

WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO)

PATENT POOLS AND ANTITRUST – A COMPARATIVE ANALYSIS

Prepared by the Secretariat

(March 2014)

Contents

- I. Introduction and Purpose..... 3
- II. Patent Pools – An Overview 3
 - II.a Substitute Patents and Complementary Patents 4
 - II.b Essential and Non-Essential Patents..... 5
 - II.c Standardization and Patent Pools 6
 - II.d Standard Setting and F/RAND Terms 8
 - II.e Effects on Competition 9
 - II.e.1 Pro-Competitive Effects..... 9
 - II.e.2 Competitive Concerns10
- III. IP/Antitrust Guidelines in Selected Jurisdictions.....12
 - III.a United States.....12
 - III.b Canada13
 - III.c Japan14
 - III.d European Union.....15
- IV. Conclusions17

I. Introduction and Purpose

1. Patent pools can be defined as an agreement between two or more patent owners to license one or more of their patents to one another or to third parties. Often, patent pools are associated with complex technologies that require complementary patents in order to provide efficient technical solutions. Generally, these patent pools cover mature technologies. Pools also frequently represent the basis for industry standards that supply firms with the necessary technologies to develop compatible products and services. In that case, they rather concern technologies that are yet to be fully developed.

2. Patent pools have been the subject of ongoing discussions from both a legal and an economic perspective. On the one hand, patent pools may have positive effects on competition and innovation. By sharing intellectual property assets, companies may develop new products and reduce their transaction costs. On the other hand, under specific circumstances, patent pools may provide an opportunity for a possible anti-competitive behavior: like any cooperation among competitors, they involve an inherent risk of collusive behavior. In other words, a patent pool may be regarded as a cartel. In addition, there may be competition-related concerns regarding the licensing practices and restrictions they entail. The so-called 'patent thickets' (*i.e.*, overlapping patent rights controlled by rights holders that require innovators to reach licensing deals for multiple patents from multiple sources¹) can lead to increased transaction costs and to chilling effects on the development of new products.

3. Although there is a general consensus on the positive and efficiency-enhancing effects of patent pools, there may be instances where the creation of patent pools may lead to possible competition rules violations depending on the applicable antitrust rules:

- (i) The creation of patent pools may distort competition if pro-competitive aspects do not outweigh the (potential) limitations on competition;
- (ii) The licensing clauses may limit the rights of the patent holders and therefore infringe applicable antitrust statutes; and
- (iii) The patent pool may lead to anti-competitive collusion among competitors.

4. The purpose of this report is to analyze benefits and risks of patent pools, including some economic considerations concerning their welfare-enhancing effects. In addition, we will discuss relevant legal approaches and case law in several jurisdictions.

II. Patent Pools – An Overview

5. In a patent pool, patent rights are aggregated amongst multiple patent holders. Then, the pooled patents are made available to member and non-member licensees and typically the pool allocates a portion of the licensing fees it collects to each member in proportion to each patent's value.² A patent pool may take the form of a joint venture³, created by two or more patent holders for the purpose of sharing their intellectual property rights.

¹ Digital Opportunity, A review of Intellectual Property and Growth, An independent report by Ian Hargreaves, May 2011, page 18

² Robert P. Merges, Institutions for Intellectual Property Transactions: The Case of Patent Pools, in *Expanding the Boundaries of Intellectual Property, Innovation Policy for the Knowledge Society*, 123, 129 (Rochelle Cooper Dreyfuss *et al.* eds., 2001).

³ It is possible that the creation of a joint venture needs to be filed with the relevant competition authority as a merger agreement. However, this report does not cover concentration effects of mergers und antitrust rules.

6. Historically, patent pools have been concentrated in Europe and the United States although recently Asian companies increased their participation in patent pools given their growing role in technological innovation.⁴

7. Whether patent pools may trigger antitrust scrutiny depends, among other factors, on the concerned technologies or patents. As for the nature of the pooled technologies/patents, they can be categorized as (i) complementary or (ii) substitutes and, in a standard setting environment, as (iii) essential or (iv) non-essential. These categories are important for assessing the impact on competition and are analyzed below.

II.a Substitute Patents and Complementary Patents

8. Two patents are considered substitutes if they cover alternative technologies and are non-blocking⁵. The technologies covered by substitute patents can be used in parallel without infringing the other patent. They are therefore potentially competing with each other.

9. From a technological point of view, complementary patents must be used together to produce a specific output and are not substitutes for each other. Thus, from a technical point of view it is necessary to use complementary patents together in the production process. Therefore, it is required to either be the owner or a licensee of the complementary patents to produce the desired output.

10. In addition, two mutually blocking patents are complementary from a legal point of view. Mutually blocking patents can be described as two patents that infringe on each other. Hence, patent licensing agreements are necessary to produce the desired output to avoid patent infringement claims. It is also possible that patents are one-way blocking, meaning that one patent infringes another patent while the latter doesn't necessarily infringe the first patent.⁶ Mutually blocking patent rights are the result of cumulative innovation, where no technological component can be marketed individually without the technological complements protected by patent rights of different companies.⁷

11. Differentiating between complementary and substitute (or competing) patents is important when assessing the effects of patent pools on competition. Substitute patents compete with each other and should therefore, from a competition point of view, not be bundled in a pool because, as a result, competition between such substitute technologies would be eliminated. In general, this concern does not apply to complementary patents because actual or potential competition is not lessened. In line with these considerations, antitrust recommendations in both the U.S.⁸ and Europe⁹ state that pooling complementary patents is generally pro-competitive.¹⁰

⁴ World Intellectual Property Report 2011, The Changing Face of Innovation, Chapter 3: Balancing Collaboration and Competition, 121, available at www.wipo.int/econ_stat/en/economics/wjpr/.

⁵ A patent concerning a particular technological field is non-blocking when it does not prevent the use of another patent in the same field because it relies on a technology not covered by the first patent.

⁶ Charles River Associates Ltd., Report on Multiparty Licensing, 6, available at ec.europa.eu/competition/antitrust/legislation/multiparty_licensing.pdf. The legal solution for one-way blocking patents – reciprocal or cross compulsory licensing – can be found in Article 31(I) of the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS), of 1994, where the invention covered by the second patent represents an important technical advance of considerable economic significance in relation to the invention claimed in the first patent.

⁷ *Justus Baron & Henry Delcamp*, Patent quality and value in discrete and cumulative innovation, Working Paper 2010-07, Cerna Working Paper Series, 3, available at hal-enscm.archives-ouvertes.fr/docs/00/53/66/50/PDF/Quality_indicators_16-11-10_VF.pdf (last visited on February 11th, 2013).

⁸ DOJ & FTC, Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition, 9, available at www.justice.gov/atr/public/guidelines/0558.htm (last visited on February 19th, 2013).

⁹ See the Guideline on the Application of Art. 81 of the European Commission Treaty to Technology Transfer Agreements (20004/C101/02), available at eur-

12. For instance, in *Summit vs. VISX*¹¹, two US firms engaged in a patent pool and developed their own technology for performing laser eye surgery. Both companies successfully applied for individual patent protection. This type of technology was not available on the market. The Federal Trade Commission (FTC, one of the US antitrust enforcement agencies) concluded that the patents were substitutes rather than complements. Therefore, the FTC found that the patent pool restricted competition that would have existed otherwise in the absence of the patent pool.

13. This differentiation between substitute and complementary patents, however, is only one aspect of the competitive analysis. While the pooling of complementary patents might not have a negative effect on price competition on the downstream market, it might still adversely affect subsequent innovation. According to some research¹², patent pools may discourage outside firms to invest in R&D if they increase the threat of litigation. In addition, pools may slow innovation if they redirect R&D by outside firms towards technologies that are not covered by pool patents, especially if those technologies are inferior substitutes to innovation. Adverse effects of pools on innovation is a topic that requires further research, but should be taken into account when assessing the pro- and anti-competitive effects of patent pools.

II.b Essential and Non-Essential Patents

14. In the context of standardization, essential patents are those required in order to comply with a technical standard. As a consequence, essential patents are by nature also complementary because they are standard-essential. Patents can also be commercially necessary based on consumers' demand. Hence, they should also be regarded as 'essential' when assessing the potential threats on competition by the creation of a pool. Patents are non-essential if there are substitutes to the covered technology.

15. Given that essential patents are always complementary, patent pools comprising of essential patents are less likely to lead to competitive concerns while patent pools comprising of non-essential patents are more problematic under a competition point of view.

16. Finally, some research¹³ has shown that it is very important that only essential patents are included in a pool. This would greatly reduce the risk of possible free-riding by companies that only contribute non-essential patents - although this distinction can be very difficult in practice since certain patents may become essential as a technology evolves over time.

lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52004XC0427(01):EN:NOT (last visited on February 19th, 2013).

¹⁰ See e.g., *Thomas D. Jeitschko & Nanyun Zhang*, Adverse Effects of Patent Pooling on Product Development and Commercialization, 2, available at www.justice.gov/atr/public/eag/283557.pdf or Ryan Lampe & Petra Moser, Do Patent Pools Encourage Innovation? Evidence from the 19th-Century Sewing-Machine Industry, available at <http://economics.stanford.edu/files/LampeOct15.pdf> (last visited on June 1st, 2013). (last visited on February 19th, 2013).

¹¹ See press release at www.ftc.gov/opa/1998/08/sumvisx.shtm (last visited on February 19th, 2013).

¹² *Thomas D. Jeitschko & Nanyun Zhang*, Adverse Effects of Patent Pooling on Product Development and Commercialization, 30 *et seq*, available at www.justice.gov/atr/public/eag/283557.pdf (last visited on February 19th, 2013).

¹³ *Pierre Regibeau*, Patent Pools: An Economics Primer, Charles River Associates (April 2012)

II.c Standardization and Patent Pools

17. A technical standard is an established norm or requirement about a technical system that establishes uniform engineering or technical criteria, methods, process and practices.¹⁴

18. Standardization and patent pools are interconnected because many standards are based on complementary technology, often developed by different firms. Standards can be important for the wide adoption of new technologies in the marketplace. Thus, standards serve an important function. However, they also entail risks as adopting a standard will create a barrier to entry to the relevant market as switching from one standard to another is oftentimes not possible or only with unreasonable efforts.¹⁵ A patent pool can address the need for standardization if the patents relevant to the standard are owned by more than one entity. Typically, a standardization patent pool enables participating patentees to use the pooled patents, provides a standard license in respect of the pooled patents for licensees who are not members of the pool, and allocates to each member of the pool a portion of the licensing fees in accordance with the agreement.

19. Many standardization cases have been scrutinized by competition authorities and most have been found not to violate antitrust rules. The most prominent cases concern the MPEG-standard as well as two patent pools relating to DVD standards. In these three cases, the US Department of Justice (DOJ) issued business review letters and found that none of the patent pools posed significant antitrust concerns.

Box 1

In **MPEG-2**, an industry standard for digital video compression was created. The pool was cleared by the DOJ based on four criteria: (i) the covered patents were essential; (ii) the patents were complementary [which follows from (i)]; (iii) the structure of the pool prohibited exchange of sensitive information; and (iv) the licensing agreement did not discourage the development of competing products.

The two **DVD pools** (the 3C DVD pool and the 6C DVD pool) were also cleared by the DOJ based on the same criteria. In addition, under the pool agreement a patent expert was retained to determine whether patents were essential.

20. In the business letters, the DOJ suggested the following criteria for the analysis of patent pools under antitrust law:

- (i) Patents must be clearly identified and should be available for licensing individually as well as in a package as chosen by a potential licensee;
- (ii) The patents in the pool must be valid and must not have been expired;
- (iii) Limitation to patents that are technically essential which, by definition, are not competing, and use of an independent expert to assess whether a patent is essential;
- (iv) The patent pool should have limited duration;¹⁶
- (v) The royalties proposed by the arrangements should be reasonable;

¹⁴ A technical standard may be developed privately or unilaterally, e.g., by a corporation, regulatory body, military, etc. Standards can also be developed by groups, such as trade unions and trade associations. The so called Standard Setting Organizations (SSOs) generally have more diverse input and usually develop voluntary standards which might become mandatory if adopted by the government.

¹⁵ *Ruben Schellingherhout & Piero Cavicchi*, Patent ambush in standard-setting: the Commission accepts commitments from Rambus to lower memory chip royalty rates, 9 December 2009, e-Competitions, N°42075, 33, available at ec.europa.eu/competition/publications/cpn/2010_1_11.pdf (last visited on February 19th, 2013).

¹⁶ For instance, the MPEG-2 Pools was set up for three years, although it could be renewed. In such a situation, increases in royalties would be limited to 25%. A 10-year term was endorsed as reasonable in the first DVD letter in light of the narrowness of the license.

- (vi) Availability of worldwide non-exclusive licenses;
- (vii) Freedom of licensees to develop and use alternative patents;
- (viii) Requirement that licensees grant back non-exclusive, non-discriminatory licenses to use patents that are essential to comply with the technology; and
- (ix) The pool participants must not collude on prices outside the scope of the pool, e.g., on downstream products.¹⁷

21. Of these requirements, the criterion that patents must be ‘essential’ is one of the most important because it ensures that the patents contained in the pool do not compete with each other. It is therefore crucial to have a correct definition of essential patents in the underlying patent pool agreement and to limit the pool to essential patents. For instance, in the above mentioned DVD patent pool, essential patents were defined as those necessary to comply with the specifications. To ensure that only essential patents are included, an independent expert may determine whether patents are essential and therefore qualify for inclusion in the pool.¹⁸

22. The European Commission has also dealt with a DVD standardization case and approved it. According to the European Commission, the patent pool promoted technical and economic progress by allowing efficient introduction of the DVD technology. Important considerations concerned the fact that the patent pool was composed of essential patents and the licensing agreement provided for a non-exclusive and non-discriminatory license.¹⁹

23. In Brazil, a recent case on patent pools has received attention as it was the first case relating to patent pools decided by the Administrative Council for the Economic Defense (CADE). On January 27, 2009, CADE released a public official report²⁰ on a case concerning a patent pool by Koninklijke Philips Electronics, N.V. and Philips do Brasil. The two Philips entities were accused of having abused their dominant position by, *inter alia*, having included technologies in the patent pool that did not enjoy patent protection in some countries and by requiring discriminatory royalty terms in the pooling agreement. Members of the pool did not need to pay royalties when importing technologies from third countries where these technologies did not enjoy patent protection. However, companies in Brazil that were not pool members were required to pay such royalties. CADE rejected the complaint, also using some of the arguments of the U.S. Antitrust Guidelines for the Licensing of Intellectual Property. CADE concluded that the royalties collecting policy was worldwide and calculated on the basis of “units produced and sold”, irrespective of the specific IP content and therefore not discriminatory. Inclusion of the patents – where they existed – was essential to enable worldwide use of the technologies. Thus, it did not find an abuse of a dominant position in the form of discrimination. In addition, CADE concluded that the patent pool was pro-competitive as it reduced transaction costs.

¹⁷ Richard J. Gilbert, Antitrust for Patent Pools: A Century of Policy Evolution, 2004 Stan. Tech. L. Rev. 3, 1, available at str.stanford.edu/pdf/gilbert-patent-pools.pdf (last visited on February 19th, 2013). See also MPEG-LA Review Letter above (citing IP Guidelines, § 5.5).

¹⁸ Penelope M. Lister, Licensing, Cross-Licensing and Patent Pools: When Do Procompetitive Agreements Become Unlawful Conspiracies?, 23, available at www.morganlewis.com/pubs/7DAD131A-5EB7-4501-87D0D10319688D0D_Publication.pdf (last visited on February 19th, 2013).

¹⁹ OJ 242, 27.8.1999. See also press communication of the European Commission, available at europa.eu/rapid/press-release_IP-00-1135_en.htm (last visited on February 19th, 2013).

²⁰ The report is available in Portuguese at www.cade.gov.br/temp/t2112201212114382.pdf (last visited on February 19th, 2013).

II.d Standard Setting and F/RAND Terms

24. The current discussion regarding standard setting organizations focuses particularly on the terms of the licensing practices of technologies that are covered by a patent pool and are deemed standard-essential. This discussion has been furthered by increased litigation in several countries over the infringement of standard-essential patents. The increased amount of patent litigation generally focuses on declaring the covered technology (*i.e.*, the patent) void and challenging the classification of a particular technology as (still) standard-essential. As described above, standards are important to enhance the development of technology and ensure interoperability. Companies are generally keen to have their technologies identified as standard-essential because identifying a technology as standard-essential will likely lead to increased demand. The competitive risk that standard-essential technologies are licensed for prices that do not reflect the market value because they benefit from being recognized as standard-essential is being addressed by the requirement to license under FRAND (fair, reasonable and non-discriminatory)²¹ or RAND terms. By requiring F/RAND terms, a balance is achieved because patent owners benefit from the promotion of their technologies due to the classification as standard essential which potentially leads to higher licensing revenues, and licensees benefit from F/RAND terms.²²

25. In a joint policy statement, the DOJ and the USPTO pointed out the importance of a careful use of injunctive relief based on a patent owner's claim to cease the use of a technology by an alleged patent infringer that is deemed standard essential in a given market. The DOJ and the USPTO suggest that, depending on the circumstances of the case at hand, an injunctive relief should not be granted if the alleged infringer is acting within the scope of the patent holder's F/RAND commitment and is willing, and has not refused, to enter into a licensing agreement under F/RAND terms.²³

26. The European Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements (Horizontal Guidelines) provide some insight into the European Commission's view of F/RAND terms in the context of standard settings. Section 287 of the Horizontal Guidelines reads as follows: "FRAND commitments are designed to ensure that essential IPR protected technology incorporated in a standard is accessible to the users of that standard on fair, reasonable and non-discriminatory terms and conditions. In particular, FRAND commitments can prevent IPR holders from making the implementation of a standard difficult by refusing to license or by requesting unfair or unreasonable fees (in other words, excessive fees), after the industry has been locked-in to the standard or by charging discriminatory royalty fees."

²¹ A recent discussion on the meaning of FRAND royalties can be found in *Keith Maskus and Stephen A. Merrill*, (Eds.) "Patent Challenges for Standard-Setting in the Global Economy: Lessons from Information and Communication Technology"; Committee on Intellectual Property Management in Standard-Setting Processes; Board on Science, Technology, and Economic Policy; Policy and Global Affairs; National Research Council, 2013, in particular chapter 3.3.

²² *Bernd Allekotte & Ulrich Blumenroeder*, Europe - When patents become standard: litigation for 'essential' patents, IAM Magazine, 37 *et seq*, available at www.iam-magazine.com/issues/Article.ashx?q=42b52360-6080-4d09-b92a-122caa87da21 (last visited on February 19th, 2013).

²³ DOJ & USPTO, Policy Statement for Standards-Essential patents Subject to Voluntary F/RAND Commitments, 7, available at www.justice.gov/atr/public/guidelines/290994.pdf (last visited on February 19th, 2013).

II.e Effects on Competition

II.e.1 Pro-Competitive Effects

(i) Efficiency

27. An important justification of patent pools is efficiency. By creating patent pools and assembling complementary patents the efficient production of goods and services can be facilitated and the required inputs may be put in the hands of the most efficient and qualified producers.²⁴

28. For instance, two firms or more may own certain IP assets that are not sufficient individually to manufacture a specific product and therefore hold each other up, preventing the production to happen as each firm needs the other firm's complementary IP rights in order to have a working technology. In such a situation, the two companies would be blocking each other's patents, effectively preventing markets and consumers from the beneficial introduction of an innovative product/service²⁵.

29. Patent pools represent therefore a common instrument to deal with that kind of inefficiencies allowing complementary IP assets to be organized under a single contract (the pool) to be not only cross-licensed among the patent pool members, but also licensed to interested third parties. In fact, it has been argued that pool members should also be allowed to license out individually their own patents. This may have positive effects by keeping prices under a competitive pressure and by possibly ensuring that the patent pool is actually welfare-enhancing.²⁶ In fact, if the pool members are vertically integrated, they may have an incentive not to license the pooled patents to potential or actual third party competitors or to overcharge royalties to third parties as this would raise rivals' costs while patent holders would be able to internalize those higher costs.

(ii) Reduced or Eliminated Litigation Costs

30. Patent pools can reduce or eliminate the need for litigation over patent rights because such disputes can either be easily settled or avoided through the creation of a patent pool. A reduction in patent litigation would save businesses time and money, and also avoid the uncertainty of patent rights caused by litigation. This benefits small-and medium sized companies in particular as they cannot usually bear the costs of litigation.

(iii) Reduced Transaction Costs

31. Another key advantage of patent pools is that they facilitate licensing for technologies that are jointly owned by many firms. Therefore, patent pools can reduce transaction costs as licensees only need to enter into a single licensing agreement with one patent pool. In addition, royalty stacking can be eliminated: this occurs when firms charge inefficiently high prices for subsets of patents that cover complementary technologies.²⁷ In other words, a royalty stacking effect takes place "when access to multiple patents is required to produce an end product, forcing the manufacturer's products "to bear multiple patent burdens," usually in

²⁴ *Id.*, 8.

²⁵ *Carl Shapiro*, Navigating the Patent Thicket: Cross licenses, Patent Pools, and Standard Setting, in *Adam Jaffe, Josh Lerner, Scott Stern*, Innovation Policy and the Economy, The MIT Press, 2001, available at faculty.haas.berkeley.edu/shapiro/thicket.pdf (last visited on February 19th, 2013).

²⁶ *Josh Lerner, Jean Tirole*, Efficient Patent Pools, *The American Economic Review*, vol. 94, n.3, June 2004, available at www.nber.org/papers/w9175 (last visited on February 19th, 2013).

²⁷ *Ryan Lampe & Petra Moser*, Patent Pools: Licensing Strategies in the Absence of Regulation, 1, available at SSRN: ssrn.com/abstract=2053797 or dx.doi.org/10.2139/ssrn.2053797 (last visited on February 19th, 2013).

the form of multiple licensing fees²⁸. Royalties are charged for the separate use, for example, of patents individually owned by different companies but all necessary for the production of a complex product. This would lead to a total level of royalties that is unlikely to be compatible with efficient and welfare-enhancing use of IP rights²⁹. Indeed, the transaction costs associated with the definition and the management of multiple licensing contracts necessary to manufacturing the specific technology would be so high as to deter potential users from actually engaging in the pre-contractual discussions. This, in turn, may have an impact on the downstream price of products that use those technologies since costs related to stacked royalties will be passed on to consumers³⁰.

(iv) *Clear Blocking Patents*

32. In situations when patents are mutually blocking or one patent infringes the other, a patent pool may be an efficient solution to clear blocking patents. Clearing blocking patents may, in turn, lead to a faster development of a given technology.³¹

II.e.2 Competitive Concerns

(i) *Distortion of Competition Caused by Pooling Competing Patents*

33. Some competitive concerns relate directly to the creation of patent pools. As mentioned above³², patent pools that consist of substitute patents have a negative effect on competition because it is likely that competition between two substitute patents will be eliminated if these patents are pooled.

(ii) *Anti-competitive Licensing Practice and Grant-Back Provisions*

34. An important factor is the licensing practice of the patent pool. Patent pools with liberal licensing policies are less problematic from a competition point of view. If, however, members of the patent pool are not allowed to license the patents covered by the pool independently, the pool may charge a price above the competitive rate.³³ Thus, patent pools that restrict licensing will generally cause competitive concerns. For instance, a report of the Department of Justice (DOJ) and the FTC warned that pools which do not license technologies freely “may pose a barrier to entry if existing relationships make it harder for ‘new firms to come in and overcome the patent thicket’.”³⁴ The underlying basic test is the theoretical question of whether the licensing agreement eliminates competition that would have occurred in the absence of the license. Licensing agreements should be challenged if they extend the competitive restrictions beyond those that were granted to the owners of the patent under applicable laws. In other words, patent laws allow for a restriction on competition by granting the patent owner exclusive rights. A licensing agreement should not contain additional restrictions. Hence, if the licensing agreement does not eliminate or restrict

²⁸ DOJ & FTC, Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition, 62, available at www.justice.gov/atr/public/hearings/ip/222655.pdf (last visited on February 19th, 2013).

²⁹ Francois Leveque, Yann Meniere, Economics of Patent Pools, *Microeconomix*, Economic Focus, 2007.

³⁰ Lihui Lin, Licensing Strategies in the Presence of Patent Thickets, *The Journal of Product Innovation Management*, vol. 28, n. 5, 2011, pp.698-725

³¹ Cristina Baltes, Patent Pools – An Effective Instrument for the High Technology, Master Thesis, 30, available at www.lu.se/lup/publication/1554688 (last visited on February 19th, 2013).

³² See above under section 1.

³³ World Intellectual Property Report 2011, The Changing Face of Innovation, Chapter 3: Balancing Collaboration and Competition, 123, , available at www.wipo.int/econ_stat/en/economics/wjpr/ (last visited on February 19th, 2013).

³⁴ DOJ & FTC, Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition, 62, available at www.justice.gov/atr/public/hearings/ip/222655.pdf (last visited on February 19th, 2013).

competition beyond the rights granted by intellectual property law, such licensing agreements will most likely not lead to competition concerns.³⁵

Box 2

In *Summit vs. VISX*, the FTC found that the licensing arrangement contained unjustified restrictions. The patent pool established a \$250 licensing fee to be paid to the pool each time a laser produced by either firm was used to perform photorefractive keratectomy. Under the licensing agreement, the proceeds from these license fees were then split between the two firms according to a predetermined formula. According to the FTC, the effect of this per-procedure fee was to fix and raise the price that doctors paid for PRK equipment and technology, and to deprive consumers of the benefits of competition. Finally, the patent pool's terms prevented the two companies from licensing their own technology to a third party without the approval of the other partner in the pool. Overall, it appeared that the Summit/VISX pool did little more than granting the parties the power to control prices.

35. Grant-back provisions may also have anti-competitive effects. According to so-called grant-backs, pool members may be required to share improved technologies with the members of the pool at no fee if these technologies are deemed relevant to the pool. While grant-backs prevent individual members who patent technologies that become essential to the pool from holding up other members, it may also reduce or even eliminate the incentive to hide development in progress. Because improved technologies need to be shared with the pool, companies do not have an incentive to hide development in progress. However, grant-backs may reduce the incentives to invest in future innovation because such future innovations would need to be shared with the pool at no fee, thus potentially reducing R&D efforts if the results of such efforts cannot be monetized.³⁶

36. Article 40 of the TRIPS Agreement contains provisions regarding anti-competitive practices in licensing agreements. Under Article 40, Member States are allowed to adopt legislation to prevent or control such anti-competitive practices in licensing agreements. Article 40 explicitly lists exclusive grant-back provisions as potentially anti-competitive. Thus, Member States may (but are not obligated to) interfere with licensing agreements and address such anti-competitive practices by defining them as *per se* illegal or allowing for a rule of reason review.³⁷

(iii) *Conspiracy*

37. In addition, patent pools – like any other kind of cooperation amongst competitors – may encourage potential collusion, for example by creating a forum to share competitively sensitive information, such as pricing, marketing strategies, or R&D information among its members.³⁸

³⁵ Charles River Associates Ltd., *Report on Multiparty Licensing*, 45, available at ec.europa.eu/competition/antitrust/legislation/multiparty_licensing.pdf (last visited on February 19th, 2013).

³⁶ World Intellectual Property Report 2011, *The Changing Face of Innovation*, Chapter 3: Balancing Collaboration and Competition, 123, available at www.wipo.int/econ_stat/en/economics/wjpr/ (last visited on February 19th, 2013).

³⁷ *Nuno Pires de Carvalho*, *The TRIPS Regime of Antitrust and Undisclosed Information*, Kluwer Law International, 2008, 161 *et seq.*

³⁸ *Id.*, 67.

Box 3

Overview Chart:

Pro- and Anti-Competitive Effects of Patent Pools

Pro-competitive effects:

- Increased efficiency by integrating complementary patents
- Reduced transaction costs
- Clearing blocking positions
- Avoiding litigation costs
- Promoting the dissemination of technology

Anti-competitive effects and concerns:

- Distortion of competition
- Anti-competitive licensing practices
- Potential forum for price-fixing

III. IP/Antitrust Guidelines in Selected Jurisdictions

III.a United States

38. In the United States, an analysis of intellectual property licenses or licensing practice typically is based on the Antitrust Guidelines for the Licensing of Intellectual Property (“IP Guidelines”). The IP Guidelines address patent pools only briefly. The IP Guidelines acknowledge that pooling arrangements are often pro-competitive. In particular, the IP Guidelines state that intellectual property pooling is pro-competitive when it:

- (i) Integrates complementary technologies;
- (ii) Reduces transaction costs;
- (iii) Clears blocking positions;
- (iv) Avoids costly infringement litigation; or
- (v) Promotes the dissemination of technology.³⁹

39. The IP Guidelines specifically address the issue of whether patent pools need to be open to all who would like to join. Under the IP Guidelines, exclusion from pooling arrangements among parties that collectively possess market power may, under some circumstances, harm competition. In *Northwest Wholesale Stationers v. Pacific Stationery & Printing*, the court held that the exclusion of a competitor from a purchasing cooperative was not to be *per se* unlawful absent a showing of market power.⁴⁰ According to the IP Guidelines, exclusion from a pooling arrangement among competing technologies is unlikely to have anticompetitive effects unless:

- (i) Excluded firms cannot effectively compete in the relevant market for the good incorporating the licensed technologies;
- (ii) The pool participants collectively possess market power in the relevant market; and
- (iii) The limitations on participation are not reasonably related to the efficient development and exploitation of the pooled technologies.

³⁹ IP Guidelines 5.5. See also *Penelope M. Lister*, Licensing, Cross-Licensing and Patent Pools: When Do precompetitive Agreements Become Unlawful Conspiracies, 8, available at www.morganlewis.com/pubs/7DAD131A-5EB7-4501-87D0D10319688D0D_Publication.pdf (last visited on February 19th, 2013).

⁴⁰ Cf. *Northwest Wholesale Stationers, Inc. v. Pacific Stationery & Printing Co.*, 472 U.S. 284 (1985).

40. If these circumstances exist, the FTC and the DOJ will apply the rule of reason to evaluate whether the arrangement's limitations on participation are reasonably related to the efficient development and exploitation of the pooled technologies and will assess the net effect of those limitations in the relevant market.⁴¹

41. The IP Guidelines also focus on negative effects of patent pools on innovation. For instance, a pooling arrangement that requires members to grant licenses to each other for current and future technology at minimal cost may reduce the incentives of its members to engage in research and development because members of the pool have to share their successful research and development and each of the members can free ride on the accomplishments of other pool members. Such an arrangement can, however, also have pro-competitive benefits, for example, by exploiting economies of scale and integrating complementary capabilities of the pool members, (including the clearing of blocking positions), and is likely to cause competitive problems only when the arrangement includes a large fraction of the potential research and development in an innovation market.

III.b Canada

42. The Canadian approach is outlined in the 2000 Intellectual Property Enforcement Guidelines⁴² (the “2000 Guidelines”) and is based on the concept that the Competition Act generally applies to conduct involving intellectual property in the same way it applies to conduct involving other forms of property. The underlying principle according to the 2000 Guidelines is that competition law “seeks to prevent companies from inappropriately creating, enhancing or maintaining market power that underlines competition without offsetting economic benefits.”⁴³

43. Patent pools are examined under the conspiracy provision of the Competition Act (*i.e.*, section 45). Section 45(1) contains a prohibition of anti-competitive behavior between competitors. The exemption provision is provided for on section 45(4) and (5). Based on the wording of section 45(1), only patent pooling arrangements between competitors as defined in the Canadian Competition Act fall under the prohibition of section 45(1).⁴⁴

44. In its 2000 Guidelines, the Canadian Competition Bureau acknowledges that patent pools may provide pro-competitive benefits by, among other things, clearing blocking patents, avoiding costly infringement litigation, integrating complementary technologies and reducing transaction costs. When analyzing patent pools, the Canadian Competition Bureau will focus predominantly on whether the patent pooling arrangement is necessary for a new technology to enter the market. A patent pool, for instance, is not necessary when a “competitively preferable alternative”⁴⁵, such as a simple license, could have been used instead.⁴⁶

45. When assessing whether a particular patent pool raises competitive concerns, the Canadian Competition Bureau will examine whether the terms of the licensing agreement among the parties serve to create, enhance or maintain the market power of the licensor or the licensee. Licensing agreements will only be considered anti-competitive if “*they reduce*

⁴¹ *Id.*

⁴² Intellectual Property Enforcement Guidelines, available at [www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/ipege.pdf/\\$FILE/ipege.pdf](http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/ipege.pdf/$FILE/ipege.pdf) (last visited on February 19th, 2013).

⁴³ Section 2.3. of the 2000 Guidelines.

⁴⁴ A competitor is defined in section 45(8) as „a person who it is reasonable to believe would be likely to compete with respect to a product in the absence of a conspiracy, agreement or arrangement to do anything referred to in paragraphs (1)(a) to (c)“.

⁴⁵ Part 7, Example 6 of the 2000 Guidelines.

⁴⁶ *Id.*

competition substantially or unduly relative to that which would have likely existed in the absence of the license”.⁴⁷

III.c Japan

46. In Japan, the most recent “Guidelines Concerning Use of Intellectual Property” (the “IP Guidelines”) as amended in 2009, provide guidance on the competitive analysis of patent pools.⁴⁸

47. According to the IP Guidelines, a patent pool can be useful in encouraging the effective use of technologies required for business activities and a patent pool itself does not immediately constitute an unreasonable restraint of trade (*i.e.*, a violation of the Antimonopoly Act).⁴⁹

48. Nonetheless, patent pools are considered an unreasonable restraint of trade in four situations, provided they substantially restrain competition in the field of trade associated with the relevant technology:

- (i) The creation of a patent pool relating to substitute (*i.e.*, competing) technologies and jointly setting forth licensing conditions relating to these substitute technologies⁵⁰;
- (ii) Collusion among the entities that form the patent pool aimed at preventing any improvement to the technology licensed to the pool⁵¹;
- (iii) The creation of a patent pool by competing entities to jointly determine the price, quantity or customers of their products using the licensed technology⁵²; and
- (iv) The creation of a patent pool by competing entities and refusing to license the covered technology to new entrants or certain existing entrepreneurs without reasonable grounds.⁵³

49. In Japan, the Guidelines on Standardization and Patent Pool Arrangements⁵⁴ (the “Guidelines”) discuss patent pools in the specific area of standard setting. Generally speaking, according to the Guidelines, standardization of technical specifications by competitors is not assumed to create problems with the Anti-Monopoly Act. However, the same Guidelines provide guidance as to when patent pools relating to standardization are deemed anti-competitive.⁵⁵

50. According to the Guidelines, the following actions are deemed a violation of the Antimonopoly Act:

- (i) Restricting prices of new products with specifications;
- (ii) Restricting the development of alternative specifications;
- (iii) Unreasonably extending the scope of specifications;
- (iv) Unreasonable excluding technical proposals from competitors; and

⁴⁷ Section 4.1. of the 2000 Guidelines.

⁴⁸ The IP Guidelines are available at www.jftc.go.jp/en/legislation_guidelines/ama/pdf/070928_IP_Guideline.pdf.

⁴⁹ Part 3, section 2 (i)(a) of the IP Guidelines.

⁵⁰ Part 3, section 2 (i)(b) of the IP Guidelines.

⁵¹ *Id.*

⁵² Part 3, section 2 (i)(c) of the IP Guidelines.

⁵³ Part 3, section 2 (i)(d) of the IP Guidelines.

⁵⁴ Available at www.jftc.go.jp/en/legislation_guidelines/ama/pdf/Patent_Pool.pdf/ (last visited on November 1, 2012).

⁵⁵ *Monica Armillotta*, Japanese Guidelines on Standardization and Patent Pool Arrangements: Practical and Legal Considerations under the Current Antimonopoly Act – A Global Perspective in International Collaboration in FY 2008, IIP Bulletin 2009, 58, www.iip.or.jp/e/e_summary/pdf/detail2008/e20_08.pdf (last visited on February 19th, 2013).

- (v) Excluding competitors from the activities.⁵⁶

51. The Guidelines differentiate between essential and non-essential patents. Essential patents are defined as those required to realize and implement the specific technical application at issue. Pools that only consist of essential patents generally do not cause competitive concerns, provided that the assessment whether patents are essential is not arbitrary and should therefore be made by a third party with technical expertise.⁵⁷ In case of non-essential patents, it will be analyzed whether the pooling of non-essential patents is necessary or has pro-competitive effects. In addition, if patents can be licensed outside of the pool, it is more likely that the patent pool does not violate the Antimonopoly Act.⁵⁸ Limiting participation in a pool only to those who meet certain conditions generally does not pose legal problems under the Antimonopoly Act as long as the conditions are reasonable necessary for the management of the activity and do not restrict competition. The Guidelines suggest outsourcing the management of the pool to restrict access to 'confidential information', such as production volume and sales prices, to prevent anti-competitive cooperation.

III.d European Union

52. Patent pools are not explicitly covered by the Technology Transfer Regulation⁵⁹. The Technology Transfer Regulation provides for a block exemption mechanism according to which certain agreements are exempted from the application of Article 101(1)⁶⁰ of the Treaty on the functioning of the European Union (TFEU) provided that the market shares of the involved parties does not exceed 20% and other relevant criteria are met. Thus, irrespective of the market shares of the involved undertakings, patent pools do not enjoy a safe harbor treatment. Rather, only the Technology Transfer Guidelines⁶¹ address the analysis of patent pools under Article 101(1). However, individual licenses granted under a patent pool arrangement may fall under the Block Exemption (*i.e.*, the Technology Transfer Regulation) and may therefore be exempted from the application of Article 101(1).⁶²

53. The Technology Transfer Guidelines recognize that patent pools may have both pro- and anti-competitive effects:

⁵⁶ Standardization Guidelines, 3.

⁵⁷ Standardization Guidelines, 6.

⁵⁸ *Id.*, 8.

⁵⁹ Commission regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004R0772:EN:HTML> (last visited on July 1st, 2013).

⁶⁰ Article 101

(ex Article 81 TEC)

1. The following shall be prohibited as incompatible with the internal market: all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the internal market, and in particular those which:

(a) directly or indirectly fix purchase or selling prices or any other trading conditions;

(b) limit or control production, markets, technical development, or investment;

(c) share markets or sources of supply;

(d) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(e) make the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.

⁶¹ Commission Notice, Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, (2004/C 101/02).

⁶² See recital 212 of the Technology Transfer Guidelines.

Box 4

Excerpt of the Technology Transfer Guidelines:

“213. Technology pools may be restrictive of competition. The creation of a technology pool necessarily implies joint selling of the pooled technologies, which in the case of pools composed solely or predominantly of substitute technologies amounts to a price fixing cartel. Moreover, in addition to reducing competition between the parties, technology pools may also, in particular when they support an industry standard or establish a de facto industry standard, result in a reduction of innovation by foreclosing alternative technologies. The existence of the standard and the related technology pool may make it more difficult for new and improved technologies to enter the market.

214. Technology pools can also produce pro-competitive effects, in particular by reducing transaction costs and by setting a limit on cumulative royalties to avoid double marginalization. The creation of a pool allows for one-stop licensing of the technologies covered by the pool. This is particularly important in sectors where intellectual property rights are prevalent and where in order to operate on the market licenses need to be obtained from a significant number of licensors. In cases where licensees receive on-going services concerning the application of the licensed technology, joint licensing and servicing can lead to further cost reductions.”

In line with the international trend, the Technology Transfer Guidelines distinguish between (i) complementary⁶³ and (ii) substitute⁶⁴ technologies, as well as between (iii) essential⁶⁵ and (iv) non-essential technologies, while essential technologies are complementary by nature.

54. It is important to note that the determination whether technologies are essential or non-essential is not static. The dynamics of new developments in the market and the invention of new technologies may cause a technology that had originally been identified as essential to become non-essential. Therefore, the competitive analysis of patent pools is not static either. Rather, patent pools require ongoing review in light of competition law.⁶⁶

55. The Technology Transfer Guidelines define a technology as essential if “there are no substitutes for that technology inside or outside the pool and the technology in question constitutes a necessary part of the package of technologies for the purposes of producing the product(s) or carrying out the process(es) to which the pool relates. A technology, for which there are no substitutes, remains essential as long as the technology is covered by at least one valid intellectual property right. Technologies that are essential are by necessity also complements.”⁶⁷ Patent pools that consist of essential technologies only, generally,⁶⁸ do not infringe Article 101(1) TFEU.⁶⁹

56. Patent pools that consist of substitutes may lead to higher royalties as licensees do not benefit from competition between the covered technologies. Patent pools that consist of complementary technologies, however, tend to be pro-competitive as the overall transaction costs may be reduced. The Technology Transfer Guidelines note that the distinction between substitute and complementary technologies is not always a clear cut because some technologies may be in part complementary and in part substitutes. In these cases, when licensees are likely to demand both technologies due to improved efficiencies, they are treated as complementary even if they are (in part) substitutable.

⁶³ Under the Technology Transfer Guidelines, two technologies are considered ‘complimentary’ when they are “both required to produce the product or carry out the process to which the technologies relate” (Recital 216).

⁶⁴ Two technologies are considered ‘substitutes’ under the Technology Transfer Guidelines when either technology allows the holder to produce the product or carry out the process to which the technologies relate (Recital 16).

⁶⁵ Essential technologies are necessary for the pool (*i.e.*, necessary to achieve the desired output) and there are no substitutes for that technology inside or outside the pool (see definition in recital 215 of the Technology Transfer Guidelines). Essential technologies are complementary by nature.

⁶⁶ See recital 222 of the Technology Transfer Guidelines.

⁶⁷ Recital 216 of the Technology Transfer Guidelines.

⁶⁸ However, the conditions of the license may still infringe Article 101(1) TFEU.

⁶⁹ Recital 220 of the Technology Transfer Guidelines.

57. The Technology Transfer Guidelines are strict when it comes to patent pools that cover substitute technologies. Such patent pools are deemed a violation of Article 101(1)⁷⁰ and the conditions of Article 101(3)⁷¹ will generally not be fulfilled, even if the parties are free to license the covered technology independently. In fact, under the guidelines, a pool that is substantially composed of substitute patents amounts to price fixing.⁷²

58. Patent pools comprised of non-essential patents are regarded as having anti-competitive effects. However, the Guidelines seem to be based on the assumption that technologies in pools are only available as a package which is not necessarily the case. Having non-essential patents comprised in one pool without offering the possibility to license individual technologies separately might be regarded as anti-competitive tying. Thus, patent pools consisting of non-essential technologies should not only offer licensing packages.⁷³ Under the Technology Transfer Guidelines, patent pools covering non-essential patents that have a significant position on the market are likely to fall under the prohibition of Article 101 TFEU.⁷⁴

IV. Conclusions

59. The above discussion has underlined the overall positive assessment of patent pools by competition authorities and courts. Significant economic and technological efficiencies can be achieved through the collaboration among patent holders of complementary technologies. Nonetheless, this report has also highlighted situations where patent pools may raise antitrust concerns and has underlined the precautions that patent pool members should take in order to avoid the scrutiny of competition law enforcement agencies.

60. As discussed above, a typical analysis of patent pools will follow three steps: the first stage is to examine whether technologies are complementary or substitutes, i.e. competing. This is not necessarily a straightforward process and sometimes one cannot reach clear-cut conclusions. Also, the analysis cannot be static. Rather, pooled technologies should be regularly reviewed based on new developments in the relevant field of technology. In the context of standardization, it has been suggested to differentiate between standard essential and non-essential technologies. Given that standard essential technologies are by definition also complementary, pooling arrangements of essential patents generally do not raise competitive concerns, whereas pooling non-essential patents will require a detailed analysis as to its potential pro- or anti-competitive effects.

61. In the second step, the underlying licensing agreement must be analyzed. Generally speaking, the licensing agreement should provide for a worldwide and non-exclusive license and should be non-discriminatory (*i.e.*, under F/RAND terms). In addition, in order to encourage innovation, licensees should be free to develop and use alternative patents.

⁷⁰ Agreements that fall under the prohibition of 101(1) TFEU but which satisfy the conditions of Article 101(3) TFEU are not prohibited and no prior decision to that effect is required. Such agreements are valid and enforceable from the moment that the conditions of Article 101(3) TFEU are satisfied and for as long as that remains the case.

⁷¹ Under Article 101(3) TFEU, agreements or practices that would, in principle, violate Article 101(1) which contribute to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit, and which do not (a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives; and (b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question do not fall under the prohibition of Article 101(1). Article 101(3) can be seen as the European counterpart to the rule of reason as applicable in the U.S.

⁷² Recital 219 of the Technology Transfer Guidelines.

⁷³ Recital 221 of the Technology Transfer Guidelines.

⁷⁴ *Id.*

62. As a final step, an analysis of patent pools will focus on whether the pooling arrangement increases the risk of collusive behavior outside the pool and whether the pooling arrangement provides for safeguards to reduce this risk.

63. Several government agencies have issued guidelines concerning patent pools as described under section III and they provide useful guidance to the business community as to the criteria for assessing potentially anti-competitive patent pool agreements. This instrument has proven its effectiveness in preventing frequent interventions by competition authorities and may be suggested as a useful tool for policy makers in those jurisdictions that have not yet adopted specific guidelines on that matter.