Capacity of EU competition law to promote patent pools: A comparative study

by **Maryam Pourrahim***

Abstract: Patent pools have proved to offer significant efficiency to both licensors and licensees as they provide a one-stop-shop for a patents package, reduce transaction costs, and improve access to Standard Essential Patents (SEPs). The presented study examines whether, how and to what extend the EU competition law can promote patent pooling as a recommended mechanism for licensing SEPs. To reach this purpose, a brief review of pooling history shows how antitrust policy evolved with regard to pool establishment and operation. Patent pools in the modern era are connected to standardised technologies, and display tendency to product-based technologies rather than standard-based pooling. As a research methodology, a comparative analysis between the US and the EU antitrust laws shows that, although the procedural frameworks in the US contain only soft law, pooling there has undergone a more stable and straightforward treatment thanks to the publicly available Business Review Letters (BRLs) than in the EU which lacks a thorough assessment template. The presented substantive analysis illustrates how the two systems assess pooling's potential anti-competitive effects. Despite several similarities in their evaluation, the US generally shows a slightly more lenient approach toward patent pools. Amongst the differences, the strict EU approach regarding inclusion of non-essential/substitute patents into a pool is criticised. Each paper section is concluded by a takeaway that summarises and discusses the outcomes.

Keywords: patent pools; standard essential patents; competition law; antitrust; licensing

Recommended citation: Maryam Pourrahim, Capacity of EU competition law to promote patent pools: A comparative study, 12 (2021) JIPITEC 297 para 1

A. Introduction

1 Patent pools are a recommended tool presented in policy circles to facilitate access to patented technologies in fields ranging from biotechnology, nanotechnology, clean energy technologies to telecommunication and technical standards. They are often regarded as a solution to certain market failures in patent licensing, particularly to the risk of royalty stacking and patent thickets. The economic literature consistently recommends the creation of patent pools to solve these problems.[1]

2 Patent pools are formed when two or more patent holders decide to collectively license their patents to either each other or to third parties. In close connection to standardized technologies, today patent pools are often created when a standardized product requires multiple patented technologies for production[2]. A recent attractive filed of patent pooling is linked to licensing of standard essential

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1 Anatole Krattiger and Stanley P Kowalski, 'Facilitating Assembly of and Access to Intellectual Property : Focus on Patent Pools and a Review of Other Mechanisms', Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practice (2008). p. 138.

2 The US Department of Justice & Federal Trade Commission, Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition (2007). <www.usdoj.gov/atr/public/hearings/ip/222655.pdf>. (Hereinafter: Promoting Innovation and Competition).

patents (SEPs) created in the Internet of Things (IoT) and the Information and Communication Technology (ICT) which are to enable interoperability and communication between multiple devices[3].

3 Patent pools have advantages such as facilitating equal access to licenses for all potential licensees, speeding up access to technology, integrating complementary/essential technologies, reducing transaction costs, and avoiding costly infringement litigations[4]. According to the EU Commission, many challenges in SEP licensing can be treated through patent pools as they can offer better scrutiny on essentiality, more clarity on aggregate licensing fees and one-stop shop solutions. However, pooling may create antitrust issues[5].

4 In this research, patent pools are analysed under EU competition law and US antitrust law to see under which circumstances antitrust concerns may be raised including market foreclosure, price fixing and tying. The principal question that the paper tries to answer is how EU competition law can promote patent pools while avoiding anti-competitive practices. To reach this purpose, a comparative study between the EU and the US systems is carried out.

5 The paper starts with an overview on patent pools features, their pro-competitive effects and historical development that allow reader to review the purposes which led to their establishment and the changes that antitrust policies have undergone since the emergence of pools. Patent pooling will be then analysed under US antitrust law and EU competition law through procedural and substantive analyses, which identify the differences between the two systems and examine regulatory frameworks under which each system treats the antitrust concerns. Based on these analyses, approaches to improve EU competition law capacity to promote patent pools are proposed.

B. Overview of patent pools

6 Patent pools are defined as a licensing arrangement, whereby a group of parties assemble a package of patents to license to the pool contributors and/or to third parties. Patent pools are established in two structures: (a) a group of limited members exclusively cross-license their patents to use mutually, or (b) the group allows a common agent, who can be either one of the patent holders or a third-party administrator who acts as a separate entity to carry out licensing. In the latter structure, assessment is managed by the pool agent that results in a considerable time and expense economy for SEP holders. It should be noted that patent pools managed by one of the patent holders are less favourable because the agent will gain access to the confidential sales data of other licensors which may lead to the exchange of sensitive information and subsequent anti-competitive behaviours (see section C.II.1.d)).

I. Pro-competitive advantages

7 Patent pools can prevent patent disputes between the licensor and licensee while diminishing the possibility of a licensee ending up with costly litigation over unlicensed patents.

8 In addition, if standard setting activities of industries with patents of interoperable products are owned by multiple holders, pooling can be an effective solution to the tragedy of anticommons[6] and patent thickets. In the former case, a standard with many essential patents suffers from underuse or absence of diffusion because an implementer willing to incorporate the standard into a product needs to access to all essential patents and therefore obtain licenses from all patent holders[7]. In this context, patent pooling lets a standard implementer obtain a single license at a single royalty rate for all patents in the pool, that consequently reduces the transaction costs, controls the total cumulative license fee, and improves access to patents[8].

3 European Parliament, Standard Essential Patents and the Internet of Things, January 2019. <http://www.europarl.europa.eu/RegData/etudes/IDAN/2019/608854/IPOL_IDA(2019)608854_EN.pdf>.

4 R Bekkers, E Iversen and K Blind, 'Patent Pools and Non-Assertion Agreements: Coordination Mechanisms for Multi-Party IPR Holders In' [2006] EASST 2006 Conference <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=12975767088164818072related:mMxECmsvE7QJ>. p. 13.

5 European Commission, Communication, Setting out the EU approach to Standard Essential Patents, COM(2017) 712 Final, Brussels, 29.11.2017.<https://ec.europa.eu/docsroom/documents/26583>.

6 The tragedy of the anticommons happens where "multiple owners are each endowed with the right to exclude others from a scarce resource, and no one has an effective privilege of use." Michael A Heller, 'The Tragedy of the Anticommons: Property in the Transition from Marx to Markets' (1998) 112 Harvard Law Review 622. p. 624.

7 Michael Mattioli, 'Power and Governance in Patent Pools' (2014) 27 Harvard Journal of Law & Technology 421. p. 439.

8 Bekkers, Iversen and Blind (n 4). p. 6.

9 Pooling can also be helpful in dealing with patent thickets which happens where multiple independent patent holders share a technology. This situation which is common in industries like telecommunication and IT with many overlapping rights, makes implementors go through time and effort consuming negotiations of licensing agreements before manufacturing a product[9]. In this context, pooling has similar positive effects as in the anticommons situation.

10 Lastly, pooling together complementary patents facilitates technology dissemination and enables widespread use of new technologies[10]. Without pooling, a patent owner could be able to block implementers in manufacturing a new product associated with the patented technology. In contrast, by licensing their pooled patents on a group basis, the owners can offer one-stop shopping to implementers that allows more rapid development of new technologies.

II. Patent pools development over time

11 In this section, the early patent pools created in the US by the sewing machine industry and the aircraft manufactures are studied to review various policies that the US adopted in facing patent pools. Since the 1990s, the modern pools have emerged to comply with new standards such as MPEG-2 and DVD, and this is when the EU began to publicly present its assessment on patent pools.

1. Early patent pools

12 In the complete absence of regulations in 1856, one of the first patent pools was established in the US by the sewing machine industry, where the firms chose to pool patents with their competitors based on mutual agreement to mitigate the risk of litigation[11]. In 1890, the Sherman Act sought to prevent monopolies but excluded pooling and licensing due to freedom of contract and the dominancy of patent law over antitrust law in 1900s[12]. Based on a Supreme Court ruling, a patent owner enjoyed absolute freedom to license patents under any conditions decided by a contract between the patentee and the licensee[13]. The court refused to consider the creation of monopolies and fixed prices which granted the patentees an unrestricted right to practice collusive dealings under the protection of patent law[14].

13 In 1912, the absolute freedom was ended by a Supreme Court ruling, when it stated that the rights of the patentees had been pushed "to evil consequences" and that the Sherman Act imposed appropriate limits on such abuses[15]. Over the following fifty years, the Supreme Court addressed several pools, having approved some while dissolving others based on the competitive effects of each pool[16].

14 Due to the increasing demand for airplanes in WWI, the National Advisory Committee for Aeronautics proposed to form a patent pool in 1917 encompassing almost all aircraft manufacturers in the US. To access all the patents, they each had to pay a royalty. The Attorney General concluded that the pro-competitive effects of these arrangements outweighed anti-competitive effects[17].

15 Collective patent licensing reached its peak in the 1930s (with 14 pools in the US) but then curved down until 1990. The relaxing of antitrust scrutiny before WWII and the subsequent tightening after the War are often presented as an explanation for this change[18]. In addition, the Department Of Justice's (DOJs) list of patent licensing practices for *per se* antitrust violations (referred to as the "Nine No-No's") was another issue that made companies

9 Carl Shapiro, 'Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting' (2001) 1 Innovation Policy and the Economy 119. pp.122-123.

10 Promoting Innovation and Competition. pp. 65-66.

11 Robert P Merges, 'Institutions for Intellectual Property Transactions: The Case of Patent Pools' [1999] https://www.law.berkeley.edu/files/pools.pdf, p.18.

12 ED LEVY and others, 'Patent Pools and Genomic: Navigating a Course to Open Science?' (2010) 16 Boston University Journal of Science and Technology Law 76.

13 Case, 186 U.S. 70 (1902). p.70.

14 Steven C Carlson, 'Patent Pools and the Antitrust Dilemma' (1999) 1 16 Yale J. on Reg. 359 1. p. 373.

15 Case, 226 U.S. 20 (1912).

16 Carlson (n 15). p. 374.

17 Monica Armillotta, 'Comparative Analysis: US Legal Treatment of Patent Pools – Delineating the Modern Archetype', *Technology Pooling Licensing Agreements: Promoting Patent Access Through Collaborative IP Mechanisms* (Nomos Verlagsgesellschaft mbH 2010). pp. 74.-75.

18 Justus Baron and Tim Pohlmann, 'The Effect of Patent Pools on Patenting and Innovation - Evidence from Contemporary Technology Standards' [2015] Cerna - Center for Industrial Economics. p.8.

overcautious about concluding patent pooling agreements. However, the DOJ acknowledged in 1979 that many of those nine condemned practices had significant efficiency and pro-competitive virtues and thus it rescinded the list.[19]

2. Modern patent pools

16 Pool licensing practice started rising again in the 1990s when the DOJ and the Federal Trade Commission (FTC) jointly issued new guidelines[20] for a more "benevolent scrutiny of patent licensing and placed the analysis of patent pools under the rule-of-reason" (Baron & Pohlmann, 2015: 8-9). In 1997 and 1999, the DOJ cleared the MPEG2 and two DVD pools as the first modern patent pools in the ICT standards. In fact, this period is when the EU Commission also started to issue comfort letters for those pools and as a result, a new wave of pooling was triggered.

a) Standard-based pools

17 By tradition, a pool offers a licence to a standard or a family of standards in one technological field where implementers have to deal with various pools, since different generations of standards stay relevant to a specific application even after a new, more advanced standard is introduced. Each of these standards has its own SEPs and patent pools. For example, most programmes in the fields of video coding, audio coding, and audio compression are standard-based pools.

18 In 1998, MPEG LA was established to act as an independent technical expert to determine the essentiality of patents to the MPEG-2 standard, to assemble and offer a package of hardware and software licenses to the pool members, and to distribute royalty income among the contributing patent holders on a per patent basis. Both the DOJ[21] and the Commission[22] approved the MPEG pool. In 1999, 3C and 6C DVD pools were formed to provide essential patents for DVD standards where instead of an independent administrator, one of the licensors acted as the common agent on behalf of the other pool members.

19 In the 2000s, a few licensing firms including Avanci, Sisvel, and Via Licensing started specialising on the administration of patent pools. In parallel, the Standard Setting Organisations (SSOs) have gradually initiated to collaborate with the licensing administrators. In this context, an agreement concluded between Institute of Electrical and Electronics Engineer (IEEE) and Via Licensing in 2008 with the goal of fostering patent pools for IEEE standards and reducing barriers which prevented the rapid adoption of technology standards[23]. Other SSOs established explicit policies to boost the formation of patent pools for their standards[24].

b) Product-based pools

20 With the emergence of the IoT, interconnectivity and interoperability have become essential in numerous sectors. Wireless, WI-FI, Bluetooth and 4G are already implemented in billions of products ranging from remote surgery equipment to connected cars and therefore, a wide range of firms need to get licences from the providers of these technologies. To provide access to them, some SEP holders have incorporated their SEPs into licensing platforms and pools[25]. This evolution led to a new pooling form where pools (e.g. One-Blue) started to offer all the relevant standards related to a very product.

21 Product-based pools are ideal for implementers wanting to license many patents for a specific application or product in one go. Such pools offer a licence not just for the one technological filed, but for all relevant fields. For example, if a firm wants to produce a Blu-ray recorder, One-Blue pool solves most of a licensee's needs in the field of optical discs.

19 Ky P. Ewing, Jr., Deputy Assistant Attorney General, Antitrust Div., Dep't of Justice, Remarks to the San Francisco Patent Law Association (May 5, 1979), reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,128.

20 "Federal Antitrust Guidelines for the Licensing of Intellectual Property", <https://www.justice.gov/sites/default/files/atr/legacy/2006/04/27/0558.pdf>.

21 MPEG-2 Business Review Letter. <https://www.justice.gov/atr/response-trustees-columbia-university-fujitsu-limited-general-instrument-corp-lucent>.

22 European Commission, Press release, IP/98/1155, Brussels, 18th December 1998. <https://ec.europa.eu/commission/presscorner/detail/en/IP_98_1155>.

23 IEEE-SA and Via Licensing collaboration. <https://www.ieee.org/>.

24 For e.g., see DVB's IPR Policy. <http://dvb.org/wp-content/uploads/2020/02/dvb_ipr_policy_summary.pdf>.

25 Marco Lo Bue, 'Patent Pools in the ERA of the "Internet of Things": A Fine Line Between Collusion, Market Power and Efficiencies', *The Interplay Between Competition Law and Intellectual Property: An International Perspective* (2019). p. 300.

22 In this context, Avanci, the first platform for IoT manufacturers[26], has a product-based pooling approach with the aim of licensing out relevant generations of the cellular SEPs of its licensors in each product-related programme. Thus far, it appears attractive to the major SEP holders and to IoT newcomers like BMW[27]. It offers licences to different IoT products for fixed-per-unit royalties to facilitate adoption of the related technology. Users' applications of the standardised technologies vary due to the omnipresence of technologies defined by 2G, 3G and 4G standards. Avanci claims that the best solution is product-based licensing, while adapting the royalty rate in each case to the specific use made of the technologies covered by the SEPs.[28]

3. Takeaway

23 Patent pools have a long but uneven history. Some scholars divide their history into three periods: "beginning with deference, shifting to suspicion and *per se* prohibitions, and reaching a cautious endorsement"[29]. The ups and downs in their creation and operation as well as their growth and failure were significantly influenced by changes in antitrust enforcement practice and authority evaluations. The more lenient the antitrust policy is, the more patent pools emerge and develop.

24 As shown, there is no single purpose for creating a patent pool and no single way to manage it. Early pools were associated with monopolies and cartels, then later ones were created in response to US government policy objectives addressing standardization, biomedical, and agricultural technologies since the 1990s[30]. They were established for a number of reasons ranging from clearing blocking patent positions and avoiding potential litigation, to practicing anti-competitive behaviours such as market division among horizontal competitors or naked price fixing[31].

25 The modern patent pools were created mostly in connection to standardised technologies and under a more stable institutional environment which is a response to technological and commercial considerations. This evolution continues and today, product-based pools are particularly attracting players in the IoT era as they provide a package from all relevant patents for a product at once. The potential negative impact of the EU competition policy on this type of pools is discussed in D.II.3.

C. Comparative analysis of the EU and the US antitrust laws

26 This section is dedicated to a comparative analysis between the EU and the US systems that examines their competition policies in assessing patent pools to explore the similarities and differences between the two systems.

27 It should be noted that although the EU has a poor history in patent pools compared to the and despite the fact that before 2004 the EU Commission was not demonstrating its standpoint as publicly as the US antitrust agencies were, the rapid growth in standardisation and IPR arrangements motivated the Commission to take an in-depth look at the patent pools and their interaction with the standardisation agreements.

28 The methodology adopted here is a comparative analysis between the two, focusing on procedural and substantive issues.

I. Procedural analysis

29 As agreements between undertakings, patent pools may restrict competition and potentially fall in the scope of the general competition law prohibition of Article 101 (1) Treaty on the Functioning of the European Union (TFEU). In the US, the antitrust law intervenes if a pool with monopoly power in market causes anticompetitive effects violating Section 1 or Section 2 of the Sherman Act.

26 Avanci licenses most 2G, 3G and 4G patents in a single agreement. These patents cover wireless technology. <https://www.avanci.com/>.

27 R. Lloyd, Deal with BMW is the first of many with auto-makers, says Avanci boss. <https://www.iam-media.com/litigation/deal-bmw-first-many-auto-makers-says-avanci-boss>.

28 H. Rijnen, An insider's guide to patent pools. <https://www.iam-media.com/frandseps/insiders-guide-patent-pools>. pp. 7-8.

29 Mark Miller and David Almeling, 'DoJ, FTC Redefine Antitrust Rules on Patent Pools' [2009] National Law Journal.

30 David Serafino, 'Survey of Patent Pools Demonstrates Variety of Purposes and Management Structures' [2007] Knowledge Ecology International. p. 2.

31 Bekkers, Iversen and Blind (n 4). p. 10.

1. US antitrust law framework

30 Since 1968, the Antitrust Division of the DOJ has the regulatory task of reviewing different types of business practises proposed by private parties to determine how the Division may respond to proposed business conduct. The issuance of multiple patent pools-related BRLs[32] in the late 1990s shows their effectiveness[33]. Firms planning to establish a patent pool inform the DOJ who accordingly comments on the pool's potential effects and announces whether the proposed plan is safe from an antitrust law perspective.

31 A firm requesting a business review may receive one of the following responses: (a) the DOJ does not presently intend to bring an enforcement action against the proposed conduct; (b) the DOJ declines to state its enforcement intentions and it may or may not file suit if the proposed conduct happens; and (c) the DOJ will sue if the proposed conduct happens. The first response i.e., the "safe" pooling proposal, emphasises that its enforcement intention is changeable, and the Department reserves the right to bring an enforcement action in the future if the actual operation of the proposed conduct proves to be anticompetitive in purpose or effect[34].

32 The BRLs have long provided a guidepost for private conduct offering safe harbours for business activity which the DOJ, as announced, would not condemn. Over time, they served as a "template for patent pooling arrangements that should not run afoul of the antitrust laws."[35]. Firms desiring a favourable business review can attempt to eliminate or reduce the risk of anti-competitive effects through the application of certain safeguards or mechanisms incorporated in the BRLs.

33 However, some criticise the BRLs arguing that: (a) the validity of enforcement intention is limited to the date of the letter because the DOJ reserves right for future assessment, and (b) publishing all the information submitted by party may endanger its business[36]. Regarding the first criticism, one may counterargue that judiciary systems including courts and competition/antitrust authorities cannot and should not guarantee a future act as they do not make general rules like legislatures. In a limited and narrow manner, they evaluate what one has done or on occasions like business review/comfort letters, they evaluate the firms' declared plans. They do not provide absolute legal certainty; however, they make a beneficial assessment template for the involved firms and public.

34 Publishing business information is debatable. What is mostly agreed upon between agencies and the parties when publishing a BRL is striking a balance between business secrets (private interest) and the right to information (public interests). One may advocate for the latter in the digital era because information availability (in the context of the antitrust authorities' assessment) provides more certainty and a better self-assessment possibility for new players, particularly small firms who learn through other firms' BRLs. However, the aim of these non-binding documents issued by the competition/antitrust assessment bodies is mainly to identify the key factors over which they are likely to ground their judgments of pro- vs. anti-competitiveness, and then to analyse the substance and boundaries of these components[37]. For these reasons, a letter serves its purpose by disclosing the method of analysis without needing to include confidential information.

35 Apart from the BRLs, the DOJ and FTC (the Agencies) issued IP Guidelines in 1995[38] (updated in 2017[39]) through which they clarified their antitrust enforcement position. The Guidelines deal with patent pools and emphasise that every case is evaluated in the light of its own facts to assist firms in assessing the antitrust risk related to their practice. It aims to inquire whether the restraint is likely to have anticompetitive effects and if so, whether the restraint is necessary to achieve pro-competitive

32 See Business Review Letters of 1997, 1998 and 1999 for the MPEG-2 pool, the 3DVD pool and 6DVD pool respectively and more recently IEEE in 2007, RFID in 2008, IPXI in 2013 and FVLI in 2014. < https://www.justice.gov/atr/business-review-letters-and-request-letters#page-17>.

33 Jorge L Contreras, 'Taking It to the Limit: Shifting U.S. Antitrust Policy Toward Standards Development' [2018] <https://dc.law.utah.edu/scholarship/116/>.

34 Introduction to Antitrust Division Business Reviews. <https://www.justice.gov/sites/default/files/atr/legacy/2011/11/03/276833.pdf>.

35 Robert J Gilbert, 'Antitrust for Patent Pools: A Century of Policy Evolution' (2004) 3 Stanford Technology Law Review 1. p.3.

36 C. Ehlermann, I. Atanasiu (ed.), European Competition Law Annual 2000: The Modernisation of EC Antitrust Policy, pp. 138-139.

37 LEVY and others (n 13).

38 Antitrust Guidelines for the Licensing of Intellectual Property, 1995. <https://www.justice.gov/atr/archived-1995-antitrust-guidelines-licensing-intellectual-property>.

39 Antitrust Guidelines for the Licensing of Intellectual Property, 2017. <https://www.justice.gov/atr/IPguidelines/download>. (Hereinafter: IP Guidelines)

benefits that outweigh anticompetitive effects[40]. The firms should, however, seek a BRL if they wish to know about the specific enforcement intentions regarding their particular business practice.

36 As non-binding law, the guidelines reflect the Agencies' enforcement approach. That is why the IP Guidelines do not propose rigid rules and prohibitions, but instead they apply an effect-based analysis to the licensing mechanisms. They set out three core principles[41]:

1. The Agencies regard IP as any other form of property in applying the general antitrust analysis. Activities involving IP rights and their exercise are neither free from scrutiny nor suspected of antitrust.

2. There is no presumption that an IP right confers market power. Even if a fact-based analysis proves otherwise, that power is not *per se* illegal[42].

3. The Agencies acknowledge that IP licensing permits firms to combine pro-competitive complementary factors of production.

37 In addition, the Agencies guidance published in 2007 deals *inter aila* with patent pools and presents further details regarding their efficiency and competitive concerns[43]. Nevertheless, none of these documents create laws or binding regulations. However, they can be regarded as definitive as they actually express the views of the administrative bodies responsible for assessing antitrust issues[44].

2. EU competition law framework

38 Until 2004, the EU Commission procedurally allowed parties to notify agreements to secure a decision on their legality. However, this system proved burdensome and the Commission frequently issued comfort letters, which were non-binding statements indicating that the Commission found no reason to interfere while providing some legal certainty. Since 2004, the system of notification has been removed and parties are expected to self-assess[45]. To facilitate transactions and, given the uncertainty in the application of Article 101(3), the Commission established Block Exemption Regulations (BER). These provide legal certainty for undertakings entering into certain types of agreements because they render Article 101(1) TFEU automatically inapplicable as BER presume those agreements satisfy all the conditions laid down in Article 101(3) TFEU. All other agreements require an individual assessment under Article 101 TFEU. Each BER is accompanied by some guidelines that summarise and interpret the related case law to provide practical examples of how to assess the compatibility of certain conduct with competition law rules.

39 The Technology Transfer Block Exemption Regulation (TTBER) was adopted in 2004 (updated in 2014[46]) as a regulation on technology transfer agreements[47]. The TTBER applies only to bilateral contracts between a licensor and a licensee where the latter manufactures licensed goods, provides licensed services, or has them manufactured or provided for his account.

40 There are two main agreements in the context of pools. First, are the agreements for establishing patent pools which have been always excluded from the scope of the TTBER[48] for two reasons: (a) according to the council regulation, the commission is not empowered to block exempt technology transfer agreements concluded between more than two parties[49], and(b) licensing programmes involving multiple parties do not permit the production of contract products, a necessary condition for the application of the TTBER. The second agreement is licensing out which is concluded between a pool and a third party. In 2004, the only agreements excluded in the TTBER were those to establish a pool, but the

40 IP Guidelines. pp. 16-17.

41 IP Guidelines. p. 2.

42 OECD, Licensing of IP rights and competition law – Note by the United States, DAF/COMP/WD(2019)58, 6 June 2019.<https://one.oecd.org/document/DAF/COMP/WD(2019)58/en/pdf>.

43 Promoting Innovation and Competition.

44 LEVY and others (n 13).

45 Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty, OJ L 1, 4.1.2003, p. 1-25.

46 Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements, OJ L 93, 28.3.2014, p. 17–23.

47 Commission Regulation No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements, OJ L 123, 27.04.2004. This Regulation was regarded as simpler and more flexible than Regulation No 240/96; it broadly adopted the same approach than the Vertical Block Exemption Regulation

48 *Ibid.* recital 7.

49 Council Regulation 19/65, OJ Special Edition Series I 1965-1966. p. 35.

licensing out agreements were covered and benefit from the exemption. In 2014, the Commission narrowed the scope of TTBER (the licensing out agreements were also excluded) and now neither agreements for setting up pools nor licensing out agreements are covered.

41 The Commission's reasoning was that licensing out from a pool is a multiparty agreement (since contributors of a pool determine the licensing terms and conditions together) which is in contrast with the TTBER as it should principally cover only bilateral agreements[50]. This reasoning seems unconvincing because the TTBER was supposed to cover bilateral agreements even in 2004[51]. One may question why those agreements, which were considered bilateral based on the TTBER 2004, are considered multilateral after the regulatory change in 2014. It is not clear whether in 2014 the Commission saw the TTBER 2004 as a mistake so the 2014 policy change was actually a correction, or it just decided to change the definition for licensing out agreements. Lundqvist found this policy change correct, suggesting that the 2004 TTBER scope was odd and the 2014 change is a return to the right direction for the Commission[52].

42 In any case, the 2014 policy change seems anti-pooling because licensing out agreements could benefit from the exemption as they were under the scope of the TTBER. This issue makes us believe that the inclusion of licensing out agreements in the TTBER and the consequent high legal certainty could have effectively attracted firms to the pools, as the agreements' parties were sure that their agreements could benefit from the exemption (subject to the TTBER conditions[53]). In this line, the issuance of many comfort letters in the 2000s clearing patent pools can be regarded as an outcome of the legal certainty created by that policy. Alas, as the comfort letters are not in access, the extent of this effect cannot be examined.

43 The Technology Transfer Guidelines (TT Guidelines)[54], however, deal with patent pools and provide a comprehensive safe harbour for both the pools' creation and the licensing out agreements. The TT Guidelines safe harbour is a promising progress in the EU, although the Commission guidelines are soft law as they are not rule of law but rule of practice[5556]. Through guidelines, the Commission limits its power and is to follow the rules laid down therein because of the creation of legitimate expectation amongst the firms[57]. In fact, the guidelines bind the Commission in its decision but not the pooling parties, and therefore if the parties disagree, the Guidelines act no more than a good practice guidance.

3. Takeaway

44 The comparison of the two systems' procedural frameworks shows that the antitrust authorities assess patent pools through some guidelines which although soft law are helpful since their providers are the assessors of patent pools.

45 The US has a higher number of guidelines and guidances with very elaborated analyses referring to the US case law. The EU has only the TT Guidelines and since there has been limited case-law they offer less certainty than their US counterparts. However, the US regulatory framework on patent pools is

50 European Commission, Memo, Brussels, 21 March 2014, Antitrust: Commission adopts revised competition regime for technology transfer agreements – frequently asked questions. <https://ec.europa.eu/commission/presscorner/detail/en/MEMO_14_208>.

51 TT Guidelines, 2004, para. 38: "According to Article 2(1) of the TTBER, the Regulation covers technology transfer agreements between two undertakings. Technology transfer agreements between more than two undertakings are not covered by the TTBER. The decisive factor in terms of distinguishing between agreements between two undertakings and multiparty agreements is whether the agreement in question is concluded between more than two undertakings."

52 Björn Lundqvist, *Standardization under EU Competition Rules and US Antitrust Laws: The Rise and Limits of Self-Regulation* (Edward Elgar Publishing Limited 2014).

53 According to the TTBER, to benefit from the exemption, the combined market share of competing firms must not exceed 20% and each market share for not competing firms must not exceed 30% on the affected relevant technology and product market. In case of competing firms. Additionally, their agreements must not contain any hardcore restrictions stated at Art. 4.

54 EU Commission, Communication, Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements, OJ C 89, 28.3.2014, p. 3–50. At: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0328%2801%29 (hereinafter: TT Guidelines).

55 Jonas Tallberg, 'Paths to Compliance: Enforcement, Management, and the European Union' (2002) 56 International Organization 609. p. 615.

56 Oana Andreea Ştefan, 'European Competition Soft Law in European Courts: A Matter of Hard Principles?' (2008) 14 European Law Journal 753. p. 12.

57 Regarding the Commission Notice: Case T-31/99, para. 257-258 and regarding the Commission Guidelines: Case T-23/99 para. 245.

soft law. The EU once provided pools with legal certainty for a decade (2004 - 2014) where licensing out agreements benefit from the binding rules of the TTBER. Although this legal certainty did not last after 2014, it may have significantly impacted the Commission assessments and the issuance of comfort letters for the patent pools at the time.

46 In the US, patent pools have been treated more stably thanks to the BRLs, while the EU due to its procedural modifications (from individual exemption to self-assessment) could not provide equal stability. The public availability of the US BRLs compared to the inaccessibility of the EU comfort letter is another advantage of the US procedural framework. This issue is further discussed in section D.I.

II. Substantive analysis

47 The main potential anti-competitive risks of pooling include price fixing, market foreclosure, collusion through pooling mechanism to exchange competitively sensitive information, reduction of innovation in the form of standard setting, and foreclosure of alternative technologies and barriers to the entry of new and improved technologies. The presented analysis aims at exploring to what extent the US and the EU share mutual approaches with each subject.

1. Antitrust concerns

a) Pooled patents

48 Antitrust risks depend largely on the relationship between the pooled patents and those outside the pool. The pooled patents can be classified as follows:

1. *Complementary* patents which are patents related to the same technology that must be used together to produce a specific output. Bundling these patents in a pool makes them more valuable than being on their own.

2. *Substitute* patents which cover alternative technologies and therefore may potentially compete with each other as they can be used in parallel without infringing each other.

49 In the context of standardization, the pooled patents are divided into *essential* and *non-essential.* Patents with substitutes to the covered technology are non-essential while those required to comply with a technical standard are essential. Essential patents are by nature complementary. However, what is essential may vary and each patent pool may define essential patents differently[58].

50 Both the systems agree that pools consisting of complementary or essential patents can lower prices to consumers as they: do not eliminate competitors, can increase efficiency, and are a pro-competitive method for disseminating technology[59]. In addition, they follow similar approaches toward the inclusion of non-essential patents into the pools as they assess the potential antitrust risks of inclusion under the rule-of-reason in the US and under Article 101(3) TFEU in the EU. Nevertheless, the systems diverge in assessing the inclusion of substitute patents, where the EU treats it more strictly than the US. As this difference can have great impacts on pooling antitrust assessment and tying concern, it is studied in detail in section D.II.

b) Validity of patents

51 Firms who fear that their patents can get invalidated by litigation may establish a pool to shield the invalid patents. This may be carried out through non-challenge provisions indicated explicitly or implicitly in the pool agreement. In the sewing machine case, the patentees agreed not to bring any infringement action, opposition, nullity or invalidation proceeding[60] against each other.

52 An invalid patent is considered not to be in a complementary relationship with other patents in the pool. Therefore, pooling such patents serves as a price-fixing mechanism. In addition, it will eliminate competition between substitute technologies outside the pool if it makes licensees accept the invalid patents and pay higher royalties[61].

53 In the pooling context, both systems consider patent validity critical due to its importance for the public[62], and a licensing scheme premised on invalid patents will not withstand antitrust scrutiny.

54 In the EU, freedom of parties to challenge the

58 MPEG-2 Business Review Letter at 5 and DVD6CBusiness Review Letter at 3 - 5.

59 Promoting Innovation and Competition. p. 76 and TT Guidelines. para. 253.

60 United States v. Singer Mfg. Co., 374 U.S. 174 (1963), p. 374.

61 Richard J Gilbert, 'Ties That Bind: Policies to Promote (Good) Patent Pools' (2010) 77 Antitrust Law Journal 1. pp.14-15.

62 Pope Mfg. Co. v. Gormully, 144 U.S. 224 (1892), p. 144 U. S. 234.

validity is one of the conditions to benefit from the safe harbour provided under the TT Guidelines[63]. In addition, a non-challenge clause in technology transfer agreement between the pool and third parties is likely to fall within Article 101(1) TFEU[64]. While the Commission once ruled that the non-challenge clause is legal (as it is merely ancillary to the technology agreement which included no other clause restricting competition), the ECJ rejected this view stating that such a clause could restrict competition within the meaning of Article 101 (1) TFEU [65].

55 In the US, the FTC dissolved the Summit/VISX pool on the ground of sheltering invalid patents and ordered the firms to cross-license their patents[66]. In RFID BRL, the DOJ stipulates that patents adjudicated as invalid or unenforceable must be removed from the pool and the licensors must promptly report any such finding. In practice, licensors have an incentive to do so when the royalties are allocated based on the number of patents in the pool[67].

56 One should note that the validity assessment is only carried out by courts if there is a challenge and given that a court ruling can be appealed, it can take years to reach the final decision on a patent validity. Furthermore, although uncertainty about patent validity is a major issue which can create distortion between large portfolio owners and smaller players, reaching certainty that a pool is only constituted by valid patents is rare. As a matter of fact, Giuri showed that only about 5% of a patent portfolio reach the stage of being reviewed by experts with technical, legal, and commercial insights[68].

63 TT Guidelines. para. 261.

64 TT Guidelines. para. 272.

65 C-65/86 - Bayer v Süllhöfer, 1988.

66 In re Summit Tech., Inc. and VISX, Inc., No. 9286 (FTC filed Mar. 24, 1998). < https://www.ftc.gov/enforcement/cases-proceedings/summit-technology-inc-visx-inc-matter>.

67 RFID Business Review Letter, p. 8. <https://www.justice.gov/sites/default/files/atr/legacy/2008/10/21/238429.pdf>.

68 Paola Giuri and others, 'Report of the Expert Group on Patent Aggregation' (2015), p. 24.

c) Individual restraints in licensing agreements

57 Licensing agreements raise the following four competition issues.

(aa) Exclusivity and non-exclusivity

58 Both the systems agree that if licensors and licensees are free to grant and obtain a licence outside the pool, this will limit the risk of foreclosure of third-party technologies and ensure that the pool does not limit innovation nor precludes the creation of competing technological solutions[69]. This can also mitigate the effects of potential market power and allows outsiders to invent around the pooled patents to compete with them. By contrast, exclusive licensing can damage innovation as licensors and licensees lack freedom to combine technologies in order to improve and compete with the pooled technologies, and they will not be able to provide products at a lower price.

59 Under the EU TT Guidelines, a non-exclusive license is one of the conditions of the safe harbour[70] and if a pool has a dominant position in the market, licences should be non-exclusive, royalties non-excessive and other licensing terms non-discriminatory[71].

60 In the US, although pool licensors are free to choose between excusive and non-exclusive licensing, BRLs suggest that they often propose granting a non-exclusive license while reserving the right to license their patents outside the pool[72]. However, the Agencies assess under the rule-of-reason whether such a non-exclusive license is a concerted conduct to prevent the outsiders from offering a competitive product, particularly in a case where the pool members collectively possess market power in the relevant market[73].

(bb) Partial pool licensing

61 Partial pool licensing takes place when a pool licenses its patents not only in one package, but also partially.

69 TT Guidelines. para. 270.

70 TT Guidelines. para. 261.

71 TT Guidelines. para. 269.

72 MPEG-2 Business Review Letter at 4; DVD3CBusiness Review Letter at 5-6; DVD6CBusiness Review Letter at 3, 6.

73 Promoting Innovation and Competition. pp. 79-80.

Proponents of partial licensing argue that this option is needed because, even if a pool were originally planned to include only essential patents, over time some of patents would no longer be essential to all the pool's licensees. In addition, licensees may legitimately desire partial licenses if they already have access to some of the pooled patents[74]. Pools offering partial licensing with a proportionate royalty would provide a party with needed patents instead of the whole package including unneeded patents[75].

62 Opponents argue that partial license turns the pool into bilateral agreements, puts a burdensome task on the pool, and engages with inconveniences such as high transaction costs and time for multiple negotiations, holders' unwillingness for negotiations, and the probability that the individually negotiated royalties collectively increase above the set package license royalty. One may wonder what happens to the one-stop-shop mechanism as the chief efficiency of pooling, if pools offer a pick-and-choose mechanism requiring multiple transactions and different royalties.

63 The two systems have adopted different approaches toward partial pool licensing. The Agencies principally show reluctance toward it and do not consider its refusal problematic. Mentioning the drawbacks of this option, the Agencies state that although partial licensing can "cull non-essential patents" from the pool, a more efficient way would be to continuously review the pool to ensure all included patents are essential[76].

64 The Commission does not explicitly mention partial-pool licensing in the TT Guidelines; however, in the assessment of the pools of non-essential but complementary technologies, it examines whether the pooled technologies are available only as a single package or the licensees have the possibility to partially obtain a licence for a proportional reduction of royalties[77]. It highlights that the latter option may reduce the risk of foreclosure of third-party technologies outside the pool.

65 Lugard & Hancher advocated this encouraging approach of the EU arguing that some pooled patents may be necessary for marketing compliant products within certain Member States while not necessary for licenses which plan to market those products in Member States where the patents in question are not registered[78].

66 One should note that partial pool licensing weakens the efficiency of pooling mechanism, and it is better not to be encouraged irrespective of circumstances. Anyhow, the following issues should be taken into account:

- Exchange of sensitive information: for example, information on royalty payments can reveal the licensee's unit volumes, revenue, and pricing when licensee and licensor are rivals in a downstream market.
- Partial pooling unreasonably presumes that the licensees are fully aware of the essentiality or non-essentiality each patent. This presumption may not be always the case particularly in the IoT space which involves many unfamiliar licensees.
- Unavailability of partial pool licensing does not necessarily have anticompetitive impacts if the pool lacks market power.
- Partial licensing is a response to the fear of inclusion of substitute patents in pool. The continuous review of patents is an alternative solution as adopted by the US.

(cc) Grantbacks

67 A grantback is an arrangement under which a licensee agrees to extend to the licensor the right to use the licensee's improvements to the licensed technology[79].

68 Broad grantbacks which include inventions related to the subject of the licensed patent or even completely unrelated inventions, particularly those that deny the innovator's right to license others, can deter innovation by reducing the returns available to follow-on innovators. Broad grantbacks may cause anticompetitive effects by limiting competition and disincentivising the licensees to engage in R&D[80].

69 Under a non-exclusive grantback, the licensee should not license back exclusively to the licensor. Both systems acknowledge that a non-exclusive grantback allows the pool to feed on and to profit

74 Promoting Innovation and Competition. pp. 83,84.

75 Paul Lugard and Leigh Hancher, *On the Merits: Current Issues in Competition Law and Policy* (illustrate, Intersentia nv 2005).

76 Promoting Innovation and Competition. p. 84.

77 TT Guidelines, para. 264 (d).

78 Lugard and Hancher (n 78).

79 IP Guidelines. § 5.6.

80 *Ibid*.

from improvements to the pooled technology[81]. It can also promote competition by allowing licensors to use the licensee's improvements to the licensed technology. This limits the ability of licensees to refuse license improvements and thus allows production of patent-conforming products which promote innovation by rewarding first innovators for enabling follow-on innovation by others and encourages subsequent licensing of innovation results[82].

70 They agree that to mitigate the grantback concern: (a) the grantback clause should be limited to improvements on the fundamental/essential patent; (b) a royalty fee formula should be set so that newly developed patents receive higher royalties than older ones that make it beneficial for licensors to introduce new essential patents into the pool; and (c) licensees should have option to choose between licensing their own patents through the pool pursuant to the same royalty-allocation rules or licensing them separately on FRAND terms[83].

(dd) Royalties

71 How to set royalty for a patent pool is another consideration of antitrust authorities. Some commentators believe that all types of government price control which set licensing royalties can erode the benefits of pricing based on market conditions leading to resource misallocation. They even argue that pools would disappear without the freedom to set royalties.[84]. On the other hand, some claim that royalty reasonableness should be checked over time through caps or considering a reasonable percentage of downstream price[85]. By the same token, the two systems have different theories.

72 Although the Agencies generally do not assess pool royalty reasonableness, they consider royalties and their formula as relevant factors when investigating alleged price coordination. If royalties are a small portion of the downstream price, it is unlikely that they are used to coordinate downstream prices[86]. But even royalties that are a great proportion of the downstream price do not necessarily raise competitive concerns[87].

73 In the EU, the firms building a technological pool compatible with Article 101 TFEU are free to negotiate and fix royalties for a pool package, subject to any commitment given to license on FRAND terms. It may be more efficient in certain circumstances if the pool royalties are agreed before choosing the standard to avoid increasing royalty rates by conferring a significant degree of market power on one or more essential technologies. Nonetheless, licensees must remain free to determine the price of products produced under the licence[88].

74 While excessive or monopolistic pricing is not a standalone theory of harm under US antitrust law but considered an indication of the free market rewarding innovations by high prices[89], excessive price is principally considered abusive violating Article 102 TFEU, even in the absence of other anticompetitive practices.

75 This theoretical divergence between the two systems is not influential in pooling practice as both have reached a common approach, that is, licensing on FRAND terms which is one of the safe harbour conditions set by the Commission in TT Guidelines and by the DOJ in the BRLs.

d) Risk of Collusion, exchange of sensitive information

76 Patent pools can harm the market by bringing horizontal competitors together and permitting them to jointly set royalty fees for their own patents. This risk becomes higher when the firms possess competing patents and may lead to monopoly prices on an otherwise competitive market. Pools may facilitate collusion by their mechanism to exchange competitively sensitive information which could facilitate downstream price coordination, discourage competition in technologies and reduce R&D innovation[90]. Notably, once interested

81 TT Guidelines. para. 271.

82 *Ibid.*

83 MPEG-2 Business Review Letter at 12, 13; DVD3CBusiness Review Letter at 8, 14; DVD6CBusiness Review Letter at 8-9, 14-16. Promoting Innovation and Competition, at 81, And European Commission, Press release, IP/03/1152, Brussels, 7th August 2003. <https://ec.europa.eu/commission/press-corner/detail/en/IP_03_1152>.

84 Promoting Innovation and Competition. p. 83.

85 Promoting Innovation and Competition. p. 82.

86 MPEG-2 Business Review Letter at 11; DVD3CBusiness Review Letter at 13 and DVD6CBusiness Review Letter at 14.

87 Promoting Innovation and Competition. p. 83.

88 TT Guidelines. para. 268.

89 US Supreme Court, *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004), 13 01 2004

90 Promoting Innovation and Competition. pp. 81-82

parties participate simultaneously to form pools of competing standards, it may lead to exchange of sensitive information between competing pools[91].

77 Both systems recognise this risk and require certain safeguards to ensure that sensitive information is not exchanged, or the exchange is limited to what is necessary for the establishment and operation of the pool[92]. The concern is mitigated when the information disseminated is historical, aggregated and published in a format that precludes identifying individual entities and is limited to the quantity, type, place of manufacture and sale of products sold before providing it to the pool. As such, the pool's members are prevented from directly accessing individual licensees' sensitive business information[93]. Adding an independent expert or licensing body is proposed to ensure that output and sales data necessary for the purposes of calculating and verifying royalties, is not disclosed to competing undertakings in affected markets[94]. The transparency of the pool creation process and the extent to which independent experts are involved in its creation and operation are also considered[95].

78 It worth mentioning that in the EU, the exchange of information is becoming more relaxed in the digital field. In the last revision of Horizontal Guidelines (HG), the Commission reformed the information exchange in the digital field emphasizing that the HG should provide clear guidance on information exchange within cooperation models. It also highlights that the revised HG should explicitly foresee that the Commission will assess the *actual* effects of the information exchange on competition[96].

91 TT Guidelines. paras. 259-261.

92 TT Guidelines. para. 261.

93 IPXI Business Review Letter.

94 TT Guidelines. para. 260.

95 TT Guidelines. para. 248.

96 Evaluation of Commission Regulation (EU) No 1217/2010 of 14 December 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to certain categories of research and development agreements and of Commission Regulation (EU) No 1218/2010 of 14 December 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to certain categories of specialisation agreements, 07/04/2020. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=PI_COM:Ares(2020)1972062>.

2. Antitrust safe harbour

79 While the EU Commission provides a comprehensive safe harbour for technology pools, the US Agencies provides neither *per se* prohibitions nor safe harbours explicitly, as they do not measure a pool against a checklist of safeguards but evaluate the particular facts and circumstances to determine whether the actual conduct is anticompetitive[97]. However, the Agencies identify the following safeguards that patent pools can apply to reduce the risk of competitive harm[98]:

- The patents in the pool must be valid and not expired.
- No aggregation of competitive technologies and setting a single price for them.
- An independent expert should be used to determine the essentiality of patents in the pool.
- Royalties should be reasonable.
- Non-exclusive licenses should be available.
- Pool agreement must not disadvantage competitors in downstream product markets.
- Pool participants must not collude on prices outside the scope of the pool including on downstream products.

80 Notably, the absence of these safeguards does not imply that the pool necessarily harms competition in violation of the antitrust laws. The IP Guidelines, however, state that patent pooling is anti-competitive if any of the following conditions are met:

- The excluded firms cannot effectively compete in the relevant market for the product incorporating the licensed technologies.
- The pool participants collectively possess market power in the market.
- The limitations on participation are not reasonably related to the efficient development and exploitation of the pooled technologies.

81 While in the EU, the safe harbour of the TT Guidelines covers both pool creation and licensing out agreements. Regardless of the market position of the pool's parties, if the following conditions are

97 DVD3C Business Review Letter, at 11 n.53; DVD6CBusiness Review Letter, at 12 n.64; IP2 Report, at 72–73.

98 Promoting Innovation and Competition. pp. 74-82.

met[99], Article 101 (1) will be inapplicable otherwise the pools come within the application of Article 101 (3) TFEU:

- Open participation of all interested IPR owners in the pool creation.
- Insertion of only essential/complementary technologies.
- Inclusion of sufficient safeguards against exchanges of sensitive information.
- Non-exclusive licensing.
- Licensing out to all potential licensees on FRAND terms.
- Freedom of parties to challenge the validity and essentiality of the pooled technologies.
- Freedom of parties to develop competing product and technology.

3. Takeaway

82 The presented substantive analysis of antitrust law described how the two systems apply their competition policies (i.e., the Sherman Act, and Articles 101 and 102 TFEU) to the patent pools assessment through their soft-law regulatory frameworks. This comparative analysis can be summarised as follows:

1. Both systems agree that,
   a) Inclusion of complementary and essential patents into a pool is pro-competitive.
   b) Pooled patents must be valid. However, both seem to ignore that (a) the validity assessment is only carried out by courts if there is a challenge, and (b) reaching certainty that a pool is only constituted by valid patents is rare. That pooling being only made of valid patents is crucial in safeguarding public interest and in setting royalty rates.
   c) The Grantback clause should be non-exclusive and limited to the improvements of patents essential to implementing the standard.
   d) Exchange of competitively sensitive information is considered anti-competitive and engaging an independent expert is proposed to mitigate the risk of collusion between rivals.
2. Both systems diverge from each other in the following issues:
   a) Assessment of inclusion for substitute/non-essential patents into a pool. Although the US assesses it cautiously, it recognises that it may be pro-competitive and justified under the rule-of-reason. In contrast, the EU considers this inclusion a violation of Article 101(1) TFEU so that the exemption under Article 101(3) TFEU is unlikely fulfilled. This difference in evaluation seems significant and the EU's strict policy seems unnecessary. We discuss this further in section D.II.
   b) In the US, partial pool licensing is unwelcome as it turns one pooled package into individual sub-packages. However, its refusal is not regarded as problematic *per se*. In contrast, the EU encourages partial licensing when a pool is composed of non-essential but complementary patents.
   c) In the US, licensors are free to choose between exclusive and non-exclusive licensing. An exclusive licensing can be considered even pro-competitive under the rule-of-reason analysis. A non-exclusive licence is seen in the EU as a condition to benefit from the safe harbour. Although seeming stricter, the EU does not totally rule out exclusive licensing but assesses it on a case-by-case basis.
   d) There is an old divergence between the two systems in terms of royalty rate. While excessive pricing is not a standalone theory of harm under the US antitrust law, it violates the TFEU if carried out by a dominant pool. Nevertheless, the FRAND condition makes this difference less significant, as in modern patent pools which are in close connection with standardised technologies, SEP holders are typically committed to licencing their patent on FRAND terms whether through patent pools or individual licensing.

D. Main points for improvement

83 The analyses presented in the paper show that EU competition law and US antitrust law share common approaches and policies where both have a policy to facilitate the formation of pools. However, the US system seems more pro-patent pool in two ways, that if adopted by the EU could promote its capacity in regulating patent pools.

99 TT Guidelines. para 261.

I. Assessment template for patent pools

84 Since 2003, the Commission has issued no administrative (comfort) letter for patent pools. These letters serve the same purposes as the BRLs do in the US: firms could notify their cooperation agreement to the Commission to receive an individual exemption from the application of Article 101 TFEU.

85 The reason for this is that Regulation 1/2003[100] stated that the responsibility for the assessment of agreements shifted from the Commission, in the form of individual exemption, to firms which rely on soft law and precedents for self-assessing the legality and compatibility of their agreements with Article 101 TFEU[101]. The central feature of the Regulation is the direct application of Article 101(3) TFEU, meaning that agreements, decisions, or conducts fulfilling the conditions of this Article are valid and enforceable without a prior administrative decision by a competition authority. Accordingly, there is no longer formal exemption decisions nor new comfort letters[102].

86 To complete the Regulation 1/2003, the Commission through the "Modernisation Package" adopted six notices among which the Notice[103] on informal guidance related to novel questions concerning Articles 81 and 82 EC Treaty (current 101 and 102 TFEU) is to compensate the absence of a notification system. It provides a legal framework under which firms can request a guidance letter before the Commission. Through this request, firms demand interpretation for questions raised by their actual or potential agreement which could fall within the scope of Article 101 and 102 TFEU[104].

87 Guidance letters are not Commission decisions to be binding for Member States' competition authorities nor competent courts. However, they aid firms with informed assessments of their agreements, particularly because they will be publicly available where parties agree on a public version[105]. The Commission has never (at least publicly) issued guidance letters[106]. It is not clear whether any firm has asked for them or the Commission has refused to issue them[107].

88 In addition, the few comfort letters on patent pools issued before the coming into force of Regulation 1/2003 have not been made publicly available. Therefore, the EU lacks reports presenting the Commission's assessments of patent pools that can be used by firms in their self-assessment.

89 Unlike the EU, the US gives a particular weight to predictability as a promoting factor for firms in today's fast changing world. The publication of the BRLs in the US creates a good degree of legal certainty as the DOJ's analyses presented within provide guidance for both the firms and public regarding the scope, interpretation, and application of antitrust law. The US Agencies have created a template for patent pools through the BRLs which, having led to the establishment of dozens of patent pools over time, describes the structure of modern patent pools.

90 The fact that the comfort letters are inaccessible in the EU is not defendable nor helpful. This legal uncertainty and the lack of assessment template for patent pools should be eliminated. Promisingly, the EU resumed paying attention to predictability as the recent Horizontal Guidelines revision shows a particular focus on legal certainty[108] as

100 Council Regulation, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32003R0001.

101 G. Monti, Business Cooperation in Times of Emergency: The Role of Competition Law. <https://www.competitionpolicyinternational.com/business-cooperation-in-times-of-emergency-the-role-of-competition-law/#_ednref18>.

102 C. Gauer *et al.*, Regulation 1/2003 and the Modernisation Package fully applicable since 1 May 2004, Competition Policy Newsletter. <https://ec.europa.eu/competition/publications/cpn/2004_2_1.pdf>. pp.5-6.

103 European Commission, Commission Notice on informal guidance relating to novel questions concerning Articles 81 and 82 of the EC Treaty that arise in individual cases (guidance letters). <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004XC0427(05)>.

104 *Ibid.* para. 11.

105 *Ibid.* paras. 22-25.

106 G. Monti, Business Cooperation in Times of Emergency: The Role of Competition Law.<https://www.competitionpolicyinternational.com/business-cooperation-in-times-of-emergency-the-role-of-competition-law/#_ednref18>.

107 The Commission highlights the primary objective of the Regulation 1/2003, which is to ensure effective enforcement and stipulates that the Commission may only provide informal guidance if this is compatible with its enforcement priorities. Commission Notice. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004XC0427(05)>. para. 7.

108 Evaluation of Commission Regulation (EU) No 1217/2010 of 14 December 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to certain categories of research and development agreements and of Commission Regulation (EU) No 1218/2010 of 14 December 2010 on the application of Article 101(3) of the Treaty on the

the contributors advise that the Guidelines should provide a higher degree of legal certainty to participants of cooperation in digital markets[109]. This expectation is truly in line with the spirit of EU law where legal certainty is considered a general principle of jurisprudence of the ECJ and a guiding idea of most legal systems of Member States[110] Legal certainty defined as "maximum predictability of officials' behaviour"[111] is safeguarded when validly made laws are publicly declared. In this way, subjects can rely on the law and foresee application of state power[112].

II. Inclusion of substitute/non-essential patents into pool

91 Both systems agree that pools with complementary patents are assessed with greater confidence than those containing substitute patents.

92 Inclusion of only essential technologies in a pool (which are complements by necessity) safeguards it from antitrust scrutiny in both systems. In the EU, such a pool falls outside Article 101(1) TFEU irrespective of the parties' market position[113]. Limiting a pool to essential patents ensures that rivalry is neither foreclosed among patents within the pool nor between patents in the pool and patents outside it[114].

93 The EU and the US also recognise that the inclusion of non-essential patents may unreasonably foreclose the non-included competing patents from use by manufacturers. In this situation, the manufacturers may be forced to pay for unneeded technology that leads to collective bundling[115]. However, both the EU and US acknowledge that these restrictive agreements may result in pro-competitive efficiencies. Hence, they must be analysed under Article 101(3) and rule-of-reason, and be balanced against the negative effects on competition. In the EU, the conditions of Article 101(3) are likely to be fulfilled if a pool including non-essential patents: (a) fulfils all the criteria of the safe harbour, (b) proves pro-competitive effects, and (c) lets licensees have the possibility of obtaining a licence for only part of the package with a corresponding reduction of royalties.[116].

94 The EU and the US also recognise that pools composed of pure substitute patents are more likely to harm social welfare and to raise antitrust concerns. This inclusion would risk turning the pool into a price-fixing mechanism and increase the total royalty rate. However, the EU Commission more strictly assesses this inclusion than the US, as it considers it a violation of Article 101(1) and states that the fulfilment of the conditions provided in Article 101 (3) is unlikely to be obtained[117]. In fact, the EU totally rules out the inclusion of substitute patents.

95 In contrast, the DOJ states that it would not challenge the inclusion of substitute patents in a pool without considering whether it produces significant efficiencies[118]. It considers it reasonable to include substitute patents in a pool if their inclusion does not enhance market power or if the pool creates significant efficiencies that outweigh the risks of competitive harm. Such inclusion, therefore, is not seen unlawful *per se* and the competitive costs and benefits of such a pool is analysed under its fact, context, and the rule-of-reason[119].

96 The following section provides a discussion on why we believe that the US approach in this regard is more reasonable and in contrast why the EU counterpart is not necessary nor pro-pooling.

Functioning of the European Union to certain categories of specialisation agreements, 07/04/2020. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=PI_COM:Ares(2020)1972062>.

109 Main Theses on Reform of Horizontal Guidelines (HGL), Specialisation Block Exemption Regulation (SBER) & Research & Development Block Exemption Regulation (R&D BER), Ref. Ares(2020)917048 - 12/02/2020. <https://ec.europa.eu/competition/consultations/2019_hbers/index_en.html>.

110 J. Raitio, The Principle of Legal Certainty in EC Law. p.125.

111 E. Claes et al., Facing the Limits of the Law. p. 92.

112 James R Maxeiner, 'Legal Certainty and Legal Methods : A European Alternative to American Legal Indeterminacy ?' (2007) 15 Tul. J. Int'l & Comp. L 541.p. 546.

113 TT Guidelines. para. 262.

114 DVD6C Business Review Letter at 12.

115 TT Guidelines. para. 262.

116 TT Guidelines. para. 265.

117 T Guidelines. para. 255.

118 DVD6C Business Review Letter at 12.

119 IPXI Business Review Letter and Promoting Innovation and Competition, p. 78.

1. Difficulty in distinction

97 Despite having effect on antitrust assessment, the distinction between complementary/substitute and essential/non-essential patents is unclear and requires an on-going assessment. As a matter of fact, certain non-essential patents may become essential as technology evolves and certain technologies can be partly complementary and substitute.

98 Additionally, the essentiality test does not work well for patent pools outside standards and even in the case of standard-related pools, this concept is inherently ambiguous[120]. Neither system defines essential patents clearly as what is essential may vary from one patent pool to another[121]. Some pools define an essential patent in a technical context as one that is essential to manufacture a product in accordance with standard specifications. While some others, once a patent is commercially necessary based on consumers' demand, regard it as essential in assessing the potential threats on competition in by the pool creation. In this context, the definition of essentiality encompasses not only patents that are necessarily essential to the standard, but also those essential to the standard as a practical matter because there are no economically viable substitutes for that patent[122]. We believe that the determination of commercially essential patents is impossible as it requires proving the absence of real alternatives known as devil's proof, i.e. impossible proof of nonexistence[123].

99 Perhaps that is why the US IP Guidelines avoid explicitly mentioning the distinction between complementary and substitute patents, nor give any reference to their essentiality. They assess the inclusion of non-essential/substitute patents under the rule-of-reason and consider it possible, reasonable, and even efficient under some circumstances. Oddly, although the Commission highlights that the distinction between substitute and complementary is unclear[124], it makes explicit distinctions between them and accordingly specifies principles to assess competitive characteristics of each type. In addition, the Commission expresses that the essentiality examination is time dependent, as a patent essential at one point may later become non-essential or substitute due to the emergence of new third-party technologies[125].

100 One may conclude that when a distinction is not clear nor absolute, the EU, instead of taking a strict position, is better to adopt the US approach through assessing patent combinations on a case-by-case basis.

2. Uncertainties related to price fixing and competition foreclosure

101 Tying prevents licensees from switching to substitute technologies[126]. Once substitute technology is bundled in the pool and licensed as a part of the package, and the royalty paid for the package covers already a substitute technology, then licensees are less likely to license a competing technology outside the pool[127]. However, this does not always lead to price fixing and competition foreclosure. As far as price fixing is concerned, the pool is unlikely to enable collusion among licensors and create price fixing if: (a) the royalty rate is charged per-unit irrespective of patents number and type (as it was the case in the 3C DVD pool[128]), and (b) the royalty is sufficiently small compared to the total costs of manufacture[129].

102 In the EU, there is no decision that addresses tying in the context of licensing agreements and as such, this article studies the US *Philip* case to see under what circumstances tying and competition foreclosure may happen.

US *Philip* case

103 The International Trade Commission (ITC) ruled that Philips' licensing arrangement comprising of essential and non-essential patents for CD products was a tying arrangement and constituted patent misuse. The ITC decided that the anti-competitive effects of this inclusion outweighed its pro-

120 Hans Ulrich, 'Patent Pools - Policy and Problems' in Josef Drexl (ed), *Research Handbook on Intellectual Property and Competition Law* (Edward Elgar Publishing Limited 2008).p. 152.

121 MPEG-2 Business Review Letter at 5 and DVD6CBusiness Review Letter at 3 - 5.

122 RFID Business Review Letter.

123 Nobuyuki Hamanaka, 'Distinction between Complementary and Substitute Patents as a Matter of Competition Law; Observations from Comparative Perspective' (Munich Intelectual Property Law Center (MIPLC) 2011) <http://www.miplc.de/research/>. p.52.

124 TT Guidelines. para. 254.

125 TT Guidelines. para. 263.

126 TT Guidelines. para. 223.

127 *Ibid*. para. 262.

128 3C DVD Business Review Letter.

129 *Ibid*.

competitive effects as it could foreclose alternative technologies and harm competitors seeking to license alternative technologies to parties who needed to obtain licenses to Philips's essential patents[130].

104 Philips then appealed and the Court of Appeal overturned the ITC's decision based on distinguishing between "patent-to-product" and "patent-to-patent" tying arrangements. According to the ruling, in patent-to-product tying, the patentee uses the market power conferred by the patent to force customers to purchase a product in a separate market that the customer might otherwise purchase from a competitor. Hence, the patentee can use its market power to foreclose competition in the market for the product[131].

105 However, patent-to-patent tying (which is what was discussed in *Philips* case) is different as the package licensing including both essential and non-essential patents does not: impose any requirement on the licensee; prevent the licensee from using any alternative technology that may be offered by a competitor of the licensor; and, foreclose the competitor from licensing their alternative technology[132].

106 The Court also stipulated that Philips gave its licensees the option of using any of the patents in the package at the licensee's option and charged a uniform licensing fee regardless of which or how many of the patents in the package the licensee chooses to use in its manufacturing process[133]. The royalty fee neither increased nor decreased regardless of number of patents chosen by the licensee, and inclusion of non-essential patents avoided increasing the royalty rate[134].

107 The Court conclusion was that bundling essential and non-essential patents in the form of patent-to-patent arrangements is unlikely to create anti-competitive effects and is not considered an unlawful practice,

- if licensees are not forced to take from a licensor anything unwanted (i.e. tied product). In this context, to create tying there should be evidence that licensee or potential licensee asked them to remove any of non-essential patents from the package and the patentee refused to do so[135];

- if licensee is not restricted from obtaining licenses from other sources to produce the relevant technology. The court stated that patents within a package can be regarded as non-essential only if there are commercially feasible alternatives to those patents. If it is not the case, packaging those non-essential together with essential patents can have no anti-competitive effect in the market because no competition for a viable alternative product is foreclosed. In fact, in such patent packaging there is no two separate products to fulfil tying condition[136];

- if the royalty is set on a per-unit basis and it does not vary depending on whether the licensee uses only the essential patents or all of the patents in the package. The court highlighted that package license agreements in which the royalty was based on the number of units produced but not the number of patents used to produce them, can resolve all potential patent disputes in advance between the licensor and the licensee. Whereas licensing patent rights on a patent-by-patent basis can result in continuing disputes over whether the licensee's technology infringes certain ancillary patents owned by the licensor that are not part of the group elected by the licensee[137].

108 A nonessential patent is valueless. The Court explained that the value of any patent package is largely (if not entirely) based on the essential patents. It found it rational for a patentee who has essential and non-essential patents to charge what the market will bear for the essential and to offer the others for free. Because if the patentee allocates royalty fees between its essential and non-essential patents, he runs the risk that licensees will take a license to only the essential ones and thereby, he will not be able to obtain the full royalty value of the essential patent[138].

109 The court also referred to the fact that the line between competitive and complementary patents is very difficult to draw. It also added that an agreement that was perfectly lawful when executed could be challenged as *per se* patent misuse due to developments in the technology of which the

130 *U.S. Philips corp. v. ITC*, 424 F.3d 1179, 1193 (Fed. Cir. 2005), p.1184.

131 *Ibid*. 1189.

132 *Ibid*. 1180.

133 *Ibid*. 1188.

134 *Ibid*.

135 *Ibid*. 1195.

136 *Ibid*. 1194.

137 *Ibid*. 1190-1191.

138 *Ibid*.

patentees are unaware or which have just become commercially viable. Such a rule would make patents subject to being declared unenforceable due to developments that occurred after execution of the license or were unknown to the parties at the time of licensing. Not only would such a rule render a licence subject to invalidation on unknown grounds at the time of licensing but it would also provide a strong incentive to litigation by any licensee since the reward for showing that even a single license in a package was non-essential would render all the entire package unenforceable[139].

110 The case analysis shows that the anti-competitive effects of tying practice which result from the inclusion of non-essential patents into the pool is much doubtful. Therefore, the tying practice should be examined on a case-by-case basis given the fact that the inclusion may lead to pro-competitive effects, since:

- it could reduce transaction costs including costs associated with determining individual patent-by-patent royalty and monitoring of non-essential patents;
- pooling non-essential patents can create efficiency because the combination of essential and non-essential technical elements allows the technology as a whole to be exploited more efficiently than otherwise, particularly in the case of implementation patents;
- this inclusion may ensure that the production under the license conforms to quality standards; and
- it may encourage third parties to develop technology which is not essential but necessary or useful for putting the essential technology into practice.

3. Negative effects of EU approach on product-based pooling

111 The EU's strict approach toward inclusion of non-essential/substitute patents into a pool may also affect the product-based pools as a recent form of pooling discussed in section B.II.2.b). This type of pooling offers all patents necessary for a product which may consist of essential and non-essential/substitute patents. Such pooling has attracted several licensing providers including One-Blue and Avanci where they can provide their licensees with as many patents as possible for a specific application or product all at once. This also can attract newcomers in the IoT era.

112 This approach can, therefore, prevent the promotion of such pools and their significant role in the EU's economy. The 23 million European SMEs, as the lifeblood of Europe's economy, accounting for 98 percent of businesses[140] are often behind large firms in standardisation due to the technological complexity and/or the huge investment required to develop a competitive technological platform. They, however, can enhance their competitiveness and reputation by implementing standards in their products [141]. Nevertheless, as pure implementers, SMEs mostly lack the skills necessary to identify the key players in the field. Or if they identify them, they lack the means to contact them or to identify the essential patents because large licensors mainly conclude their deals within each other. Thus, providing them with one package of necessary technologies tested by an independent agent along with the cost benefit and other advantages of patent pools can be very beneficial for such a large chunk of the European economy. [142].

113 The discussion presented in this section shows that the EU's approach toward inclusion of substitute/essential patents into pools is not reasonable. Hence, we propose to analyse patent combinations on a case-by-case basis for three reasons. First, the characterisation of pooled patents is very difficult in practice and founding the legality of a practice on a varying characterisation makes no sense and undermines legal certainty. Second, this inclusion does not necessarily create price fixing nor competition foreclosure as shown. Third, this approach can negatively affect product-based pools as effective mechanisms which satisfy the IoT newcomers' needs in getting required licences for their products.

139 Ibid. 1196-1197.

140 European Commission, Thinking Big for SMEs. <https://ec.europa.eu/docsroom/documents/874/attachments/1/translations/en/renditions/pdf>.

141 Henk J De Vries and others, *SME Access to European Standardization Enabling Small and Medium-Sized Enterprises to Achieve Greater Benefit from Standards and from Involvement in Standardization* (Rotterdam School of Management, Erasmus University, Rotterdam, the Netherlands 2009) <https://www.researchgate.net/publication/259005422_SME_access_to_European_standardization_Enabling_small_and_medium-sized_enterprises_to_achieve_greater_benefit_from_standards_and_from_involvement_in_standardization>.

142 Harris Tsilikas and Claudia Tapia, 'SMEs And Standard Essential Patents: Licensing Efficiently In The Internet Of Things' (2017) LII Les Nouvelles - Journal of the Licensing Executives Society 170 <ssrn: https://ssrn.com/abstract=3009039>.

E. Conclusion

114 This study showed how competition law impacted the creation and the operation of patent pools: the more relaxed antitrust policy, the further the growth of patent pools. In the pooling promotion context, the goal should be to help patent pools develop in compliance with competition law. This will yield to innovation, FRAND access to SEPs, and consumer welfare. The pro-competitive effects of patent pools are so significant that it is worth paying great attention to the policies which apply to them. However, some EU policies have anti-pooling effects and decelerate its regulatory framework development with respect to pooling and the progress of the cutting-edge technologies.

115 Notably, there are factors beyond competition law which can have influence on patent pools. For example, firms' business models can shape their tendency or reluctance to establish or join pools. Some empirical analyses have shown that vertically integrated firms have higher pool participation rates, while pure innovators are often unwilling to join pools[143]. These factors are beyond the scope of the present paper.

143 Reiko Aoki and Sadao Nagaoka, 'Coalition Formation for a Consortium Standard through a Standard Body and a Patent Pool: Theory and Evidence from MPEG2, DVD and 3G' (2005). pp. 7-9.