public by way of convenient internet-based databases these days, the high costs of searching the relevant patents are unavoidable. When a manufacturer searches relevant databases to attempt to clear infringement risks before entering into business, she normally expends substantial resources regardless of whether she does it by herself or by employing other experts. Such expenditure is required because there are so many patents in each technology area and complicated analysis must follow to locate the right owners among the patents searched. The difficulties of this work basically stem from the fact that patent rights exist in the form of descriptive

⁵⁷⁶ MOSSOFF (2009) 'Exclusion and Exclusive Use in Patent Law', *Harvard Journal of Law & Technology*, Vol. 22, No. 2, at 35.

language, which inevitably requires interpretation. These search costs increase when a manufacturer is planning to launch her products in multiple countries rather than her own country. Again, the same course of action must be taken for the patent documents from other countries, which often would be written in unfamiliar languages. In spite of these efforts to locate the ownership of patents, she cannot rule out the possibility that an unexpected patent owner will pop up later, due to the imperfect nature of patent search and claim interpretation. These serious costs caused by the uncertainty in locating ownership are distinct in the area of intellectual property.⁵⁷⁷ In a land law, by contrast, the owner of a piece of land can be easily identified by looking up public records. Even though there might be circumstances where searching costs are needed in tangible properties, the problems are not as serious as in the patent system.

4.3.3.2. Costs from the Uncertain Validity of Patent Rights

The validity issue is the foremost factor which increases the transaction costs. Patent examiners in the Patent Office examine each patent application in terms of patentability laid down by the patent law. However, due to the practical limitations of the Office to conduct sufficient reviews of the requirements, it is not reasonable to simply assume that most of the patents issued are surely valid. Recent empirical researches show that, only 38% of the patents litigated (in 19 months to mid 2010) are found valid in the UK⁵⁷⁸ and around 50% in the US.⁵⁷⁹ This reflects how serious

⁵⁷⁷ STERK (2008) 'Property Rules, Liability Rules, and Uncertainty About Property Rights', *Michigan Law Review*, vol. 106, at 16.

⁵⁷⁸ KARET (2010) 'Patent and Competition Law', *Conference on Patent Protection and Competition Law*. London.

⁵⁷⁹ ALLISON, *et al.* (1998) 'Empirical Evidence on the Validity of Litigated Patents', *American*

the validity issue exists in the patent system, yet in order to protect the integrity of the patent system, the assumption that all patents are valid is an inevitable choice for rule-makers.

Although a manufacturer may find related patents by paying the cost of a search, the uncertain nature of validity forces her to pay extra money to evaluate it. For this evaluation, again she needs to search relevant prior arts as she did at the stage of searching for the ownership of the patent. However, the relevant costs at this stage are much severer in light that she should search not only every document (including patent and non-patent materials) from (theoretically) all parts of the world beyond the country that matters, but also similar practices which had been conducted before the application of the patent in the relevant industry sectors. Without doubt, this search accompanies complicated and time-consuming processes of comparing the patent right with searched prior arts.

Depending on her assessment of the validity test, the manufacturer may approach the patent owner to negotiate for a licence or transference, design around her product, or continue the production as planned. Yet, due to the limits of extensive search or personal ability to carry out claim interpretation, the manufacturer cannot have confidence that her decision on the validity is crystal clear even though she spent a substantial amount of money for the test. As only courts can ultimately determine the validity, she is likely to pay unnecessary royalties on the patent which could be eventually found to be invalid by the court, or to face an infringement suit

Intellectual Property Law Association Quarterly Journal, vol. 26, p. 85. (finding that 46% of the US patents litigated in courts were found invalid); LEMLEY (1997) 'The Economics of Improvement in Intellectual Property Law', *Stanford Law and Economics Olin Working Paper No. 365*, available at <http://ssrn.com/abstract=1274199>. (finding that win rates were almost 50% for the cases observed between 1978 and 1999).

from the owner at later stage. After all, the uncertainty in terms of patent validity places extra burden upon manufacturers who want to negotiate with the patent holder for a licence or sale. These severe costs are not normally expected in cases of tangible property.

4.3.3.3. Costs from the Uncertain Scope of Patent Rights

Patent rights are quite ill-defined unlike a parcel of land whose boundaries could be surveyed with relative ease. This is because the scope of a patent right is defined by the descriptive claims which necessarily need an interpretation. In most of the patent infringement litigations, the interpretation of patent claims becomes one of the critical issues which arouse fierce disagreements between parties. Sometimes a seemingly simple single word causes a serious dispute because the interpretation defines the boundaries of the patent which directly affect the establishment of infringement of patent. As patent owners tend to interpret the claimed language broadly whilst potential users are inclined to construe rather narrowly, the claim interpretation acts as an obstacle to bargaining a deal. Furthermore, the doctrine of equivalents, a legal rule that allows a court to expand the boundaries of the right to activities that do not literally infringe the right claimed, further aggravates the uncertainty problem. An empirical work ascertains this uncertainty problem of patent boundaries from the difficulty of claim construction: the CAFC overturned about 30% of appeals on the claim construction.⁵⁸⁰

Obviously, the fuzzy boundaries of patent rights drive up the costs for voluntary negotiation. In this context, Lemley once insisted that transaction costs in licences take up 20 percent of the total value of the licensing, partly due to the

⁵⁸⁰ BERNIERI, n 447, at 79.

uncertain scope of patents.⁵⁸¹

4.3.3.4. Valuation and Negotiation Costs

Lastly, the valuation of a patent is as great as the former problems. Unlike tangible properties whose reference prices are normally obtained from the relevant market, it is not the case with patent rights. Even if there exist the previously settled transaction examples for other patents, they do not help to value the patent in dispute because each patent has its own distinct and unique aspects and the value of a patent is ‘always relational and dependent on a myriad of contingent events: what other technologies are available, how well they work and at what cost, what sort of marketable products or services might benefit from the use of the patented invention, and so on.’⁵⁸² Furthermore, in a situation where a patent constitutes just a small fraction of an entire product, a number of overlapping patents ‘create very knotty valuation problems.’⁵⁸³ They are the very reasons why patent transaction businesses have not been successful in the market unlike tangible property rights. Due to the absence of reliable objective references to the valuation of a patent, it is not easy for negotiating parties to narrow the price gaps they assume reasonable.

Here we need to distinguish the subjective valuation for voluntary bargaining from the courts’ assessment driven by liability rules. How high are the transaction costs when a court determines the value? Since courts can employ an independent expert or appraiser for the valuation and each party is subject to the court’s final decision, the latter valuation process seems to be more efficient than the inter-party

⁵⁸¹ LEMLEY 'The Economics of Improvement in Intellectual Property Law', n 579, at 1053-1054.

⁵⁸² COTTER (2010) 'Response-Patent Remedies and Practical Reason', *Texas Law Review*, vol. 88, p. 125, at 130.

⁵⁸³ MERGES, n 568, at 2659.

private negotiation. However, if the enforcement (litigation) costs, known to be relatively high in patent litigation, are taken into account, that may not always hold true. With regard to the accuracy of those valuations, again it is not easy to decide which process would result in a more accurate outcome because each has its own merit: private negotiations may come closer to the true market price because the parties are well aware of the market conditions, whereas a courts' compulsory compensation can provide objectiveness by the third party. After all, the relative intensity of the valuation costs between the inter-party and court-ordered processes is quite case-specific.

4.3.3.5. Summary

Due to the uncertainty problems which exist for the overall process of patent transaction from locating ownership to valuation, higher transaction costs are expected in the patent system than in the case of tangible properties. Even though those high costs may tempt us to invoke liability rules in patent law, further long-term *ex post* transaction costs need to be taken into consideration for better balanced conclusions.

4.3.4. Long-term *Ex post* Transaction Costs

Now, from the dynamic efficiency perspective, it is required to see how the transaction costs would change if we extend our analysis to the long-term effects on the patent system by multiple transactions. There are two factors to be considered for this discussion. One is a special circumstance where transaction costs may decrease to a similar level to that of tangible properties. The other is the long-term costs in case the patent system is to be operated under liability rules simply on the grounds of

the aforementioned high static transaction costs.

4.3.4.1. Low Transaction Costs after the First Mover Litigation

Even though the general transaction costs are undeniably high in a single *ex ante* patent transaction, it is not always the case when seen from dynamic perspectives. Once the ownership, validity, and scope of a patent are determined by the court in previous litigations, the level of uncertainty which generally causes high transaction costs is greatly reduced. For instance, if a patentee files a patent infringement suit against an alleged infringer, this fact, either through media or word of mouth, tends to easily spread to other entities in that specific industry by notifying the ownership of the patented technology. Further, subsequent court decisions in terms of claim interpretation, validity, and/or (past or future) damages in that specific case serve as an objective public notice board to other potential users, as a result turning the probabilistic right into the secure one almost equivalent to real property rights. Even either when a potential user challenges the validity of the patent against a patentee or when she files a declaratory judgement for non-infringement, the uncertainty level, to some extents, is also reduced, even though the effect from the valuation difficulty still exists.

In those settings, the transaction costs become low and the rationale to support liability rules cannot hold its ground any more. In this sense, any patent right in that situation deserves proper protection by injunctive relief under property rules, absent of other exceptional circumstances. It implies that at least the extensive invocation of liability rules over the patent system is not justified.

4.3.4.2. Long-term Costs on Innovation under Dominant Liability Rules

When liability rules come to be dominant in patent law simply on account of high costs arising in a static transaction, more serious long-term costs are likely to accompany it.

First of all, we can postulate that, as the chances of obtaining court-ordered monetary compensation against patent infringers become higher, the need for *ex ante* voluntary negotiation will substantially decrease, which means that most infringement disputes may be resolved through litigations in which the courts eventually set the objective value of a patent and order a judicially decided compulsory licence. In doing so, both parties may incur uncalled-for administration costs which could be avoided by *ex ante* negotiations. Thus, the extensive application of liability rules may trigger a moral hazard by protecting ‘thieves’ who steal the patent rights without hesitation.⁵⁸⁴ To borrow Calabresi and Melamed’s words, it is a ‘might makes right’ state which a society should prevent.⁵⁸⁵ Such strategic behaviours of patent infringers drive up the patentees’ enforcement costs.

Secondly, the rampant patent infringements under liability rules may cause serious social costs by negatively affecting innovation. The extremely high costs of patent enforcement create a low expectancy of earnings from innovative inventions and thereby deter investments in further research and development. Admitting that, without a great enough chance of success, inventors would keep their precious inventions in secret rather than relying on the patent system, this, as a result, would disturb the disclosure function of the patent system and hinder follow-on inventions and commercialisation. By doing so, the detrimental effect on innovation disrupts a virtuous innovation circle which the patent system intends to promote.

⁵⁸⁴ SOLOMON 'Analysis of the Four-Factor Test in Patent Cases Post-eBay', n 262, at 13.

⁵⁸⁵ CALABRESI, *et al.*, n 569, at 1090.

In fact, these costs are the major justifications to support the property rule in the patent system, which conversely means that the property rule provides very important long-term benefits in the operation of the patent system. To reiterate in short, the application of property rules (1) preserves the exclusivity which is the source of the patent system's function to innovate, (2) provides a significant deterrent to infringement, in turn, giving an incentive to invest in further R&D, and encourages efficient *ex ante* private transactions.⁵⁸⁶

After all, it becomes clear that the hasty shift towards the liability rule regime also increases the long-term dynamic transaction cost. Although those long-term costs are not easily quantifiable, its likeliness and severity are unquestionable.

4.3.5. Balancing the Static and Dynamic Costs of the Patent System

From the above discussion, it has been found that the substantial short-term transaction costs demand the invocation of liability rules, but the long-term bad consequences from the extensive application of liability rules call for property rules to the contrary. The patent abuse problems by patent trolls are, in fact, closely related to this transaction cost analysis. On the one hand, the uncertainty problems of patent rights provide incentives for patent trolls to keep themselves undercover until manufacturers make products using the patented invention and thereafter to claim high tolls using the lock-in state. However, if the patent system adopts liability rules to some extent by awarding monetary damages in lieu of an injunction, the above long-term costs would occur.

This implies that any absolutistic attitude of exclusively taking one of the

⁵⁸⁶ FTC 'The Evolving IP Marketplace, Aligning Patent Notice and Remedies with Competition', n 553, at 224-225.

rules is not a proper approach because it inevitably accompanies serious problems. Thus a proper solution for the NPE problems and the sound operation of the patent system as a whole could be found somewhere between the two extremes. If so, the next question is how to effectively mix the two rules so as to minimise costs and maximise the benefits.

Our long history of patent law verifies that the exclusive right of patents - another way of referring to a property right,⁵⁸⁷ is a core value and the last bastion that secures the basic functions not only to preserve the incentives for innovation and investment but to discourage illegal piracy. Without exclusive rights, it seems the patent system can hardly, if not impossible, play its intended roles due to the aforementioned dynamic *ex post* transaction costs. Especially, the non-rivalrous nature of patents demands strong protection against unauthorised use because a number of people can use them simultaneously and, unlike tangible properties, the patent holders do not have other means to stop the illegal use. The fact that a patent enjoys the exclusive right only for the fixed term (20 years) and goes to the public thereafter also supports the necessity of proper protection of the patent rights. In this light, a reasonable approach to formulate the governing rule of the patent system is to keep the property rule as a baseline rule and to apply the liability rule partially so as to fix the problems causing the short-term transaction costs.

Then, how widely should the area for liability rules in the patent system be set in comparison with tangible properties? For this, let us briefly review the property rules applied to tangible properties as a benchmark.

William Blackstone famously depicted the physical property right as ‘sole

⁵⁸⁷ BECKERMAN-RODAU (2009) 'Patents Are Property: A Fundamental but Important Concept', *Journal of Business & Technology Law*, vol. 4, pp. 87-96, at 88.

and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe.⁵⁸⁸ In practice, though, the traditional property rights are not as rigid as the Blackstonian view. They are rather flexible in application and subject to limitations necessary for the benefits of the public, e.g. restrictions to the exclusive rights in eminent domain law, nuisance laws, or zoning laws.⁵⁸⁹ In addition to these *ex ante* statutory limitations to the property rule, *ex post* restrictions are also similarly found in the physical property domain. One typical example is a boundary dispute case where an encroachment occurred by mistake, such as when a land owner X builds a big multi-storey building on her land but encroaches on her neighbour's small piece of bordering land which she mistakenly has believed to be her own land. A number of common law courts in such circumstances awarded monetary damages rather than injunctive relief to the neighbouring land owner finding the innocence of the builder's trespass.⁵⁹⁰

These exceptional circumstances for invocation of liability rules in the physical property law, as have been seen in chapter 3, can similarly be found in the patent law domain, e.g. in the form of statutory or judicial compulsory licence on the grounds of the public interests or the extremely unfair prejudices to infringers. Meanwhile, as discussed, the patent system has more exceptional circumstances to be considered, i.e. the 'intrinsic uncertainty problems.' In this respect, in a broad sense, the area where liability rules need to be applied is wider in the patent law regime than the tangible properties. This relationship is depicted in the following figure.

⁵⁸⁸ BLACKSTONE (1765) 'Commentaries on the Laws of England', *Clarendon Press*, vol. II, p. 2.

⁵⁸⁹ SCHMIDTZ (2011) 'Property', *Oxford Handbook of the History of Political Philosophy*, available at <http://www.davidschmitz.com/david-schmitz/articles/property>, at 1.

⁵⁹⁰ STERK, n 577, at 37-38.

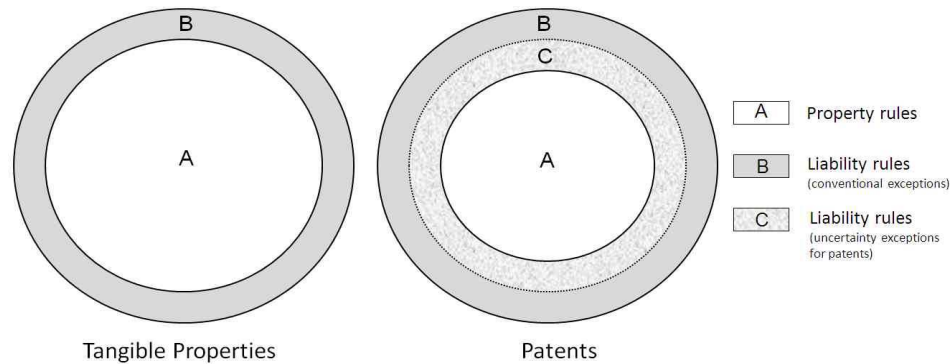


Figure 2. Property and liability rules for tangible properties and patents

It shows that, due to the uncertainty nature unique to patents, the boundary for property rules in patent law is narrower than that in the tangible properties by the area C. In many cases, the specific form for the area C appears as inadvertent (innocent) patent infringements in practice. This area is the place where the patent troll problems generally occur because the patent law has not seriously taken the area C into account and has treated it by property rules under the belief of ‘property-patent equation.’⁵⁹¹

In this sense, our calculus for building an ideal model for the operation of the exclusive right of patents should take into account the uncertainty nature of patent rights. The seemingly simple solution might be applying liability rules to the area C, but it should be careful because the patent system may need to pay the dynamic transaction costs thereby. If available, the most ideal solution would be keeping the property rules for the area C and instead finding other ways to solve the uncertainty problems of patents. However it should be noted here that, as the uncertainty is the intrinsic nature of patents, any *ex ante* measures to solve this problem, e.g. enhancing

⁵⁹¹ DEVLIN, n 560; EPSTEIN (2010) 'The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary', *Stanford Law Review*, vol. 62, p. 455.

examination procedures or notice functions, have their limits, even though they might be able to increase the certainty level of patents.

4.3.6. Conclusions

For the purpose of finding the optimal protection of the exclusive right of patents, this section, according to Calabresi and Melamed's analytical theory, has discussed how serious the transaction costs are in the patent system. It revealed that the uncertainty inherent in the patent system causes substantial static transaction costs which support the claims for applying the dominant liability rules. However, from the dynamic efficiency perspectives, the dominating application of liability rule will, without doubt, increase the long-term transaction costs in that it inevitably diminishes the incentives to innovate and invent. The long-term costs to the patent system are much more serious than with tangible properties, because the non-rivalrous characteristics of the former rights with the fixed term (20 years) easily cause more extensive and uncontrollable infringements than the latter rights.

These conflicting short- and long-term transaction costs being balanced, it was found that the patent system should be governed by the property rule as the dominant method, supplemented by the liability rule so as to reduce the short-term transaction costs. More importantly, it was also found that, in comparison with tangible property rights, the patent rights have the thicker band where liability rules are more appropriate to be applied than property rules. Considering that NPE problems are mainly originated from the application of strong property rule even to the cases where the uncertain nature of patents dominates, the new patent injunction model in this research should also take into account the costs from uncertainty of patents.

As noted, when the uncertainty of patent rights is coupled with the property rules (via injunctive relief) rather than liability rules, a serious ‘hold-up’ problem necessarily occurs. The next section discusses the patent hold-up problem in terms of NPE patent assertions.

4.4. Patent Hold-up by NPEs and Its Economic Interpretation

As a last juncture where patent troll problems arise, this section, from the economic sense in particular, examines the hold-up problem which is the most important and direct source of patentees’ strategic behaviours. After briefly studying the general economic meanings of injunctive relief and hold-up in the patent remedy structure, our discussion moves into deeper and more concrete economic analysis of patent hold-up problems by examining an economic hold-up model. It also discusses a specific type of patent hold-up arising from technical standard patents. Upon the findings from these discussions, this section draws a few important implications for solving the hold-up problems.

4.4.1. Economic Implications of Injunctive Relief and Patent Hold-ups

When a patent is practised either by a patentee (the case of PE) or by through giving licences to others (the case of NPE), the patentee has a pressing interest to stop others from unauthorised use to secure her own or her licensees’ business in the market. Without doubt, the most effective remedy in these circumstances is injunctive relief. Then, how does this injunctive relief cause patent hold-ups? In theory, a patentee is expected to receive monetary reward (P) in proportion to the value (V) of the patent, and here let us assume, to simplify the situation, that a linear relationship exists between these two variables.

As depicted in figure 3 below, the patentee’s expected profit (P) can be equated to αV , where α is a constant. If the true value of a patent infringed is v , then the optimal reward (p) to the patentee is αv . In practice, the difficulty of patent valuation being considered, the optimal reward could be approximated to the damages which courts decide. Here an injunction order which will let the infringer’s product be pulled out of the market could be approximated to increase the value (v') of the patent to infinity, also increasing the patentee’s expected compensation (p') to infinity.

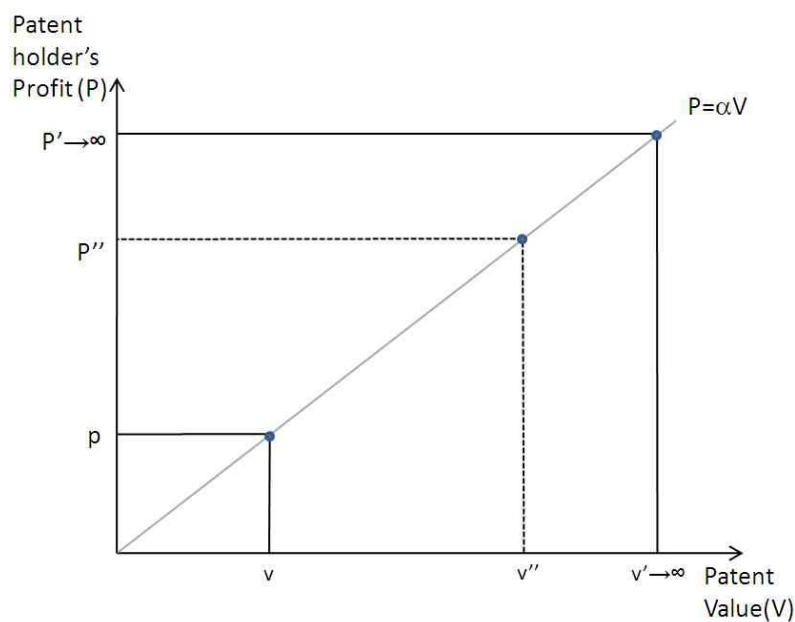


Figure 3. The relationship between patent value and patentee’s profit

By the time when the patent owner claims patent infringement, the infringer has already invested her resources to make the infringing product and therefore the injunction threat lets the infringer decide to choose one of two options according to the profitability of each option : (1) to pay future royalties (p'') up to the amount of the original patent value plus the costs for changing the infringed product into a non-

infringing one if the patentee wishes for monetary remuneration, or (2) to give up the production of the infringing product. Here, the infringer becomes locked in by her production, which is called the ‘patent hold-up.’

It should be noted that the hold-up is not always problematic, but highly required in many cases. In the real property law, if a person builds a house on a parcel of land whose ownership belongs to others, she will not be able to continue the construction by an injunction and shall pull it down in the end, save any exceptional situations. Even though the injunction order inevitably causes the same hold-up problem as in the patent system, the hold-up is not generally regarded as harsh for the builder because his wilfulness to infringe or negligence to check the right status cannot be forgiven. It is without saying that this rationale should be applied to patent law with the same force. If the manufacturer infringes the patent wilfully or without paying enough due diligence, she is the only one to be blamed for the illegal conduct and should incur the costs arising from the patent hold-up.

However, unlike with tangible properties, there are ample circumstances where the hold-up costs are not justified in the patent realm, which are basically caused by the uncertainty problems as discussed in the previous section. In other words, it is unfair to let the patent holders use the injunction threat even when the infringer has tried her best to locate the patent but has failed or had the reasonable belief that she does not infringe the patent whatsoever. As far as NPE patent holders are concerned, these circumstances add more serious concerns in light that, if the NPEs use the hold-up situation rather than license the patent, giving a high leverage power to NPEs by the hold-up is quite questionable because they have no real interest in stopping the production. The injunctive relief in this situation is also counter to the ultimate goal of patent law in encouraging innovation because it

deprives the availability of the products to the public and thereby discourages commercialisation which is an important element of innovation.

Then, how should the patent hold-ups be evaluated from the economic context?

4.4.2. Economic Views of the Patent Hold-ups

Different economic models and theories have been developed to explain whether the patent hold-up problems do exist, how serious they are, and how to deal with them from the perspective of patent policies and remedies. Notably those sorts of discussions have actively unfolded in the midst of patent troll controversies, particularly after Lemley and Shapiro presented their own economic model. After evaluating the Lemley-Shapiro Model and other critical counterarguments, this section seeks to draw a few essential implications to be considered when we design optimal standards for patent remedies with respect to NPEs in particular.

4.4.2.1. The Lemley-Shapiro Hold-up Model

Lemley and Shapiro's basic economic model envisions a scenario in which a downstream manufacturing firm who developed an innovative product is approached by a patent holder alleging that the product incorporated a feature infringing her patent. They suppose that, by the time the manufacturer sells her products, she might either have been unaware of the existence of the patent, or have believed that the patent was not valid or her product was not infringing. In this situation, Lemley and Shapiro tried to analyse the impact of the patent holder's injunction threat on the

royalty rate which the two parties negotiate.⁵⁹² This implies that they considered the patent hold-ups mainly by the NPE patent holders in that generally PE patentees do not have a strong incentive to agree on a royalty payment for the future infringement.

In this model, the following variables affect the royalty rate, the outcome of the negotiations.

- V : The Value per unit of the patented feature to the downstream firm in comparison with the next best alternative technology.
- M : The Margin per unit earned by the downstream firm on its product.
- θ : The Strength of the patent which indicates the probability that the patent is found valid and infringed by the downstream firm's product.
- C : The Cost to the downstream firm of redesigning its product in order to avoid infringing the patent claims.
- L : The fraction of the downstream firm's Lost unit sales during the lifetime of the patent that would be lost if the downstream firm were forced off the market by an injunction.
- β : The Bargaining skill of the patent holder, as measured by the fraction of the combined gains from settling, rather than litigating, that are captured by the patent holder. This variable has a value between 0 and 1 and equal bargaining skill ($\beta=0.5$) is generally assumed.

To evaluate the comparative effects of the patent holder's injunction threat on the negotiated royalty rate, they developed a benchmark royalty rate which is expected in an ideal patent system which has no hold-up problems. The benchmark

⁵⁹² LEMLEY, *et al.* 'Patent Holdup and Royalty Stacking', n 8, at 1995.

royalty for an ironclad patent, i.e., a surely valid patent, is equal to βV , whereas the benchmark for other patents corresponds to $\theta\beta V$ which is proportional to patent strength (θ), the probability that the patent is found valid and infringed by the downstream firm's product.⁵⁹³ They also argue that the benchmark royalty rate can be applicable to the calculation of reasonable royalty rate by the court in the sense that the reasonable royalties are established by an *ex ante* hypothetical negotiation. Then, distinguishing between 'weak' (θ is very low), 'strong' (θ is high enough) and 'no value' patents, they consider two cases where a downstream firm might take its best strategy in the event that an *ex ante* negotiation fails, as well as one extreme case where the value of the patented feature is zero.

*The 'Litigate' strategy*⁵⁹⁴

A downstream manufacturer will choose this strategy to litigate without redesigning when the patent is relatively weak (low θ) and the costs for redesigning its product are relatively higher than the profits that she might lose by withdrawing her products from the market while redesigning them if enjoined. In this case, the downstream manufacturer takes her chance that she can win the litigation because the patent appears to be too weak to survive the court's validity test. In contrast, the patent holder gains great negotiation power from its ability to expel the products from the market if the validity and infringement is found by the court. Lemley and Shapiro highlight that the patent holder's power is overwhelming especially if a patented feature is taking up mere value in comparison with the total value of the product.

In this weak patent case, they predict that, under the assumption of

⁵⁹³ Ibid. at 1999-2000.

⁵⁹⁴ Ibid. at 2001-2002.

symmetrical litigation costs and bargaining power, the percentage gap between the negotiated royalty rate and the benchmark level is given by $C + \frac{M-V}{V} \times L$.⁵⁹⁵ The first term reflects the fact that the downstream manufacturer may incur expenses for designing around whereas the second term reflects the share of profits that she may lose during the designing around, if she loses the litigation. From that formula, Lemley and Shapiro emphasise that the negotiated royalty rate for a single patent tends to be higher than the benchmark level, especially when the value of the patented feature is small relative to the overall value of the incorporated product (i.e. when M is much bigger than V). In other words, this implies that a patent owner may be overcompensated by the threat of injunctive relief.

The ‘Redesign and Litigate’ strategy⁵⁹⁶

A downstream manufacturer will avoid the possible risk of stoppage of her business by redesigning her product even while litigating, when the patent appears relatively stronger (high θ) and the costs for redesigning its product are relatively lower than the profits that it might lose by withdrawing its products from the market while redesigning them if enjoined. Although the costs by the hold-up in litigation may be ignored in this case, the patent holder still benefits from the fact that the downstream

⁵⁹⁵ Ibid. See also SHAPIRO (2010) 'Injunctions, Hold-up, and Patent Royalties', available at <http://faculty.haas.berkeley.edu/shapiro/royalties.pdf>. They predicted the negotiated royalty rate in the case of a weak patent as equal to ' $\theta\beta V + \theta\beta VC + \theta\beta(M-V)L$.' The first term in this formula reflects the negotiated royalty rate without patent hold-up problems. The second term indicates the expected value of patent holder (P)'s ability to hold up the downstream manufacturer (F) for a share of the costs of design-around if F loses the litigation. The third term measures P's ability to use the injunction to hold up F for a portion of lost profits during the lag time associated with F's design-around if F loses the litigation. The percentage gap is calculated by dividing the element caused by hold-up ($\theta\beta VC + \theta\beta(M-V)L$) in the negotiated royalty rate by the benchmark royalty rate ($\theta\beta V$).

⁵⁹⁶ LEMLEY, *et al.* 'Patent Holdup and Royalty Stacking'. n 8, at 2002.

manufacturer surely incurs the redesign costs.

In this strong patent case, Lemley and Shapiro predict that, again under the assumption of symmetrical litigation costs and bargaining power, the percentage gap between the negotiated royalty rate and the ideal benchmark is given by C/θ .⁵⁹⁷ This formula implies that the gap value increases as the patent gets weaker (θ is smaller). Anyhow, the downstream manufacturer will have to spend redesign costs which are unnecessary unless the patent is valid and infringed, and therefore she is willing to settle for a licence whose amount is greater than the value of the patentee's contribution but lower than the design-around costs while litigating.⁵⁹⁸ This means that the negotiated royalty rates include an overcharge based upon hold-ups.

A special case: when the patented feature is nothing special⁵⁹⁹

If a downstream manufacturer inadvertently developed her product in which the patented feature was imbedded but there had already been alternative technologies to the patented feature at the time of designing, the downstream manufacturer could have applied those alternative technologies had she known the existence in advance. This is the case where the value (V) for the patent is zero, which means the benchmark royalty rate is also zero. In this zero benchmark situation, the

⁵⁹⁷ Ibid.; SHAPIRO, n 595. They predicted the negotiated royalty rate in the case of strong patent as equal to ' $\theta\beta V + \beta VC$.' The first term in this formula once again reflects the negotiated royalty rate without patent hold-up problems. The second term again indicates the hold-up costs of redesign, but without the variable θ because the manufacturer will definitely redesign absent a negotiated license. But there is no third term for lag time costs because they assumed that the design-around time is shorter than the litigation period. The percentage gap is calculated by dividing the element caused by hold-up (βVC) in the negotiated royalty rate by the benchmark royalty rate ($\theta\beta V$).

⁵⁹⁸ LEMLEY, *et al.* 'Patent Holdup and Royalty Stacking', n 8, at 2002.

⁵⁹⁹ Ibid. at 2002-2003.

manufacturer would not have negotiated with the patent holder for a licence *ex ante* and all of the negotiated royalties are nothing but an overcharge based on hold-ups.⁶⁰⁰

From this analytical model, Lemley and Shapiro conclude that a patent holder whose inventions are only a small feature of a larger product is to be ‘systematically overcompensated’ by the injunction (hold-up) threat in any situation. Their argument for the systematic overcompensation can be more easily understood by depicting it in a graph which shows how the patent holder’s profits change by the variable θ in each case in comparison with the benchmark royalty rate. As can be seen in figure 4, they highlight that overcompensation by patent hold-ups occurs regardless of the strength of the patent, i.e. either the patent holder’s profit line (A) for a weak patent or the profit line (B) for a strong patent is above the benchmark royalty line (D).

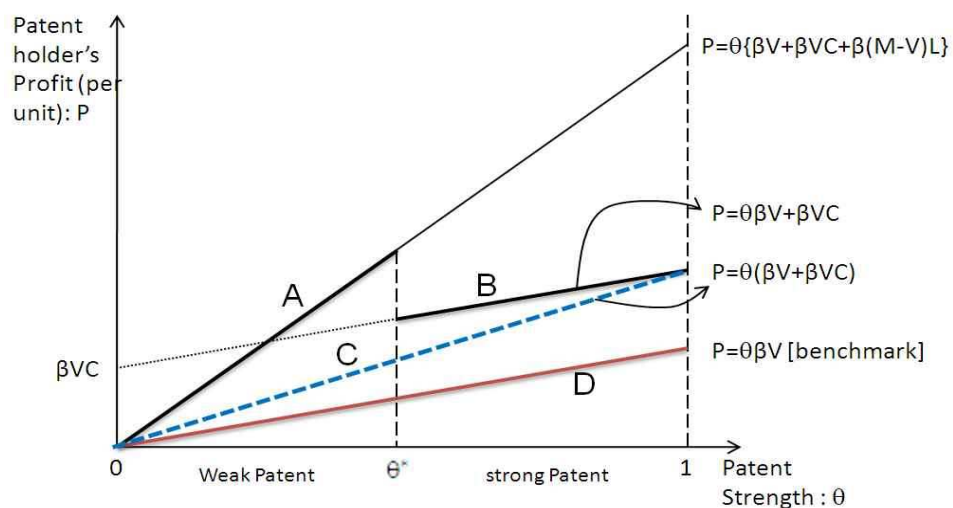


Figure 4. Negotiated royalties⁶⁰¹

⁶⁰⁰ In this case, they conclude that because the only threat the manufacturer makes is not to use the patented invention, the negotiated royalty rate would be βV , without any discount for the probability of invalidity or non-infringement of the patent.

⁶⁰¹ SHAPIRO, n 595.

Without doubt, from the findings of their hold-up model Lemley and Shapiro proceed to policy recommendations. As the Lemley and Shapiro's hold-up model is based on the relationship between an NPE patent holder and a downstream manufacturer, it is not strange that their policy proposal mainly focuses on the limitation of issuing injunctive reliefs to NPEs when overcompensations due to hold-ups are expected.⁶⁰² Conversely, they favour granting a permanent injunction in cases where the patent holder is practising the patent or someone exclusively licensed from the patent holder is competing significantly against the infringer.⁶⁰³ They suggest that courts should not grant an injunction but award reasonable royalties when the redesign costs for the downstream manufacturer are high relative to the true value of the patented technology, as well as when the infringer independently developed the technology rather than merely copying it.⁶⁰⁴

Alternatively, they suggest that courts may regularly grant stays to their injunctions so as to give the downstream manufacturers time to redesign their products so that they no longer infringe the patent.⁶⁰⁵ If stays are routinely granted, the downstream manufacturers have no incentives to redesign their products before they learn the outcome of the litigation regardless of the strength of patent (θ). As depicted in figure 4 by the dotted line (C), stays exhibit substantial effectiveness in reducing the patent hold-up effect.⁶⁰⁶

⁶⁰² LEMLEY, *et al.* 'Patent Holdup and Royalty Stacking', n 8, at 2036.

⁶⁰³ *Ibid.*

⁶⁰⁴ *Ibid.* at 2036-2037.

⁶⁰⁵ *Ibid.* at 2038.

⁶⁰⁶ SHAPIRO, n 595, at 17.

4.4.2.2. Critiques and Refinements of Lemley-Shapiro Hold-up Model

After the Lemley-Shapiro Model was released, many scholars have come to have an interest in the economics of patent hold-up. Some scholars have relied on the conclusion that Lemley and Shapiro have asserted.⁶⁰⁷ Despite Lemley and Shapiro's pioneering endeavours, however, their model has faced serious criticisms, most of them focusing on the Model's benchmark royalty rate and assumptions.

4.4.2.2.1. Debates on the benchmark royalty rate

An important ground that Lemley and Shapiro viewed NPE patent holders having component patents to be systematically over-rewarded by way of injunctions, is that the negotiated royalty rates using that bargaining power are always over the 'benchmark royalty rate ($\theta\beta V$)'. That means that whether the patent owners are over- or under-rewarded is dependent upon what a true optimal benchmark royalty rate will be. Several scholars raised objections to the benchmark rate set in the Lemley-Shapiro Model.

Golden critiques that the benchmark is wrong because there is no proper reason that a patent holder should receive no more than an amount of royalties discounted by the factor of bargaining skill (β).⁶⁰⁸ He argues that Lemley-Shapiro's benchmark implies that, in an extreme example, a patent holder with zero bargaining skill ($\beta=0$) should receive nothing for her valuable invention, which is not the way

⁶⁰⁷ HAHN, *et al.* (2007) 'Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions', *AEI-Brookings Joint Center Working Paper No. RP07-03*, available at <http://ssrn.com/paper=950583>.

⁶⁰⁸ GOLDEN (2007) 'Patent Trolls' and Patent Remedies', *Texas Law Review*, vol. 85, p. 2111. available at <http://ssrn.com/paper=991698>, at 2141.

that any patent law operates.⁶⁰⁹ With similar reasons, Elhauge further proposed that the correct benchmark rate should be θV .⁶¹⁰ If Elhauge's benchmark rate is correct, the negotiated royalty rate which Lemley and Shapiro claimed, does not systematically exceed the new benchmark even under the same assumptions as in the Lemley-Shapiro model.⁶¹¹

However, in contrast with Elhauge's argument that the correct benchmark royalty should be θV rather than $\theta\beta V$, Cotter maintains that, in theory, the Lemley-Shapiro model's benchmark $\theta\beta V$ would appear to replicate more consistently the true reality of the *ex-ante* negotiation in the state without hold-up, and, even though Elhauge was right, over-rewards would occur more commonly than he concluded.⁶¹² Even so, he doubts whether the distinction between $\theta\beta V$ and θV would yield any real differences in a practical context because it is unclear how a court will estimate β and because it may not take into account the *ex-ante* value of θ .

To sum up, so far there have not existed any agreed theoretical optimal reference royalties which a patent holder should receive in the absence of patent hold-ups, which warns us not to jump into hasty conclusions on how NPE patent holders are rewarded by injunction threats, e.g. systematically overcompensated or overcompensated only in limited circumstances. Nonetheless, it is noteworthy that, at least from the theoretical perspectives, most scholars agree on the fact that obviously there are some cases, though not in every case, where the patent hold-ups by NPE

⁶⁰⁹ Ibid. at 2138.

⁶¹⁰ ELHAUGE (2008) 'Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?', available at <http://ssrn.com/abstract=1139133>, at 7-12.

⁶¹¹ Ibid. at 12-14.

⁶¹² COTTER (2008) 'Patent Holdup, Patent Remedies, and Antitrust Responses', *The Journal of Corporation Law*, vol. 34, pp. 101-158, at 123, 133.

patent holders against downstream manufacturers trigger overcompensations.

4.4.2.2.2. Debate on the assumptions of the Model

Lemley and Shapiro's hold-up model is based on several assumptions for the simplification of the model. Many scholars, even though they admit Lemley and Shapiro's benchmark royalty rate were to be correct, still claim that those assumptions are too simple to generalise the analytical outcomes of the Model to all of the circumstances as done by Lemley and Shapiro.

Elhaug argues that the Lemley-Shapiro model overstated predicted royalties by assuming (a) that the negotiation is a single-shot game between an NPE and a downstream firm, (b) that information about all the variables is symmetrical to both sides, and (c) that the downstream firm produces a constant output.⁶¹³ Firstly, he argues that if a downstream monopolist firm negotiates repeatedly with multiple patent holders for a royalty rate, the expected amount of the royalty would be lower than Lemley-Shapiro predicted rate.⁶¹⁴ Secondly, in the real world the information imbalance exists in a way that, whilst both the patent holder and the manufacturer will have almost equal information on validity factors (some part of θ) due to the publication of the patent to the public, the manufacturer has an informational advantage on the infringement factor (remaining part of the θ) and all other variables, e.g. its profit margin, its output, the added value of the patent to its product, its redesign costs, etc.⁶¹⁵ Thus the negotiated royalties could be lower than the amount that Lemley and Shapiro predicted. Lastly, he argues that, if we assume that the

⁶¹³ ELHAUGE, n 610, at 14.

⁶¹⁴ Ibid. at 15-16.

⁶¹⁵ Ibid. at 16-18.

demand of the firm's output product is linear rather than constant, the negotiated royalties will be lower than as expected in Lemley-Shapiro model, in the sense that incorporating patented features into a product increases not only the product price which in turn causes less demand, but also marginal costs which reduce the firm's willingness to produce.⁶¹⁶

Meanwhile, Denicolo, et al. also pointed out the flaws of the important four assumptions with the Lemley-Shapiro model: (a) inadvertent infringement; (b) detection of infringement with certainty; (c) component patent with relative small value in an entire product; and (d) costly *ex post* redesign.⁶¹⁷

The first assumption, an inadvertent infringement, means that a downstream firm was not unaware of the presence of the patent at the stage of designing a relevant product, or it, despite its awareness, strongly believed its product not to be infringing the patent. However, they argue that this assumption is too restrictive to correctly reflect the reality, considering that infringers are aware of the patent *ex-ante* in many cases and choose to infringe it in the hope of not being detected or sued. If the model were to consider the situations where a downstream firm challenges the validity of the patent before designing its product, Denicolo et al. argue that no over-compensation would occur because the expected payoff of the downstream firm would be equal to the *ex-ante* benchmark $\theta\beta V$.⁶¹⁸

With respect to the assumption of infringement detection with certainty, they argue that it is too simple and unrealistic if we simply remember the fact that the total number of patent infringement suits with a product is relatively small relative to that

⁶¹⁶ Ibid. at 18-20.

⁶¹⁷ DENICOLO, *et al.*, n 180, at 20.

⁶¹⁸ Ibid. at 21-22. Assuming an inadvertent infringement, Lemley-Shapiro model implies that the manufacturer cannot contest the validity of the patent before designing its product.

of patents incorporated into it. If detection rate ($\delta < 1$) is considered as a variable in the hold-up model, a patent holder is expected to receive $\delta\theta\beta(C+V)$. This shows that if the probability of detection (δ) is sufficiently small, over-compensation would not occur even though C is fairly large because the expected payoff could be less than the benchmark ($\theta\beta V$).⁶¹⁹

With regard to the third assumption, the Lemley-Shapiro model assumes that the patented technology is a minor component of a complex product and the manufacturer could have designed it in a non-infringing way, i.e. the value of the patent (V) being smaller than that of the whole product. However, they argue that, when the infringed patent is essential to the end product (V is relatively large), serious hold-ups or overcompensations are not expected to occur because the negotiated royalties both *ex ante* and *ex post* will not be different.⁶²⁰ The fourth assumption of the model is closely related to the third. As noted, Lemley and Shapiro assumed that the redesign *ex-post* (C) is costly but could have been achieved easily *ex-ante* (zero cost). Here the redesign cost denotes the difference between the costs *ex post* and *ex ante*. Once again if we take into account a patent which is not trivial (i.e. V is not small), the redesign cost (C) is reduced as the patent value (V) increases because the *ex ante* cost increases accordingly.⁶²¹ In this sense, they claim that the Lemley and Shapiro model is valid only under the initially assumed circumstances (a single component patent with small V).

Put it simply, it has been criticised that the assumptions on which the Lemley-Shapiro model is founded are too important to be simply neglected, but

⁶¹⁹ Ibid. at 23-24.

⁶²⁰ Ibid. at 24-28.

⁶²¹ Ibid. at 28.

nonetheless Lemley and Shapiro committed critical errors in translating the analytical outcomes from their oversimplified model into general policy recommendations for denying injunctive relief against NPEs in every case. In fact, those criticisms have some validity of their own and therefore the overcompensation by the hold-ups may not be as serious as the Lemley and Shapiro model for other circumstances. Thus, the generalised conclusion of Lemley and Shapiro that NPE patent holders are **systematically** overcompensated by hold-ups is not adequate but only valid within the circumstances where their limited assumptions apply.

4.4.2.3. Summary and Implications

Without doubt, fair credit should be given to Lemley and Shapiro for their scholarly contributions in the field of NPEs' patent hold-up analysis by providing a basic economic model. Their hold-up model shows that, due to the hold-up effect, NPE patent holders get systematic over-rewards from the downstream manufacturers regardless of the strength of the patent. From this finding, they proposed a policy recommendation of either denying injunctive relief or staying injunctions in the cases where the overcompensation is likely due to patent hold-ups.

However, there have also been several criticisms of their model, mainly on the appropriateness of the benchmark royalty rate and the assumptions.

With respect to the benchmark royalty rate, it is not easy to tell which one between $\theta\beta V$ (Lemley and Shapiro model) and θV (some critics) reflects more correctly the hypothetical negotiation in the situation without hold-ups. Whilst the former benchmark $\theta\beta V$ considers the relative negotiation power between parties from the practical sense, the latter θV postulates a more ideal situation without the

negotiation power factor. If we take θV as a correct benchmark, overcompensation does not occur in every case where Lemley and Shapiro assumed in their model.

The Lemley and Shapiro model is a very simplified model with a number of (explicit and implicit) assumptions, e.g. (a) a single dispute, (b) symmetrical information on both sides, (c) an inadvertent infringement, (d) a detection of the infringement with certainty, (e) a component patent with relative small value in an entire product, and (f) the costly *ex post* redesign which could have been avoided *ex ante*. As a number of critics correctly pointed out, the Lemley and Shapiro model could be meaningful in such circumstances where the assumptions stand and therefore the overcompensation problem by patent hold-ups may not be that serious in other situations.

Thus, Lemley and Shapiro's policy proposal for denying an injunction could be said to have gone too far. Particularly, that proposal is quite problematic in light that their model focuses on a single dispute rather than long-term dynamic consequences. They have fallen into the fallacy of neglecting the long-term dynamic costs by only emphasising the short-term static costs. It is in line with our previous discussions over the exclusive right of patent in terms of its costs.⁶²²

Nonetheless, the Lemley-Shapiro hold-up model carries important meaning in that, despite the controversies over the accuracy of the benchmark and negotiated royalty rates, it successfully shows the fact that the NPE patent holders could be overcompensated by patent hold-ups when the patent infringements occur inadvertently due to the uncertainty of patent rights. More importantly, it shows the theoretical finding that stays may be able to play a crucial role in lessening or eliminating the hold-up effects. This implies that staying an injunction might provide

⁶²² Section 4.3.

a good implication for the design of a new injunction model in this research.

4.4.3. Patent Hold-ups in the Context of Technical Standards

As a specific type of patent hold-ups, the variety pertaining to technical standards demands further discussion because it could be much more serious than the general hold-ups described in the previous section. Technical standards are holding a key position in our modern economy because substantial parts of our society are networked and inter-connected. Their importance is particularly apparent in IT industries where compatibilities between products and services are crucial. Technical standards may be largely divided into two: informal standards which arise from market process and formal standards which are implemented by standard setting organisations (SSOs).⁶²³ In fact, formal standards are a general form of standardisation in modern economies and their influence to the market is more speedy and powerful than informal standards. In addition, NPE patent holders may be able to actively participate in the process of formal standard setting, whereas not in the case with informal standard setting because the standards are formulated by manufacturers through product (or service) competitions in the marketplace. With this reasoning, the patent hold-ups in formal standards are mainly discussed here.

Patent hold-ups generally happen when a member of an SSO keeps her patents hidden until the standard is adopted in the market and users are locked into the standard,⁶²⁴ or when any patents of a non-participant in SSO are incorporated into the standard for some reason. For the purpose of solving the hold-up problems and facilitating the licensing, a few attempts have been put into place. Firstly, SSOs

⁶²³ PARK (2010) 'Patents and industry standards', *Edward Elgar, Cheltenham*, at 3.4.

⁶²⁴ BERNIERI, n 447, at 178.

usually have IPR policies which impose contractual commitments on the owners of essential patents incorporated into standards to give licences to standard users on fair, reasonable and non-discriminatory (FRAND) terms.⁶²⁵ Secondly, patent pools for each technology have been organised and effectively facilitate licences between patent users and multiple patent owners through a single-shot contract. Lastly, in some cases, courts have tackled the hold-ups by applying competition law directly, or allowing competition law defences against the enforcement of the patents.⁶²⁶

However, the contractual commitments by SSOs cannot be a complete solution.⁶²⁷ These commitments cannot cover the patent hold-ups by the patent holders who are not a member of SSOs. Even for the member patentees of SSOs, hold-ups cannot be completely eradicated not only because there still exist disagreements on the FRAND royalty due to the ambiguous meaning of the 'FRAND' obligations, but also because patentees, as has happened lately, could refuse to abide by the commitments to license.⁶²⁸ Further, the other two measures have their own limits in light that any patent pool cannot compel all essential patent owners to join its pool arrangement and that the application of competition law may be valid only in limited circumstances, e.g. dominant position in the market.

It should be noted here that the hold-up problems arising by the technical standard patents have at least three unique characteristics which are not found with ordinary patent hold-ups. Firstly, lock-in effects by the standard patents are much

⁶²⁵ LEMLEY (2002) 'Intellectual Property Rights and Standard-Setting Organization', *California Law Review*, vol. 90, issue 6, p. 1889, at 1095-1096.

⁶²⁶ BERNIERI, n 447, at 178.

⁶²⁷ TREACY, *et al.* (2008) 'FRANDly fire: are industry standards doing more harm than good?', *Journal of Intellectual Property Law & Practice*, vol. 3, issue 1, pp. 22-29, at 23.

⁶²⁸ *Ibid.* at 24-27.

more serious than other general patents due to their network externalities. For instance, if a manufacturer were denied access to the standard patents by a certain patent holder after a manufacturer invested in making products according to the standard, it would be almost impossible for her to get out of the lock-in state because, even if she is able to make non-standard products, consumers are not likely to choose them instead of other available standard products. Secondly, once the standard is set and the relevant industry decides to adopt such standard, the value of the patent increases in proportion to the number of standard exploiters. In other words, the patent value is not determined by the technology itself, but by the simple fact that the patent has been embodied into the standard.⁶²⁹ Lastly, as far as the purpose of setting standards is considered, the fact that the patent owner has participated in the standard setting process and/or taken FRAND commitments may be understood that she implicitly shows her intention to encourage the use of the patents by would-be standard users rather than exclude them. To put it another way, she could possibly be regarded to have given up the exclusive right for monetary compensation. These features being considered, the option to stay injunctions has no effect on reducing hold-up effects because it is virtually impossible for standard users to design around.

To sum up, since existing approaches by competition law to mitigate the patent hold-up problem have limited sense, there should be rules which can effectively solve the hold-up problem by standard patents in the patent litigation arena as well, by taking into account the seriousness and unique characteristics of patent hold-ups. In specific, those exceptional hold-up features unique to standard patents implies that the protection of standard patent rights to exclude others should be narrower than that of other customary patents.

⁶²⁹ BERNIERI, n 447, at 177.

4.4.4. Conclusions

In this section, the patent hold-up problem has been discussed from economic perspectives, mainly with the Lemley-Shapiro model as a central theory.

Even though the Lemley-Shapiro model does not perfectly reflect all of the actual circumstances as many critics have pointed out, it provides us with very meaningful insights into the nature of the patent hold-up problem caused by NPE patentees and the effective ways to mitigate hold-ups. First of all, at least when downstream manufacturers inadvertently infringed the patent without knowing the presence of patent or had enough reasons to believe that their productions did not infringe the patent, patent hold-ups occur all over the range of patents, particularly more serious for the weak patents which are generally dependant or component patents of a entire product. With respect to the solutions to the hold-up problem, Lemley and Shapiro's primary suggestion to refuse an injunction is problematic because they did not take into account its long-term dynamic costs to innovation. Nonetheless, stays, their alternative solution, could be a very useful tool to lessen or eliminate the hold-up effects because they do not restrain long-term innovation if they are carefully designed into the rules for injunctive relief. More importantly, stays are more effective for the weak patents which cause more serious hold-ups than strong ones.

In addition, as an exceptional form, hold-ups by essential patents to technical standards have also been discussed. The unique characteristics of hold-ups by standard patents, which cause stronger hold-up effects, demand that different approaches from the general patent hold-up cases should be put into place. Besides hold-ups in the technical standards, it is also possible that other exceptional hold-ups

unknown to the world yet may spring up in practice. If so, the injunction model should be flexible enough to cover these open-ended exceptional circumstances which demand more rigid limitation to exclusive patent rights.

4.5. Conclusions

In the hope of drawing fundamental principles or conditions which the new injunction model of this research needs to necessarily take into account, this chapter has discussed three main issues which are closely related to NPE problems in the current patent system: (1) the true meaning of invention and commercialisation in the innovation process, (2) the proper understanding of exclusive right of patents, and (3) the patent hold-up problems. The key findings can be summarised as follows:

Firstly, it was found that both inventive work and commercialisation are equally crucial to sustainable innovations in the patent system and any one should not be belittled or sacrificed for the other. Nevertheless, on account of uncertain market-driven variables for the success of commercialisation, the patent system mainly regulates the invention stage and is not equipped with compulsive measures to commercialise the patents. In fact, the present patent troll problems arise from the failure of our patent system to effectively link inventions to commercialisation. Therefore, restoring this patent transaction function is a way to mitigate patent trolling and further the sound operation of the patent system. Since any rigid rules by law or government policy to encourage commercialisation might entail side effects, the most ideal approach is to let the law indirectly assist voluntary negotiations between NPE patentees and downstream manufacturers by using market forces.

Secondly, from the discussions about ‘property v liability rules’ according to the transaction cost analysis, it was found that the uncertainty nature of patent rights

causes substantial static transaction costs which support the claims for applying the dominant liability rules. However, from the dynamic efficiency perspective, the dominant application of liability rules may increase the long-term transaction costs by inevitably diminishing incentives to invent and innovate. Due to the unique characteristics of the patent system, such as the non-rivalrousness and the fixed term protection, the problem is more serious than with tangible properties. When the conflicting short- and long-term transaction costs are balanced, the governing rule of the patent system should be keeping the property rule as a dominant rule, supplemented by liability rules so as to reduce the short-term transaction costs in exceptional situations. More importantly, due to the uncertainty inherent in the patent system, it was found that the patent rights have a wider range of those exceptional circumstances than tangible property rights. So far, most of the modern patent system has ignored the uncertainty problems in many cases and let manufacturers shoulder the risks thereof. A new injunction model should frankly acknowledge that weakness of the patent system and find a way to internalise it.

From the last discussions about patent hold-up problems, it was found that serious patent hold-ups arise at least when downstream manufacturers inadvertently infringed the patent without knowing the presence of patent or had enough reasons to believe their productions did not infringe the patent. In fact, this symptom is more serious for the weak patents. The more meaningful finding is that, if carefully incorporated into the current patent remedy law, staying injunctive relief could be very effective in mitigating or eliminating hold-up effects. Interestingly enough, this theoretical finding is quite congruent with the analysis of court cases in chapter 3.⁶³⁰ The discussion of hold-ups by standard patents implies that there might be a number

⁶³⁰ Section 3.5.3.

of exceptional circumstances which demand flexible approaches limiting the exclusive patent rights than in the ordinary hold-up cases.

In addition to the key findings from the practical perspectives in chapter 3, these findings will be used as basic principles or conditions which our new injunction model needs to meet.

Chapter 5 Identified Problems and Review of the Proposed Solutions

5.1. Introduction

If previous chapters have sought to locate the underlying causes of NPE or patent troll problems by seeing them from legal and economic perspectives, this chapter will review several major solutions which have been proposed so far. Each proposed solution will be evaluated by the criteria of whether it could sufficiently or effectively resolve the identified problems.

For this, section 5.2 summarises the key problems which were found from the previous chapters. Then, section 5.3 reviews several proposals selected among various solutions proposed so far, and it seeks to evaluate whether and to what extent they answer the key questions. As will become evident later, although they surely provide useful insights or policy implications, those proposals do not sufficiently answer the questions and remain as partial solutions.

5.2. Identified Problems to be Solved

NPE problems are very complex and complicated issues which are related to each and every element of the patent system, from patent applications to patent remedies. Nevertheless, the previous discussions show us that NPE problems are primarily dependent upon two important factors: the ‘uncertainty nature’ of patent right and the ‘injunctive relief.’ To make clear the way that this thesis is heading, those problems to be solved deserve to be summarised here. Without taking those problems into

account, any proposal to mitigate the patent troll problems may not be a satisfactory solution whatsoever.

How should the uncertainty nature of patent right be solved?

The uncertainty nature of patents forces manufacturers to invest in their new products without certainty of not being claimed of patent infringement in the future, which leads to a holdup state when patent holders claim for patent infringement. It goes without saying that wilful infringers should not be tolerated, but it would be unfair if even innocent infringers also faced extreme penalties by such holdups. Bad consequences arising from the incompleteness of the patent system are unduly imposed on good-faith infringers. The disclosure or notice function itself of the patent system should not be used simply as a justification that patents should be protected by property rules. Most of the NPE problems begin from this point.⁶³¹

If the uncertainty problems were to be resolved, the NPE issues could also be cleared up because patent holdups would not occur from the start. However, although we might be able to and should endeavour to lower the uncertainty level by reforming the patent system, those efforts, as discussed earlier,⁶³² have clear limitations because patent rights are basically expressed in language which demands interpretation.

How to design Injunctive relief?

⁶³¹ As an exceptional circumstance, some patent holdups in the context of a standard setting sometimes occur even if standard users knew the presence of patents, its validity, and infringement on the patents.

⁶³² Section 4.3.3.

In conjunction with the uncertainty problems inherent in the patent system, injunctive relief is another main factor that patent trolls lean on to extract excessively high royalties from downstream manufacturers. Injunctive relief could provide patent holders with an extreme leverage power against innocent infringers and thus raise an unfairness issue, particularly when it is considered that NPE patent holders have hardly any interest to exclude manufacturers from using the patents and/or that patent owners come to control an entire infringed product even though the relevant patents take up a small part of it.

To correct those unjust situations, limiting injunctive relief could be an effective and convenient approach. It is a general approach in common law countries, such as the UK and US, where courts are holding a wide range of discretionary power to determine whether to grant or refuse an injunction. As we have seen in chapter 3, courts in those countries have refused injunctions in their long history whenever the patent enforcement by NPE patent holders gives far greater hardship to infringers or the public at large than the benefits that the patentees may get.

On the other hand, it was also shown that the frequent application of liability rules against NPE patent holders, such as in post-*eBay* cases, could raise great concerns that it could substantially diminish NPEs' incentives to innovate by making their patent enforcements much more difficult and costly. In other words, the more cases that occur where NPE patentees fail to obtain injunctive relief, the greater the incentives for potential infringers to disregard patent rights (hold-out) will be.

Thus, the key issue here is how to design injunctive relief in a way to find an optimal point which may compromise two conflicting issues: patentees' hold-ups and potential infringers' hold-outs. Unfortunately, however, any existing injunction

guidelines, e.g. the US four-factor test or Smith LJ's test in the UK, do not seem to provide satisfactory answers to this question. The latitude that courts can enjoy under those guidelines is so wide and sufficiently abstract that many courts may be easily strayed. The post-*eBay* cases are good examples, which have routinely denied injunctive relief against NPE patent holders primarily by the reason that they do not practise their patents. Furthermore, it is also impracticable to expect that each court will always strive to find the optimal level of injunctive relief in each case, because each court decides each case solely upon the specific facts found in the case, rather than speculative long-term effects of its ruling seen from the big picture of the whole patent system.

5.3. Review of the Suggested Solutions

Since NPE or patent troll problems are connected with almost every part of the patent system and have recently attracted increasing social attentions, this field is replete with proposed solutions. They all deserve mention but limited space permits inclusion of only a selected few which deliver meaningful messages to the purpose of this research. Those proposed solutions will be reviewed according to four categories: (1) limiting patent's exclusive right; (2) maintaining patent's exclusive rights as far as possible; (3) applying various doctrines and laws; and (4) improving patent law structure or procedure. While the proposals under the first three categories seek solutions mainly focused on patent remedies, those under last category are primarily concerned with how to improve the inefficiencies of the current patent system.

5.3.1. Limiting the Exclusive Right of Patents: Towards Liability Rules

Limiting the exclusive right of patents is the most popular and direct solution. Even though those proposals are different in their specific forms of embodiments, they are ultimately aiming at one goal: ‘against the absolutism of injunctive relief.’ The following sections review the proposals which are in favour of expanding statutory compulsory licence, judicial compulsory licence, and combining these two, respectively.

5.3.1.1. Expansion of the Current Statutory Compulsory Licence

NG Siew Kuan proposes that a properly calibrated and well-designed statutory compulsory licence would be a possible solution for patent trolling.⁶³³ She begins her arguments by pointing out that the efficacy of the current patent system providing exclusive right to a patentee in exchange for the disclosure of the invention should be questioned in complex technologies, e.g. IT/information and communication technology (ICT), where hundreds or thousands of patents are involved in a final product and are based on interdependence and interconnectivity.⁶³⁴

As basic justifications for expanding the compulsory licensing, firstly she argues that injunctive relief is not the only but one of many remedies available and that it should not be granted at the expense of significant public interest.⁶³⁵ Secondly, the reinforcement of current statutory compulsory licensing does not necessarily erode the right to exclude of patent if the current restrictive rules for compulsory licence persist, such as the prior efforts to negotiate with patent owners, the restricted

⁶³³ NG SIEW KUAN (2009) 'Patent Trolling: innovation at risk', *European Intellectual Property Review*, vol. 31(12), pp. 593-608.

⁶³⁴ *Ibid.* at 596-597.

⁶³⁵ *Ibid.* at 601-602.

scope and duration of the compulsory licence to its purpose, and the promotion of earlier settlement by the threat of compulsory licensing.⁶³⁶ Thirdly, she maintains that the mere availability of compulsory licence does not necessarily discourage the incentives to innovate or R&D investments. On the contrary, she sees that compulsory licensing could be an effective alternative in some circumstances, e.g. component patent cases in a complex product.⁶³⁷ Lastly, considering the uncertainty problems and notice failure of the current patent system, she perceives that it may be harsh to maintain a strong injunction policy line in favour of patent holders without proper consideration of the patent users' substantial difficulties in patent clearance.⁶³⁸

NG Siew Kuan views that compulsory licensing is an effective measure particularly in complex cumulative invention cases where the patent holder's enforcement of her exclusive right 'results in severe impairment or significant disruption to society,' thus her proposed compulsory licence model is mainly restricted to such inventions.⁶³⁹ She sees those disruptive patent trolling behaviours to legitimate businesses and smooth functioning of society to be detrimental to public interest, and gives examples for those disruptive trolling scenarios which increase the merits for the grant of compulsory licence: (1) serious patent hold-up, (2) demand for the maximum outsized monetary reward using the hold-up situation, (3) patent owner's non-practising the patented invention and no *bona fide* intention to do so, and (4) a small component patent of a complex entire final product.⁶⁴⁰ The third scenario demands further explanations. The author limits NPE patent owners only to

⁶³⁶ Ibid.

⁶³⁷ Ibid. at 602-603.

⁶³⁸ Ibid.

⁶³⁹ Ibid. at 604-605.

⁶⁴⁰ Ibid. at 606-607.

those committing undesirable patent enforcing activities, i.e. patent trolls. Those who have legitimate interests to protect their patents, such as independent inventors, universities, research institutes, or patent licensing and/or enforcement companies under reasonable licensing business are excluded.⁶⁴¹

In summary, NG Siew Kuan proposes the expansion of the current narrow boundaries for the grant of statutory compulsory licence to encompass the patent trolling activities, particularly for the cumulative complex inventions. In doing so, she argues that any inequalities of bargaining power between patent trolls and manufacturers could be pared down.

5.3.1.2. Limiting Injunctive Relief

Particularly since the *eBay* case in the US, a number of scholars and commentators have put forward various proposals limiting injunctive relief as solutions to the NPE problems. Even though many pro-patent scholars strongly oppose the idea of weakening injunctive relief,⁶⁴² here one of the suggestions to limit injunctive relief is introduced because the previous chapters already found that limiting injunctive relief to a certain level is inevitable in some circumstances.

As a prominent example for such suggestions, the one by Denicolo et al. draws attention because it provides a proper interpretation of the US Supreme Court in the *eBay* case.⁶⁴³ As already discussed in chapter 4, they argue that the Lemley-Shapiro hold-up model rests upon too narrow assumptions and thus that categorical limitations on injunctive relief, i.e. to NPEs, cause substantial ‘false positives,’ where

⁶⁴¹ Ibid.

⁶⁴² Section 2.2.3.2.

⁶⁴³ DENICOLA, *et al.*, n 180.

NPE patent holders without patent holdup intentions are unfairly denied injunctive relief. In other words, if the hold-up test is either flawed and/or imprecise, then any policy relying on it may create a substantial number of errors.⁶⁴⁴ In this regard, they reject categorical limits on injunctive relief.

Based on these findings, they conclude that the obvious answer is the four-factor equity test which was reaffirmed by the ‘majority’ in the *eBay* case.⁶⁴⁵ They do not agree with some scholars’ interpretation of the *eBay* decision as giving a green light to district courts to refuse injunctive relief to NPE patent owners mainly based on Justice Kennedy’s concurrence, as well as such treatments evidently shown by post-*eBay* district courts. Rather, they stress that the main gist of the Supreme Court’s decision in *eBay*, as Justice Thomas explained, is a call for the lower courts to return to the already established traditional four-factor equity test from either a course of automatic granting of injunctive relief or from the categorical limits on injunctive relief.⁶⁴⁶ In this regard, they highlight that NPE patent holders have enough possibility to meet this test and thus to obtain an injunction.⁶⁴⁷

5.3.1.3. Strengthening *Ex Post* Liability Rules

While a number of scholars have searched for solutions to the NPE problems either from the statutory compulsory licence or the injunctive relief in patent infringement suits in separate ways, Bernieri considered them together under the concept of ‘*ex post* liability rules.’

⁶⁴⁴ Ibid. at 33.

⁶⁴⁵ Ibid.

⁶⁴⁶ Ibid. at 33-34.

⁶⁴⁷ Ibid. at 34.

Through the application of the property and liability rule frameworks to the patent system, she questions the commonly held view that liability rules (via patent compulsory licences) may be an effective remedy to reduce the short-term static transaction costs but cause detrimental effects on the dynamic efficiencies of the patent system.⁶⁴⁸ Rather, she endeavours to show that liability rules can achieve the efficiencies from both static and dynamic perspectives in some circumstances, such as in the presence of patent strategic behaviours including patent hold-up problems.⁶⁴⁹ Even though she left the precise conditions for strategic behaviours open as a future research topic, she defined them as patent owners' opportunistic behaviours which, under the property rule, prevent efficient and fruitful bargaining between parties and thereby produce high transaction costs.⁶⁵⁰

As one of the issues in applying liability rules, Bernieri proposes that the current compulsory licence provisions constraining its active use should be more relaxed.⁶⁵¹ Under Art. 31(b) of the current TRIPS Agreement, the patent users' *ex ante* efforts to obtain authorisation from the patent owner is prerequisite to apply a compulsory licence. She argues that these requirements have disfavoured or blocked the possibilities of using compulsory licence in the cases of strategic behaviours by which transaction costs are already high.⁶⁵² Even though she does not express it directly, from the overall tone of her arguments it is plausible enough that she is suggesting the removal or at least mitigation of the 'prior negotiation efforts' requirement by Art. 31(b) of the TRIPS Agreement.

⁶⁴⁸ BERNIERI, n 447, at 269.

⁶⁴⁹ *Ibid.*

⁶⁵⁰ *Ibid.*

⁶⁵¹ *Ibid.* at 279.

⁶⁵² *Ibid.* at 280-281.

In terms of the application of liability rules to the remedies in patent infringement cases, she argues that the best way for courts to decide how to switch to a liability rule (monetary reward instead of an injunction) is through the balancing test to facilitate the interpretation of the particularities of each case, such as done in the *eBay* case and subsequent set of post-*eBay* cases.⁶⁵³ With respect of the possible criticism of how the liability rule can deter future infringement, she argues that damages also have such a deterrent effect provided that they are set at a threshold point which makes the infringement to be unprofitable.⁶⁵⁴ For instance, it is argued that, in a country where monetary awards are usually high and enhanced or punitive damages could possibly be granted, the money remuneration in lieu of an injunction could act as a ‘quasi property rule,’ while an injunction might be a strong option where courts grant relatively lower money awards.⁶⁵⁵

Meanwhile, from a practical point of view, she admits that the problem in applying *ex post* liability rules in terms of statutory compulsory licence or in patent infringement cases is to determine the precise optimal level for damages which create the effect equivalent to an injunction so as to deter future infringing activities.⁶⁵⁶ Nonetheless, after extensive cost-benefit analysis of the *ex post* liability rules, she concludes that the principles underlining patent protection suggest that the difficulties surrounding calculation of the optimal level of damages are not insurmountable and that such difficulties should be balanced with the costs associated with the strategic behaviours under strong property rules.

⁶⁵³ Ibid. at 234-237.

⁶⁵⁴ Ibid. at 245.

⁶⁵⁵ Ibid.

⁶⁵⁶ Ibid. at 246.

5.3.1.4. Evaluations and Implications

Each of the proposals reviewed as above has its own merit in cracking down patent holders' serious abusing behaviours. Their analysis or perception of the current problem is quite impressive, particularly the points that NG Siew Kuan correctly pointed out concerning the uncertainty problem and 'notice failure' of the patent system, and that Denicolo et al. provided a proper interpretation of the *eBay* decision and concluded that categorical limitations of injunctive relief against general NPE patent holders or small component patent holders are not correct approaches.

Nonetheless, these proposals have a few important limitations. Firstly, the application of liability rules by the proposals is only limited to the egregious cases rather than covering all of the general patent holdup cases. Since all innocent infringements may face patent holdup situations, more patent holdup cases other than extreme cases do still exist. This implies that these proposals still do not effectively solve the uncertainty problems of the patent system and thereby are nothing more than partial solutions. Secondly, expanding liability rules in patent infringement suits tends to increase the cases where courts should go through a complicated fact finding procedure and decide damages for future infringement, which is a great burden for courts and either party in a suit. Thirdly, even though the proposals argue that the mere application of liability rules does not necessarily discourage the long-term incentives to innovate and invest in R&D, their accounts may not always hold true if the liability rules expand substantially.

In conclusion, the three proposals above do not sufficiently answer the two key questions of this research, but they show a few important positive implications

for designing better solutions. Firstly, if it is feasible, rather than abstract injunction guidelines (e.g. the US four-factor test) which tend to allow courts to be strayed, there should be a more concrete legal structure so as to solve all kinds of patent holdup problems. Secondly, since court intervention triggers high social costs, a new legal structure should encourage *ex ante* private orderings as much as possible.

5.3.2. Adhering to the Exclusive Rights of Patents: Maintaining Property Rules

As noted, a number of scholars and commentators have asserted that limiting the property right of patents by application of the equity test in courts, e.g. *eBay*, is the best way to curb the patent trolls' destructive behaviours. However, it is also true that there are still many people that believe the *eBay* line of approach is wrong and the 'property' nature of patent rights should be suitably protected. This section, among the aforementioned, reviews Chung's approach which provides a few important implications.

5.3.2.1. Chung's Proposal

As noted in chapter 3, the US Supreme Court in *eBay* addressed that the creation of a patent right to exclude others 'is distinct from the provision of remedies for violations of that right' on the ground of an expression in s. 283 of the US Patent Act which reads as 'courts --- may grant injunctions in accordance with principles of equity.'⁶⁵⁷ However, Chung disagrees with that interpretation of the statute by saying that, although the US Patent Act clearly announces that patents shall have the attributes of personal property and the right to exclude others from exploiting

⁶⁵⁷ *EBay*, 126 S.Ct. 1840 (2006).

without permissions, the Court did not properly take into account the rest of the words of that section, which states ‘to prevent the violation of any right secured by patent ---.’⁶⁵⁸ He argues that the *eBay* decision letting a monetary reward be easily awarded instead of injunctive relief upon a finding of infringement is nothing but rendering the exclusive right of patents meaningless, ultimately encouraging the violation of that right after all.⁶⁵⁹ So to speak, his argument could be summarised as that the ‘attributes of personal property’ of patented inventions should be respected as such and allowing infringers to keep using the NPEs’ patented invention merely on account of non-practising is not equitable.

In spite of his belief that *eBay* was wrongly decided, Chung does not deny that some NPE patent holders may abuse the patent system. He admits that certain patent dealers unscrupulously use their shaky patents in terms of validity and/or infringement of an accused infringer’s product to extract substantial amounts of money for settlement.⁶⁶⁰ Nonetheless, he claims that any blame should not be put on NPEs whose patents are ‘on solid ground and cover the accused infringer’s product.’⁶⁶¹

Then, in spite of his criticism of the *eBay* decision, Chung practically proposes two policy recommendations applicable within the *eBay* regime, admitting that *eBay* is the current law anyway.

Measures to minimise the adverse impacts of the eBay decision

⁶⁵⁸ CHUNG (2009) 'The Supreme Court Unjustly Declares Open Season on Patent Dealers', *University of Illinois Journal of Law, Technology & Policy*, vol. 2009, issue 1, p. 227, at 245.

⁶⁵⁹ Ibid.

⁶⁶⁰ Ibid. at 231.

⁶⁶¹ Ibid.

To minimise the adverse impacts of the *eBay* decision, Chung proposes two standards in applying the US four-factor test by district courts: (1) maintaining the presumption of irreparable harm and public interest in case of patent infringements; (2) issuing an injunction in case of ‘exceptionally high’ wilfulness.

First, noting that when *eBay* rejected the US Federal Circuit’s general rule which is in favour of granting injunctions based on a presumption of irreparable harm, it did not reject the presumptions of irreparable harm and public interest, he argues that district courts should continue to apply those presumptions in favour of patent holders when a valid patent is found to be infringed.⁶⁶² In doing so, the patentees are able to prove half of the *eBay* factors (the first and the fourth prong) and as a consequence the adverse effects of the *eBay* decision could be mitigated.

Second, he proposes that the US Federal Circuit’s former ‘general rule’ should be reinstated when ‘exceptionally high’ culpability is found to the wilful infringers.⁶⁶³ As noted earlier, the US courts may award enhanced damages to wilful infringers who have engaged in culpable conduct, reaching the maximum if the level of culpability is ‘high.’⁶⁶⁴ The exceptionally high culpability standard is recommended to be higher than the above high culpability standard. He reasons this new standard as that, if the wilful infringer’s culpable conducts are so serious that the

⁶⁶² Ibid. at 247. It should be noted that, as seen chapter 3, the CAFC proclaimed that the presumption is not valid anymore.

⁶⁶³ Ibid. at 248

⁶⁶⁴ Ibid. (For the culpability factors, see *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 826-27 (Fed.Cir.1992), which states: (1) whether the infringer deliberately copied the idea of another; (2) whether the infringer, when he knew of the other’s patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed; (3) the infringer’s behaviour as a party to the litigation; (4) defendant’s size and financial condition; (5) closeness of the case; (6) duration of the defendant’s misconduct; (7) remedial action by the defendant; (8) the defendant’s motivation for harm; and (9) whether the defendant attempted to conceal its misconduct).

threat of treble damages and attorney's fees are not likely to act as an enough deterrent to future infringements, injunctions should issue.⁶⁶⁵

Grant a 'Grace Period' in the small component patent infringement cases⁶⁶⁶

Chung not only admits that awarding injunctive relief to small component patent owners might give 'undue leverage' in negotiations with infringers who are worried of stopping their production line, but also argues that the exclusive right of patents has enough reasons to be fairly protected at the same time.⁶⁶⁷ He emphasises that a good approach to satisfy these two conflicting issues is to give a reasonable 'grace period' for infringers to use the patented invention under payment of legal damages until the injunction kicks in.⁶⁶⁸ The grace period is said to be set at one year long but adjusted according to the complexity of the invention. As this potential solution would not only restore the exclusive right of patent within a reasonable time span, but also substantially mitigate the patentee's undue leverage power by giving infringers some time to look into alternative plans or products, it helps to maintain the integrity of patent as a property right and to curb the incentives of patent trolls in abusing the patent system.⁶⁶⁹

5.3.2.2. Evaluations and Implications

⁶⁶⁵ Ibid.

⁶⁶⁶ For a similar approach, see FTC 'The Evolving IP Marketplace, Aligning Patent Notice and Remedies with Competition', n 551, at 238.

⁶⁶⁷ CHUNG, n 656, at 249.

⁶⁶⁸ Ibid.

⁶⁶⁹ Ibid.

Chung's basic perception is that *eBay* was wrongly decided by the US Supreme Court in the sense that it would allow infringers to abuse NPEs' patent rights by the high chances of injunction denials and therefore it would be a correct course to reinstate the former US Federal Circuit's general rule. It is mainly based upon the pro-patent rationales. Unfortunately, however, he does not properly take into account the fact that, as already found in chapter 4, there would be a wide range of circumstances where innocent manufacturers could be unreasonably abused by patent holders due to patent holdups mainly arising from the uncertainty nature of patent rights. Likewise, he fails to properly address the uncertainty problems which are a major cause of patent holdups and further NPE problems. Even though Chung seems to think that the patent troll problems occur mainly with small component patents, it should be emphasised here again that those abuses could also happen even with major or single component patents.

Nevertheless, Chung's proposal for giving a reasonable 'grace period' to patent infringers before an injunction order kicks in provides an important implication in light that it may be a good way to reconcile the conflicting interests between upholding the exclusionary right of patents via injunctive relief and cracking down on patent holders' undue leverage using injunction threats. This approach is in line with the findings in previous chapters: 'sun-set provisions' with injunctions in several post-*eBay* cases,⁶⁷⁰ and Lemley and Shapiro's 'staying injunction' proposals to mitigate holdups.⁶⁷¹

5.3.3. Application of Various Doctrines or Laws

⁶⁷⁰ Section 3.2.2.4.5.1.

⁶⁷¹ Section 4.4.2.1.

This section reviews whether already established legal doctrines or other laws could be used to solve the NPE problems. The doctrine of accession in property law and the patent misuse doctrine are discussed here. In a related development, the reverse doctrine of equivalents and competition law are also reviewed in conjunction with those two main doctrines.

5.3.3.1. Adoption of the Doctrine of Accession in Property Law

As a solution to holdup problems caused by ‘blocking patents’ in the context of technological improvements, Lee proposes a prominent proposal adopting the doctrine of accession in property law into patent law. Since this proposal is closely related to the ‘reverse doctrine of equivalents’ in the US patent law, this doctrine is briefly reviewed first.

5.3.3.1.1. The reverse doctrine of equivalents

If the widely acknowledged doctrine of equivalents expands the scope of the literal boundaries of patent claims, the reverse doctrine of equivalents is used to shrink it. The reverse doctrine of equivalents offers relief to alleged infringers from patentee’s patent enforcement in circumstances where the value of the improvement by infringers greatly exceeds that of the pioneer patent, even though the infringers’ improvement falls within the original patent claims.⁶⁷²

Seen from the perspective of the ‘three-tiered structure of technical improvements’ proposed by Lemley, i.e. ‘minor,’ ‘significant,’ and ‘radical’ improvements, the reverse doctrine of equivalents protects the radical improvements

⁶⁷² LEMLEY 'The Economics of Improvement in Intellectual Property Law', n 579, at 27.

only.⁶⁷³ Here, minor improvements refer to trivial modifications of the original patented invention, by which the improved features do not rise to the minimum requirements for patentability or patent protection. The significant improvements are patentable and protected by patent law as they are. Most improvement patents might fall within this category. On the other hand, the radical improvements refer to the cases where the value added to the original patent is far greater than that of the original patent.

It is generally accepted that the reverse doctrine of equivalents was established in *Boyden Power-Brake v Westinghouse*⁶⁷⁴ in 1898, where the US Supreme Court held that, even though the defendant's device (a train braking system) was covered by the plaintiff's patented claims, the defendant should be exempted from liability because the mechanisms to accomplish the same functions of both the alleged and the patented devices were so distinct. In *Graver Tank*,⁶⁷⁵ the US Supreme Court further recognised the reverse doctrine of equivalents in relationship with the doctrine of equivalents. The Court, emphasising that the doctrine of equivalents 'is not always applied in favour of patentee but is sometimes against him,' held that 'where a device is so far changed in principle from a patented article that it performs the same or a similar function in a substantially different way, but nevertheless falls within the literal words of the claim, the reverse doctrine of equivalents may be used to restrict the claim and defeat the patentee's action for infringement.'⁶⁷⁶

⁶⁷³ Ibid. at 21-25.

⁶⁷⁴ 170 US 537 (1898).

⁶⁷⁵ *Graver Tank & MFG Co., Inc., et al. v. Linde Air Products Co.*, 339 US 608 (1950).

⁶⁷⁶ Ibid. at 608-609.

Thus, the reverse doctrine of equivalents is regarded to be a useful tool for courts to ameliorate the bargaining breakdown problems between the owner of original patent and its improvers.⁶⁷⁷ It goes without saying that this doctrine could be applied equally to NPE-involved patent infringement cases where a downstream manufacturer develops a radically different product from the NPE's first patent.

5.3.3.1.2. Adoption of the doctrine of accession

Whilst the reverse doctrine of equivalents is strictly limited to radical improvements, Lee's proposal for adopting the doctrine of accession of property law into patent law expands its application scope further to 'significant' improvement cases. Even though Lee fully acknowledges that the analogy between patents and physical property is not perfect, he argues that the traditional doctrine of accession provides meaningful insights into the determination of remedies in patent infringement suits where 'a new technology substantially improves upon but infringes an existing patent.'⁶⁷⁸ Let us briefly review what the principle of accession is and then discuss how this doctrine could be used in patent law to alleviate the holdup problems.

An overview of the doctrine of accession

The principle of accession which is derived from Roman civil law enjoys a long history.⁶⁷⁹ According to this principle, the property owners are entitled to all that is added to it regardless of whether the added value occurs either naturally or

⁶⁷⁷ LEMLEY 'The Economics of Improvement in Intellectual Property Law', n 579, at 21-28; PARK, n 621, at 105.

⁶⁷⁸ LEE (2011) 'The Accession Insight and Patent Infringement Remedies', *Michigan Law Review*, vol. 110, available at <http://ssrn.com/paper=1770044>, at 4.

⁶⁷⁹ *Ibid.* at 17.

artificially by other people, even where such addition has caused a change of shape or materials. For instance, accession can explain why the crops growing on a land or oil deposits beneath the land belong to the owner of the land, and why the land owner holds title to fixtures affixed to the land which have been improved by other people.⁶⁸⁰ However, where by mistake someone else improves the original owner's property in a way of substantially improving its value and changing its character, such as when someone's grapes were made into wine by an innocent person, the improver may take title to the improved product. In such a case, the original property owner should be satisfied only with compensation for the value of the raw material, grapes in the above example.

Then, the determination of whether there was sufficient 'transformation' between original and improved products is a key criterion so as to invoke the accession rule. Among several approaches, Lee suggests that the 'comparative value approach' having been adopted by several modern US courts is most relevant to his proposal.⁶⁸¹ Under this approach, courts conduct the comparative value test between the original owner's and improver's contributions to the improved product, and title to the improved item is shifted to whoever contributes the larger portion of the value.⁶⁸²

The doctrine of accession thus provides great benefit with respect to efficiency and fairness. By allocating title to the improver who behaves in good faith, it resolves certain absurdities caused by sticking to strict property rules, and thereby

⁶⁸⁰ Ibid.

⁶⁸¹ Ibid. at 20.

⁶⁸² Ibid.

promotes productive exploitations of resources otherwise underdeveloped.⁶⁸³

Applications to patent law

To some extent, even though we are not fully aware of them, elements of accession doctrine are already reflected in patent law. When an inventor develops a new technology, in fact it does not mean that she invents everything related to that, rather she adds her ingenuity and labour to the already existing ideas collectively belonging to the public. When reflected against the principle of accession, granting a patent for this technical ‘improvement’ means to shift its entitlement to the inventor (improver) in exchange for compensating the public through technology disclosure.⁶⁸⁴ Besides the initial patent grant, the accession doctrine is further identified in the interaction between initial pioneer patent and its subsequent improvement patent.⁶⁸⁵ Even from the current legal and doctrinal perspectives, the accession doctrine is performing its role by letting a pioneer patentee enjoy the full exclusive right over the subsequent ‘minor’ and ‘significant’ improvements whilst shifting title to the ‘radical’ improvements by the aforementioned reverse doctrine of equivalents.

Here, what Lee’s proposal asserts is that the doctrine of accession should apply so as to extend the scope of the title shift scheme to ‘substantial’ improvements encompassing both the ‘significant’ and ‘radical’ improvements, which also means that the pioneer patent would continue to dominate the subsequent ‘trivial’ improvements.⁶⁸⁶ For an effective implementation of his model, Lee proposes that in

⁶⁸³ Ibid. at 21.

⁶⁸⁴ Ibid. at 22.

⁶⁸⁵ Ibid. at 23-4.

⁶⁸⁶ Ibid.

patent infringement suits courts apply the accession doctrine within the *eBay* framework to deny injunctive relief, provided that an innocent infringer has substantially improved on an underlying patented invention.⁶⁸⁷ In cases where courts deny injunctive relief after applying the accession doctrine, Lee argues that they should direct both parties to negotiate a royalty to compensate for future infringement in the first place and then courts would step in only if such a negotiation failed.⁶⁸⁸

In this model, a good-faith requirement is an important factor to protect the integrity of patent law from the possible abuses of the accession doctrine.⁶⁸⁹ It is because, absent this requirement, potential patent users would have strong incentives to wilfully infringe patent, thereby ultimately causing systematic under-compensations to pioneer patentees and discouraging incentives to invent.⁶⁹⁰ A good-faith requirement could be met when, for example, an improver was simply unaware of the existence of the pioneer patent in spite of her reasonable endeavour to search prior arts, or when, even if she knew about the patent, she has reasonable belief that the patent is invalid, unenforceable, or not infringed by her product.⁶⁹¹

Lee argues that his new approach would not only remove a significant source of leverage given to pioneer patentees under a strong property rule, thus encouraging more voluntary negotiations between improvers and pioneer patent

⁶⁸⁷ Ibid. In fact, a similar proposal has already been proposed by Christopher Newman. Compared with Lee's proposal, however, Newman is quite cautious with extensive application of the accession doctrine. For more accounts, see NEWMAN (2009) 'Patent Infringement as Nuisance', *Catholic University Law Review*, vol. 59, no. 1, pp. 61-123.

⁶⁸⁸ LEE, n 678, at 24.

⁶⁸⁹ Ibid. at 26.

⁶⁹⁰ Ibid.

⁶⁹¹ Ibid. at 27.

holders and encouraging technological improvements, but also mitigate patent holdup problems when the pioneer patentees seriously block subsequent improvements, thus promoting fairness between initial and subsequent patentees.⁶⁹²

5.3.3.1.3. Evaluations and implications

Lee's accession proposal is quite insightful in light that it provides not only the rationale for how to interpret the relationship between pioneer and improved patents, but also the reasonable criteria to determine relevant patent remedies particularly for the cases with patent holdups by blocking patents. Particularly, the good-faith requirement is meaningful in that Lee acknowledges the uncertainty problem inherent in the patent system and thereby different remedies should be put in place between innocent and wilful infringements. Furthermore, providing a specific set of guidelines for improvement patents in determining whether to grant or deny injunctive relief, this model could assist courts in exercising a rather broad and vague concept of discretionary power in patent infringement suits.

Meanwhile, Lee's accession doctrine model still has at least a few shortfalls. First of all, extending the scope of application to significant improvements which are eligible to pass the independent patentability requirements, this model may seriously depreciate the exclusive nature of patent rights. Under this model, all dependant patent holders could be free from injunction threats by original patentees, provided that the infringement is committed under good faith. When the fact is considered not only that a great number of patents in the modern patent system are built upon existing previously patented inventions, but also that wilful infringements are not so

⁶⁹² Ibid. at 35-40.

frequent in actual patent infringement litigations,⁶⁹³ then Lee's accession model may cause patent law to be dominated by liability rules by rendering most of the original patent holders, NPEs and PEs alike, unable to secure their patent rights by injunctive relief. If so, as discussed in chapter 4, it would cause serious dynamic inefficiencies in patent law as a result of seriously diminished incentives for *ex ante* voluntary licence negotiation.

Secondly, even though Lee argues that his proposal does not displace private ordering by giving the parties a chance to negotiate for a licence after the denial of injunctive relief, it is quite sceptical whether the licence could be concluded in a court-ordered negotiation. As already discussed in chapter 3, the chances are quite slim because, besides possible antipathy after a lengthy litigation, the infringer would not pay royalty more than the court-ordered damages for the past infringement whereas the patent holder tends to receive more than that. Thus, in most cases, courts are expected to decide the future royalty rate which is generally similar to the reasonable royalty rate for the past infringement.

Whilst Lee's accession doctrine model may be able to greatly reduce the holdup problems arising from the context of improvement patents, the benefit is obtainable only by substantially weakening the right to exclude of patent and thereby sacrificing the long term dynamic efficiencies.

5.3.3.2. Application of the Patent Misuse Doctrine

⁶⁹³ Empirical work by Cotropia and Lemley shows that wilful infringements were found only in 1.8% of all cases litigated from 2000 to 2007 in the US. See COTROPIA, *et al.* (2009) 'Copying in Patent Law', *North Carolina Law Review*, vol. 87, issue 5, p. 1421, at 1424.

Prior to the development of the federal antitrust law⁶⁹⁴ in the US, the patent misuse doctrine developed as a judicial response to anticompetitive behaviours of patent holders who inequitably extended the patent monopoly beyond its lawful scope contrary to the public interest.⁶⁹⁵ Several scholars have suggested that the misuse doctrine provides an effective vehicle to mitigate a variety of patent holders' harmful conducts including NPE problems. Since the doctrine is closely related to competition (antitrust) law, this section briefly begins with how competition law can affect NPE problems in patent law, and will then discuss the misuse doctrine, particularly focused on a recent 'foreclosure' approach of the doctrine proposed by Bohannon.

5.3.3.2.1. Competition law and NPE problems

When the exercises of patent rights go beyond their legitimate boundary, competition law normally steps into to constrain them. To constitute an anticompetitive conduct, the patent owner's dominant position (or monopoly power) in the relevant markets should be established as a prerequisite condition. Nonetheless, as the US Supreme Court once put it, 'the [mere] possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.'⁶⁹⁶

As far as NPE issues are concerned, among a variety of possible scenarios,⁶⁹⁷

⁶⁹⁴ In this section, the term, competition law, is used in general use whereas antitrust law is used only when it is needed to particularly refer to American law.

⁶⁹⁵ WEBB, *et al.* (1991) 'Intellectual property Misuse Developments in the Misuse Doctrine', *Harvard Journal of Law & Technology*, vol. 4, spring issue, p. 257, at 257-258.

⁶⁹⁶ *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 124 S.Ct. 872, 879 (2004).

⁶⁹⁷ E.g. frustrating or delaying the grant of a licence of a patent right; the imposition of restrictive agreements as a condition for suspending proceedings for infringement; imposing a licence of excessive duration, etc. See TURNER (2010) 'Intellectual property and EU competition law', *Oxford*

the most highly probable circumstances triggering competition liability could be ‘unilateral refusal to license patent rights’ and ‘unfair royalty charging’. Here the unfair royalty charging may constitute an abuse of dominant position if the royalties are unjustifiably higher than those of other similar uses of the patent.⁶⁹⁸ If we consider the general patent enforcement strategy of NPEs who attempt to refuse to license first of all so as to obtain high royalty rate, ‘refusal to license’ and ‘unfair royalty charging’ are highly related and generally occur in a consecutive series of actions. Therefore, let us briefly discuss here ‘unilateral refusal to license’ which is the most prominent circumstance for NPEs. The purpose of the exclusive right of patent is to prevent others from illegal use without right holders’ consent, and thus the integrity of patent protection would be seriously eroded if the patent holder would be forced to grant a licence to competitors even where the patent right becomes dominant in the market. Therefore a refusal to license patent rights does not in itself constitute an abuse even where the holder acquires a dominant position in the market, rather only under ‘exceptional circumstances’ can it be considered an abuse under EU law.⁶⁹⁹ This ‘exceptional circumstance’ approach for unilateral refusal to licence was established in *Magill*⁷⁰⁰ and *IMS*⁷⁰¹ where the ECJ found an abuse of dominance position for refusal to license violating Art. 82 of the EC Treaty (now Art. 102 of the TFEU). Such a refusal is regarded as abusive if (1) the refusal

University Press, Oxford. at 101-103.

⁶⁹⁸ TURNER, n 697, at 99.

⁶⁹⁹ ELHAUGE, et al. (2007) ‘Global Competition Law and Economics’, *Hart Publishing*, at 414.

⁷⁰⁰ Joined Cases C 241-242/91 P, *Radio Telefis Eireann & Independent Television Publications Ltd. v. EC Commission*.

⁷⁰¹ Case C-418/01 *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*; Case T184/01 *R II IMS Health Inc. v. EC Commission*, 4 C.M.L.R. 2 (2002).

prevents others from using certain information or products subject to the right; (2) the information or product is an ‘essential facility’, in that it is indispensable to the exercise of a particular activity on a neighbouring market; (3) the refusal is such as to exclude any effective competition on that neighbouring market; (4) the refusal prevents the appearance of new products for which there is a potential consumer demand or limits technical development to the prejudice of consumers; and (5) the refusal is not objectively justified.⁷⁰²

Meanwhile, in the US the essential facilities doctrine which is similar to the EU law is also applied in exceptional circumstances. In the US, the refusal to licence could be abusive if it satisfies the four conditions under the essential facilities doctrine⁷⁰³: (1) a monopolist who owns the facility in question has a dominant power in the relevant market; (2) a competitor is unable to practically or reasonably duplicate the essential facility; (3) a monopolist denies the use of the facility to a competitor, resulting in undermining competition and thus an economic efficiency; and (4) a monopolist fails to show a valid business reason for justifying his/her refusal to deal with a competitor for the facility in question.⁷⁰⁴ In spite of similarities between the EU and US approaches, it is generally accepted that it is relatively easier to find an abuse in the EU than in the US because the EU approach tends to define the market more narrowly and gives rise to an increased possibility of finding dominance accordingly and the essentiality (indispensability) test applied in the US

⁷⁰² See TURNER, n 697, at 87.

⁷⁰³ *MCI Communications v. AT&T*, 708 F.2d 1081 (7th Cir. 1983).

⁷⁰⁴ MASSADEH, (2011) ‘The Essential Facilities Doctrine Under Scrutiny: EU and US Perspective’, *UEA LAW WPS 2011-AM-1*, p 4-6.

courts is more difficult to satisfy than in the EU.⁷⁰⁵

Nonetheless, in general patent enforcements other than in exceptional circumstances where the patent rights could function as essential facilities under the EU and US approaches as seen above, NPE patent holders are not likely to incur those anticompetitive charges because they do not manufacture or sell any products and thus ‘they do not have any “competitors” in the traditional sense’ and their patent may not be an essential facility because there could be alternative technologies circumventing the patent for manufacturers, and therefore the chances of obtaining the dominant market power in the relevant market are relatively slimmer than in the case of PE patent holders.⁷⁰⁶

The highly possible circumstances where NPE patent holders may be embroiled in the violation of competition (antitrust) law are in the standard-setting context, in which the essential standard patent could be regarded as an essential facility in the sense that manufactures have no alternative way to make relevant products without using the patent and thus they may be able to dominate all downstream manufacturers by way of refusals to licence to patent users who are already locked in the standard without any alternatives. As discussed in chapter 4,⁷⁰⁷ patent holdups by an NPE patent holder may occur (1) when there are disputes on the interpretation of the FRAND condition after a standard is adopted, (2) when a member of the SSO keeps her patents hidden until the standard is adopted in the

⁷⁰⁵ Ibid. at 9 and 10

⁷⁰⁶ BREED, et al. (2012) ‘DOJ and FTC consider NPE antitrust issues’, *Kluwer Competition Law Blog*, available at <http://kluwercompetitionlawblog.com/2012/10/19/doj-and-ftc-consider-npe-antitrust-issues>; JAKOBS (2011) ‘Patent Trolls in the Light of IP Rights and EU Competition Law’, *Mayer Brown’s Brussels Legal Business Prize*, at 8-9.

⁷⁰⁷ Section 4.4.3.

market and standard users are locked into the standard, or (3) when any patents which belong to non-members of the SSO are incorporated into the standard for some reason, such as by purchasing the patents from a member of the SSO.

With respect to the roles of competition law in those circumstances, controversies exist between competition law enforcement agencies⁷⁰⁸ and commentators. While some are in favour of extending competition liability to all NPEs even outside the standard-setting context,⁷⁰⁹ others argue that it is a backstop which should apply only if private efforts in the SSO and any measures by patent law fail.⁷¹⁰ Even though competition law serves a valuable purpose, it is a very difficult task to draw a proper line where competition law can step into patent law with a view to control patent holders' anticompetitive conducts, as the history of the relationship between these two laws has experienced the cycling between over- and under-protection of patent rights.⁷¹¹

All things considered, any patent holdup problems caused by members of SSOs (the first and second circumstance mentioned as above) could be corrected in many cases, as Lemley proposes, if SSOs perform more active roles, such as making member's licensing duties clear, requiring patentees to specify the content of their

⁷⁰⁸ While the US Department of Justice (DOJ) is cautious according to its recent report on single firm conduct (<http://www.justice.gov/atr/public/reports/236681.htm>), the FTC is quite aggressive. The EU's approach is regarded as more in harmony with the FTC than the DOJ. See COMPTON (2009) 'Tumultuous times: the escalating US debate on the role of antitrust in standard setting', *Competition Law International*, February 2009, pp. 29-38, at 35.

⁷⁰⁹ ROSCH (2008) 'Patent Trolls: Broad Brush Definitions and Law Enforcement Ideas', *FTC*, available at <http://www.ftc.gov/speeches/rosch/080531roschlecg.pdf>.

⁷¹⁰ LEMLEY (2007) 'Ten Things To Do About Patent Holdup of Standards (And One Not To)', *Boston College Law Review*, vol. 48, p. 149, at 167; COMPTON, n 708, at 35-36.

⁷¹¹ LEMLEY (2007) 'A New Balance between IP and Antitrust', *Southwestern Journal of Law and Trade in the Americas*, vol. 13, p. 237.

FRAND licences *ex ante*, and/or imposing penalty defaults in the absence of licence disclosure, e.g. setting up a default licence fee per patent at £1000 unless the patentee discloses the patent and its licence rate.⁷¹² In the cases under the third circumstance where the patent holdups are caused by non-members of SSOs, the competition law intervention could be an appropriate approach to redress NPEs' anticompetitive conducts.

Meanwhile, when it comes to the patent remedies in a patent infringement suit, the competition law discourse as a solution to NPE problems is very limited. Even though competition law defence in patent infringement suits is not prohibited,⁷¹³ it rarely succeeds not only because NPE patent holders normally stay out of a dominant position save some exceptional circumstances, but also an alleged infringer may be faced with a fundamental obstacle to prove the anticompetitive conduct against the legitimate enforcement of a patent right. Accordingly, competition law is insufficient to capture the full range of NPE concerns in the patent law regime.

5.3.3.2.2. Application of patent misuse doctrine

If the regulations by competition law attempt to ameliorate certain shortcomings of the monopolistic power of patent right from the outside of the patent system, the US 'patent misuse doctrine' lies at the intersection of patent and antitrust law regimes.⁷¹⁴

⁷¹² LEMLEY 'Ten Things To Do About Patent Holdup of Standards (And One Not To)', n 710, at 155-161

⁷¹³ In the US, unlike the UK, antitrust defence is claimed through the patent misuse doctrine as will be discussed in the following section. In Germany, as discussed in Chapter 3, a competition law defence may be raised to request for a licence since the *Orange Book Standard* case.

⁷¹⁴ FELDMAN (2003) 'The Insufficiency of Antitrust Analysis for Patent Misuse', *The Hastings Law Journal*, vol. 55, issue 2, p. 399. In this section, the term 'antitrust law' will be used because the misuse doctrine is only found in the US.

The patent misuse doctrine may provide much more flexible approaches against NPE problems in that it, in spite of controversies as will be seen below, may be free from the requirement of dominant position, a prime restriction in applying antitrust law.

The development of patent misuse doctrine

Patent misuse doctrine is an affirmative defence that a patent infringement defendant may raise against the patent holder's infringement action.⁷¹⁵ If a court finds that the patent holder has misused its patent, it renders the patent unenforceable until purge.⁷¹⁶ Furthermore, even in the lack of direct damage from the patent holder's misusing behaviour, any infringing defendant may assert the misuse defence against an infringement claim by raising the misuse evidence toward other entities.⁷¹⁷

Historically, the patent misuse doctrine was established through a series of patent infringement cases from the early 1900s where patent holders attempted to use their patent rights in the way of forcing licensees to purchase other unpatented products.⁷¹⁸ *Morton Salt Co. v. Suppiger co.* (1942)⁷¹⁹ was the first case which clearly delineated the modern patent misuse doctrine. The primary issue in that case was whether the patent holder's claim for patent infringement could be denied by the alleged infringer's affirmative defence that tying unpatented articles to the patented

⁷¹⁵ MCGOWAN (2008) 'Colloquy Essay - What Tool Works Tells Us About Tailoring Patent Remedies', *Northwestern University Law Review*, vol. 102, issue 1, p. 421, at 421.

⁷¹⁶ HOERNER (2002) 'SYMPOSIUM: The Federal Circuit and Antitrust - The Decline (And Fall ?) Of The Patent Misuse Doctrine In The Federal Circuit', *Antitrust Law Journal*, vol. 69, issue 3, p. 669.

⁷¹⁷ FELDMAN, n 714, at 410-411. See also COTTER (2010a) 'Four Questionable Rationales for the Patent Misuse Doctrine', *Minnesota Legal Studies Research Paper No. 10-30*, available at <http://ssrn.com/paper=1616275>, at 1.

⁷¹⁸ BOHANNAN (2010) 'IP Misuse as Foreclosure', *Iowa Law Review*, vol. 96, p.101, at 105.

⁷¹⁹ 314 US 488 (1942).

machine by the patentee renders the patent right unenforceable. Rejecting the patent holder's infringement claim, the US Supreme Court held that patent misuse doctrine is not a matter of antitrust violations but 'whether a court of equity will lend its aid to protect a patent monopoly when the patent is being used to secure rights beyond the scope of the patent and therefore contrary to public policy.'⁷²⁰ From the beginning, the patent misuse doctrine has developed from primarily relying on patent policy and equity principles rather than antitrust principles to justify the doctrine. Even though initial misuse cases mainly focused on tying, the application of the misuse doctrine has expanded later to other patent practices as well as copyright cases.

Over the past few decades since the mid 1980s, however, the majority of lower courts have begun to reframe the doctrine by the antitrust principles, which means that to prove patent misuse 'the alleged infringer must show that the patentee has impermissibly broadened the 'physical or temporal scope' of the patent grant with anticompetitive effect.'⁷²¹ In the series of patent misuse cases so far, the CAFC has required courts to apply the antitrust rule of reason for the finding of patent misuse. Considering the rule of reason typically requires the finding of substantial market power, the current dominant view of misuse limits the scope of the misuse doctrine to the antitrust framework. This shift toward the merger of misuse and antitrust is ascribed to the fact that antitrust law provides courts with a well-developed set of rules rather than the pure misuse doctrine.⁷²²

The 'foreclosure' approach of the patent misuse doctrine

⁷²⁰ FELDMAN, n 714, at 410.

⁷²¹ *Windsurfing Int'l*, 782 F.2d 1001 (1986).

⁷²² BOHANNAN, n 718, at 103.

There have been controversies surrounding the optimal scope of the misuse doctrine, i.e. favouring the application of antitrust rules to the patent misuse inquiry, the abolition of the misuse doctrine,⁷²³ or the expansion of the scope outside the antitrust rules.⁷²⁴ Considering the purpose of this research, this section primarily discusses Bohannan's so-called 'foreclosure approach' which substantially expands the scope of the patent misuse doctrine.

She argues that in applying an antitrust standard, the current misuse doctrine is heading the wrong way in that due to the requirement of market power, it fails to redress various harmful conducts violating patent policy.⁷²⁵ She views the patent misuse doctrine as a useful tool to correct various extraordinary problems in the patent system. Her main claim is that the basic rationale of the misuse doctrine should be stood on the proper consideration of the fundamental patent policies.⁷²⁶ In other words, even though she does not oppose the use of misuse against patent holders' anticompetitive conducts, she asserts that the misuse should be found where the patent owners' conducts, without violating antitrust law, 'foreclose others from (1) competing in a particular market; (2) producing technology that they are otherwise lawfully entitled to develop (i.e., restraints on innovation); or (3) accessing information or technology that rightfully belongs in the public domain.'⁷²⁷

⁷²³ CHIAPPETTA (2011) 'Living with Patents: Insights from Patent Misuse', *Marquette Intellectual Property Law Review*, vol. 15, issue 1.

⁷²⁴ FELDMAN, n 714.

⁷²⁵ BOHANNAN, n 718, at 123-126.

⁷²⁶ Ibid. For similar accounts, also refer to FELDMAN, n 714.

⁷²⁷ BOHANNAN, n 718. As practices raising foreclosure concerns, she discusses tying; package or blanket licensing; licenses restricting the use or development of new technologies or products; extension of patent royalties beyond expiration of the patent term, appropriating downstream value (reach-through royalty or grantback agreement); and licences restricting access to public-domain

At the application stage in courts, Bohannan suggests that, if the alleged infringer proves a patent holder's unjustifiable restrictions on competition, innovation, or access to the public domain, she establishes a *prima facie* case of misuse, which means the burden of proof shifts to the patent owner.⁷²⁸ Under this foreclosure approach, even though market power is still a relevant factor for the misuse inquiry, it is not always a necessary or sufficient condition for concluding the foreclosure.⁷²⁹ In terms of remedies, it is argued that courts may hold the patent right unenforceable for the period of misuse in case the foreclosure is found, whereas they may simply refuse the judicial enforcement of the patentee's specific actions (e.g. licence or infringement action) when the patent holders' conducts are against the patent policy but do not reach the foreclosure.⁷³⁰

5.3.3.2.3. Evaluations and implications

Even though Bohannan does not openly mention whether the NPE patent holders' conducts could fall within the scope of her patent misuse theory, it is rather clear that the foreclosure-based patent misuse doctrine could be used against NPE problems as a more useful tool than the antitrust-based misuse doctrine since most of the patent enforcements by NPEs are hardly ever related to market power. Particularly, considering that the alleged infringer may assert misuse defence in a patent infringement suit by raising a patentee's misuse conducts even against other entities, the expanded misuse doctrine may assist manufacturers in effectively combating

information.

⁷²⁸ Ibid. at 152.

⁷²⁹ Ibid.

⁷³⁰ Ibid.

patent trolls.

We can postulate a number of possible circumstances where NPE patent holders' conducts constitute such foreclosure criteria of patent misuse. For instance, if NPE patent holders unreasonably reject licences to extract outrageous royalties compared with similar previous examples or if, using the patent infringement litigation threats, they license a patent together with other irrelevant patents at higher royalties, those conducts could foreclose innovation according to the severity of each case. If an NPE patent holder who produces a product using alternative technology imposes a condition on patent users not to make the same product as NPE patent holder's, it might foreclose competition in the market.

Despite its latent strength tackling NPE problems, the expanded misuse doctrine may not be that easy to implement in practice. First of all, as Cotter put it, the criteria of how much stronger evidence may constitute the foreclosure of competition or innovation is not clear enough for courts to apply the misuse doctrine in a consistent way.⁷³¹ To take royalty rate as an example, except cases where patent holders demand outrageous amounts, it is not that easy to find an appropriate amount which forecloses innovation incentives, because each party tends to evaluate the value of the patent in different way. Secondly, some remedial collisions are expected between when the misuse is found and when injunctive relief is refused by equity test. While patent holders cannot enforce their patents when patent misuse is found, they may be able to obtain monetary reward even though courts deny injunctive relief. Owing to the difficulties in measuring the misuse, this may cause serious remedial imbalance between similar patent infringement cases; in one case the patentee loses

⁷³¹ COTTER (2011) 'IP Misuse and Innovation Harm', *Iowa Law Review Bulletin*, vol. 96, p. 52, at 59.

the enforceability right and in another case receives monetary damages at least. On top of that, due to the powerful remedy of patent misuse, we cannot rule out the possibility that alleged infringers abuse the expanded patent misuse defence.

Even though the above concerns were resolved, the expanded misuse doctrine would provide limited solutions at least in terms of NPE problems in that it only covers exceptional cases where innovation or competition has been or is likely to be seriously suppressed. In this regard, the expanded misuse doctrine cannot be a major but supplementary solution to the NPE-related infringement cases involved with patent holdups.

5.3.4. Improving the Current Patent Law Structure or Procedure

Rather than seeking solutions to NPE problems by changing the criteria and specific forms of injunctive relief itself, several scholars have approached this issue from the perspectives of patent law procedures. This section reviews two insightful approaches: Sichelman's 'commercialisation patents' model and Hovenkamp's 'timely notice' model.

5.3.4.1. Sichelman's 'Commercialisation Patents' Model

Sichelman's commercialisation patents model is ultimately aimed at encouraging the commercialisation of patents by changing the procedure and structure of patent grants.⁷³² In general, as discussed in chapter 4, this sort of approaches tackling the patent troll problems may usually face substantial side-effects and a variety of additional costs unless carefully designed. Nonetheless, Sichelman's model is worthy

⁷³² SICHELMAN, n 551.

of note in that, though radical, it is viable enough and able to minimise generally expected side-effects.

Sichelman's model begins from the under-commercialisation problem of current patent systems rather than directly from the NPE problems. In spite of the absence of direct mentions, generally Sichelman's accounts strongly insinuate the fact that he sufficiently perceived NPE issues as one of the urgent problems to be solved.⁷³³ In fact, as seen below, Sichelman's model provides insightful implications to NPE problems in many ways.

5.3.4.1.1. Concept of commercialisation patents

In addition to the current style of patent rights ('invention patents') which are granted in exchange for disclosing new and non-obvious inventions, Sichelman proposes supplementary patent rights, 'commercialisation patents' which may be granted in exchange for commitments to manufacture and sell a new novel product not available in the market.

The particular features of commercialisation patents are as follows. Firstly, to avoid excessive administration costs and excessive patenting in case of radical expansion of the scope of patentable subject matter, the commercialisation patents only protect a commercial product excluding a process. Secondly, analogous with invention patents, commercialisation patents also should meet the written disclosure requirement for the commercialised product.⁷³⁴ Thirdly, with respect to drafting

⁷³³ Addressing the problems of inventor-commercialiser transaction costs in the current patent system, in fact, he mentioned the problems (e.g. high transaction costs or patent holdups) by NPE or patent trolls. See *Ibid.* at 369, 386.

⁷³⁴ *Ibid.* at 402.

patent claims, the same principles as product claims in invention patents are applied to commercialisation patents, however, the claim ‘should be limited exactly to the product described in the specification’ because the commercialisation patent intends to encourage the new tangible products rather than to promote new technical ideas as invention patents.⁷³⁵ Meanwhile, this model also suggests that the doctrine of equivalents should be vigorously applied to protect patent owners from an infringers’ easy circumvention of the patent due to the above strict limitation on claim draft.⁷³⁶

Fourthly, there is a working (practising) requirement and slight different novelty requirements from invention patents. The commercialisation patentee should launch the patented product (including via licensees) within a reasonable time (e.g. three years from filing date). Regarding the novelty test, the same ‘technological’ novelty standard with invention patents is used for commercialisation patents due to the practical reason that the ‘commercial’ novelty standard causes too much burden on patent examiners. However there are two major modifications.⁷³⁷ The set of prior art is limited to within the nation territory as well as to the current products available in the market.⁷³⁸ A purpose of a commercialisation patent to bring product to the market being considered, the inventive step is not applied to commercialisation patent claims, rather a ‘substantial novelty’ test should suffice.⁷³⁹ This test means that a claim would not be patentable or a patented claim would be invalid if any same or equivalent product already exists in the marketplace.⁷⁴⁰

⁷³⁵ Ibid. at 403.

⁷³⁶ Ibid. at 403-404.

⁷³⁷ Ibid. at 405.

⁷³⁸ Ibid.

⁷³⁹ Ibid. at 405-406.

⁷⁴⁰ Ibid.

Lastly, while an invention patent lasts twenty years from the filing date such as in the current system, the term of commercialisation patents is to be set relatively short, e.g. five to eight years.⁷⁴¹ Here, it is said that, whilst the negative exclusive right of a commercialisation patent expires in that period of 5-8 years, the positive right to use the patent should continue.⁷⁴²

5.3.4.1.2. Operations of the commercialisation patents model

With respect to the relationship between the invention and commercialisation patents, the most important feature is that a commercialisation patentee is completely immunised from injunctive relief in a suit claimed to have infringed an invention patent, whereas she can exclude other infringers of her commercialisation patent from uses without her permission.⁷⁴³ The commercialisation patentees have only to pay the owner of invention patent fixed reasonable royalties which are limited to the value of the patented components of products.⁷⁴⁴ Meanwhile, the owner of an invention patent cannot enjoy injunctive relief against future infringements unless they commercialise their patents within a certain grace period (e.g. three years after issuance).⁷⁴⁵ In this case, the invention patentees have to be satisfied with only monetary rewards.

In this proposed patent structure accommodating two types of patent rights, i.e. invention and commercialisation patents, NPEs may apply only for invention patents because they do not commercialise their invented patents. On the contrary,

⁷⁴¹ Ibid.at 410-411.

⁷⁴² Ibid.

⁷⁴³ Ibid. at 407.

⁷⁴⁴ Ibid.

⁷⁴⁵ Ibid. at 408.

PEs are able to file both types of patent applications: invention patents in case they invented a technology and may be able to commercialise it within the grace period; commercialisation patents if they only commercialise an existing invention patent which belongs to others. As a matter of course, NPE patent holders' negotiation power for licensing is radically weakened due to the loss of injunction threats.

5.3.4.1.3. Evaluations and implications

Though radical, Sichelman's commercialisation patent model provides benefits in many ways. Firstly, it could significantly reduce the strategic behaviours of patentees, particularly NPEs, by putting the compulsory licence risk on them in case the invention patent is not commercialised or licensed. Secondly, commercialisation patents can mitigate the problems of blocking patents by limiting the invention patentees' exclusive right and thereby making dependent inventions easy to be commercialised by others willing to use the original blocking patent. Thirdly, this model would encourage the commercialisation of dormant inventions which are in low demand but profitable, by providing enough exclusivity to the commercialisation patents. Furthermore, compared with other previous proposals intended to directly encourage commercialisation, Sichelman's model has made significant advances in light that it does not seriously increase administrative costs because the patent office or courts use almost the same standards or doctrines applied to the conventional invention patents. Lastly and more importantly, the proposed model could greatly mitigate the uncertainty problems because many patents would be implemented into tangible products, which means that new featured inventions would be more easily detected by competitors.

Even though Sichelman's commercialisation model provides a variety of merits, a few worries still exist. First of all, this model could seriously impair NPE invention patent holders' chances of licensing to manufacturers. Although Sichelman argues that the grace period (3 years) given to NPEs for commercialisation would provide them with enough opportunities to maintain its injunction threat, a rational manufacturer who is aware of her chance to apply for a commercialisation patent will hardly have enough incentives to negotiate *ex ante* with the NPE invention patentee, save the situations where multiple manufacturers compete for a licence of the invention or where the invention patentee offers licence fees too far below the fixed rate set for the patent infringement between invention and commercialisation patentees. Hence, in many cases NPE invention patentees would be compensated far below the real value of the invention. Furthermore, in those situations where manufacturers' incentives to negotiate voluntarily for a licence are seriously reduced, NPEs should incur additional litigation costs to enforce their invention patents.

Another problem with this model is unbalanced protections between NPE and PE patent holders. Whilst the owner of commercialisation patents who commercialised NPEs' invention patents pays low royalties to NPEs, they are able to earn much higher royalties from other product competitors because they can use a powerful arsenal of injunctions, which is equivalent to the behaviours of current patent trolls. Even though the importance of commercialisation should be acknowledged, this model could bestow too much favour to manufacturers over NPEs.

In conclusion, even though Sichelman's model is expected to provide various benefits, in particular substantially diminished uncertainty problems which

cause patent holdups, it could possibly suppress NPEs' sustainable innovation activities by making it difficult for them to protect their patents whereas giving too much favour to manufacturers.

5.3.4.2. Hovenkamp's 'Timely Notice' Model

With respect to the notice failure or broadly, the uncertainty problem, Hovenkamp has recently proposed an insightful model.⁷⁴⁶ He adopts the notice function of the real property system and argues that patent remedies, such as injunctive relief and damages, should be determined by whether patent holders carry out sufficient notice efforts to possible infringers *ex ante*.

5.3.4.2.1. Notice failure in the patent system

To begin, Hovenkamp perceives that, compared with real property rights, the patent notice system produces serious problems of cost and uncertainty due to the extremely technical nature of claim drafting.⁷⁴⁷ Whilst the drafter of a real property does not have incentives to delineate the boundaries of her land broadly or ambiguously, it is claimed that patent drafters have the incentives to do so to the contrary.⁷⁴⁸ This characteristic of patent leads to the enormous expenses of patent searches and notoriously unreliable results thereof. This sometimes encourages innovators to opt for taking the risk of subsequent patent infringement suits without searching relevant patents at all.⁷⁴⁹ In particular, Hovenkamp finds the NPE or patent-troll problem to

⁷⁴⁶ HOVENKAMP (2011) 'Notice and Patent Remedies', *Texas Law Review*, vol. 88, p. 221.

⁷⁴⁷ Ibid. at 227.

⁷⁴⁸ Ibid.

⁷⁴⁹ Ibid.

be resulting from two separate notice failures in the patent system: firstly, considerable costs for effective patent searches in industries with technically complex natures in particular; secondly, the presence of unpractised patents which exist in the form of abstract description on paper rather than in a concrete product.⁷⁵⁰ These circumstances of the current patent system enable patent trolls to attack product developers once the latter make costly and irreversible investments without knowledge of the presence of the patent.

He admits that these uncertainty problems in the patent system are not easily fixed merely by changing the current rules for claim drafting and construction or patent interpretation because those problems are inherent in the system.⁷⁵¹ Rather, he suggests that the implementation of an effective ‘private notice system’ be far more manageable to improve the notice function of the patent system.⁷⁵²

5.3.4.2.2. Adoption of the notice function of real property law

The notice system for land is operated by both government officials who are running a public recording system and private market-participants who search the record for land transactions. If the recording system works poorly, the market participants should provide additional notice by themselves so as not to lose their investments by discovering later that the land belongs to others.⁷⁵³ Here, an important common law principle of notice is that the obligation of providing such supplementary notice must

⁷⁵⁰ Ibid. at 228.

⁷⁵¹ Ibid.

⁷⁵² Ibid.

⁷⁵³ Ibid. at 225.

be normally placed on the party ‘who can do so at the lowest cost.’⁷⁵⁴ In the poorly-run notice system, notice provided by the owner of a property is often far less costly than when likely trespassers search the right.⁷⁵⁵ In other words, it is a law of real property that, ‘when the system of public notice breaks down, owners have a duty to compensate by providing increased timely and effective notice themselves.’⁷⁵⁶

Considering the fact that the public notice function in the current patent system is not working properly, Hovenkamp suggests that patent law would benefit by adopting the above notice rule of the real-property system. This means that a patent owner should provide the known or prospected infringers with the information of the patent right before they make irreversible investments on the patented technology.⁷⁵⁷

5.3.4.2.3. Applications to patent remedies

Hovenkamp illustrates his model by raising an example: ‘late claiming’ by way of the continuous patent application. Many current patent laws allow patent applicants to add patent claims to their previously filed patent applications only if the additionally claimed inventions are described in the specification section of the previous applications. If the continuous patent applications are successful, the patent can be enforceable from the filing date of the original patent application. The problem is that the applicant of continuous patent applications is able to file them even after she recognises the fact that the claimed invention has already been

⁷⁵⁴ Ibid.

⁷⁵⁵ Ibid.

⁷⁵⁶ Ibid. at 228.

⁷⁵⁷ Ibid.

developed by others. This late claiming aggravates the inadequate notice function of the current patent system toward potential infringers, inducing them to invest without the knowledge of potential risks of infringement and putting patentees in the advantageous position of being able to leverage high damages.⁷⁵⁸ Hovenkamp argues that his proposed model can solve the problems of late claiming by putting the burden on the patentee drafting late claims to ‘provide timely notice to all known and likely prospective infringers.’⁷⁵⁹

If infringement is found by the court, the patent remedies should be determined by whether timely notice has been provided reasonably to foreseeable infringers.⁷⁶⁰ If the patent holder requests an injunction, the court may take into account whether she properly provided timely notice to the infringer in exercising its equity power for injunctive relief. If the patentee failed her notice duty, the author argues that the court may deny an injunction in the framework of equitable consideration.

With regard to the patent damages system, Hovenkamp also argues that it can also encourage innovation incentives by metering damages according to the status of *ex ante* patent notice.⁷⁶¹ He asserts that the current patent system should encourage incentives for patent holders to proactively engage in providing patent notice to prospected infringers.⁷⁶² As a specific measure, the calculation of damages for infringement should include the factor of whether the patentee has performed her duty of timely notice: enhanced damages in case of wilful infringement in spite of a

⁷⁵⁸ Ibid. at 229.

⁷⁵⁹ Ibid. at 230.

⁷⁶⁰ Ibid. at 231.

⁷⁶¹ Ibid.

⁷⁶² Ibid.

patentee's prior notice; diminished damages when the patent holder fails timely notice obligation.

In sum, Hovenkamp's model is based on the belief that, if patents are to be treated as property, then measures to restore the clear and timely notice function should be put in place in the current patent system. For this, he proposes that patent remedies should be determined by whether the patent holder has provided timely notice to anticipated infringers.

5.3.4.2.4. Evaluations and Implications

Hovenkamp's notice model carries a significant value in that it rightly analysed the major cause of NPE or patent troll problems as coming from the disruption of notice function in the current patent system. Furthermore, it may be insightful in that, besides injunctive relief, the increased or decreased patent damages according to the infringers' acknowledgement of the patent notice or patent holders' duty of timely notice also could be an important policy lever to encourage incentives to innovate and to discourage strategic behaviours.

Despite those important implications, however, this model should answer a few questions which could be raised for its implementation. The foremost possible objection to this model could be directed to 'how a patentee can provide timely notice to possible infringers before infringers manufacture a product using the patented invention.' Even though patent owners may be able to locate prospective infringers in some cases, it is not affordable for them to do so until infringers release a new product into the market in many cases. In this circumstance, it is not practicable to force the patent holder to notify her patented inventions to all related

manufacturers only based on a mere assumption of possible infringement. Furthermore, for the big companies who hold so many patent rights it is almost impossible to expect that they can manage the duty of timely notice for their enormous patent portfolio by keeping their eyes on or searching for whether other manufacturers are likely to exploit them.

In conclusion, whilst putting the obligation of timely notice on the right holder could be feasible in property law where the failure of notice function occurs in exceptional circumstances, it does not seem to fit into the patent system where the failure is quite prevalent. Hence, Hovenkamp's model could be applicable only in some limited circumstances where patent holders are able to know for sure that manufacturers could use their patented invention. It does not provide a single extensive solution which could be applied to NPEs or overall patent infringement cases.

5.4. Conclusions

This chapter has reviewed several noteworthy proposals to see whether and how effectively they could be used to tackle NPE or patent troll problems, particularly (1) the uncertainty problems of the patent system and (2) the difficulty of designing an optimal level of injunctive relief which effectively curbs the strategic behaviours of NPE patent holders without stifling NPEs' incentives to invent and innovate.

The literature review shows that those proposals may be applied only within limited circumstances or have some limitations, and thus unfortunately they do not provide any complete set of solutions that can be extensively applied.

To summarise them briefly, the proposals to weaken the exclusive right of

patents either by expanding compulsory licence,⁷⁶³ limiting injunctive relief,⁷⁶⁴ or applying various legal doctrine or outside laws,⁷⁶⁵ may be able to penalise patent trolling conduct. However, they are not equipped with specific tools to maintain the appropriate level of liability rule because they rely too much upon the discretion of courts. As noted, the US Post-*eBay* cases substantiate that too broad and abstract discretionary power given to courts could let courts be strayed. In addition, the presence of strong counterarguments in favour of strong property rules (e.g. Chung's proposal)⁷⁶⁶ also implies the difficulty of finding an optimal point between property and liability rules. Furthermore, those proposals do not effectively counteract other ordinary holdup problems which do not reach the serious patent troll cases but are still unfair to innocent infringers. This limitation springs from the fact that those proposals do not fully solve the uncertainty problem of the patent system.

On the contrary, the proposals⁷⁶⁷ intended to solve NPE problems through reforming patent law structure or procedure are expected to substantially decrease uncertainty problems by inducing NPE patent holders to go into licence *ex ante* (Sichelman's commercialisation patent model) or by putting a timely notice obligation on the shoulder of patent holders (Hovenkamp's timely notice model). Even though these models are very insightful in light that they recognise the uncertainty and under-commercialisation problems of the current patent system, they are likely to give unbalanced preferential treatments to PE patent holders over NPE counterparts. It is against the finding in chapter 2 that NPEs play important roles in

⁷⁶³ Section 5.3.1.1 & 5.3.1.3.

⁷⁶⁴ Section 5.3.1.2 & 5.3.1.3.

⁷⁶⁵ Section 5.3.3.

⁷⁶⁶ Section 5.3.2.

⁷⁶⁷ Section 5.3.4.

our patent system as well as in the innovation process and they should not receive unfair treatments by reason only of their non-practising status. This implies that all participants should enjoy equal chances and treatments save exceptional circumstances, and therefore any measures to control patenting or enforcement activities by NPEs *ex ante* rather than bad consequences of their conducts *ex post* should be carefully approached.

Meanwhile, some important positive implications were also found. Above all, Chung's proposal provides an important clue that a 'grace period' allowing some period of time for infringers to design around the infringed patent, could possibly mitigate patent holdups and protect the exclusive right of patent simultaneously. Secondly, Lee's accession model teaches that, if the uncertainty problems were to be resolved by patent remedies, the good-faith requirement should be put in place to prevent deliberate infringements. This means that wilful infringements need to be strictly punished so as to induce voluntary negotiation by prospective infringers with patent holders *ex ante*.

Taking into account the lessons and implications learned from the literature review in this chapter as well as other valuable findings from previous chapters, the next chapter seeks to develop a new model which can achieve the two prime targets, i.e. solving uncertainty problems and designing patent remedies deterring trolling behaviours without discouraging patent holders' incentives to innovate at the same time.

Chapter 6 Towards A New Injunction Model

6.1. Introduction

Previous chapters have discussed NPE issues from different perspectives, i.e. their backgrounds, related laws in major jurisdictions, theoretical analysis, and several suggested solutions. Those discussions have revealed some interesting facts not only that NPE problems have given us doubts about the sustainability of the current patent system in a rapidly changing modern patent environment, but also that, in spite of prominent scholars' and policymakers' contributions, they provide partial solutions and leave some room for further developments.

Based on those findings, this chapter seeks to design a new injunction model which can considerably mitigate the NPE problems.⁷⁶⁸ Section 6.2 begins with setting up basic principles which an injunction model should ultimately satisfy. Keeping in mind those principles, section 6.3 proceeds to design a new injunction model (hereinafter 'the Model'). Sections 6.4 and 6.5 examine the advantages and the possible criticisms of the Model respectively. Lastly, section 6.6 discusses how the Model could be implemented in the international/regional as well as the national level.

6.2. Main Objectives and Basic Principles

⁷⁶⁸ This chapter only deals with how to design patent remedies for future infringements, leaving the damages for the past infringements untouched. This is because NPE problems, as discussed in chapter 4, are directly related with patent holdups which affect the infringers' future business.

To advance toward a new injunction model for resolving NPE problems, the main objectives of the Model which were presented in chapter 5 need to be recalled here again.⁷⁶⁹

- (1) The Model should solve the uncertainty problems of the patent system which are a major root cause of patent holdups.
- (2) The Model should design a patent remedy regime in such a way as to effectively resolve those problems without causing long-term dynamic inefficiencies, such as depressing the incentives of NPEs to invent or innovate.

Meanwhile, it should be remembered that the NPE problems cannot be treated as separate from the rest of the whole patent system in light that they are intertwined with every element of the system. The Model should be in harmony with the whole system, so as not to sacrifice other merits of the current system in exchange for solutions to the NPE or patent troll problems. In this regard, besides the two main objectives, the Model should also be carefully viewed in the overall picture of the patent system. Luckily, Golden has recently proposed five prestigious principles which any patent remedy reforms should satisfy: nonabsolutism; antidiscrimination; learning; administrability; and devolution.⁷⁷⁰ This research uses those principles as a yardstick to evaluate the general soundness of the Model. In fact, as seen below, most of those principles have already been discussed or implied in the previous discussions. Each one of those principles is briefly reviewed from the perspectives of this research in particular.

⁷⁶⁹ Section 5.2.

⁷⁷⁰ GOLDEN (2010) 'Principles for Patent Remedies', *Texas Law Review*, Vol. 88, pp. 505-592.

Nonabsolutism

This principle is closely related to the uncertainty problems of the patent system, which makes any patent remedy regime difficult to optimise. Therefore, any default rules for patent remedies need to incorporate some kind of flexibility so as to respond to unexpected exceptional circumstances. This corresponds to the previous finding that courts should have discretion in deciding whether to grant or refuse injunctive relief so as to effectively deal with NPE problems appearing in a wide variety of forms.⁷⁷¹ As we have learned from the US post-*eBay* cases, however, it also should be remembered that too much dependence upon courts' discretion may create other problems and deviate from the proper range of injunctive relief.

In short, whilst the Model may have default rules which are extensively applied to every patent infringement case, it should be flexible enough to encompass exceptional circumstances.

Antidiscrimination

The antidiscrimination principle means that any patent remedies should not favour certain categories of business models or entities over others. All should be equally treated without discrimination. As far as NPE issues are concerned, this principle also corresponds to the finding in chapter 2 that, despite the possibilities of patent abuse in some cases, NPEs basically have played and will continue to play very important roles in the patent system.⁷⁷² Even patent holding companies which are viewed as an archetypal 'patent trolls,' may contribute to overall innovation through

⁷⁷¹ Section 3.5.1.

⁷⁷² Section 2.3.3.

promoting more efficient technology transfer between inventors and downstream manufacturers, unless they are involved in abusing behaviours.⁷⁷³ As Lemley put it, the Model in this research must tackle the NPE or patent troll problems ‘not by identifying and punishing particular persons as patent trolls,’ but by eliminating the root cause of the problems.⁷⁷⁴

Therefore, the Model should treat all patent holders (PEs and NPEs) equally in terms of patent remedies, regardless of their types of entities or business models.

Learning

The principle of learning refers to fashioning a patent remedy regime which ‘encourages the production of information that can be used to improve the regime itself.’⁷⁷⁵ More specifically, this principle requires any patent remedy to place the burden of proof or production of information on the best possible providers. By doing so, this principle lets the current remedy regime optimise itself or progress as new circumstances develop.

Administrability

Any regime of patent remedy should not impose too high administrative costs on government actors (mostly courts) in its implementation. Furthermore, relevant private actors should be able to readily understand, heed and use the remedy regime, which means that the remedy rules should let them ‘predict accurately the remedy

⁷⁷³ Section 2.3.3.3.

⁷⁷⁴ LEMLEY 'Ten Things To Do About Patent Holdup of Standards (And One Not To)', n 710, at 155.

⁷⁷⁵ GOLDEN 'Principles for Patent Remedies', n 770, at 561.

that courts will make available under a known set of facts.’⁷⁷⁶ In this regard, the Model should not cause any serious administrative costs in its implementation, and it also should provide all players with predictability, transparency and consistency in terms of patent remedies.

Devolution

The principle of devolution refers to letting private parties decide and take responsibilities as much as possible. In other words, any remedy regime should promote voluntary negotiation rather than letting courts settle most of the patent disputes. It is because private actors generally have better knowledge of the market and have greater capacity to ‘identify or to devise optimal or closer-to-optimal approaches to meting out shares of technological value’ than courts do.⁷⁷⁷

This principle is closely related to the deterrent function of patent remedy for future infringements. To facilitate private and voluntary negotiations, the remedy regime has to encourage potential infringers to clear others’ patent rights in advance. Unless it gives a clear message that wilful infringers would surely be punished, any remedy regime would not successfully defend the legitimate rights of patentees and accordingly increase social costs due to increasing illegal piracies.

6.3. Design of the New Injunction Model

As previous discussions in chapter 5 have revealed, the attempts to resolve or mitigate the NPE problems by way of reforming patent law process or structure, if

⁷⁷⁶ Ibid. at 563.

⁷⁷⁷ Ibid. at 565.

not impossible, are extremely difficult to implement in a practical sense,⁷⁷⁸ and those adopting various doctrines and competition law may cover only a limited number of extreme cases rather than provide an extensively applicable general rule.⁷⁷⁹ Thus, the Model seeks to find a solution by way of reforming current judicial patent remedy systems, particularly injunctive relief in the sense that it is a direct and core factor in dealing with NPE issues.

In designing a new remedy system, the Model takes into account the two core findings discussed in previous chapters. Firstly, the Model intends to provide courts with a clear process for exercising their discretion. It is based on the finding of chapter 3 that, even though the discretionary power of courts in determining whether to grant or deny an injunction may give an appropriate tool to tackle patent troll problems, the too broad and vague criteria for the discretion may increase in uncertainties or inconsistencies of each patent case, running counter to the ultimate objectives of patent law.⁷⁸⁰ Secondly, the Model pays attention to the findings in chapter 4 that NPE or patent troll problems (or patent holdups) primarily result from the uncertainty problems in the patent system, and accordingly any patent reform cannot yield any satisfactory results whatsoever without resolving those uncertainties.⁷⁸¹

6.3.1. An overview of the Model

⁷⁷⁸ Section 5.3.4.

⁷⁷⁹ Section 5.3.3.

⁷⁸⁰ Section 3.6.

⁷⁸¹ Section 4.3 & 4.4.

As an initial step, the Model divides all cases into wilful or innocent infringements. While a normal immediate injunction issues for wilful infringements, a suspended injunction issues for innocent infringements. In addition, an injunction could also be denied in some exceptional circumstances. As seen below, however, the suspended injunction is a main policy lever in this Model and dominates other remedial options. Here, a suspended injunction refers to granting infringers a certain period of time to continue using the patented invention until the injunction goes into effect. In fact, as discussed in previous chapters, such an approach awarding a suspended injunction has already been applied in several US post-*eBay* cases⁷⁸² as well as in some UK cases⁷⁸³ and has also been proposed from academia, e.g. by Lemley-Shapiro Model⁷⁸⁴ and Chung's proposal.⁷⁸⁵

However, the suspended injunction in this Model is quite distinct from others in at least two aspects.

The first aspect is the rationale of this Model. The Model focuses on the *posteriori* correction of the general uncertainty problems of the patent system, whereas the previous approaches are primarily focused on how to correct the unfairness which infringers may incur when an injunction kicks in immediately. Put in a different way, whilst some US post-*eBay* cases and other proposals tend to ignore or insufficiently address the uncertainty problems of patent rights, the Model solves NPE problems by way of ameliorating those uncertainties which are regarded as a primary obstacle to patent rights being treated as a property right. As a

⁷⁸² Section 3.2.2.4.5.1 (an injunction with sunset provisions).

⁷⁸³ Section 3.3.2.2.3 (an injunction with runoff period).

⁷⁸⁴ Section 4.4.2.1. (a stayed injunction).

⁷⁸⁵ Section 5.3.2.

consequence, the Model helps the patent system to keep the integrity of patent rights as a property right as high as possible.

The other aspect is the extent to which the Model applies. Since the Model focuses on the redress of the uncertainty problems, it applies to almost every innocent infringement case wherever an infringement was found by courts, regardless of the types of the patent holder (an NPE or PE) or the kinds of patents (dependant or pioneer patents).

6.3.2. The specific Framework of the Model

6.3.2.1. Classification of Wilful/Innocent Behaviours in Patent Infringements

Since the Model is fundamentally dependent upon whether an infringement is wilful or innocent, how to define wilful/innocent infringement should be a start point. For this, it would be helpful to specify the possible scenarios of how patent infringers (or prospective users) may behave with respect to the existing patents.

If they recognise the presence of a patent on which their products might infringe, would-be users may either negotiate with the patent owner for a licence or proceed to use the patented invention without the patent holder's permission. In the former situation, reaching a licence agreement is a most desirable scenario, but if the negotiation breaks down the would-be patent users may give up using the patented invention or push ahead with their production.⁷⁸⁶ Meanwhile, would-be patent users may proceed to use the patented invention without any negotiation with the patent

⁷⁸⁶ In this case, the would-be patent users may opt for an application of a statutory compulsory licence. If it is successful, the dispute ends here. However, if unsuccessful, they have the same options as above: to give up using the patented invention or push ahead with using it.

holder, if either they think they have clear and convincing evidence of non-infringement and/or invalidity of the patent, or they deliberately ignore the patent. If, on the other hand, would-be infringers fail to locate the existing patent, they will proceed to manufacture their products as planned. In a broad sense, the failure of identifying the patent could happen in two circumstances: when the infringers paid *ex ante* due diligence so as to find relevant patents; or when they did not make a sufficient endeavour to search those related patents.

Those scenarios could be summarised in a table as below. Among them, five situations (1-5) are associated with wilful or innocent infringements and should be taken into account in designing the Model in this research. The situations where infringers had clear and convincing evidence that the patent is not valid and/or infringed upon (situation 3) or where they could not find the patent despite their substantial efforts (situation 5) could be classified as innocent infringements. On the other hand, the other three cases (situation 1, 2, 4) should be regarded as wilful infringements. As seen in the subsequent section, the Model grants distinct remedies in those two different circumstances.

<i>Ex ante</i> awareness of patent	Infringers (would-be users) behaviours		Wilfulness	
Yes	Licence negotiation	Negotiation Success	NA	
		Negotiation breakdown	Give up using	NA
			(1) Proceed to use	Wilful
	Proceed to use without negotiation	(2) Deliberately blind to the patent	Wilful	
		(3) Clear and convincing evidence on invalidity or non-infringement	Innocent	
No	(4) Not paying due diligence to clear patents		Wilful	

	(5) Paying due diligence to clear patents	Innocent
--	---	----------

Table 4. The infringers’ (would-be users’) possible behaviours

To prevent wilful blindness by potential infringers, i.e. the wilful negligence of *ex ante* patent searches, the standard of wilfulness should be objective enough.⁷⁸⁷ This standard of wilful infringement may follow the one which has already been developed by the US *In re Seagate*⁷⁸⁸ case which provides a very good guidance for the ‘objectivity.’ ‘[T]o establish wilful infringement, a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.’⁷⁸⁹ Once the patent holder satisfied the objectivity criteria, she ‘must also demonstrate that this objectively-defined risk (determined by the record developed in the infringement proceeding) was either known or so obvious that it should have been known to the accused infringer.’⁷⁹⁰ In fact, the above ‘wilful infringement’ is an American conception which has been used to determine punitive damages. Even though this concept is not familiar in other countries including the UK and Germany, it, as will be seen the *infra* section, is necessary for the Model to set up a criterion when an immediate injunction or suspended injunction is to be granted. Whenever the term, ‘wilful infringement’ or ‘innocent infringement,’ is used in the Model, it should be understood to refer to one of the circumstances classified in the above table under the aforementioned objective standard.

⁷⁸⁷ LEE, n 678, at 27.

⁷⁸⁸ 497 F.3d 1360 (Fed.Cir.2007).

⁷⁸⁹ Ibid. at 1368.

⁷⁹⁰ Ibid.

6.3.2.2. Designing the Model

The Model is interested in how to award patent remedies for future infringements once courts find that the defendant's product or service has infringed the valid patent in suit. Whilst the current remedy law operates largely in a dichotomous way, i.e. whether to grant or deny an injunction, the Model aims for a three-tiered remedy system: (1) cases where injunctions are granted immediately; (2) cases where suspended injunctions are granted; (3) cases where monetary damages are granted in lieu of injunctions. The second category awarding suspended injunctions is newly incorporated in this Model. Broadly speaking, the first and second categories could be said to be controlled by property rules, whereas the third is under liability rules.

Below is explained how and in what circumstances those three types of remedies could be considered.

6.3.2.2.1. Type 1: Granting an unqualified injunction

Injunctions should generally be granted if infringers wilfully infringe the patent. Seen from the purpose of patent law to crack down on illegal piracies, this is obvious and does not require any further explanation.

However, what is important to note here is that this type of remedy would be awarded in a limited number of cases. As an empirical analysis by Cotropia and Lemley indicates, wilful infringements in the US courts generally account for only a small percentage of overall patent cases.⁷⁹¹ It is basically due to the widespread uncertainty problems of the patent system which were consistently emphasised in

⁷⁹¹ In only 1.8% of all cases they analysed, wilful infringements were found in the US. See COTROPIA, *et al.* 'Copying in Patent Law', n 693.

previous chapters, as well as the fact that proving the *mens rea* is never easy in the patent infringement cases. Nonetheless, the wilfulness could be found in the cases where the uncertainties of patent rights are substantially reduced. For instance, courts may find an infringer's wilfulness more easily when the ownership, validity, and scope of a patent in present suit has already been determined by the court in a previous litigation and the infringer of the present litigation has been in a state to know its results,⁷⁹² or when the patented invention has already been incorporated in a tangible product produced by a legitimate licensee of the NPE patent holder and thus the infringer in the patent suit has been in a state to detect the presence of the patent and its owner.⁷⁹³

Since the Model suggests granting an immediate injunction against wilful infringement, it may be best suited to the US where 'wilful infringement' is evaluated for the determination of relevant patent damages, or to the other countries including the UK and Germany only if they adopt the concept of wilfulness in the patent infringement litigations. However, it should be noted here that, even if the UK and German law do not bring in the 'wilful infringement' conception, the Model could be implemented in those countries through a slight modification, i.e. by only granting a suspended injunction instead of an immediate injunction in those circumstances.

6.3.2.2.2. Type 2: Granting a suspended injunction

Granting a suspended injunction is a crucial part of the Model. The fundamental reason for giving that grace period stems from the necessity to relieve the

⁷⁹² Section 4.3.4.1.

⁷⁹³ Section 5.3.4.1.3.

unreasonable harm which patent holdups involving an immediate enforcement of an injunction would cause to innocent infringers. An immediate injunction would cause innocent infringers serious unexpected losses because they would not have invested if they had noticed the patent *ex ante* or had been assured of the infringement upon the valid patent. Those infringers' losses do not result from their own decisions to invest but from the uncertainty problems having led to that investment. It would be unfair to put the blame for the infringement upon those infringers. In this light, a suspended injunction mitigates or eliminates those iniquities by awarding infringers enough time to offset their unexpected losses.

Setting a suspension period

Then, setting a suspension period becomes crucial. For this, two questions could be raised: (1) In which circumstances should it be granted? (2) How should the length of the period be determined?

With respect to the first question, since the uncertainty problems are inherent in every innocent patent infringement case, the suspension period should be granted in almost every innocent infringement case save in exceptional circumstances (the 3rd type of remedy below) which require a direct denial of injunctive relief. It is not limited only to the cases where an alternative invention is available or where the patent holder is an NPE. The suspension period should be given to all infringers only if their infringements have been done with good faith. This provides innocent infringers with various strategic options to take. For example, they may consider buying a licence from the patent owner, switching to an alternative technology already developed, developing an alternative technology, settling for previous

inferior technology, or giving up the patented invention but recouping the investment by selling infringing products during the suspension period.

How to determine the suspension period is one of the most crucial factors for the success of the Model. This is because patentees would benefit if the period were set too short whereas infringers would if it is too long. Two approaches could be feasible in calculating an appropriate period for each case. One is to use the required time for infringers to design around the infringed patent. The other is to use a period for which infringers can recoup their investments in commercialising the infringing products by selling their own products. Generally speaking, if a design-around is at all feasible, e.g. either by obtaining a licence from other inventors or by developing an alternative technology by infringers themselves, the first approach would be more appropriate than the second. The second approach might be used as a supplementary option especially when the calculation of the period of design-around is almost impossible or cannot be easily calculated. Nonetheless, in order to effectively deal with various circumstances, courts need to reserve a certain level of discretion in determining the period.

Working Mechanism

The merits of the suspended injunction would become clear by looking at what may happen if it is issued.

Different results are expected according to whether the patent owner is a PE or an NPE. In general, since PE patent holders have a critical interest to exclude the infringers' products from the market, it is quite unlikely that each party would reach a license agreement except when both parties share cross-licence interests. Reaching

a cross-licence would be a most desirable scenario. Even though infringers cannot obtain a licence from the patentee, the suspended injunction still plays an important role by allowing innocent infringers to retrieve their investments during the suspended period.

In NPE-related cases, by contrast, a suspended injunction can greatly encourage a voluntary licence agreement between parties. From the standpoint of infringers, they will conduct a cost-benefit analysis on the various options which they may be able to take. If the analysis shows that buying a licence from the NPE patent holder at a certain level of royalties is more profitable than the other options, the infringers have an incentive to negotiate with the patent holder for a licence. If an alternative technology is likely to be available during the suspension period, infringers can leverage the royalty rate using the existing alternative technology. Suppose that a third party is holding an alternative technology and is willing to license it to the infringers. Then, those two competing technologies may lower the royalty rate offered by the NPE patent holder down to around or even below the average rate of that industry sector. Suppose further that the infringers need to develop an alternative technology by themselves. As they carry on their R&D efforts for the alternative technology, the infringers may strategically negotiate to lower the royalties offered by the NPE patent holder. In doing so, the infringers can put pressure on the NPE patent holder to return to the negotiation table because the NPE patent owner could lose an opportunity to earn royalty revenue from the infringers once an alternative technology were fully completed. In this situation, reasonable parties will agree the royalty rate at a certain point higher than the average rate,⁷⁹⁴

⁷⁹⁴ The average royalty rate could be agreed, for example, when the patented invention is so simple

but lower than the royalty rate to which the infringer's overall expenses invested up to the moment of negotiation for a new technology are converted.⁷⁹⁵ This mechanism does not let the NPE patent holders unreasonably procrastinate the licence negotiation for the purpose of getting higher royalties. Therefore, the suspended injunction in NPE-related cases can ultimately promote incentives for both parties to enter into a voluntary licence agreement, meaning that it contributes to the minimisation of patent holdups.

In some egregious NPE-related cases where an alternative technology is not available whatsoever, the negotiation failure for a licence may lead infringers to settle for previous inferior technologies or to quit production. Even though the suspended injunction does not contribute to voluntary licence agreements in those circumstances, it, like in PE-related cases, provides innocent infringers with enough time to recoup their investments anyway. Here, the failure of licence agreements in those circumstances should not be perceived as if the Model is ineffective. The fact that infringers could not find an alternative technology during the suspended period means that the patented invention is a core technology with high value. Except in exceptional situations which demand the denial of injunctive relief (3rd class remedy below), valuable patents deserve proper protections regardless of their ownership.

To sum up, the scheme of suspended injunction can contribute to the mitigation of holdup problems which stem from the uncertainty problems of the

that infringers can easily switch their products into a non-infringing one without investing any substantial amount of money.

⁷⁹⁵ Suppose that, at the moment of negotiation, the infringer has invested a certain amount of money and the NPE patent holder proposes a royalty rate (R). If the invested money is converted into a future royalty rate for the remaining lifetime of the patent (R_i), a reasonable infringer will not accept the NPE patent holder's licence offer unless $R < R_i$.

patent system across all innocent patent infringement cases and, more importantly, can substantially increase the chances of voluntary licence agreements in NPE-related cases. As a consequence, the suspended injunction serves as a fair and competitive environment for both patent holders and innocent infringers.

Determination of Damages for a suspended period

In theory, infringing behaviours during the suspended period should be regarded as an unavoidable aftermath or continuation of the innocent infringement which was taken before the litigation. Therefore, there are no particular reasons why the damages calculation for this period should be different from the well-developed damages rules for past infringements.⁷⁹⁶

Nonetheless, there is one particular feature to be taken into account in the Model. The suspended injunction provides very useful information on the relative value of the patent in suit. Since the relative length of the suspended period could be approximated to the relative value of the patented invention, i.e. the longer the suspension period, the higher the value, a patent with a longer suspension period deserves high damages and *vice versa*. Hence, it is a quite reasonable approach to consider the relative length of the suspension period in the calculation of the damages for the infringement during the suspension period as well as the past.

In addition, there is another critical reason why the suspended period should be considered as one of the factors in calculating damages. According to the Model's basic scheme defined as above, infringers are expected to try to obtain a suspension

⁷⁹⁶ Currently, three methods are being used across different jurisdictions: (1) lost profits (most of the countries); (2) reasonable royalty rate (most of the countries); (3) infringer's profits (Germany, UK, Japan).

period as lengthy as possible by arguing that a much longer time is needed either for designing around or for retrieving the investment. On the contrary, patent holders will try to shorten that period. In this dynamic, it is expected that courts will face serious difficulty in deciding the appropriate period of suspension. However, if courts take into account the length of the suspended period in their calculation of damages, each side cannot raise those extreme arguments. This is because infringers should pay increased damages if the suspension period is set longer whereas patent holders get paid lower damages if the period becomes shorter. This institutional strategy of calculating damages in proportion to the length of the suspension period will counterbalance each party's incentives to abuse the Model. Ultimately this dynamic would assist courts in finding an optimal level for the suspension period in each case through checks and balances between parties.

Other considerations

In order to successfully implement a new model into existing patent systems, a number of probable situations should be taken into account. The Model in this research is no exception. Even though other unexpected circumstances could possibly appear, let us consider a few plausible situations.

Firstly, there may be some circumstances where courts need to limit the infringers' production during the suspended period. If the patent holder is a PE and her products compete with the infringers' products in the market, the PE patent holder may be unfairly damaged when the infringers behave in such a way to hurt the patentee's competitiveness, e.g. by substantially lowering the product price, increasing the overall quantity of the product, or piling up a massive stock in her

warehouse and getting rid of it during the suspended injunction period. Courts may be able to prevent this unfairness by attaching certain conditions to the suspended injunction order, such as placing an upper cap on the production or sales quantities or maintaining the product price within a reasonable range. In general, those worries are not so serious in the NPE-related cases because NPE patent holders do not have immediate interests in the product market. Yet, it is not always the case. If NPE patent holders have already granted licenses to other manufacturers and have a stake in the product market in an indirect way, courts need to consider placing some limitations on the infringers' production.

Secondly, the Model should consider how to treat each infringer if there are more than two infringers for the same patent right. Suppose a situation where two manufacturers have been infringing the patent but the patent holder filed a lawsuit only against the first infringer, and a court issued a suspended injunction. Then, how does the suspended injunction against the first infringer influence the second infringer when the patentee brings another suit against the second thereafter? It depends upon a specific set of facts unique to each case. However, unless there is any credible evidence other than that considered in the first lawsuit, the suspension period granted in the second suit needs to be calculated from the same date that the suspension period of the first suit begins. This is because, from that same moment, the second infringer comes to perceive that her products are at high risk of infringing the same patent. In doing so, the possible inequalities between multiple infringers could be eliminated and voluntary licence negotiations could be encouraged without requiring further litigations.

Thirdly, the Model should also consider the situations where the remaining life of the patent is shorter than the calculated suspension period, or where the time gap thereof is not significant. In those circumstances, the effects between granting a suspended injunction and awarding future damages instead of injunctive relief may be little different in essence, and therefore the latter could be an appropriate approach.

6.3.2.2.3. Type 3: Denying injunctions

There are certain exceptional circumstances where, even though the patent in suit is found to be valid and infringed by an infringer, denying injunction and awarding monetary damages instead may be much more appropriate than granting the aforementioned two types of remedies, i.e. an immediate or a suspended injunction.

To illustrate this type of remedy in the Model, a few circumstances could be envisaged. First of all, an injunction might be denied when the public interest is to be seriously injured by either an immediate or a suspended injunction. The test for public interest may follow the traditional practices in the UK⁷⁹⁷ or US (pre-*eBay* cases in particular)⁷⁹⁸ which denied injunctions when the public health or safety was expected to be seriously damaged. Secondly, an injunctive relief may be denied in cases where awarding a suspended injunction is not expected to substantially mitigate the patent holdups. This could happen, as noted earlier, when the remaining life of the patent is shorter than the calculated suspension period or the time gap is not significant. Thirdly, in certain cases where the patent in question is an essential facility, i.e. an essential standard patent is involved with an infringement and the

⁷⁹⁷ Section 3.3.2.2.2.

⁷⁹⁸ Section 3.2.2.2. Some of post-*eBay* cases prove problematic when applied to the Model because they expand the scope of public interest too much, e.g. by regarding the public interest would be hurt when alternative products are not available in the market (section 3.2.2.4.4).

patent enforcement constitutes an anti-competitive conduct,⁷⁹⁹ judicially defined compulsory licence (monetary compensation) may be a better option to take than granting an immediate or suspended injunction. Suppose that the owner of the essential patent has promised in the process of establishing an international technical standard to offer licences to any users on the FRAND terms. Then it is not fair to grant an immediate injunction if the infringer has made enough prior endeavours to get a licence from the patent holder before initiating her infringing behaviour. Furthermore, if it is considered that the adoption of other alternative technologies is meaningless for infringers because customers will not purchase the alternative product which is not interoperable in the existing network, a suspended injunction is not likely to be effective enough to mitigate the holdup problem as intended. In this sense, the Model allows the infringers to raise competition law defence in the patent infringement suits if available.

However, it should be noted that defining all of the situations demanding denial of injunctive relief here is almost impossible because patent infringements are very complex and thus unexpected types of infringements could occur. Therefore, it is reasonable that the Model should allow courts to decide whether to deny injunctive relief by exercising their discretion in each case. Nonetheless, the scope of courts' discretion in the Model is significantly different with one which has been exercised by *Shelfer's* guidelines in the UK or the four-factor test in the US. Whilst the equity tests exercised in the UK or US courts are applied from the start without any restrictions once a patent is found to be valid and infringed, the Model restricts courts

⁷⁹⁹ For more details, see section 5.3.3.2.1. At the implementation stage, whether the patent enforcement constitutes an abuse or not could follow each country's own competition law or rules. The Model does not put any restrictions on this issue.

to perform the equity test only after the above mentioned two remedy options (an immediate and a suspended injunction) are fully considered as default remedies. This practice lets courts deny injunctive relief only in exceptional circumstances.

Once injunctive relief is denied, one issue to be resolved is how to determine damages for future infringements. This is the same situation with the US post-*eBay* cases in which injunctive relief is denied and monetary damages should be determined instead. Therefore, the Model is enough to follow the US post-*eBay* approaches which are being applied in determining future damages. As already reviewed in chapter 3, the US district courts have developed three approaches: (1) holding a post-trial evidentiary hearing; (2) requiring the claimant to file a new complaint; or (3) determining on-going royalties during the initial trial on infringement.⁸⁰⁰ Since each approach has both merits and demerits⁸⁰¹ and each case has its unique characteristics to be considered individually, it is appropriate to allow each court to choose its own approach suitable for each case.

6.3.3. Summary

The proposed injunction model in this thesis could be summarised as follows in Table 5. As the case spectrum bar on the far left of the Table conceptually shows, it should be noted here that the cases which end up with suspended injunctions are

⁸⁰⁰ Section 3.2.2.4.5.2. See also QUINN EMANUEL URQUHART & SULLIVAN LLP (2010) 'Uncertain Times: Three District Approaches to Ongoing Patent Royalties', Quinn Emanuel Urquhart & Sullivan LLP, available at <http://www.jdsupra.com/post/documentViewer.aspx?fid=5d31b7d9-e9ac-4ebe-a7e1-f7e17c78ea34>.

⁸⁰¹ In general, the first two approaches are against the judicial economy but can take into account market conditions more correctly, whereas the third approach is quite the opposite.

expected to take up the majority, leaving the cases with unqualified or denied injunctions in the minority.

Case Spectrum	Injunction Types	Conditions	Follow-up Damages
	Immediate injunctions	- Wilful infringements	- Past damages
	Suspended injunctions	- Innocent infringements * The suspension period is determined by design-around time (primary) or investment retrieving time (supplementary).	- Damages for infringements of past and the suspension period * In proportion to the length of the suspended period
	Denied Injunctions	- Exceptional circumstances · Public interests · Meaningless suspension period · Infringement of essential standard patents · etc.	- Past damages - Future damages * Three methods of the US post- <i>eBay</i> cases

Table 5. Summary of the structure of the Model

6.4. Advantages of the Model

Now, let us examine what kinds of advantages the Model provides over the previously proposed solutions to NPE problems. It would be sufficient to review whether the Model may satisfy the two main objectives and five general principles which were set up at the outset.

The Model effectively mitigates patent holdup problems (the 1st objective).

The Model is not designed to eliminate the sources of the uncertainty problems of the patent system. Instead, it seeks to mitigate the bad effects of the uncertainty problems in such an *ex post* way as to adjust patent remedies according to the severity of the problems in each case. In specific, providing innocent infringers with enough time to overcome the holdups, the Model clearly provides an adequate mechanism not only to effectively reduce holdup effects but also to promote private and voluntary licence negotiations.

If the Model is reflected in the Shapiro's hold-up model discussed in chapter 4, its conspicuous effects could be visually understood. As seen in Figure 5, line B is Shapiro's mitigated holdup line when injunctions are stayed. As a private licence is settled as early as possible during the suspended period, the holdup line (D) of the Model heads down toward the benchmark royalty line (C) because infringers can save the costs for designing around or searching alternative technologies. In practice, in many cases the holdup line (D) is expected to be placed at some point higher than the benchmark royalty line (C) but lower than Shapiro's holdup line (B). Ideally, if an *ex ante* licence is agreed upon voluntarily before the court's intervention or if infringers have an alternative technology applicable immediately, the holdup could be almost eliminated, which means that the Model's holdup line (D) may overlap with the benchmark line (C).

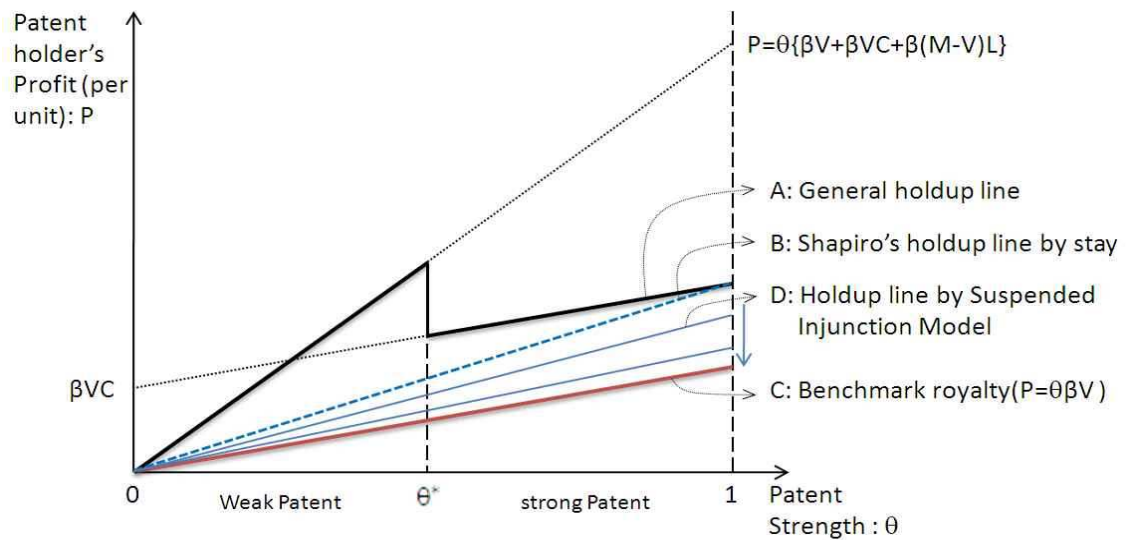


Figure 5. The theoretical patent holdup graph by the Model

Furthermore, the Model can encompass a variety of patent holdup situations. Firstly, it does not reduce patent holdups only in NPE-related cases but in almost all sorts of patent infringement cases, regardless of the types of patent holders. Whilst most of the previously suggested solutions reviewed in chapter 5 have focused mainly on some extraordinary NPE cases and generally neglected the holdups in other minor NPE cases or PE cases, the Model recognises the presence of holdups in a wide range of innocent patent infringements and effectively mitigates them. Even in PE patent holder cases, for instance, infringers may receive enough time to get out of the locked-in state, e.g. by designing around, licensing alternative technology from other entities or negotiating a cross-licence. In addition, the Model is effective in a circumstance where an NPE patent holder does not practice her patented invention at the time of the court’s decision but has a plan or intention to practice in the future. Patent holders may postpone their commercialisation of their patents for various reasons, e.g. due to financial problems, or poor market prospects. In those situations,

NPE patent holders would lose their future opportunities to enter into the relevant product market if injunctive relief were to be denied. Those are the worries arising from the current law applied in the US (post-*eBay*) and UK. However, those concerns do not appear in the Model because NPE patent holders will not negotiate with infringers for a licence during the suspended period if they truly have an intention to commercialise the patent by themselves. Those issues are all internalised in the suspended injunction dynamic of the Model and therefore courts do not need to consider them seriously.

Secondly, the Model is able to equally address all kinds of patents without any discrimination from a small component patent to a single patent covering a whole product. A number of people perceive patent troll or NPE problems to be unique to small component patents or incremental (dependant) patents because the impact of the holdup is much more conspicuous and serious than in other cases. As noted earlier, however, holdups occur with all kinds of patents, and they are neither discrete nor yes-or-no phenomena but continuous ones. The Model makes it possible to effectively cover those various kinds of patents by tuning the suspension period precisely in proportion to the intensity of the holdup in each case.

Thus, setting the suspended injunction as a default remedy for innocent infringements, the Model is highly effective in mitigating patent holdup problems, regardless of the types of patent holders or the characteristics of patented inventions.

The Model promotes dynamic efficiencies (the 2nd objective).

Many of the previous proposals for applying liability rules still accompany a certain level of concerns over undermining long-term incentives to invent or innovate.⁸⁰² It is because, as the application of liability rules expands, potential infringers will have incentives to neglect *ex ante* efforts of searching existing patents and negotiating with patent holders for a licence on a voluntary basis.

Those worries are substantially reduced in the Model. First of all, the Model strictly punishes wilful infringers by issuing immediate injunctions. Even in the innocent infringement cases where suspended injunctions are normally granted, the Model puts substantial pressures on alleged innocent infringers, enough to make *ex ante* private licence orderings preferable to being embroiled in costly litigations. Besides the legal costs, in the majority of cases infringers are expected to pay higher royalties than the reasonable royalty rate when licence agreements are settled during the suspended period. In other cases where the *ex post* negotiations are not successful, infringers would face much more serious consequences than the *ex ante* licence negotiation, by the closing down of their productions or spending enormous costs for developing an alternative product. Therefore, the mechanisms in this Model can teach prospective infringers a lesson that clearing patents *ex ante* is more profitable than taking risks of patent infringement. Since the cases with immediate or suspended injunctions will account for the majority of overall patent infringement cases, the Model will ultimately promote long-term dynamic efficiencies by encouraging inventors' incentives to invent or innovate.

The Model satisfies the five general principles.

⁸⁰² Section 5.3.1.4.

As seen below, the Model satisfies the five general principles on which any patent remedy regime should be based. This implies that it can be implemented in harmony with the other parts of the patent system.

The Model does satisfy the principle of ‘nonabsolutism’ in that it does not set any absolute rule for remedies, such as the former CAFC’s general rule which favoured all patent holders or where some post-*eBay* cases disfavoured NPE patent holders by the mere reason of non-practising. Rather, it provides courts with a certain level of discretion to refuse injunctive relief in exceptional circumstances. Furthermore, the Model treats every entity and patent equally. This is clear by the fact that the suspended injunction will be granted only by the gravity of the uncertainty problem in each case, regardless of the types (NPE or PE) of patentees or the technology sectors. Hence, the principle of ‘antidiscrimination’ is also satisfied.

Unlike the other principles, whether the Model satisfies the third principle, ‘learning’ is not apparent as it is. Nonetheless, within the framework of the Model, courts can place the burden of proof in such a way as to improve the remedy regime. For example, in determining the suspension period, courts can place the burden of proof primarily on infringers because they are in the best position to provide right information on a design-around. In so doing, the Model can satisfy that principle as well.

With respect to ‘administrability,’ the Model, as seen in the following section, does not impose any serious administrative costs in its implementation. Furthermore, since the Model gives much clearer guidelines for patent remedies other than previously proposed solutions, the parties will be able to easily anticipate the remedies under the known set of facts.

Lastly, the Model also satisfies the principle of ‘devolution’ by promoting private and voluntary licence negotiations. This means that many patent disputes could be resolved privately without intervention by government actors. By giving chances for each party to formulate various and flexible remedies which the courts cannot produce alone, this Model lets each patent dispute reach an optimal solution as closely as possible.

6.5. Possible Criticisms

Presumably, many of the criticisms may be placed upon the ‘administration of the suspended period’ in that the concept of setting the suspended injunction as one of the default remedies is unique to this Model, whilst other features have been more or less employed in the current patent system.

Firstly, some may doubt the determination of an optimal suspended period. Without doubt, the determination of the period would never be easy. Nonetheless, this Model includes a useful mechanism which assists courts to effectively find, if not perfect, as reasonable a period as possible. As already noted, this is possible by taking ‘the relative length of the suspension period’ into account for the calculation of damages. By counterbalancing each party’s incentives to argue the period to her advantage, the Model encourages each reasonable party to present proper evidence for the calculation of the suspension period. Thus courts shall not encounter any serious difficulties in determining an appropriate suspension period. Empirically, the US post-*eBay* cases, where injunctions with a sunset provision were issued, substantiate the fact that those worries are not serious. Any serious controversies

surrounding the determination of the sunset period were not reported in those cases, even in the absence of such a safe structure as proposed in this Model.

Secondly, one may also argue that, in some industries where the required time for a design-around is normally very long, granting a suspended injunction could be nothing but denying an injunction and awarding a judicially decided compulsory licence. These circumstances could occur, for example, in pharmaceutical industries which normally demand a substantial amount of time to develop an alternative drug and further time to clear a government approval. However, it should be emphasised that medicines are normally composed of a small number of patents, which implies that those patents would be easily detected by potential infringers if reasonable efforts to search prior arts are put in. Even in other industry sectors, any patents requiring a long suspension period would often be a core technology which is likely to be well known to the people in the same industry. Those accounts being considered, infringers in those industries cannot readily prove their innocent infringements and thus they are expected to be unconditionally enjoined in many cases. Therefore, the Model is not likely to cause any serious worries of unreasonably restricting the patent holders' right.

Lastly, one may worry that awarding a suspended injunction as one of the default remedies leads to a waste of resources by forcing infringers invest in another technology which will be a duplicative investment from the economic perspective. Even though the Model nominally appears to award infringers with the suspension period to design around, however, it should be emphasised again that the ultimate purpose of the suspended injunction is to promote private and voluntary licensing negotiation. Hence, this Model should be regarded as enhancing the efficient

utilisation of resources rather than wasting them. On top of that, even if multiple investments occur in this Model, designing around does not necessarily bring inefficiencies to the society. As the US case law recognises, a design-around brings ‘a steady flow of innovations to the market place’ and brings benefits to the public in the long run.⁸⁰³ In that sense, designing around is exactly what patent law encourages.⁸⁰⁴

We should admit that it is almost impossible to design an immaculate patent system which may cover every circumstance and solve all kinds of problems. Indeed, the Model proposed in this research is no exception and thus, if implemented, it might face other unexpected problems other than those illustrated above. That is why courts still reserve a certain level of discretion in this Model to tackle those unexpected circumstances.

6.6. Implementations

This section examines how the Model could be implemented in the current patent system, particularly in terms of the international or regional level as well as the national level. Among three types of courts’ actions with regard to injunctive relief, it is enough to examine whether the current law can accept the remedy Type 2 (granting a suspended injunction) and type 3 (denying an injunction) of the Model, because the remedy Type 1 (granting an unqualified injunction) is nothing but a conventional remedy which all of the existing laws in the world, without doubt, have been embracing so far.

⁸⁰³ *State Indus., Inc. v. A. O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed.Cir.1985).

⁸⁰⁴ *Ibid.* See also LANDERS (2009) 'Response: Patent Valuation Theory and the Economics of Improvement', *Texas law Review*, vol. 88, p. 163, at 172.

International or regional level

As international or regional treaties which regulate patent remedies for the patent infringements, the TRIPS Agreement and the Enforcement Directive of 2004 (hereinafter ‘the Directive’) are worthy of examination whether the Model could be compatible with those treaties’ legal frameworks.

First of all, in order to examine the compatibility of the Model with the TRIPS Agreement, the first step is to find whether the Agreement prohibits Member States to deny an injunction even when a valid patent right is found to be infringed. Art. 44, which deals with injunctions, does not impose Members to grant mandatory injunctions for IP infringement.⁸⁰⁵ This is further supported by Art. 44(1) spelling out that Member States are not obliged to the authority to issue injunctions in the case of ‘innocent infringement,’ and by Art. 44(2) stating that ‘where these remedies⁸⁰⁶ are inconsistent with a Member’s law, declaratory judgements and adequate compensation shall be available.’ It is generally understood that only a systematic and arbitrary refusal to grant an injunction constitutes violation of Art. 44.⁸⁰⁷ All these facts being considered, denying an injunction (Type 3) of the Model is not prohibited by the TRIPS Agreement.

Next, with regard to the Directive, Art. 3 spells out that any remedies for the IP infringements shall be proportionate, by setting up three principles which Member

⁸⁰⁵ SUBRAMANIAN (2008) ‘EBay Ruling and US Obligation to the TRIPS Agreement’, *European Intellectual Property Review*, vol. 30, issue 11, pp. 444-453, at 449 (citing BLAKENEY (1996) ‘Trade related aspects of intellectual property rights: a concise guide to the TRIPS agreement’, *Sweet & Maxwell, London*, at 127-128).

⁸⁰⁶ The term ‘these remedies’ refers to the remedies specified in Part 3 (Enforcement of Intellectual Property Rights) of the TRIPS Agreement.

⁸⁰⁷ SUBRAMANIAN ‘EBay Ruling and US Obligation to the TRIPS Agreement’, n 805, at 449-450.

States shall provide to ensure the enforcement of the IP rights: effectiveness, proportionality and dissuasiveness. More specifically, according to Art. 11, judicial authorities of Member States *may* issue an injunction against an infringer to prohibit the continuation of the infringement. This means that they are under no obligation to provide for injunctive relief in every case of infringement.⁸⁰⁸ Further, Art. 12 leaves enough room for the judicial authorities to order monetary compensation rather than granting injunctive relief if the infringer acted unintentionally and without negligence, if execution of an injunction would cause her disproportionate harm and if monetary compensation appears reasonably satisfactory. Like the TRIPS Agreement, denying an injunction (Type 3) of the Model is not prohibited by the Enforcement Directive.

Neither the TRIPS Agreement nor the Enforcement Directive seriously limit the autonomy of member states on fashioning flexible patent remedies, particularly denying injunctive relief, provided that it is not arbitrary and systematic. As far as denying injunctive relief (Type 3 of the Model) is permitted, granting suspended injunction (Type 2 of the Model), which is less restricting the exclusive right of patent, is understood to be permitted as a matter of course in those treaties. Therefore, the Model proposed in this thesis could be implemented within the current framework of the international or regional treaties.

National level

⁸⁰⁸ OHLY, n 506, at 264.

As the enforcement of patent right could be different under the common law and the civil law system, the implementation of the Model in the national level needs to consider different characteristics of those two distinct legal systems.

Common law systems, such as in the UK and US, make a distinction between common law and equity, by which, whilst a right to damages is defined at law, an injunction is regarded as an equitable remedy. Therefore, as discussed in chapter 3, the injunctive relief is subject to flexible principles of equity in common law countries, leaving its final decision whether or how to issue it to the courts' own discretion.⁸⁰⁹ Since the Model proposed in this thesis is basically designed to allow courts to exercise their discretionary power in formulating injunctive relief, it is surely easier to be implemented in common law countries. It is founded upon the valuable findings that, since NPE problems are so complex and appear in various shapes and in various situations, those complicated problems could be effectively addressed only by a flexible patent remedy system rather than by a rigid one.

Nonetheless, it should be noted that the Model also intends to restrict the current wide and abstract discretion exercised in the courts of common law countries, based upon the finding that overly wide discretion by the courts may lead to undesirable results as seen in some of the US post-*eBay* cases. That means that the case laws applied in the common law countries should be modified. In specific, in the UK and US alike, courts are required to grant a suspended injunction as a default remedy if infringers have acted either unintentionally or without negligence. At the same time, the current rules for denying injunctive relief should continue to be used, but strictly limited to only exceptional circumstances, e.g. where the suspended

⁸⁰⁹ Section 3.5.1.

injunctions are unlikely to be effective or reasonable, or where the public interest is expected to be damaged.

Meanwhile, in civil law systems which do not distinguish between common law and equity, the patent owner is believed to have a right to an injunction whenever there has been an infringement which is likely to occur again, unless the statutory law stipulates certain exceptional circumstances demanding the denial of injunctive relief. This means that the Model, to be implemented in civil law countries, requires the statutory law changes in the civil law countries where the discretionary power of courts is considerably limited in determining patent remedies.⁸¹⁰

With regard to how to modify the statutory patent law in civil law countries, Art. 101 of the German Copyright Law⁸¹¹ specifying exceptions to the general provision of injunctive relief would provide some hints. This provision states that, if the claims of the injured party for injunctive relief are asserted against innocent infringers, the injured party may be awarded monetary compensation in cases where execution of the claims would produce for those infringers a serious and disproportionate injury and the injured party may reasonably be required to accept redress in cash. It provides not only different remedies by distinguishing intentional infringements from innocent infringements but also some sorts of latitude of courts (e.g. deciding serious and disproportionate injury). However, these exceptions, should they be adopted in patent law, are too restrictive for the Model to be fully

⁸¹⁰ However, recently there has been some voice that, in current civil law systems, particularly in German law, an injunction should not issue where disproportionate, arguing that Art. 3(2) of the Enforcement Directive requires all remedies to be proportionate and that hence an injunction under Art. 11 does not necessarily have to issue in every case of patent infringement. However this approach was explicitly rejected by LG Mannheim in the *IPCom* case. See OHLY, n 506; OSTERRIETH, n 545.

⁸¹¹ As amended by the law of 8 May 1998.

implemented because the discretionary power of the courts is not enough to encompass other exceptional circumstances for denying injunction in the Model, e.g. the public interest or the infringement of essential standard patent. Therefore, the Model demands that the patent laws in the civil law countries should adopt certain provisions to allow courts to define circumstances which injunctive relief could be denied, as well as to award a suspended injunction for innocent infringement cases.

If any country, regardless of whether it is a common law or civil law country, cannot introduce the concept of ‘wilful infringement’ in determining patent remedies like the UK or Germany, the Model could still be effectively implemented in that country by granting an suspended injunction instead of an immediate injunction in any circumstances, like the *supra* type 3 situations, where an injunction needs to be denied.

In conclusion, it was discussed that the Model is compatible with the current international or regional legal framework, such as the TRIPS Agreement and the Enforcement Directive, but it demands some patent law changes in the national level, i.e. the case law in common law countries and the statutory law in civil law countries. Nevertheless, as the law changes are not likely to be burdensome or complicated, the Model does provide effective and practical solutions to patent troll or NPE problems without placing any serious administrative costs in its implementation, in comparison with other previous proposals.

6.7. Conclusions

This chapter has developed a new injunction model. For this, two main objectives

and five general principles were presented as a yardstick in evaluation of whether the Model resolves the NPE or patent troll problems without serious side effects.

The patent remedies in the Model for future infringement are classified into three types: granting an immediate injunction; granting a suspended injunction; and denying an injunction. As a default rule, an unqualified injunction or a suspended injunction is granted in wilful infringements or innocent infringements, respectively. Nonetheless, courts still have a certain level of discretion to deny injunctions in some exceptional circumstances where the application of this default rule is not effective or reasonable. The most differentiated feature in this Model is awarding suspended injunctions as a default remedy for innocent infringements so as to mitigate the patent holdups arising from the uncertainties of patent rights. Determining a suspension period in proportion to mainly the required time to design around the infringed patent, the Model is able to effectively mitigate patent holdups regardless of the kinds of patentees or patented inventions.

With respect to the advantages of the Model, the Model is found to fully satisfy two main objectives (solving uncertainty problems and promoting long-term dynamic efficiencies) as well as five general principles (nonabsolutism; antidiscrimination; learning; administrability; and devolution) for patent remedies. Furthermore, even though the proposed Model may face some criticisms with respect to the administration of the suspension period, they are not expected to be so serious as to undermine the effectiveness or soundness of the Model. When it comes to the implementation of the Model in the real world, it demands some change of case law in common law countries and statutory law in civil law countries. However, as the

law changes are rather simple, the Model could be implemented without serious administrative costs in current legal environments.

In conclusion, the Model found the origins of the NPE problems (patent holdups) at the uncertainty of patent rights, and successfully set up a new mechanism not only to effectively resolve those imminent problems but also to improve the general purpose of the patent system. On balance, the Model could be evaluated as to provide effective and well-balanced solutions applicable extensively in almost every modern patent system.

Chapter 7 Conclusions

As described in chapter 1, the main research question of this thesis is to establish a patent remedy system for future infringements, in such a way as to discourage the trolling behaviours of NPEs without chilling the innovation incentives of inventors. It was divided into five sub-questions as follows:

- (1) What are NPEs and what characteristics do they have in the patent system?
- (2) How have patent remedies been awarded to NPE patent holders in actual patent infringement suits in different countries with different legal backgrounds?
- (3) What theoretical implications do NPEs carry in patent infringement suits?
- (4) What solutions have been provided and what could be further improved?
- (5) How should a patent remedy regime be set up in order to curb the patent trolling activities of NPEs without serious side effects?

In response to those questions, this chapter concludes by examining whether they have been properly answered by the discussions in previous chapters 2 through to 6.

Q1. What are NPEs and what characteristics do they have in the patent system?

The first research question has been answered in chapter 2. First of all, the term NPE has been defined. An NPE refers to a patent holder who holds a patent right for a certain invention but does not practice or commercialise her patented invention at the present time. Besides the typical NPE patent holders, such as individual inventors,

universities, or research institutions, the term NPE used in this thesis includes any patent holders so long as they do not commercialise the patented invention. Under this definition, any manufacturer could be classified as an NPE if they do not practice the patent at issue. In order to avoid possible confusion with the term patent troll, which has become more well-known to the public but has prompted serious controversies, the term patent troll has also been re-defined in this research in relation to NPEs. Patent troll has been defined as ‘a non-practising patent holder who abuses the patent system by enforcing her patent in such a way against its ultimate goal.’ The term NPE is a wider concept than the patent troll and therefore a patent troll could be a certain NPE who abuses the patent system. On top of that, unlike NPEs whose boundaries are easily determined by their business method, the term patent troll whose criteria is quite subjective should be used carefully so as not to prejudge any NPE patent holder as a patent troll without objective and sufficient evidence coming from official authorities.

Then, in order to examine the general characteristics of an NPE in the patent system, chapter 2 has reviewed various types of NPEs and the history of patent law. The former study has revealed that the core factor in determining whether a certain NPE is a patent troll should be her specific behaviours rather than the mere fact of whether she is practising her patented invention or not. Each and every NPE patent holder has shown mixed possibilities that she might play both positive and negative roles in the patent system. For instance, even patent intermediaries who receive strong suspicions as patent trolls may contribute to technological improvement in an indirect way by bridging the gap between original inventors and manufacturers, facilitating proper financial remuneration to inventors, and thereby leading to further investments. As a contrary example, manufacturers who are not exploiting their

patents, though they contribute to technological development through an invention process on the one hand, on the other hand they may be able to abuse the patent system by requesting excessively high royalties greater than the real value of the patented invention. This conclusively shows that NPEs should not be prejudged as patent trolls by the mere fact of non-practise but by the criteria of whether their specific behaviours constitute patent abuses.

Furthermore, the examination of the patent law history, particularly the long history of the practising requirement in a number of patent statutes and international treaties, as well as the appearance of patent sharks in the 19th century, shows that the patent system has historically already been aware of its vulnerability to be abused by the opportunistic behaviours of NPEs. This further implies that the current patent troll problems are the continuation of the past controversies over how patent law should treat NPE patent holders and that those historically thorny NPE issues have not yet been resolved.

Q2. How have patent remedies been awarded to NPE patent holders in actual patent infringement suits in different countries with different legal backgrounds?

This research question has been answered in chapter 3 where the national laws in the US, UK and Germany have been examined with respect to the NPE patent holders' patent enforcement and patent remedies, injunctive relief in particular.

The US has experienced the most drastic law change by the US Supreme Court's decision in the *eBay* case in 2006, letting district courts apply the four-factor equity test. Since then, a number of NPE patent holders have been unsuccessful in obtaining an injunction because an increasing number of district courts have significantly considered whether a patent holder is competing with the defendant

infringers and/or she has given a licence to other parties. After all, the presumption of irreparable harm which had been generally accepted before *eBay* was officially abandoned and serious concerns have arisen whether NPE patent holders receive discrimination against PE counterparts in terms of patent enforcement and further the value of the patents they are holding.

In the UK, the well-established Smith LJ's test in the property law which set out exceptional circumstances to award damages instead of an injunction has been applied to the intellectual property cases as well. It is generally argued that when the four requirements of the Smith LJ's test are satisfied, courts are able to award damages instead of an injunction, and even though those requirements are not met, they still may refuse injunctive relief by other exceptional circumstances. Whilst the boundaries of Smith LJ's test are seemingly quite limited, in practice the UK courts are not strongly bound to the Smith LJ's rule in exercising their discretionary power but are free to consider other specific circumstances in order to deny injunctive relief. This means that the UK courts are enjoying much wider discretionary power in deciding whether to grant or deny an injunction than the US courts. In terms of NPEs, even though it is not as easy to predict how the UK courts make their deduction as it is with the US courts, the examination of the NPE-related cases reveals that, like in the US, the chances for NPE patent holders to get an injunction seem to be slimmer than those for PE counterparts.

The German law has its own distinctive characteristics in comparison with the US or UK law. The general rule in Germany is that infringement courts have to grant an injunction whenever a patent is found to have been infringed and the risk of future infringement still exists. However, some slight changes have begun to appear in a few recent cases, such as in *IPcom* and *Orange Book Standard*, which have

implied possibilities that NPE patent holders' injunction claims might be denied in certain circumstances. Even though these cases still hold restrictive meanings, they are very meaningful in the sense that they show the German courts' rising concerns that the rigid German legal system with respect to injunctive relief might be ineffective in dealing with patent abusing behaviours of certain NPE patent holders.

From the comparative analysis of the above three jurisdictions, it has been found that a certain level of discretionary power given to courts is necessary in order to effectively handle the unintended bad consequences of an injunction in exceptional and outrageous circumstances. However, as the post-*eBay* experience in the US teaches us, courts' ample discretion without a proper constraint could tend to focus only on the short-term interests of society rather than evaluating the long-term consequences of their decisions. Therefore it is argued that reasonable guidelines need to be set up in a practicable way to make clear the boundaries of the discretion of the court. Another noteworthy finding in the comparative analysis is that an injunction with a delay ordered in a few cases in the US and UK (only in non-IP cases), if well-designed, could be one of the effective measures to overcome the abusive behaviours of patent holders including NPEs in the sense that it does not impair the exclusive nature of a patent right, that any unexpected serious injuries on both infringers and the public could be alleviated by providing infringers some time to design around, and that it lessens the NPE patent holders' extreme leverage power against an infringer by way of hold-up effects.

Q3. What theoretical implications do NPEs carry in patent infringement suits?

This research question has been answered in chapter 4 which discussed the NPE-related major issues in the current patent system: (1) the true meaning of invention

and commercialisation in the innovation process, (2) the proper understanding of exclusive right of patents, and (3) the patent hold-up problems.

First of all, it was found that both inventive work and commercialisation are equally crucial to sustainable innovations in the patent system and therefore neither of them should be belittled or sacrificed for the other. The main reason why the current patent system is concerned with the invention stage and does not exact the commercialisation of the patented invention could be ascribed to uncertain market-driven variables for the success of commercialisation. Since patent troll problems occur from this difficulty of commercialisation of patented inventions, encouraging commercialisation through facilitating patent transactions could be a way to mitigate patent trolling. However, it was found that any rigid rules by law or government policy to encourage commercialisation would entail side effects and therefore assisting voluntary negotiations between NPE patentees and downstream manufacturers by using market forces would be a reasonable approach.

The exclusive right of patent which NPEs or patent trolls are banking on has been examined through the theoretical lens of the governing rule of patent law: property v liability rules. This revealed that the uncertainty nature of patent rights causes substantial static transaction costs which support the claims for applying the dominant liability rules. However, from the dynamic efficiency perspectives, the dominant application of liability rules can increase the long-term transaction costs by inevitably diminishing incentives to invent and innovate. Furthermore, these costs are more serious than with tangible properties because of the non-rivalrousness characteristics of patents and the protection for the fixed 20 years' term. It was concluded that, when the conflicting short- and long-term transaction costs are balanced, the governing rule of the patent system should be keeping the property rule

as a dominant rule, supplemented by liability rules in order to reduce the short-term transaction costs only in exceptional situations. These exceptional circumstances are much more frequent with patent rights than tangible property rights due to the uncertainty nature inherent in the patent system. Unfortunately, most of the modern patent system has ignored the uncertainty problems in many cases and let manufacturers shoulder the risks thereof.

In the discussions about patent hold-up problems, it was also found that serious patent hold-ups arise when downstream manufacturers inadvertently infringed the patent without knowing the presence of patent or had enough reasons to believe their productions did not infringe the patent. In fact, this symptom is more serious for weak patents. The more meaningful finding is that, if carefully incorporated into the current patent remedy law, delaying injunctive relief could be very effective in mitigating or eliminating hold-up effects. The discussion of hold-ups by standard patents further implies that there might be a number of exceptional circumstances which demand flexible approaches in limiting the exclusive patent rights than in the ordinary hold-up cases.

Q4. What solutions have been provided and what could be further improved?

Chapter 5 reviewed some noteworthy suggested solutions to NPE problems among a number of proposals.

There have been proposals which intend to weaken the exclusive right of patents either by expanding compulsory licence, limiting injunctive relief, or applying various legal doctrines or outside laws. Even though those approaches may be able to penalise patent trolling conducts, they are not equipped with specific tools to maintain the appropriate level of liability rule. In addition, the presence of strong

counterarguments in favour of strong property rules (e.g. Chung's proposal) also implies the difficulty of finding an optimal point between property and liability rules. Furthermore, those proposals do not effectively counteract other ordinary holdup problems which do not reach the serious patent troll cases but are still unfair to innocent infringers. This limitation springs from the fact that those proposals do not fully solve the uncertainty problem of the patent system.

On the contrary, the proposals which were intended to solve NPE problems through reforming patent law structure or procedure are expected to substantially decrease uncertainty problems by inducing NPE patent holders to go into licence *ex ante* (Sichelman's commercialisation patent model) or by putting a timely notice obligation on the shoulder of patent holders (Hovenkamp's timely notice model). Even though these models are very insightful in light that they recognise the uncertainty and under-commercialising problems of the current patent system, conversely they are likely to give unbalanced preferential treatments to PE patent holders over NPE counterparts. It is against the answer of research question 1: NPEs play important roles in our patent system as well as in the innovation process and they should not receive unfair treatments by reason only of their non-practising status. This implies that all participants should enjoy equal chances and treatments save exceptional circumstances, and therefore any measures to control patenting or enforcement activities by NPEs *ex ante* rather than bad consequences of their conducts *ex post* should be carefully approached.

Meanwhile, some important positive implications were also found. Above all, Chung's proposal provides an important clue that a 'grace period' allowing some period of time for infringers to design around the infringed patent, could possibly mitigate patent holdups and protect the exclusive right of patent simultaneously.

Secondly, Lee's accession model teaches that, if the uncertainty problems were to be resolved by patent remedies, the good-faith requirement should be put in place to prevent deliberate infringements. This means that wilful infringements need to be strictly punished so as to induce voluntary negotiation by prospective infringers with patent holders *ex ante*.

This literature review showed that those proposals may be applied only within limited circumstances or have some limitations, and thus unfortunately they do not provide any complete set of solutions that can be extensively applied. In this sense, it is necessary to seek a new model which can achieve the two prime targets: solving uncertainty problems and designing patent remedies deterring trolling behaviours without discouraging patent holders' incentives to innovate.

Q5. How should a patent remedy regime be set up in order to curb the patent trolling activities of NPEs without serious side effects?

A new patent remedy model has been suggested in chapter 6 under two main objectives and five general principles as a yardstick for evaluation of its effectiveness. The two objectives are to solve the uncertainty problems of the patent system and to design a patent remedy regime in such a way as not to cause long-term dynamic inefficiencies, such as depressing the incentives of NPEs to invent or innovate. Adopted from Golden's proposal, the five general principles are set: non-absolutism, antidiscrimination, learning, administrability and devolution.

Unlike current patent remedy law which operates in a dichotomous way, i.e. whether to grant or deny an injunction, the new remedy model proposed in this thesis is designed to award three different remedies: granting unqualified injunctions; granting suspended injunctions; and denying injunctions. As a default rule, an

unqualified injunction is granted in wilful infringement and a suspended injunction is granted in innocent infringement cases. Nonetheless, courts still have enough discretion to deny injunctions in some exceptional circumstances, e.g. public interests or essential standard patents, where the application of this default rule is not effective or reasonable. The most differentiated feature in this Model is awarding suspended injunctions as a default remedy for innocent infringements in order to mitigate the patent holdups arising from the uncertainties of patent rights. The period of suspension, the most crucial element of the Model, is determined mainly in proportion to the required time to design around the infringed patent. The scheme of suspended injunction can contribute to mitigation of the holdup problems regardless of the kinds of patentees or patented inventions, and substantially increase the chances of voluntary licence agreements in NPE-related cases.

It was revealed that the Model, if implemented, is expected to satisfy the above two main objectives and five general principles. Even though the proposed Model may face some criticisms with respect to the administration of the suspension period, they are not expected to be so serious as to undermine the effectiveness or soundness of the Model.

This thesis proposed a new remedy (injunction) model in patent infringement lawsuits for the purpose of presenting a best solution to the patent troll or NPE problems. If implemented, the Model is expected to provide a very meaningful approach to resolve those problems and improve the general purpose of the patent system. However, it should be noted that this research is only a small fraction of the whole NPE issue and provides only one solution among other various alternatives. We must remember that, even though injunctive relief is one of the crucial factors,

NPE issues are basically interconnected with all elements of the patent system and therefore the Model cannot remedy all of the NPE problems by itself without supplemental measures from the other aspects, such as patent law reform, various governmental policies, private entities' collaboration to defend certain NPEs' abusive behaviours, etc. This means that further research is needed in other peripheral areas or in combination with this research. In this sense, this research may offer useful insight or contribute to further future research by other scholars on the NPE issues.

Bibliography

1. List of Cases

United States

Abbott Labs. v. Andrx Pharms., Inc., 452 F.3d 1331 (Fed.Cir. 2006)

Abbott Labs. v. Sandoz, Inc., 500 F.Supp.2d 807 (N.D. Ill. 2007)

ActiveVideo Networks, Inc. v. Verizon Communications, Inc., 2011 WL 5878365 (E.D. Va.)

Acumed LLC v. Stryker Corp., 2007 WL 4180682 (D. Or.)

Acumed LLC v. Stryker Corp., 551 F.3d 1323 (Fed.Cir. 2008)

Advanced Cardiovascular Sys., Inc. v. Medtronic Vascular, Inc., 579 F. Supp. 2d 554 (D. Del. 2008)

Amado v. Microsoft Corp., 2007 US Dist. LEXIS 96487 (C.D. Cal.)

Amado v. Microsoft Corp., 517 F.3d 1353 (Fed.Cir. 2008)

American Safety Device Co. v. Kurland Chemical Co., 68 F.2d 734 (2d Cir. 1934)

Amgen, Inc. v. F. Hoffman-La Roche Ltd., 581 F. Supp. 2d 160 (D. Mass. 2008)

Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc., 98 F.3d 1563 (Fed. Cir.1996)

Ariba, Inc. v. Emptoris, Inc., 567 F. Supp. 2d 914 (E.D. Tex. 2008)

Arlington Industries, Inc. v. Bridgeport Fittings, Inc., 2010 WL 817519 (M.D. Pa)

Atlas Powder Co. v. Ireco Chemicals, 773 F.2d 1230 (Fed.Cir. 1985)

Automated Merchandising Systems, Inc. v. Crane Co., 357 Fed.Appx. 297 (Fed.Cir. 2009)

Baker Hughes Inc. v. Nalco Co., 676 F.Supp.2d 547 (S.D. Tex. 2009)

BIBLIOGRAPHY

- Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 2009 WL 920300 (D. Ariz.)
- Becton Dickinson & Co. v. Tyco Healthcare Gr. LP*, 2008 WL 4745882 (D. Del.)
- Belden Technologies Inc. v. Superior Essex Communications LP*, 2011 WL3555890 (D. Del.)
- Bendix Commercial Vehicle, Systems LLC. v. Haldex Brake Products Corp.*, 737 F.Supp.2d 854, 860 (N.D. Ohio 2010)
- Bettcher Industries, Inc. v. Bunzl USA, Inc.*, 692 F.Supp.2d 805 (N.D. Ohio 2010)
- Boston Scientific Corp. v. Johnson & Johnson*, 550 F.Supp.2d 1102 (N.D. Cal. 2008)
- Boyden Power-Brake Co. et al. v. Westinghouse et al.*, 170 US 537 (1898)
- Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683 (Fed.Cir. 2008)
- Brooktrout, Inc. v. Eicon Networks Corp.*, 2007 WL 1730112 (E.D. Tex.)
- Bushnell, Inc. v. Brunton Co.*, 673 F.Supp.2d 1241 (D. Kan. 2009)
- Callaway Golf Co. v. Acushnet Co.*, 585 F.Supp.2d 600 (D. Del. 2008)
- Canon Inc. v. GCC Int'l Ltd.*, 450 F.Supp.2d 243(S.D.N.Y. 2006)
- Cavanaugh v. Looney*, 248 US 453 (1919)
- Chamberlain Group v. Lear Corp.*, 2007 WL 1017751 (N.D. Ill.)
- Christiana Indus. v. Empire Elecs., Inc.*, 443 F.Supp.2d 870 (E.D. Mich. 2006)
- City of Milwaukee v. Activated Sludge*, 69 F.2d 577 (7th Cir. 1934)
- Commonwealth Scientific and Indus. Research Org. v. Buffalo Tech., Inc.*, 492 F.Supp.2d 600 (E.D. Tex. 2007)
- Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542 (Fed.Cir. 1983)
- Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 142 F. 479 (Circuit Court, D. Maine. 1905)

BIBLIOGRAPHY

- Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 150 F. 741 (Circuit Court of Appeal, First Circuit. 1906)
- Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405 (1908)
- Cordance Corp. v. Amazon.com, Inc.*, 730 F.Supp.2d 333 (D. Del. 2010)
- Cordis Corp. v. Boston Scientific Corp.*, 99 Fed.Appx. 928 (Fed.Cir. 2004)
- Creative Internet Advertising Corp. v. Yahoo! Inc.*, 674 F.Supp.2d 847 (E.D. Tex. 2009)
- Cummins-Allison Corp. v. SBM Co., Ltd.*, 584 F.Supp.2d 916 (E.D. Tex. 2008)
- Cummins-Allison Corp. v. SBM Co., Ltd.*, 669 F.Supp.2d 774 (E.D. Tex. 2009)
- Datascope Corp. v. Kontron, Inc.*, 786 F.2d 398 (Fed.Cir. 1986)
- Dawson Chemical Co. v. Rohm & Haas Co.*, 448 U.S. 176 (1980)
- EBay, Inc. v. MercExchange, L.L.C.*, 126 S.Ct. 1837 (2006)
- Electric Smelting & Aluminum Co. v. Carborundum Co.*, 189 F. 710 (C.C.W.D. Pa. 1900)
- Eli Lilly & Co. v. Medtronic*, 7 U.S.P.Q.2d 1439 (E.D. Pa. 1988)
- Emory Univ. v. Nova BioGenetics, Inc.*, 2008 US Dist. LEXIS 57642 (N.D. Ga.)
- Enpat, Inc. v. Pavel Budnic*, 773 F.Supp.2d 1311 (M.D. Florida 2011)
- Eolas Technologies v. Microsoft*, 399 F.3d 1325 (Fed.Cir. 2005)
- Ethicon Endo-Surgery v. United States Surgical Corp.*, 855 F.Supp. 1500 (S.D. Ohio 1994)
- Everett Labs., Inc. v. Breckenridge Pharm., Inc.*, 573 F.Supp.2d 855 (D.N.J. 2008)
- EZ Gard Indus., Inc. v. XO Athletic Co.*, 2008 US Dist. LEXIS 33483 (D. Minn.)
- Finisar Corp. v. DirectTV Group, Inc.*, 2006 U.S. Dist. LEXIS 76380 (E.D. Tex.)
- Finjan Software, Ltd. v. Secure Computing Corp.*, 2009 US Dist. LEXIS 72825 (D. Del.)

- Fresenius Med. Care Holdings Inc. v. Baxter Int'l, Inc.*, 2008 US Dist. LEXIS 79689 (N.D. Cal.)
- Foster v. American Mach. & Foundry Co.*, 492 F.2d 1317 (2d Cir. 1974)
- Funai Electric Co., Ltd. v. Daewoo Electronics Corp.*, 593 F.Supp.2d 1088 (N.D. Cal. 2009)
- Graver Tank & MFG Co., Inc., et al. v. Linde Air Products Co.*, 339 US 608 (1950)
- Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 518 F.Supp.2d 1197 (C.D. Cal. 2007)
- Harris Corp. v. Federal Express Corp.*, 2011 U.S. Dist. LEXIS 96257 (M.D. Fla.)
- Harrisonville v. W.S. Dickey Clay Mfg. Co.*, 53 S.Ct. 602 (1933)
- Hartford-Empire Co. v. U.S.*, 323 U.S. 386 (1945)
- Hecht Co. v. Bowles*, 64 S.Ct. 587 (1944)
- H.H. Robertson Co. v. United States Deck, Inc.*, 820 F.2d 384 (Fed.Cir. 1987)
- High Tech Medical Instrumentation, Inc. v. New Image Indus., Inc.*, 49 F.3d 1551 (Fed.Cir. 1995)
- Hoe v. Boston Daily Advertiser Corp.*, 14 F. 194 (C.C. Mass. 1883)
- Hoffmann-LaRoche, Inc. v. Cobalt Pharma. Inc.*, 2010 WL 4687839 (D.N.J.)
- Honeywell International, Inc. v. Universal Avionics System Corp.*, 397 F.Supp.2d 537 (D. Delaware 2005)
- Humanscale Corp. v. CompX International Inc.*, 2010 WL 1779963 (E.D. Va.)
- Hynix Semiconductor, Inc. v. Rambus Inc.*, 609 F.Supp.2d 951 (N.D. Cal. 2009)
- Hypoxico Inc. v. Colorado Altitude Training*, 630 F.Supp.2d 319 (S.D.N.Y. 2009)
- I-Flow Corp. v. Apex Medical Technologies, Inc.*, 2010 WL 141402 (S.D. Cal.)
- IGT v. Bally Gaming International Inc.*, 675 F.Supp.2d 487 (D. Del. 2009)
- IMX, Inc. v. LendingTree, LLC.*, 469 F. Supp. 2d 203 (D. Del. 2007)
- In re Seagate*, 497 F.3d 1360 (Fed.Cir. 2007)

BIBLIOGRAPHY

- Innogenetics, N.V. v. Abbott Labs.*, 2007 US Dist. LEXIS 3148 (W.D. Wis.)
- Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363 (Fed.Cir. 2008)
- I4i Ltd. v. Microsoft Corp.*, 598 F.3d 831 (Fed.Cir. 2010)
- Jeneric/Pentron, Inc. v. Dillon Company, Inc.*, 259 F.Supp.2d 192 (D. Con. 2003)
- Johns Hopkins Univ. v. Datascope Corp.*, 513 F.Supp.2d 578 (D. Md. 2007)
- Johnson & Johnson Vision Care, Inc. v. CIBA Vision Corp.*, 2010 WL 1730819 (M.D. Fla.)
- Joy Technologies, Inc. v. Flakt, Inc.*, 6 F.3d 770 (Fed.Cir. 1993)
- Judkins v. HT Window Fashions Corp.* 2010 WL 1292158 (W.D. Pa.)
- Kemin Foods v. Pigmentos Vegetales*, 369 F.Supp.2d 1075 (S.D. Iowa 2005)
- Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974)
- KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 764 (2007)
- K-TEC v. Vita-Mix*, 765 F.Supp.2d 1304 (D. Utah 2011)
- Laminations, Inc. v. Roma Direct Mktg. LLC.*, 516 F.Supp.2d 404 (M.D. Pa. 2007)
- LaserDynamics v. Quanta Computer, Inc.*, 2010 WL 2574050 (E.D. Tex.)
- Martek Biosciences Corp. v. Nutrinova Inc.*, 520 F.Supp.2d 537 (D. Del. 2007)
- Mass Engineered Design, Inc. v. Ergotron, Inc.*, 633 F.Supp.2d 361 (E.D. Tex. 2009)
- MCI Communications v. AT&T*, 708 F.2d 1081 (7th Cir. 1983).
- MedImmune, Inc. v. Genentech, Inc.*, 127 S.Ct. 764 (2007)
- Medtronic Sofamor Danek USA, Inc. v. Globus Medical, Inc.*, 637 F.Supp.2d 290 (E.D. Pen. 2009)
- MercExchange L.L.C. v. eBay, Inc.*, 275 F.Supp.2d 695 (E.D. Va. 2003)
- MercExchange L.L.C. v. eBay, Inc.*, 401 F.3d 1323 (Fed.Cir. 2005)
- MercExchange L.L.C. v. eBay, Inc.*, 500 F.Supp.2d 556 (E.D. Va. 2007).
- MGM Well Services, Inc. v. Mega Lift Systems, LLC.*, 505 F.Supp.2d 359 (S.D. Tex.)

2007)

Midtronics, Inc. v. Aurora Performance Products LLC., 800 F.Supp.2d 970 (N.D. Ill.

2011)

Monsanto Co. v. Maurice Parr, 545 F.Supp.2d 836 (N.D. Ind. 2008)

Monsanto Co. v. Vernon Hugh Bowman, 686 F.Supp.2d 834 (S.D. Ind. 2009)

Morton Salt Co. v. G. S. Suppiger Co., 314 US 488 (1942)

Motorola, Inc. v. Alexander Mfg. Co., 786 F. Supp. 808 (N.D. Iowa 1991)

Muniauction, Inc. v. Thomson Corp., 502 F.Supp.2d 477 (W.D. Pa. 2007)

Mytee Products, Inc. v. Harris Research, Inc., 439 Fed.Appx. 882 (Fed.Cir. 2011)

National Presto Indus., Inc. v. West Bend Co., 76 F.3d 1185, 1197 (Fed.Cir.1996)

Nerney v. New York, N.H. & H.R. Co., 83 F.2d 409 (2d Cir. 1936)

Novartis Pharm. Corp. v. Teva Pharm. USA, Inc., 2007 WL 2669338 (D.N.J.)

Novozymes A/S v. Genencor Int'l., 474 F. Supp. 2d 592 (D. Del. 2007)

NTP, Inc. v. Research in Motion, Ltd., 2003 WL 23100881 (E.D. Va.)

NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282 (Fed.Cir. 2005)

Nutrition 21 v. United States, 930 F.2d 867 (Fed.Cir. 1991)

Ocean Innovations v. Quarterberth, Inc., 2010 WL 1957486 (N.D. Ohio)

Odetics, Inc. v. Storage Tech. Corp., 14 F.Supp.2d 785 (E.D. Va. 1998)

O2 Micro International Ltd. v. Beyond Innovation Technology Co., 2007 US Dist.

LEXIS 25948 (E.D. Tex.)

Paice L.L.C. v. Toyota Motor Corp., 2006 WL 2385139 (E.D. Tex.)

Paice L.L.C. v. Toyota Motor Corp., 504 F.3d 1293 (Fed.Cir.2007)

Paice L.L.C. v. Toyota Motor Corp., 609 F.Supp.2d 620 (E.D. Tex. 2009)

Pfizer, Inc. v. Teva Pharms. USA, Inc., 429 F.3d 1364 (Fed.Cir. 2005)

PHG Techs. v. Timemed Labeling Sys., 2006 WL 2670967 (M.D. Tenn.)

BIBLIOGRAPHY

- Polaroid Corp. v. Eastman Kodak Co.*, 641 F.Supp. 828 (D. Mass. 1985)
- Polaroid Corp. v. Eastman Kodak Co.*, 789 F.2d 1556 (Fed.Cir. 1986)
- Polymer Technologies, Inc. v. Bridwell*, 103 F.3d 970 (Fed.Cir. 1996)
- Power-One, Inc. v. Artesyn Techs., Inc.*, 2008 US Dist. LEXIS 30338 (E.D. Tex.)
- Praxair, Inc. v. ATMI, Inc.*, 479 F. Supp. 2d 440 (D. Del. 2007)
- Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306 (Fed.Cir. 2008)
- Precision Links Inc. v. USA Prod. Group., Inc.*, 2009 WL 3076114 (W.D.N.C.)
- Presidio Components Inc. v. American Technical Ceramics Corp.*, 2010 WL 1462757
(S.D. Cal.)
- Quad/Tech, Inc. v. Q.I. Press Controls B.V.*, 2010 WL 1292476 (E.D. Pa.)
- Quantronix, Inc. v. Data Trak Techs., Inc.*, 536 F.Supp.2d 1039 (D. Minn. 2008)
- Read Corp. v. Portec, Inc.*, 970 F.2d 816 (Fed.Cir. 1992)
- Red Bend Ltd. v. Google, Inc.*, 2001 WL 1288503 (D. Mass.)
- Reebok Int'l Ltd. v. J. Baker, Inc.*, 32 F.3d 1552 (Fed.Cir. 1994)
- Ren Judkins v. HT Window Fashions Corp.*, 2010 WL 1292158 (W.D. Pa.)
- ResQNet.com, Inc. v. Lansa, Inc.*, 533 F.Supp.2d 397 (S.D.N.Y. 2008)
- ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860 (Fed.Cir. 2010)
- Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226 (Fed.Cir. 1989)
- Ricoh Company, Ltd. v. Quanta Computer, Inc., et al.* 2010 WL 1607908 (W.D. Wis.)
- Rite-Hite Corp. v. Kelley, Inc.*, 56 F.3d 1538 (Fed.Cir. 1995)
- Robert Bosch LLC v. Pylon Manufacturing Corp.*, 659 F.3d 1142 (Fed.Cir. 2011)
- Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858 (Fed.Cir. 1984)
- Roper Corp. v. Litton Systems, Inc.*, 757 F.2d 1266 (Fed.Cir. 1985)
- Rosco v. Mirror Lite Co.*, 2006 US Dist. LEXIS 73366 (E.D.N.Y.)
- Rosemount, Inc. v. United States Int'l Trade Comm'n*, 910 F.2d 819 (Fed.Cir. 1990)

BIBLIOGRAPHY

- Rosen Entertainment's Sys. v. Icon Enters., Inc.*, 359 F.Supp.2d 902 (C.D. Cal. 2005)
- RPA International PTY Ltd. v. Compact Intl Inc.*, 2010 WL 3184311 (S.D. Cal.)
- Sanofi-Aventis Deutschland GmbH. v. Glenmark Pharmaceuticals Inc.*, 2011 WL 4594205 (D.N.J)
- Sanofi-Synthelabo v. Apotex, Inc.*, 492 F.Supp.2d 353 (S.D.N.Y. 2007)
- Sanofi-Synthelabo v. Apotex, Inc.*, 470 F.3d 1368 (Fed.Cir. 2006)
- Schenck v. Norton Corp.*, 713 F.2d 782 (Fed.Cir. 1983)
- Shiley, Inc. v. Bentley Labs, Inc.*, 601 F.Supp. 964 (C.D. Cal. 1985)
- Smith & Nephew, Inc. v. Arthrex, Inc.*, 2010 WL 2522428 (E.D. Tex.)
- Smith & Nephew, Inc. v. Synthes*, 466 F. Supp. 2d 978 (W.D. Tenn. 2006)
- Smith International, Inc. v. Hughes Tool Co.*, 718 F.2d 1573 (Fed.Cir. 1983)
- Special Equipment Co. v. Coe*, 324 U.S. 370 (1945)
- Spectralytics, Inc. v. Cordis Corp.*, 650 F.Supp.2d 900 (D. Minn. 2009)
- State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed.Cir. 1998)
- Sundance, Inc. v. DeMonte Fab. Ltd.*, 2007 WL 3053662 (E.D. Mich.)
- Sun Optics, Inc. v. FGX Int'l, Inc.*, 2007 WL 2228569 (D. Del.)
- Superior Fireplace Co. v. Majestic Prods. Co.*, 270 F.3d 1358 (Fed.Cir. 2000)
- Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 592 F.Supp.2d 727 (D. Del. 2009)
- Tiber Labs., LLC v. Hawthorn Pharm., Inc.*, 527 F.Supp.2d 1373 (N.D. Ga. 2007)
- TiVo Inc. v. Echostar Communs. Corp.*, 446 F. Supp. 2d 664 (E.D. Tex. 2006)
- T.J. Smith & Nephew Ltd. v. Consol. Med. Equip., Inc.*, 821 F.2d 646 (Fed.Cir. 1987)
- Torspo Hockey Int'l, Inc. v. Kor Hockey Ltd.*, 491 F.Supp.2d 871 (D. Minn. 2007)
- Transamerica Life Insurance Company v. Lincoln National Life Insurance Company*, 625 F.Supp.2d 702 (N.D. Iowa 2009)

BIBLIOGRAPHY

- Transocean Offshore Deepwater Drilling, Inc. v. GlobalSantaFe Corp.*, 2006 WL 3813778 (S.D. Tex.)
- TruePosition Inc. v. Andrew Corp.*, 568 F. Supp. 2d 500 (D. Del. 2008)
- US Philips Corp. v. Iwasaki Electric Co. Ltd.*, 607 F.Supp.2d 470 (S.D.N.Y. 2009)
- Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 124 S.Ct. 872, 879 (2004).
- Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295 (Fed.Cir. 2007)
- Versata Software Inc. v. SAP America, Inc.*, 2011 WL 4017944 (E.D. Tex.)
- Visto Corp. v. Seven Networks, Inc.*, 2006 US Dist. LEXIS 91453 (E.D. Tex.)
- Vitamin Technologists, Inc., v. Wisconsin Alumni Research Foundation*, 146 F.2d 941 (9th Cir. 1945)
- Voda v. Cordis Corp.*, 2006 WL 2570614 (W.D. Okla.)
- Voile Mfg. Corp. v. Dandurand*, 551 F.Supp.2d 1301 (D. Utah 2008)
- Wald v. Mudhopper Oilfield Servs.*, 2006 US Dist. LEXIS 51669 (W.D. Okla.)
- Weinberger v. Romero-Barcelo*, 456 US 305, 102 S.Ct. 1798 (1982)
- Whirlpool Corp. v. LG Electronics, Inc.*, 798 F.Supp.2d 541 (D. Del. 2011)
- Windsurfing International Inc. v. AMF Inc.*, 782 F.2d 995 (Fed.Cir. 1986)
- W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 842 F.2d 1275 (Fed.Cir. 1988)
- Young v. Lumenis, Inc.*, 301 F. Supp. 2d 765 (S.D. Ohio 2004)
- Zen Design Group, Ltd. v. Clint*, 2009 WL 4050247 (E.D. Mich.)
- Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100 (1969)
- z4 Tech. Inc. v. Microsoft Corp.*, 434 F.Supp.2d 437 (E.D. Tex. 2006)
- 3M Innovative Props. Co. v. Avery Dennison Corp.*, 2006 US Dist. LEXIS 70263 (D. Minn.)
- 800 Adept, Inc. v. Murex Securities, Ltd.*, 505 F.Supp.2d 1327 (M.D. Fla. 2007)

United Kingdom

- Aerotel Ltd. v Wavecrest Group Enterprises Ltd.* [2008] EWHC 1180 (Pat),
Aerotel Ltd. v Wavecrest Group Enterprises Ltd. [2009] EWCA Civ 408
Banks v EMI Songs Ltd. (No.2) [1996] EMLR 452
British Telecommunications plc v Nextcall Telecom plc [2000] FSR 697
Cantor Gaming Ltd. v Gameaccount Global Ltd. [2007] EWHC 1914
Chiron Corp. v Organon Teknika Ltd. (No.10) [1995] FSR 325
Coco v A.N. Clark (Engineers) Ltd. [1968] FSR 415
Coflexip SA v Stolt Comex Seaway MS Ltd. [1999] FSR 473
Fisher v Brooker [2006] EWHC 3239 (Ch)
Illinois Tool Works v Autobars [1972] FSR 67
Jaggard v Sawyer [1995] 1 WLR 269
Kirin-Amgen Inc. v Transkaryotic Therapies Inc. (No.3) [2005] FSR 41
Landor & Hawa International Ltd. v Azure Design Ltd. [2007] FSR 9
Macmillan Publishers Ltd. v Thomas Reed Publications Ltd. [1993] FSR 455
Mawman v Tegg [1826] 2 Russell 385
Minnesota Mining & Manufacturing Co v Johnson & Johnson Ltd [1976] FSR 139
MMI Research Ltd. v Cellxion Ltd. [2009] EWHC 1533 (Pat)
Navitaire Inc. v EasyJet Airline Co. Ltd. (No.2) [2005] EWHC 0282 (Ch)
Nutrinova Nutrition Specialties & Food Ingredients GmbH v Scanchem UK Ltd.
(No.2) [2001] FSR 43
Phonographic Performance Ltd v Maitra [1998] 1 WLR 870
Phonographic Performance Ltd. v Saibal Maitra [1998] FSR 749
Proctor v Bailey and Son [1889] 6 RPC 538

Raleigh v Miller [1949] 66 RPC 23

Roussel-Uclaf v G.D. Searle [1977] FSR 125

Seager v Copydex Ltd. [1967] 1 WLR 923

Shelfer v City of London Electric Lighting Co. [1895] 1 Ch. 287

Germany

Bundesgerichtshof (Orange Book Standard) (KZR 39/06)

Federal Supreme Court (BGH), 5 December 1995, GRUR 1996, 190

IPCom v HTC, LG Mannheim, Urt. vom 27. February 2009 – 7 O 94/08

IPCom v HTC, OLG Karlsruhe, Beschl. vom 11. Mai 2009 – 6 U 38/09

IPCom v Nokia, LG Mannheim, Judgement of 18.02.2011 - 7 O 100/10

LG Mannheim - Judgement of 12 September 2002 - 7 O 35/02

OLG Karlsruhe - Case of 13 December 2006 – 6 U 174/02

OLG Dusseldorf, 1979 GRUR 188

Standard Tight-Head Drum case (13 July 2004, KZR 40/02)

EU

Case C-418/01 *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*

Case T184/01 *R II IMS Health Inc. v. EC Commission*, 4 C.M.L.R. 2 (2002)

2. Articles and Books

ALLEN & OVERY (2009) 'Thinning the Patents Thicket', *ALLEN & OVERY Bulletin*, August 2009.

ALLISON, J. R. & LEMLEY, M. A. (1998) 'Empirical Evidence on the Validity of Litigated Patents', *American Intellectual Property Law Association Quarterly*

- Journal*, vol. 26, p. 85.
- ALLISON, J. R., LEMLEY, M. A. & WALKER, J. (2009) 'Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents', *University of Pennsylvania Law Review*, vol. 158, no.1, pp. 101-137.
- BAINBRIDGE, D. I. (2009) '*Intellectual property*', Pearson Longman, Harlow, Essex, England; New York.
- BAKER, D. G. (2005) 'Troll or No Troll? Policing Patent Usage with an Open Post-Grant Review', *Duke Law & Technology Review*, vol. 9.
- BALL, G. G. & KESAN, J. P. (2009) 'Transaction Costs and Trolls: Strategic Behavior by Individual Inventors, Small Firms and Entrepreneurs in Patent Litigation', *U Illinois Law & Economics Research Paper No. LE09-005*.
- BARTH, G. (1995) '*Remedies in German patent litigation*', in Ropski, G. M. (ed.) *Butterworths patent litigation : enforcing a global patent portfolio*. Butterworths, London.
- BECKERMAN-RODAU, A. (2009) 'Patents Are Property: A Fundamental but Important Concept', *Journal of Business & Technology Law*, vol. 4, pp. 87-96.
- BEIER, F.-K. (1999) 'Exclusive rights, statutory licences and compulsory licences in patent and utility model law ', *IIC*, vol. 30, issue 3, pp. 251-274.
- BENKLER, Y. (2000) 'An Unhurried View of Private Ordering in Information Transactions', *Vanderbilt Law Review*, vol. 53, issue 6, pp. 2063-2080.
- BENTLY, L. & SHERMAN, B. (2009) '*Intellectual property law*', Oxford University Press.
- BERNIERI, R. C. (2010) '*Ex-Post Liability Rules in Modern Patent Law*', Intersentia.
- BEYERS, J. (2005) 'Rise of the Patent Trolls', *CNET NEWS.COM*, Available at http://news.cnet.com/Rise-of-the-patent-trolls/2010-1071_3-5892996.html.

- BLACKSTONE, W. (1765) 'Commentaries on the Laws of England', *Clarendon Press, vol. II, p. 2.*
- BLAKENEY, M. (1996) 'Trade related aspects of intellectual property rights : a concise guide to the TRIPS agreement', Sweet & Maxwell, London.
- BODENHAUSEN, G.H.C. (1968) 'Guide to the Application of the Paris Convention for the Protection of Industrial Property', as Revised at Stockholm in 1967. Geneva: BIRPI.
- BOHANNAN, C. (2010) 'IP Misuse as Foreclosure', *Iowa Law Review, vol. 96, p.101.*
- BRAND, O. (2007) 'The dawn of compulsory patent licensing', *Intellectual Property Quarterly, Vol. 2, pp. 216-235.*
- BREED, L. & LOVELLS, H. (2012) 'DOJ and FTC consider NPE antitrust issues', *Kluwer Competition Law Blog, available at <http://kluwercompetitionlawblog.com/2012/10/19/doj-and-ftc-consider-npe-antitrust-issues>*
- CALABRESI, G. & MELAMED, A. D. (1972) 'Property Rules, Liability Rules, and Inalienability: One View of the Cathedral', *Harvard Law Review, vol. 85, no. 6, pp. 1089-1128.*
- CHAMP, P. & ATTARAN, A. (2002) 'Patent Rights and Local Working Under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute', *Yale Journal of International Law, vol. 27, p. 365.*
- CHAN, J. & FAWCETT, M. (2005) 'Footsteps of the Patent Troll', *Intell. Prop. L. Bull., vol. 10, pp. 1-11.*
- CHAO, B. H. (2008) 'After Ebay, Inc. v. MercExchange: The Changing Landscape for Patent Remedies', *Minnesota Journal of Law, Science & Technology, Vol. 9, No. 2.*

- CHIAPPETTA, V. (2011) 'Living with Patents: Insights from Patent Misuse', *Marquette Intellectual Property Law Review*, vol. 15, issue 1.
- CHUANG, A. (2006) 'Fixing the failures of software patent protection: Deterring patent trolling by applying Industry-specific patentability standards', *Southern California Interdisciplinary L.J.*, vol. 16, pp. 215-251.
- CHUNG, H. S. (2009) 'The Supreme Court Unjustly Declares Open Season on Patent Dealers', *University of Illinois Journal of Law, Technology & Policy*, vol. 2009, issue 1, p. 227.
- CIO INSIGHT (2005) 'Intellectual Security: Patent Everything You Do, Before Someone Else Does', available at <http://www.cioinsight.com/c/a/Trends/Intellectual-Security-Patent-Everything-You-Do-Before-Someone-Else-Does>.
- COASE, R. H. (1960) 'The Problem of Social Cost', *Journal of Law and Economics*, vol. 3, pp. 1-44.
- COMPTON, C. T. (2009) 'Tumultuous times: the escalating US debate on the role of antitrust in standard setting', *Competition Law International*, February 2009, pp. 29-38.
- CONRAD, D. B. (2007) 'Mining the Patent Thicket: The Supreme Court's Rejection of the Automatic Injunction Rule in eBay v. MercExchange', *The Review of Litigation*, Vol. 26, pp. 119-154.
- CORREA, C. M. (1999) 'Intellectual property rights and the use of compulsory licenses : options for developing countries', *NetAmericas*, available at <http://www.netamericas.net/researchpapers/documents/ccorrea/ccorrea3.doc>.
- COTROPIA, C. A. (2009) 'The Individual Inventor Motif in the Age of the Patent Troll', *Yale J.L. & Tech.* vol. 12, pp. 52-84.

BIBLIOGRAPHY

- COTROPIA, C. A. & LEMLEY, M. A. (2009) 'Copying in Patent Law', *North Carolina Law Review*, vol. 87, issue 5, p. 1421.
- COTTER, T. F. (2008) 'Patent Holdup, Patent Remedies, and Antitrust Responses', *The journal of Corporation Law*, vol. 34, pp. 101-158.
- COTTER, T. F. (2010) 'Four Questionable Rationales for the Patent Misuse Doctrine', *Minnesota Legal Studies Research Paper No. 10-30*, available at <http://ssrn.com/paper=1616275>.
- COTTER, T. F. (2010) 'Response-Patent Remedies and Practical Reason', *Texas Law Review*, vol. 88, p. 125.
- COTTER, T. F. (2011) 'IP Misuse and Innovation Harm', *Iowa Law Review Bulletin*, vol. 96, p. 52.
- DENICOLO, V., GERADIN, D., LAYNE-FARRAR, A. & PADILLA BLANCO, A. J. (2007) 'Revisiting Injunctive Relief: Interpreting eBay in High-Tech Industries with Non-Practicing Patent Holders', available at <http://ssrn.com/paper=1019611>.
- DEPOORTER, B. (2008) 'Property Rules, Liability Rules And Patent Market Failure', *Erasmus Law Review*, vol. 1, issue 1, pp 59-74.
- DEVLIN, A. (2009) 'Indeterminism and the Property-Patent Equation', *Yale Law & Policy Review*, vol. 28, issue 1, pp. 61-106.
- ELHAUGE, E. (2008) 'Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?', available at <http://ssrn.com/abstract=1139133>.
- ELHAUGE, E. & GERADIN, D. (2007) 'Global Competition Law and Economics', *Hart Publishing*, at 414.
- EPSTEIN, R. A. (2010) 'The Disintegration of Intellectual Property? A Classical

- Liberal Response to a Premature Obituary', *Stanford Law Review*, vol. 62, p. 455.
- EUROPEAN COUNCIL (2012) 'Conclusions', *EUCO 76/12, Brussels, 29 June 2012*.
- FELDMAN, R. C. (2003) 'The Insufficiency of Antitrust Analysis for Patent Misuse', *The Hastings Law Journal*, vol. 55, issue 2, p. 399.
- FTC (2003) 'To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy', available at <http://www.ftc.gov/os/2003/10innovationrpt.pdf>.
- FTC (2011) 'The Evolving IP Marketplace, Aligning Patent Notice and Remedies with Competition', available at <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>.
- GÄRTNER, A. & VORMANN, T. (2009) 'Federal Supreme Court Rules in Orange Book Standard', *International Law Office (ILO)*, available at <http://www.internationallawoffice.com/newsletters/detail.aspx?g=abc44bef-50b0-4b0b-8c70-a28d7fa5502a>.
- GAMBARDELLA, A., GIURI, P. & MARIANI, M. (2005) 'The Value of European Patents: Evidence from a Survey of European Inventors', available at <http://www.alfonsogambardella.it/PATVALFinalReport.pdf>.
- GERVAIS, D. (2008) '*The TRIPS AGREEMENT: Drafting History and Analysis*', SWEET & MAXWELL.
- GOLDEN, J. M. (2007) 'Patent Trolls' and Patent Remedies', *Texas Law Review*, vol. 85, p. 2111.
- GOLDEN, J. M. (2010) 'Principles for Patent Remedies', *Texas Law Review*, Vol. 88, pp. 505-592.
- GOMEZ-AROSTEGUI, T. (2009) 'Prospective Compensation in Lieu of a Final

- Injunction in Patent and Copyright Cases', *Fordham Law Review*, vol. 78.
- GREGORY, J. K. (2007) 'The Troll Next Door', *J. Marshall Rev. Intell. Prop. L.* vol. 6, pp. 292-309.
- GUELLEC, D. & POTTERIE, B. V. P. D. L. (2007) '*The economics of the European patent system : IP policy for innovation and competition*', Oxford University Press, Oxford.
- GUPTA, P. R. & FEERST, A. (2012) 'The US Patent System After the Leahy-Smith America Invents Act', *European Intellectual Property Review*, vol. 34, issue 1, pp. 60-64.
- GWARTNEY, T. L. (2009) 'Harmonizing the Exclusionary Rights of Patents with Compulsory Licensing', *William and Mary Law Review*, vol. 50, p. 1395.
- HAHN, R. W. & SINGER, H. J. (2007) 'Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions', *AEI-Brookings Joint Center Working Paper No. RP07-03*, available at <http://ssrn.com/paper=950583>.
- HALEWOOD, M. (1997) 'Regulating Patent Holders: Local Working Requirements and Compulsory Licences at International Law', *Osgoole Hall Law Journal*, vol. 35, no. 2, pp. 243-287.
- HARKINS, C. A. (2007) 'Fending off paper patents and patent trolls: A novel "cold fusion" defense because changing times demand it', *ALB.L.J. SCI. & TECH.*, vol. 17, pp. 407-479.
- HOERNER, R. J. (2002) 'SYMPOSIUM: The Federal Circuit and Antitrust - The Decline (And Fall ?) Of The Patent Misuse Doctrine In The Federal Circuit', *Antitrust Law Journal*, vol. 69, issue 3, p. 669.
- HOVENKAMP, H. J. (2011) 'Notice and Patent Remedies', *Texas Law Review*, vol.

88, p. 221.

HYLTON, K. N. (2005) 'Property Rules and Liability rules, Once Again', *Boston Univ. School of Law Working Paper No. 05-17*.

IPEG (2006) 'Who is going to stop Europe's Patent Troll?', *Available at <http://ipgeek.blogspot.com/2006/09who-is-going-to-stop-europes-patent.html>*.

JACOB, S. R. (2008) 'Patent Trolls in Europe-Does Patent Law Require New Barriers?', *available at http://www.grur.de/cms/upload/pdf/Jahrestagung/2008/GRUR_JT2008_Rede_Jacob_2008-05-23.pdf*.

JAFFE, A. B. & LERNER, J. (2007) '*Innovation and Its Discontents-How our broken patent system is endangering innovation and progress, and what to do about it*', Princeton University Press.

JAKOBS, M. (2011) 'Patent Trolls in the Light of IP Rights and EU Competition Law', *Mayer Brown's Brussels Legal Business Prize*.

JOLOWICZ, J. A. (1975) 'Damages in Equity-A Study of Lord Cairns' Act', *Cambridge Law Journal*, vol. 34(2), pp. 224-252.

JONES, M. (2007) 'Permanent Injunction, A Remedy by any other Name is Patently Not the Same: How eBay v. MercExchange Affects the Patent Right of Non-Practicing Entities', *GEO. MASON L. REV.*, vol. 14, p. 1036.

KAPLOW, L. & SHAVELL, S. (1996) 'Property Rules versus Liability Rules', *Harvard Law Review*, Vol. 109, No. 4.

KARET, I. (2010) 'Patent and Competition Law', *Conference on Patent Protection and Competition Law*. London.

KERN, M. (1996) 'Recent Federal Supreme Court decisions on Experimental Use and Compulsory Licensing', *CASRIP Newsletter - Summer 1996*, vol. 3, issue 2.

- KHAN, B. Z. (2008) 'An Economic History of Patent Institutions', *EH.Net Encyclopedia*, edited by Robert Whaples, available at <http://eh.net/encyclopedia/article/khan.patents>.
- KIHARA, Y. (2000) 'U.S. Pro-Patent Policy: A Review of the Last 20 Years', *CASRIP Newsletter - Winter 2000*, pp. 11-17.
- KLAUSS, I. (2009) 'Case Comment, Bundesgerichtshof (KZR 39/06): Germany - intellectual property rights', *ECLR*, vol. 30(11), pp. 181-182.
- KRAUSS, M. I. (1999) 'Property Rules vs. Liability Rules', *Encyclopedia of Law and Economics* (3800), available at <http://classweb.gmu.edu/mkrauss/prop-liab.htm>.
- LANDERS, A. L. (2009) 'Response: Patent Valuation Theory and the Economics of Improvement', *Texas law Review*, vol. 88, p. 163.
- LATEEF, I. A. & STOWELL, J. (2007) 'A Supreme End to Patent Trolls?', *Orange County Lawyer*, August 2007.
- LE, N. (2007) 'What is Not a Patent Troll, In the Negative Sense', *The Progress & Freedom Foundation's Center for the Study of Digital Property*, available at http://weblog.ipcentral.info/archives/2007/02/what_is_not_a_p_1.html.
- LEE, P. (2011) 'The Accession Insight and Patent Infringement Remedies', *Michigan Law Review*, vol. 110, available at <http://ssrn.com/paper=1770044>.
- LEMLEY, M. A. (2007) 'Ten Things To Do About Patent Holdup of Standards (And One Not To)', *Boston College Law Review*, vol. 48, p. 149.
- LEMLEY, M. A. (1997) 'The Economics of Improvement in Intellectual Property Law', *Stanford Law and Economics Olin Working Paper No. 365*, available at <http://ssrn.com/abstract=1274199>.
- LEMLEY, M. A. (2002) 'Intellectual Property Rights and Standard-Setting

- Organization', *California Law Review*, vol. 90, issue 6, p. 1889.
- LEMLEY, M. A. (2007) 'Are Universities Patent Trolls?', *Stanford Public Law Working Paper No. 980776*.
- LEMLEY, M. A. (2007) 'A New Balance between IP and Antitrust', *Southwestern Journal of Law and Trade in the Americas*, vol. 13, p. 237.
- LEMLEY, M. A. & SHAPIRO, C. (2007) 'Patent Holdup and Royalty Stacking', *Texas Law Review*, vol. 85, p. 1991.
- LIM, L. & CRAVEN, S. E. (2009) 'Injunctions Enjoined; Remedies Restructured', *Santa Clara L. R.*, Vol. 25.
- LUECK, M., OBERTS, S. & MILLER, K. (2005) "'Patent Troll:" A Self-Serving Label that Should be Abandoned', *Articles (Robins, Kaplan, Miller & Ciresi L.L.P.)*, available at http://www.rkmc.com/Patent_Troll_A_Self-Serving_Label_that_Should_be_Abandoned.htm.
- MACDONALD (2005) 'Beware of the troll', *The Lawyer*, available at <http://www.thelawyer.com/beware-of-the-troll/116783.article>.
- MAGLIOCCA, G. N. (2007) 'Blackberries and Barnyards: Patent Trolls and the Perils of Innovation', *Notre Dame Law Review*, available at <http://ssrn.com/paper=921252>.
- MAISTER, P. (2008) 'German Court Sees First Signs of European Patent Trolls', *LAW.COM*, available at <http://www.law.com/jsp/article.jsp?id=1202424954133&slreturn=1&hbxlogin=1>.
- MASSADEH, A. A. (2011) 'The Essential Facilities Doctrine Under Scrutiny: EU and US Perspective', *UEA LAW WPS 2011-AM-1*.
- MAYERGOYZ, A. (2009) 'Lessons from Europe on How to Tame U.S. Patent Trolls',

Cornell Int'l L. J., vol. 42, p. 241.

MCDONOUGH III, J. F. (2007) 'The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy', *Emory Law Journal*, vol. 56, pp. 189-228.

MCGOWAN, D. (2008) 'Colloquy Essay - What Tool Works Tells Us About Tailoring Patent Remedies', *Northwestern University Law Review*, vol. 102, issue 1, p. 421.

MELLO, J. P. (2006) 'Technology Licensing and Patent Trolls', *B.U. J. Sci. & Tech. L.* vol. 12, p. 388.

MENELL, P. S., PASAHOW, L. H., POOLEY, J. H. & POWERS, M. D. (2009) 'Patent Case Management Judicial Guide', *UC Berkeley Public Law Research Paper No. 1328659*, available at <http://ssrn.com/paper=1328659>.

MERGES, R. P. (1994) 'Of Property Rules, Coase, and Intellectual Property', *COLUMBIA LAW REVIEW*, vol. 94, issue 8, pp. 2655-2673.

MERRILL, S. A., LEVIN, R. C. & MYERS, M. B. (2004) '*A Patent Systems For The 21st Century*', The National Academies Press, Washington, D.C.

MEURER, M. J. (2003) 'Controlling Opportunistic and Anti-Competitive Intellectual Property Litigation', *B.C.L. Rev.*, vol. 44, p. 509.

MOSSOFF, A. (2009) 'Exclusion and Exclusive Use in Patent Law', *Harvard Journal of Law & Technology*, Vol. 22, No. 2.

MUELLER, J. M. (2009) '*Patent law*', Aspen treatise series, Aspen Publishers, New York.

MULLIN, J. (2008) 'Tempting Terrain', *IP Law & Business*, vol. 6, issue 9.

NEWCOMBE, G. M., OSTROW, J. E., KING, P. E. & RUBIN, G. N. (2008) 'Prospective Relief For Patent Infringement in a Post-eBay World', *NYU*

- Journal of Law and Business*, vol. 4, pp. 549-577.
- NEWMAN, C. M. (2009) 'Patent Infringement as Nuisance', *Catholic University Law Review*, vol. 59, no. 1, pp. 61-123.
- NG SIEW KUAN, E. (2009) 'Patent Trolling: innovation at risk', *European Intellectual Property Review*, vol. 31(12), pp. 593-608.
- OHKUMA, Y., SAHASHI, M., HSUEH, H. W. & BRENNAN, J. (2007) 'Patent Trolls in the US, Japan, Taiwan and Europe ', *CASRIP Newsletter (a digested version)*, available at <http://www.tokugikon.jp/gikonshi/244kiko1e.pdf>.
- OHLY, A. (2009) 'Three Principles of European IP Enforcement Law: Effectiveness, Proportionality, Dissuasiveness', *Technology and Competition, Contributions in Honour of Hanns Ullrich*, pp. 257-274, Josef Drexl, ed., Larcier 2009.
- OSTERRIETH, C. (2009) 'Patent-Trolls in Europa - Braucht das Patentrecht neue Grenzen? [Patent trolls in Europe - Does patent law need new limits?]', *GRUR* 2009, 540.
- PARK, J. H. (2010) '*Patents and industry standards*', Edward Elgar, Cheltenham.
- PEGUES, M. D. & CLINTON, L. N. (2007) 'Infringement? Yes. Injunction? It depends.', *AIPLA Annual Meeting, Washington, DC, 18 October 2007*.
- PIKE, G. H. (2006) 'Blackberry: Lawsuit and Patent Reform', *Information Today*, vol. 23, no. 5.
- PITZ, J. & HERMANN, G. (2004) 'GERMANY Patent enforcement practice', available at http://www.buildingipvalue.com/n_eu/293_297.htm.
- POHLMANN, T. & OPITZ, M. (2010) 'The Patent Troll Business: An Efficient model to enforce IPR', *MPRA Paper No. 27342*, available at <http://mpra.ub.uni-muenchen.de/27342/>.
- POLINSKY, A. M. (1980) 'On the Choice Between Property Rules and Liability

Rules', *Economic Inquiry*, vol. 18, pp. 233-246.

QUINN EMANUEL URQUHART & SULLIVAN LLP (2010) 'Uncertain Times: Three District Approaches to Ongoing Patent Royalties', Quinn Emanuel Urquhart & Sullivan LLP, available at <http://www.jdsupra.com/post/documentViewer.aspx?fid=5d31b7d9-e9ac-4ebe-a7e1-f7e17c78ea34>.

REICHMAN, J. H. (1994) 'Legal Hybrids Between the Patent and Copyright Paradigm', *Columbia Law Review*, vol. 94, p. 1501.

ROSCH, J. T. (2008) 'Patent Trolls: Broad Brush Definitions and Law Enforcement Ideas', *FTC*, available at <http://www.ftc.gov/speeches/rosch/080531roschlecg.pdf>.

SANDBURG, B. 'You may not have a choice. Trolling for Dollars', *The Recorder*, July 2001.

SCHICKEDANZ, W. (2009) 'Patentverletzung durch Einsatz von geschützten Bauteilen in komplexen Vorrichtungen und die Rolle der Patent-Trolle (Patent infringement by the use of proprietary components in complex devices and the role of patent trolls)', *GRUR Int* 2009, 901.

SCHMIDTZ, D. (2011) 'Property', *Oxford Handbook of the History of Political Philosophy*, available at <http://www.davidschmidtz.com/david-schmidtz/articles/property>.

SHAPIRO, C. (2010) 'Injunctions, Hold-up, and Patent Royalties', available at <http://faculty.haas.berkeley.edu/shapiro/royalties.pdf>.

SHARTZER, A. (2009) 'Patent Litigation 101: Empirical support for the patent pilot program's solution to increase judicial experience in patent Law', *Federal Circuit Bar Journal*, vol. 18, p. 189.

- SICHELMAN, T. (2010) 'Commercializing Patents', *Stan. L. Rev.*, vol. 62(2), p. 341.
- SLIND-FLOR, V. (2006) 'IV moves from myth to reality', *Intellectual Asset Management August, September 2006, issue 19*, pp. 28-34.
- SOLOMON, N. (2009) 'Analysis of the Four-Factor Test in Patent Cases Post-eBay', *SSRN*, available at: <http://ssrn.com/abstract=1623978>.
- SOLOMON, N. (2010) 'Adverse Effects of Moving from Property Rules to Liability Rules in Intellectual Property: A New View of the Cathedral Without the Disintegration of Property Rights in Patent Law', *SSRN*, available at <http://ssrn.com/abstract=1623977>.
- STERK, S. E. (2008) 'Property Rules, Liability Rules, and Uncertainty About Property Rights', *Michigan Law Review*, vol. 106.
- STERN, P. J. & DOYLE, T. G. (2011) 'Trends and Developments Regarding Nonpracticing Entities in the U.S.', *Chizai Kanri*, vol. 61, no. 4, pp. 445-454.
- STETTNER, D. C. (2004) 'Meet the Patent Enforcers', *Wisconsin Lawyer*, vol. 77, no. 4.
- SUBRAMANIAN, S. (2008) 'Different Rules for Different Owners: Does a Non-Competing Patentee Have a Right to Exclude? A Study of Post-Ebay Cases', *International Review of Intellectual Property and Competition Law*, vol. 39(4), pp. 419-451.
- SUBRAMANIAN, S. (2008) 'EBay Ruling and US Obligation to the TRIPS Agreement', *European Intellectual Property Review*, vol. 30, issue 11, pp. 444-453.
- SUBRAMANIAN, S. (2008) 'Patent trolls in thickets: who is fishing under the bridge', *European Intellectual Property Review*, vol. 30(5), pp. 182-188.
- SUDARSHAN, R. (2009) 'Nuisance-value Patent Suits: An Economic Model and

- Proposal', *Santa Clara Computer & High Tech Law Journal*, vol. 25, pp.159-189.
- THOMAS, K. M. (2007) 'Protecting Academic and Non-Profit Research: Creating a Compulsory Licensing Provision in the Absence of an Experimental Use Exception', *Santa Clara Computer and High-technology Law Journal*, vol. 23, issue 2, pp. 347-370.
- THURSBY, J. G. & THUERBY, M. C. (2007) 'University licensing', *Oxford Review of Economic Policy*, vol. 23, no. 4, pp. 620-639.
- TORREMANS, P. (2008) *'Intellectual Property Law'*, Oxford University Press.
- TREACY, P. & LAWRENCE, S. (2008) 'FRANDly fire: are industry standards doing more harm than good?', *Journal of Intellectual Property Law & Practice*, vol. 3, issue 1, pp. 22-29.
- TRITTON, G. (2008) *'Intellectual Property in Europe'*, Sweet & Maxwell, London.
- TURNER, J. D. C. (2010) *'Intellectual property and EU competition law'*, Oxford University Press, Oxford.
- ULLRICH, H. (2010) 'Patents and standards - A comment on the German Federal Supreme Court decision orange book standard', *IIC*, vol. 41(3), pp. 337-351.
- URBANEK, J. (2008) 'A Postmortem For Permanent Injunctions Against Business Method Patent Infringement In The Wake Of EBay v. MercExchange', *DePaul L. Rev.*, vol. 57, p. 607.
- VENKATESAN, J. (2009) 'Compulsory Licensing of Nonpracticing Patentees After eBay v. MercExchange', *Virginia Journal of Law & Technology*, Vol. 14, No. 26.
- VON MUHLEND AHL, A. (2007) 'Enforcement of intellectual property rights - is injunction relief mandatory?', *IIC*, vol. 38(4), p. 377-380.
- WALLACE JR., J. H. (2007) 'Are Patent "Trolls" Wrongly Named and Maligned?

- Do They Have a Future?', *AIPLA Annual Meeting, Washington, DC, 18 October 2007*.
- WANG, A. W. (2010) 'Rise of the Patent Intermediaries', *Berkeley Technology L. J.*, vol. 25, issue 1, pp. 159-200.
- WATANABE, Y. (2009) 'Patent Licensing and the Emergence of a New Patent Market', *Houston Business and Tax Journal*, vol. 9, pp. 445-479.
- WEBB, M. M. & LOCKE, L. A. (1991) 'Intellectual property Misuse Developments in the Misuse Doctrine', *Harvard Journal of Law & Technology*, vol. 4, spring issue, p. 257.
- WEGNER, H. C. (2006) 'Injunctive Relief: A Charming Betsy Boomerang', *Northwestern Journal of Technology and Intellectual Property*, vol. 4.
- WESTON, D. (2008) 'BlackBerry', *A Teaching Case for WIPO by Intellectual Property Research Institute of Australia (IPRIA)*.

