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LETTER FROM THE EDITOR

Dear Readers,

In this edition of the CPI Chronicle, we present a set of articles authored by participants in the Leadership EU roundtable that took place in November 2019. Leadership is a working group that promotes open, balanced discussion on global issues related to intellectual property and antitrust policy. Indeed, fostering innovation to the benefit of consumers is one of the key goals of both the IP and the antitrust rules. Nonetheless, the relationship between the two bodies of law is not always clear-cut, and merits detailed and nuanced discussion.

The questions discussed in this edition touch on many hot topics: What are the pros and cons of patent pools, and how should they be treated under the existing EU legal framework? How should fair, reasonable and non-discriminatory (“FRAND”) terms be defined, and determined? How should the interests of patent holders and implementers be balanced in standard-essential patent (“SEP”) disputes arising from standard-setting organizations (“SSOs”)? Indeed, are SEP holders under a duty to license SEPs on FRAND terms under U.S. law? In light of these and other questions, what are the merits of SSOs, as opposed to other means of organizing innovation?

Answering these questions is by no means straightforward, and our authors draw on their wealth of experience to contribute to a balanced, open debate.

Lastly, please take the opportunity to visit the [CPI website](#) and [listen to our selection of Chronicle articles in audio form](#) from such esteemed authors as Maureen Ohlhausen, Herbert Hovenkamp, Richard Gilbert, Nicholas Banasevic, Randal Picker, Giorgio Monti, Alison Jones, and William Kovacic among others. This is a convenient way for our readers to keep up with our recent and past articles on the go, in the gym, or at the beach.

As always, thank you to our great panel of authors.

Sincerely,

CPI Team

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SUMMARIES



5G, FRAND Licensing, and EU Competition Law: Analytical Rigor and Persistent Myths

By Paul Lugard

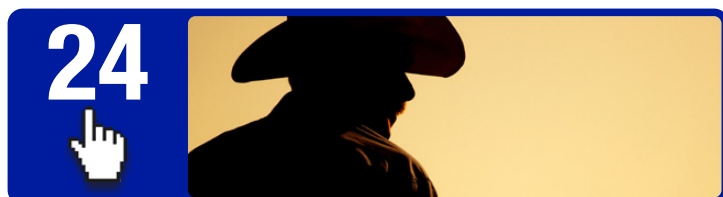
It is now undisputed that 5G and IoT will revolutionize many industries, from energy to healthcare, manufacturing, and mobility. The dissemination of 5G cellular technology, connecting devices to the Internet on the basis of technical interoperability standards, will generate very significant consumer benefits. However, as 5G technology is designed for many different uses and parties situated at multiple and different levels in the production chain may request licenses from SEP holders, the question arises whether antitrust law sets any limits to SEP holders' discretion to offer FRAND licenses to interested parties. Not surprisingly, proponents of indiscriminate dissemination of 5G technology sometimes claim that there is an antitrust duty to offer licenses to all such interested parties. This contribution briefly discusses a number of necessary conditions that must be met to conclude that such an affirmative duty exists. Along the way it seeks to dispel a few popular antitrust myths in the area of SEP licensing.



IPR Policy as Strategy – The Battle to Define the Meaning of FRAND

By Bowman Heiden

The current contentions over SEP licensing in mobile telecommunications is primarily a result of the success of standardization to build a multi-trillion-dollar market. This success has generated a large economic surplus, whose distribution among different actors in the value chain is the focus of these contentions. This article illustrates the battle among market actors to define the meaning of FRAND through policy interventions that seek to change the rules of the game in alignment with their strategic interests. This article takes a first step towards building an operative model to describe the political processes behind the construction of the meaning of FRAND by defining the self-assertive interests, key normative concepts and claims, and legitimizing arenas where the concept of FRAND is actively socially constructed.



SEP Licensing After Two Decades of Legal Wrangling: Some Issues Solved, Many Still to Address

By Damien Geradin

This paper explores where we stand after two decades of European Commission investigations, substantial patent litigation in national courts, and a major judgement of the Court of Justice of the European Union devoted to SEP licensing and its relationship with EU competition law. As will be seen, while consensus has been reached over several issues, a lot remains to be done. This paper is divided in four parts. Part II describes the issues that have been addressed, albeit not always satisfactorily, by competition authorities and courts over the past years. Part III discusses some of the SEP licensing issues that still largely need to be solved with a focus on six questions: (i) what is the nature of the FRAND commitment?; (ii) what is a FRAND license?; (iii) should the gaps left by the CJEU in *Huawei v. ZTE* be filled and if so how?; (iv) can a court that finds that local SEPs have been infringed force the infringer to take a global license on pain of an injunction?; (v) access for all v. license to all: What are the obligations of the SEP holder?; and (vi) how should SEP licensing adapt the IoT context? Part IV concludes.



Patent Pools and Other Forms of Aggregation

By Patrick McCutcheon

This paper recalls the EU antitrust provisions relating to patent pools and standard setting, the conclusions of an expert group tasked with the question of identifying what if anything the public sector should do to promote aggregation of patents to foster licencing of patents and reviews some recent academic papers of a theoretical and empirical nature. The broad observation is that patent pools remain pro-competitive and can foster licencing of technology in particular standard essential patents and that the possible drawbacks can be addressed by existing antitrust rules. This leaves open the open the question of how best to foster more participation in pools to facilitate licencing by small players on either side of the market.

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SEP Licensing for the Internet of Things – Challenges for Patent Owners and Implementers

By Matthias Schneider

Licensing standard essential patents (“SEPs”) for the Internet of Things (“IoT”) will create novel challenges for parties involved in both standardization and the licensing process. This paper explains how the IoT will affect the creation and implementation of standardized technology and then examines four emerging questions about SEP licensing for the IoT that need to be answered: (i) How to create transparency related to standardized technology and IP license offers? (ii) Who may obtain a license in the IoT market? (iii) Will patent pools help streamline licensing for the IoT? and (iv) How to reduce the possibility of litigation?

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The Possible Benefits of Pool Licensing for the Internet of Things, and the Perils of Proposed Regulatory Interventions

By Justus A. Baron

The fourth panel discussion at the Leadership EU Roundtable was dedicated to the pros and cons of patent pools for Standard Essential Patents (“SEP”). This was a timely opportunity to reflect on recent evolutions, but also to contribute to an ongoing policy debate on the most suitable regulatory approach to pools. There was wide agreement among experts that patent pools for SEPs can be beneficial, and several experts recognized the promise of some of the more recent patent pool initiatives. Nevertheless, the debate also highlighted that pools are just one among several viable mechanisms for SEP licensing, and many experts argued against a regulatory intervention that would make participation in pool licensing mandatory. Indeed, the strength of the current regulatory approach to pools resides in the flexibility that it gives market participants in choosing the licensing strategy that is most appropriate for their situation. The panel also discussed more recent ideas, such as offering standard implementers the possibility to jointly negotiate with SEP owners.

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Did *FTC v. Qualcomm* Create an Antitrust Duty to License SEPs?

By J. Gregory Sidak & Urska Petrovcic

In May 2019, Judge Lucy H. Koh of the U.S. District Court for the Northern District of California issued a decision in *FTC v. Qualcomm*. She found that Qualcomm violated the Sherman Act by, among other things, refusing to offer a license to its standard essential patents (“SEPs”) to rival manufacturers of baseband processor modems. Some commentators have suggested that the effects of Judge Koh’s judgment transcend the litigation brought against Qualcomm and create for SEP holders a general duty to offer a license to SEPs to component manufacturers. However, Judge Koh’s conclusions about the existence of an antitrust duty to license have little support in either the facts of the case or in courts’ prior decisions. It is questionable whether they will survive the scrutiny of the Ninth Circuit or, upon further appeal, the Supreme Court of the United States.

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SSOs v. Silos and the “Quality of Innovation”

By Pier Luigi Parcu, Chiara Carrozza & Silvia Solidoro

The paper sketches a comparison between two main models for the “organization of innovation” in digital markets: the standard setting organization (“SSO”) and the silo/platform (“SILO”). The analysis focuses on four dimensions – *price*, *speed*, *transparency/social accountability*, and *competition* – of the innovation processes of these models, and aims at shedding some light on their relative value and efficiency in terms of the elusive concept of the “quality of innovation.” We argue that, whereas for two of the categories chosen for the comparison – *speed* and *transparency/accountability* – the superiority of one model over the other is relatively straightforward, as regards *pricing* and *competition* the related evaluation is more complex and the conclusions that can be drawn are more nuanced.

WHAT'S NEXT?

For April 2020, we will feature Chronicles focused on issues related to (1) **Sports**; and (2) **Remedies**.

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Contributions to the Antitrust Chronicle are about 2,500 – 4,000 words long. They should be lightly cited and not be written as long law-review articles with many in-depth footnotes. As with all CPI publications, articles for the CPI Antitrust Chronicle should be written clearly and with the reader always in mind.

Interested authors should send their contributions to Sam Sadden (ssadden@competitionpolicyinternational.com) with the subject line "Antitrust Chronicle," a short bio and picture(s) of the author(s).

The CPI Editorial Team will evaluate all submissions and will publish the best papers. Authors can submit papers on any topic related to competition and regulation, however, priority will be given to articles addressing the abovementioned topics. Co-authors are always welcome.



5G, FRAND LICENSING, AND EU COMPETITION LAW: ANALYTICAL RIGOR AND PERSISTENT MYTHS



BY PAUL LUGARD & DANIEL VASBECK¹



¹ Paul Lugard is a partner and Daniel Vasbeck is a senior associate with Baker Botts (Belgium) LLP. They are grateful to Santos Miguel Leyva Rubio for his assistance.

I. INTRODUCTION

It is now undisputed that 5G and the Internet of things (“IoT”) will revolutionize many industries, from energy to healthcare, manufacturing and mobility. The dissemination of 5G cellular technology, connecting devices to the Internet on the basis of technical interoperability and performance standards, will generate very significant consumer benefits.² However, as 5G technology is designed for many different uses, and parties situated at multiple and different levels in the production chain may request manufacturing licenses from standard-essential patent (“SEP”) holders, the question arises whether antitrust law sets any limits to SEP holders’ discretion to offer fair, reasonable, and non-discriminatory (“FRAND”) licenses to interested parties.

Not surprisingly, parties seeking to incorporate 5G technology into their product offerings sometimes claim that there is an antitrust “duty to deal” to offer licenses to all such interested parties.³ This contribution briefly discusses a number of necessary conditions that must be met to conclude that such an affirmative duty exists in any given situation. Along the way, it seeks to dispel a few popular antitrust myths in the area of SEP licensing.

The overall conclusion is that prospective licensees seeking formal licenses under SEPs face a number of significant challenges to substantiating a robust theory of harm. Not only do they need to overcome the general presumption that differential licensing terms are welfare-enhancing, but they should also ensure that each of the necessary condition of a specific antitrust violation is met.

II. SIGNPOSTS AT THE IP AND ANTITRUST INTERFACE

Before exploring in which circumstances and under which conditions competition law sets limits to SEP holders’ discretion to license their intellectual property (“IP”) to the category of potential licensees of their choice, it is useful to briefly recall a number of well-established first principles that govern the interface between IP rights and competition law, as well as the main implications of the 2015 *Huawei/ZTE* judgment of the EU Court of Justice.

First, IP rights exist by virtue of specific IP legislation, in particular patent law. It is important to realize that the role of IP law is to assign property rights, taking into account the trade-offs between the incentives to innovate of both initial and follow-on innovators, static welfare losses from higher product prices and the diffusion of knowledge. In contrast, the role of competition policy is to regulate the abuse of IP-based market power when IP rights give rise to such market power.

Because IP law already strikes a balance between reward, static efficiency and diffusion of knowledge, there is *a priori* only limited scope for competition enforcement agencies to modulate the application of IPRs across different sectors, or to address any perceived failures of the IP system. This is despite a trend of heightened antitrust scrutiny and interventions in cases where competition agencies appear to have doubts whether the IP system generates the “appropriate” outcome, as well as attempts to strengthen competition law mechanisms to address and correct perceived failures of the IP system.⁴

Second, licensing of IP enables innovators to seek compensation for successful research and development projects that in turn maintain investment incentives, balancing these successes against investments in failed projects. In many industries the licensing of IP is essential for businesses. It helps disseminate innovation, lowers barriers to entry and allows companies to integrate and use complementary technologies to which they would otherwise not have access to. It is therefore not surprising that most license agreements are deemed not to restrict competition and, instead, create pro-competitive efficiencies. In fact, it is only in exceptional circumstances that licensing (or licensing-related) conduct may produce anti-competitive effects. This principle is also reflected in the EU Courts’ case law setting out the conditions under which a refusal to license IP rights constitutes an abuse of a dominant position under Article 102 TFEU. As will be discussed below, this may only be the case in narrowly defined circumstances.

2 As the European Commission (“EC”) has observed itself, the digitalization of the economy creates great opportunities for the EU industry. According to the EC, the estimated economic potential of IoT applications in devices for humans, home, offices, factories, worksites, retail environments, cities, vehicles and the outdoors will be up to EUR 9 trillion per year by 2025 in developed countries. The digitalization of products and services can add more than EUR 110 billion in revenue to the European economy per year over the next five years. Without interoperability, enabled by standards, 40 percent of the potential benefits of IoT systems would not be reaped. See Communication from the Commission, Setting out the EU approach to Standard Essential Patents, available at <https://ec.europa.eu/docsroom/documents/26583>.

3 MLex, March, 20, 2020, *Daimler files EU complaint against Nokia over communications patents*, available at <https://www.mlex.com/GlobalAntitrust/DetailView.aspx?cid=1075681&siteid=190&rdir=1>.

4 In particular, and especially in Europe, the EC appears to be concerned about potentially invalid IP being licensed. As a result, in 2014 it has amended the safe harbor block exemption for technology transfer agreements by no longer exempting contractual rights to terminate a license agreement in the event of a challenge of the licensed IP. This change permits licensees to more easily challenge the validity of licensed IP without the risk of the license being terminated.

Third, it is sometimes overlooked that the much discussed judgment of the EU Court of Justice in *Huawei v. ZTE* applies only to a very narrow and well-defined set of factual circumstances, namely a scenario where: (i) an SEP holder has voluntarily agreed to licensing on FRAND terms; (ii) the licensee can properly be considered a “willing licensee”; and (iii) the SEP holder seeks an injunction against that party.⁵ And in this narrow scenario, the judgment considers whether the infringer can raise a competition law defense.⁶ Crucially, the judgment does not set out any obligation to license as such: it only sets out when the seeking of an injunction against an infringing party who is a “willing licensee” may potentially be in violation of Article 102 TFEU.⁷ To be fair, in *Huawei v. ZTE* the court did mention that a refusal to license may constitute an abuse of dominance because the SEP holder’s FRAND commitment “creates legitimate expectations on the part of third parties” that such a license should be given.⁸ However, while it is understandable for the court to discuss the role of legitimate expectations in the context of bilateral licensing negotiations with a prospective licensee that the SEP holder has elected to license, it is quite a stretch – to say the least – to conclude that this reference implies that a SEP owner would be obliged to offer licenses to any party who wishes to take a license, including categories of implementers or component suppliers it has never licensed in the past⁹

III. THEORIES OF HARM AND NECESSARY CONDITIONS

Let’s now turn to the scenario whereby a party who manufactures a product or component according to the 5G standard wishes to obtain a patent license under a particular SEP owner’s SEPs and where the SEP owner has committed to licensing its SEPs on FRAND terms, but has elected to only license a specific class of implementers, for instance those located at a particular level of the production chain (e.g. the end device level). Let’s assume further that the licensor’s licensing policy is in line with the FRAND commitments of the relevant standard development organization. The question then arises whether the refusal to license a particular implementer at another level of the production chain may constitute an antitrust violation¹⁰, despite the fact that such refusal would not infringe the licensor’s contractual FRAND obligations.¹¹

While each matter presents its own specific facts, EU antitrust law offers a number of general potential avenues that may be explored by implementers (or the parties they supply) to establish an antitrust violation in this scenario. First, the refusal of the SEP holder may be framed as an anti-competitive refusal to deal under Article 102(b) TFEU. The intuition underlying this theory of harm is that the refusal to license an indispensable input would prevent new products coming to the market and excludes any effective competition on a particular market.

Second, an alternative line of argument would be to characterize the refusal to deal as anti-competitive discrimination under Article 102(c) TFEU. This argument would assume that the non-discrimination principle embodied in Article 102(c) TFEU mandates that SEP holders must offer any party requesting a FRAND license such a license on substantially similar licensing terms as the SEP holder has offered to other implementers (that are active at another level of the production chain).

Third, the case at hand may present facts that would support the notion that not extending a licensing offer to the implementer, or doing so at terms that the implementer would believe are prohibitive, constitutes excessive pricing under Article 102(a) TFEU. While this claim may not directly result in a finding that there is an antitrust duty to offer a license, it may support a more comprehensive antitrust strategy. As excessive pricing claims as such (without necessarily an exclusionary component) are not cognizable under U.S. law, this avenue might only have some promise in the EU and jurisdictions with similar competition regimes.

It is important to realize that each of these theories of harm is built on a number of necessary conditions that must each be met for the antitrust violation to exist. These conditions and the hurdles that they present will be briefly discussed below.

⁵ EU Court of Justice, judgment of July 16, 2015, *Huawei Technologies Co. v. ZTE*, Case C-170/13, ECLI:EU:C:2015:477.

⁶ See Dina Kallay, *The ECJ Huawei – ZTE Decision: En Route to Ending Hold-Out?* CPI Antitrust Chronicle, October 2015 (2) <https://www.competitionpolicyinternational.com/the-ecj-huaweizte-decision-en-route-to-ending-hold-out/>.

⁷ *Ibid.* paras. 53-55, 60-61 and 71, as well as operative part of the judgment.

⁸ *Ibid.* para 53.

⁹ This is confirmed by the court’s statement in para 54 of the judgment that “[h]owever, under Article 102 TFEU, the proprietor of the patent is obliged only to grant a license on FRAND terms.”

¹⁰ For example, component makers in the EU who supply car manufacturers in the EU have argued that there is an obligation for SEP holders under Article 102 TFEU to offer a FRAND license to any third party requesting a license, irrespective of their level in the supply chain. See, for example, Mlex, *Connected-cars patent fight to explore legal gray area for licensing*, 29 April 2019.

¹¹ Note that under the *Huawei/ZTE* standard SEP owners would be unable to secure an injunction without first extending a FRAND offer to a particular implementer and thus could not deny access to that implementer.

However, to prevail on any of the three claims mentioned above, one additional condition must be met: the SEP owner must have a dominant position on a properly defined relevant market. Indeed, if the implementer fails to establish that the SEP owner holds a dominant position within the meaning of Article 102 TFEU, none of its claims under that provision will be successful.

IV. DOMINANCE: THE CASE OF SEPS

One may be tempted to take the position that SEPs necessarily imply a dominant position within the meaning of Article 102 TFEU. After all, the manufacture of a standard-compliant product necessarily infringes the SEPs that read on that standard. Assuming that the relevant market is the market for licenses under the SEPs, the SEP owner has a 100 percent market share. However, establishing a dominant position on the basis of IP rights, even in a SEP-setting, may present some significant evidentiary hurdles.

First, it is now common wisdom that IP rights, including SEPs, do not necessarily confer monopoly power. Instead, establishing dominance or monopoly power requires a fact-specific, case-by-case analysis, which generally requires consideration of what constitutes a well-defined relevant market, whether there are potential substitutes to the patented technologies (including workarounds), and other factors. With respect to SEPs, an additional question is whether the ability to exercise any monopoly (or market) power is constrained by a patent holder's voluntary FRAND commitments and countervailing power that implementers may have.¹²

In the U.S., in 2006, the U.S. Supreme Court adopted the approach taken by the U.S. agencies in their 1995 Antitrust Guidelines for the Licensing of Intellectual Property, holding that patents do not necessarily confer market power.¹³ With respect to SEPs, one U.S. court has explicitly held that owning an SEP does not necessarily confer market power.¹⁴ This position is also confirmed by the head of the U.S. Department of Justice's Antitrust Division ("DOJ").¹⁵ A former Deputy Assistant Attorney General has however pointed out that when a standard incorporating patented technology becomes established, that technology may gain market power.¹⁶ In the EU, it is a well-established principle that the mere ownership of IP rights does not in itself confer a dominant position.¹⁷ This principle also applies to SEPs.¹⁸

The UK High Court judgment in the *Unwired Planet v. Huawei* case illustrates that establishing a dominant position in the SEP context is far from straightforward.¹⁹ Indeed, in that case, the UK court only arrived at the conclusion that Unwired Planet was in a dominant position in the market for licenses under the relevant SEPs after a careful consideration of the impact of its FRAND obligations, as well as and the countervailing buyer power held by potential licensees.²⁰

12 See for instance European Commission, decision of 29 April 2014, Case AT.39985 – *Motorola – Enforcement of GPRS Standard Essential Patents*, para. 223

13 *Ill. Tool Works Inc., v. Indep. Ink* (2006); U.S. IP Licensing Guidelines, , section 2.2.

14 *ChriMar Sys. v. Cisco Sys.*, 72 F Supp. 3d 1012 (N.D. Cal. 2014).

15 Delrahim, *New Madison Approach*, March 16, 2018, in particular pages 3 and 8, available at <https://www.justice.gov/opa/speech/file/1044316/download>.

16 Hesse, *Six Small Proposals*, October 10, 2012.

17 See, for example, EU Court of Justice, judgment of 6 April 1995, *Raidió Teilifís Éireann (RTE) and Independent Television Publications Ltd (ITP) v. Commission*, Joined cases C-241/91 P and C-242/91 P, ECLI:EU:C:1995:98, para 46. See also EC, Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, OJ C 11, 14.1.2011, p. 1–72, para. 269. See also EC, decision of 29 April 2014, Case AT.39985 – *Motorola – Enforcement of GPRS Standard Essential Patents*, para. 223.

18 EU Horizontal Guidelines, para. 269 (“... However, even if the establishment of a standard can create or increase the market power of IPR holders possessing IPR essential to the standard, there is no presumption that holding or exercising IPR essential to a standard equates to the possession or exercise of market power. The question of market power can only be assessed on a case by case basis.”),

19 *Unwired Planet International Ltd v Huawei Technologies Co. Ltd & Anor* [2017] EWHC 711 (Pat) (05 April 2017), paras. 630-671.

20 *Ibid.* paras. 630-649.

V. ABUSIVE REFUSAL TO DEAL

A party wishing to obtain a license under SEPs to ensure that the manufactured products are formally licensed, is likely to argue that it requires a SEP license. However, the question is whether this would be sufficient to establish that the SEP licensor's refusal to grant such a license amounts to an antitrust violation. The answer is that this is not in and of itself the case. What would the prospective licensee have to prove to establish an abusive refusal to license under Article 102(b) TFEU?

It is widely accepted that, as far as competition law is concerned, IP owners should generally be free to refuse to license their IP to other firms, and to limit exploitation of the innovation either to themselves or to its selected licensee(s).²¹ Under EU competition law, a refusal to license may under exceptional circumstances constitute a violation of Article 102 TFEU where the IP owner holds a dominant position and where the refusal to license eliminates competition and prevents the developments of new products for which there is potential demand.²²

The position under EU competition law is consistent with U.S. antitrust law which does not generally impose upon parties, including owners of IPs, a duty to deal or to otherwise aid competitors.²³ With respect to IPs in particular, the U.S. antitrust agencies have stated that “antitrust liability for mere unilateral, unconditional refusals to license patents will not play a meaningful part” in their enforcement efforts.²⁴

In sum, it appears that under the applicable EU antitrust standard, a prospective licensee faces a number of formidable hurdles. It would first have to demonstrate that the SEP license meets the indispensability standard, something that may in particular meet skepticism if the prospective licensee has already been active on the relevant market for a period of time and has, for example, benefitted from have-made rights under licenses concluded with its customers. Similarly, prospective licenses would be well-advised to carefully substantiate their arguments that the SEP licensor's refusal eliminates competition on the affected relevant market(s).

Finally, parties claiming an abusive refusal to deal, may want to consider developing arguments that distinguish SEP licensing from “ordinary” IP licensing and that support the notion that SEPs are subject to less stringent requirements. However, the current jurisprudence of the Court of Justice does not seem to offer meaningful indicators, if any.²⁵

VI. ABUSIVE DISCRIMINATION

A second line of attack would be the proposition that, by refusing to offer licenses at particular classes of implementers, the SEP holder would engage in abusive discrimination within the meaning of Article 102(c) FEU.

To our knowledge, to date, there is no judicial guidance confirming that breaching the “ND” prong of FRAND alone amounts to an antitrust violation. As a consequence, it is even more difficult to imagine that differential SEP licensing terms that are FRAND would qualify as abusive within the meaning of Article 102(c) TFEU.

A credible anti-competitive SEP pricing claim would have to overcome two significant hurdles. First, the claim would have to be based on a robust narrative that overcomes the prevailing economic insights that posit that price discrimination and, as a corollary, differential licensing terms, only exceptionally give rise to anti-competitive effects and generally produce positive welfare effects. Second, the claim would have to meet the conditions for abusive discriminatory pricing as laid down in the jurisprudence of the Court of Justice. This line of case law makes clear that there is a need to show a “competitive disadvantage.” Whether such a showing could be made where the SEP holder is consistent with its licensing strategy with respect to the level of the production chain it chooses to license on FRAND terms appears dubious.”

21 OECD, Licensing of IP Rights and Competition Law, Background Note, 6 June 2019 page 31, available at [https://one.oecd.org/document/DAF/COMP\(2019\)3/en/pdf](https://one.oecd.org/document/DAF/COMP(2019)3/en/pdf),

22 See, in particular, EU General Court, judgment of 17 September 2007, Case T-201/04, *Microsoft v. Commission*, ECLI:EU:T:2007:289, para. 332; and EU Court of Justice, judgment of 29 April 2004, Case C-418/01, *IMS Health v. NDC Health*, ECLI:EU:C:2004:257, para. 38.

23 *Verizon v. Trinko* 540 U.S. 398 (2004).

24 2007 DOJ/FTC Report, U.S. IP 2017 IP Guidelines, at 3. There are no court decisions in the U.S. ruling on an alleged refusal to license a FRAND-committed SEP. In 2017, the FTC filed a complaint alleging that Qualcomm engaged in unlawful monopolization by seeking to unlawfully maintain its alleged monopoly in baseband processors (chipsets) through a variety of conduct, including refusal to license its FRAND-committed SEPs to component manufacturers such as chipset makers. The allegation is that a vertically integrated SEP-holder (i.e. one that both licenses patents in the upstream market and sells chipsets in the downstream market) refused to license competing chipset makers, resulting in substantial foreclosure in that downstream market. The first instance judgment is currently under appeal. See *FTC v. Qualcomm*, Case 5:17-cv-00220-LHK (N.D. Cal. 2019).

25 See Section I.

There is an impressive body of empirical and theoretical economic studies that makes clear that the economic effects of price discrimination are at most ambiguous and in many circumstances have positive welfare effects.²⁶ Those general economic insights apply *mutatis mutandis* to the pricing of IP. In addition, however, the pricing of IP displays a number of specificities that should be factored into the analysis of differential pricing of IP. For instance, differential pricing in the form of lower royalties for early adaptors, or royalties that take account of the nature of the licensee's business may serve pro-competitive ends. It may also reflect differential stages of technological development, implementation, or outside competitive conditions. The notion that price differentiation – including concentrating licensing efforts on specific categories of implementers of the technology – likely leads to the broadest possible use of standardized technology and may be desirable to sustain development of the next generation of technology, implies that a credible discriminatory SEP pricing claim should at minimum substantiate why a particular differential treatment would result in negative welfare effects. This is not an easy task.

In line with these economic insights, it is equally well-established that price discrimination does not in itself raise antitrust concerns. This is particularly well illustrated by the EU Court of Justice's judgment in *MEO*,²⁷ which dispelled any myth or suggestion that price discrimination might *per se* infringe Article 102(c) TFEU. It was already clear that this provision only applies to pricing that can be regarded as "discriminatory," i.e. pricing policies that involve the application of dissimilar conditions to equivalent transactions.²⁸ Such differential pricing may be pro-competitive and may reflect, for example, the fact that an implementer is an early adaptor, the specific nature of the licensee's business, or differential stages of technological development, implementation or outside competitive conditions.

Moreover, applying the ruling in *MEO* to the context of SEP licensing, it follows that even where differential SEP licensing terms are effectively "discriminatory," an infringement of Article 102(c) TFEU only arises where the price differential places the licensee that was charged comparatively higher or more unfavorable royalties at a competitive disadvantage by distorting the competitive relationship between competing licensees. Such distortion of competition cannot be inferred from the mere presence of a disadvantage due to the fact that one licensee is charged more than another. In fact, the ruling suggests that where the effect of a price differentiation on the profitability and profits of a given licensee is not significant, it may be inferred that there is no distortion of competition as required by Article 102(c) TFEU.²⁹

In conclusion, while discriminatory pricing claims in the SEP-context cannot be excluded, they raise a number of intricate evidentiary hurdles.

VII. EXCESSIVE PRICING

Finally, let's briefly address the scope for excessive pricing claims within the meaning of Article 102(a) TFEU. As alluded to above, the doctrine of excessive pricing may particularly come into play as an ancillary theory of harm, or even as a primary argument in cases where the SEP licensor has offered a license, but where the prospective licensee considers that the licensing terms are excessively high or otherwise unfair. Successful excessive pricing claims under EU competition law are rare, mainly as a result of the intricacies involved in applying the *United Brands* standard.³⁰ The *United Brands* standard is centered around a comparison between the economic value of a product and the price charged. A price which significantly exceeds the value will be *prima facie* excessive.

However, determining whether royalty rates bear a clear relationship to the economic value of the patented technology raises a number of complex practical and conceptual issues, not least because there may be differences of opinion about the value that the technology adds to the licensed product, the fact that pricing in the SEP context is by its nature often well above marginal costs and because SEPs are differentiated products, which makes reliable price comparisons particularly difficult.

It is difficult to imagine how FRAND royalties can be found abusive under Article 102(a) TFEU. In fact, the UK High Court in *Unwired Planet* put it even more clearly: "[i]f the rate imposed is FRAND then it cannot be abusive. But a rate can be higher than the FRAND rate without being abusive too."³¹

²⁶ For an overview, see for example the OECD Competition Committee Background Note on Price Discrimination, available at <https://www.oecd.org/daf/competition/price-discrimination.htm> See also Ullberg, Economic efficiency and field-of-use pricing of SEP licenses under FRAND terms, Queen Mary Journal of Intellectual Property, Volume 9, 2019.

²⁷ EU Court of Justice, judgment of April 19, 2018, Case C-525/16, *MEO*, ECLI:EU:C:2018:270.

²⁸ EU Court of Justice, judgment of 19 April 2018, Case C-525/16, *MEO*, ECLI:EU:C:2018:270, paras. 23 and 25. Often, SEP licensing agreements may not qualify as "equivalent transactions."

²⁹ EU Court of Justice, judgment of April 19, 2018, Case C-525/16, *MEO*, ECLI:EU:C:2018:270, paras. 26-35.

³⁰ EU Court of Justice, judgment of February 14, 1978, Case 27/76, *United Brands*, ECLI:EU:C:1978:22.

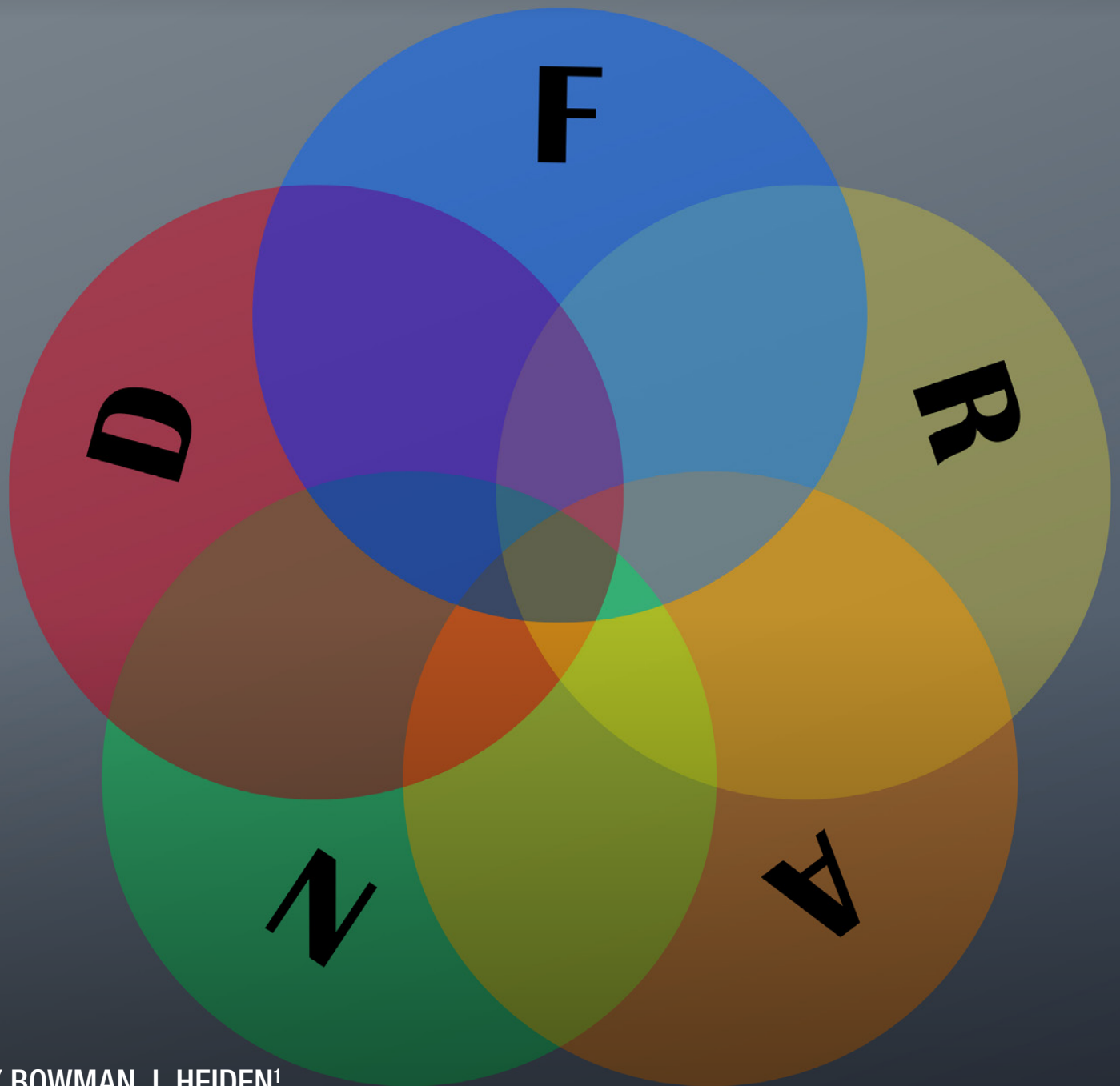
³¹ Note 19 above, para 757.

VIII. CONCLUDING OBSERVATIONS

5G technology is specifically designed for multiple uses. As a consequence, the dissemination of 5G technology may possibly result in a significant number of FRAND disputes, many of which may involve antitrust arguments. In addition, existing and new categories of implementers may be tempted to criticize licensors' licensing models and explore ways to establish that licensing practices involve abusive refusals to deal, discriminatory pricing or excessive pricing within the meaning of Article 102 TFEU. These claims will be highly fact-specific. However, to be credible and potentially successful, they would in any event need to meet a number of necessary conditions. This article provides a general *tour d'horizon* of the types of topics that are likely to come to the fore in that respect. The overall conclusion is however that antitrust law may in many cases prove to be a dead-end street.



IPR POLICY AS STRATEGY – THE BATTLE TO DEFINE THE MEANING OF FRAND



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I. INTRODUCTION

This article illustrates the battle among market actors to define the meaning of FRAND through policy interventions that seek to change the rules of the game in alignment with their strategic interests. While many scholars have discussed the concept of FRAND, there has not yet been a holistic study of the political processes behind the construction of its meaning.² This article takes a first step towards building an operative model by defining the self-assertive interests, key normative concepts and claims, and legitimizing arenas where the meaning of FRAND is actively being socially constructed. The primary goal at this stage is not to be exhaustive across all actors, arenas, and geographies, but to start to unveil the normative game whereby actors seek to define reality from the perspective of their own self-interest, whether economic or ideological, so as to facilitate more objective research and more effective decision-making.

II. SEP VALUE AS A HIERARCHY OF NORMS

The value of SEPs is ambiguous due to the fact that the institutional tools (i.e. rules and norms) that define reasonable royalties for SEPs in FRAND circumstances (i.e. blocks) are not reified – see figure 1 below.³

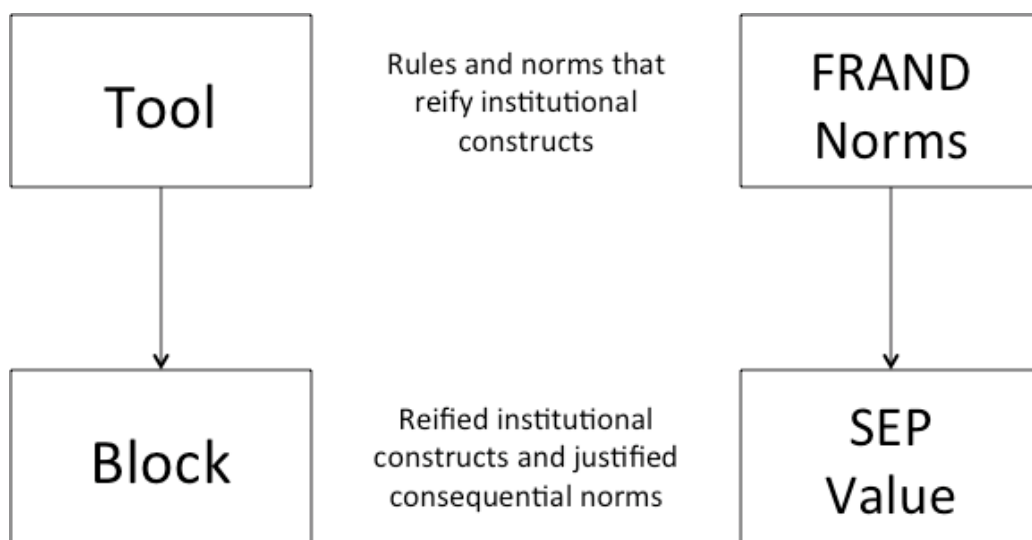


Figure 1: SEP value as a hierarchy of norms⁴

This ambiguity gives rise to opportunism, which in turn leads to litigation where courts attempt to better define the institutional rules and norms that allow for business strategies and investments to be made with more certainty. In the period of ambiguity, lobbying efforts primarily by industry, through politicians and even academics, intensifies with the goal of influencing legislators, regulators, and courts to accept their view of reality. Typically, normative agendas are put forward as “facts,” requiring both the self-interests as well as the arguments put forward by different actors to be deconstructed and separated for analysis. This discussion explores the foundations of a social constructionist model of FRAND built on the deconstruction of the heterogeneity of interests in the telecommunication value chain, the typification of FRAND, and the reification of FRAND on legitimizing arenas.

² Political processes are construed broadly to encompass all activities outside of the private marketplace that impacts the meaning of FRAND, including legislative, judicial, and other regulatory actors as well as SSOs.

³ This would seem to be true for patent damages in general. Landers, A. L. (2005), “Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law,” *Santa Clara L. Rev.*, 46, 307 at 328 states that “under the courts’ elastic and somewhat uncertain standards, the potential forms of evidence that might be presented to a jury are inestimable.”

⁴ This framework is adapted from Petrusson, U. (2004), *Intellectual Property & Entrepreneurship: Creating Wealth in an Intellectual Value Chain*, Center for Intellectual Property Studies (CIP).

III. HETEROGENEITY OF INTERESTS IN THE TELECOMMUNICATION VALUE CHAIN

Figure 2 below shows the creation of a new industrial dynamic within the telecommunications sector, which has resulted in greater division of labor, including innovation specialists and implementation specialists together with integrated firms, who all compete in the same value chain with very different strategies and incentives.⁵ These actors interpret the patent system and anti-trust regulations towards the standardization process in very different ways in their search to maximize economic performance. In particular, the division of innovative labor, represented by Firm B in figure 2, illustrates the full transition from a traditional material value chain (“MVC”) to an intellectual value chain (“IVC”) logic, while many integrated firms have increasingly developed strong licensing programs in the IVC to complement their MVC offerings.⁶ When all market actors are integrated firms, cross-licensing and patent pools can often be used to facilitate freedom-to-operate and competition on the product market.⁷ However, it is easy to understand why a fragmented value chain creates different perceptions of the value of SEPs, as implementation specialists use standards to develop markets where they can sell their products while innovation specialists look for a return on investment for the technology in the standard itself. For implementation specialists, SEPs are viewed as an added cost to their end product, while for innovation specialists, the standard *is* their product, and SEPs are the means to benefit from their R&D investment.⁸

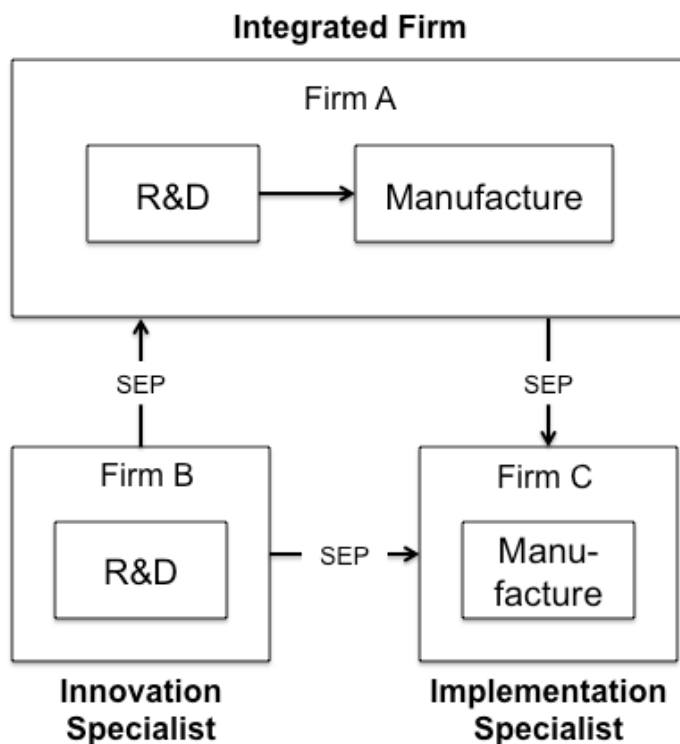


Figure 2: SEPs and the new division of labor in the telecommunication value chain

⁵ See Geradin, D., & Rato, M. (2007), “Can standard-setting lead to exploitative abuse? A dissonant view on patent hold-up, royalty stacking and the meaning of FRAND,” *European Competition Journal*, 3(1), 101-161 and Schmalensee, R. (2009), “Standard-setting, innovation specialists and competition policy,” *The Journal of Industrial Economics*, 57(3), 526-552. Innovation in this context is focused on the development of the standard, not the products that incorporate the standard.

⁶ Simply stated, the MVC is the traditional flow of physical goods in a traditional industrial market, while the IVC represents the flow of intangible goods, in particular, intellectual property that is traded as a separate value proposition (i.e. not embedded in physical products). For a deeper discussion, see Heiden, B., & Andreasson, J. (2016), “Reevaluating Patent Damages in the Knowledge Economy: The Intellectual Value Chain and the Royalty Base for Standard-Essential Patents,” *Criterion J. on Innovation*, 1, 229.

⁷ See Shapiro, C. (2000), “Navigating the patent thicket: Cross licenses, patent pools, and standard setting,” *Innovation policy and the economy*, 1, 119-150. Grindley, P. C., & Teece, D. J. (1997), “Managing intellectual capital: licensing and cross-licensing in semiconductors and electronics,” *California management review*, 39(2), 8-41 describe how the historical role of patents in the electronics industry has been strongly associated with the use of cross-licensing agreements between competing manufacturers, which has been a norm in the industry since the very beginning.

⁸ The fragmentation of the value chain provides a good illustration of the alienation of the value of knowledge in traditional, integrated industrial firms. A division of innovative labor forces a separate accounting of value for the knowledge contribution and the manufacturing contribution (i.e. the intellectual and the material value chain), which was previously hidden in the end product price in vertically integrated firms. The transformation from a hierarchical relationship to a market transaction forces the value of knowledge to be unveiled.

From a standardization perspective, firms operating in this new division of innovative labor (i.e. innovation specialists) are completely dependent on having their patented technology included in the open standards under terms that allow for them to receive a return on their R&D investment.⁹ This changes the traditional pre-competitive nature of standards development focused on product market competition into a high-stakes game of poker on the technology market. In this new IVC logic, the inclusion of a firm's technology in the standard creates a competitive bargaining position against rival product firms operating downstream and a significant opportunity for royalties for upstream technology firms. Hybrid firms with both strong patent positions and product manufacturing benefit with lower costs on the product side and additional income from royalties from product actors with smaller patent positions in the standard. In the context of standards, patents have taken on the role of allowing for a new division of innovative labor by providing upstream actors a claim on their R&D contributions outside of the sale of products as well as offering a means for all actors to receive a return on their investment for their innovative efforts.¹⁰ Thus SEPs, based on FRAND commitments, have facilitated the development of an intellectual value chain, where value is distributed through license transactions to the owners of the underlying technology in parallel to the material value chain for the manufacture and distribution of physical products. While patents and standards have traditionally been depicted at odds with one another, it could be said that an increased dynamic use of patents and division of innovative labor in the knowledge economy makes patents essential (excuse the pun) to the development of most standards, as many knowledge-based firms increasingly compete in the upstream technology market, not only the downstream product market.¹¹

The discussion above illustrates why the distinction between the MVC and IVC is likely better than practicing entities ("PE") and non-practicing entities ("NPEs"). Based on the transformation of the telecommunication value chain, the concept of the NPE as the only actor possessing an asymmetric patent bargaining power is not tenable. The main distinction is not whether a firm is a practicing entity or not but instead the strength of the bargaining position based on the relative positions of market actors in the intellectual value chain (e.g. based on the relative strength of their SEP portfolios and product liability). Thus, two practicing entities can experience the same SEP-based bargaining asymmetry as a non-practicing and practicing entity, from an SEP perspective. Thus, the IVC offers bargaining power to actors that complements and competes with bargaining power traditionally reserved to implementing firms in the MVC. However, when the property dimension of patents is reduced through the weakening of injunctive relief, bargaining power can swing back in favor of implementing firms in the MVC through patent holdout/trespass.¹²

IV. THE TYPIFICATION OF FRAND

FRAND is an example of a purposefully incomplete contract negotiated by sophisticated actors to provide a framework for private ordering in the public interest.¹³ While incomplete contracts may be considered efficient and desirable, the intrinsically ambiguous nature of 'reasonable and non-discriminatory' makes FRAND susceptible to (re)interpretation and regulatory capture as changes in their meaning can have a large financial impact. Figure 3 below maps the key constitutive concepts of FRAND that have been the focus of contention among stakeholders in the telecommunication value chain.¹⁴

⁹ Firms operating under this division of labor are often labeled as non-practicing entities ("NPEs") to distinguish them from actors that produce goods and services. This distinction is tenuous given the fact that many firms traditionally viewed as practicing have outsourced most of their manufacturing and have developed extensive patent and technology licensing programs.

¹⁰ This is particularly true for NPEs. For operating companies, the inclusion of in-house technology in the standard could also provide manufacturing advantages as the contributing company has more tacit knowledge related to their own technology. This discussion does not include non-SEPs, which represent innovative, valuable solutions outside of the implementation of the standard. See Merges, R. P. (1999), "Intellectual property rights, input markets, and the value of intangible assets," *Input Markets, and the Value of Intangible Assets* (February 1, 1999) and Hall, B. H., & Ziedonis, R. H. (2001), "The patent paradox revisited: an empirical study of patenting in the US semiconductor industry, 1979-1995," *RAND Journal of Economics*, 101-128.

¹¹ It should be noted that the concepts of "upstream" and "downstream" as well as "vertical" and "horizontal" arise from a material value chain logic and are not directly transferable to an intellectual value chain, which operates under a different logic. However, these concepts can be useful when describing the intellectual value chain in relation to the material value chain in an integrated value chain/network.

¹² Heiden, B., & Petit, N. (2017), "Patent Trespass and the Royalty Gap: Exploring the Nature and Impact of Patent Holdout," *Santa Clara High Tech. LJ*, 34, 179.

¹³ From a transaction cost perspective, contracts can be argued to be necessarily incomplete because of the costs of identifying all possible contingencies. Wright, J. D. (2013), "SSOs, FRAND, and Antitrust: Lessons from the Economics of Incomplete Contracts," *Geo. Mason L. Rev.*, 21, 791.

¹⁴ Other FRAND issues exist such as 3rd party rights and transference of FRAND commitments through a greater consensus and less contention exists in these areas.

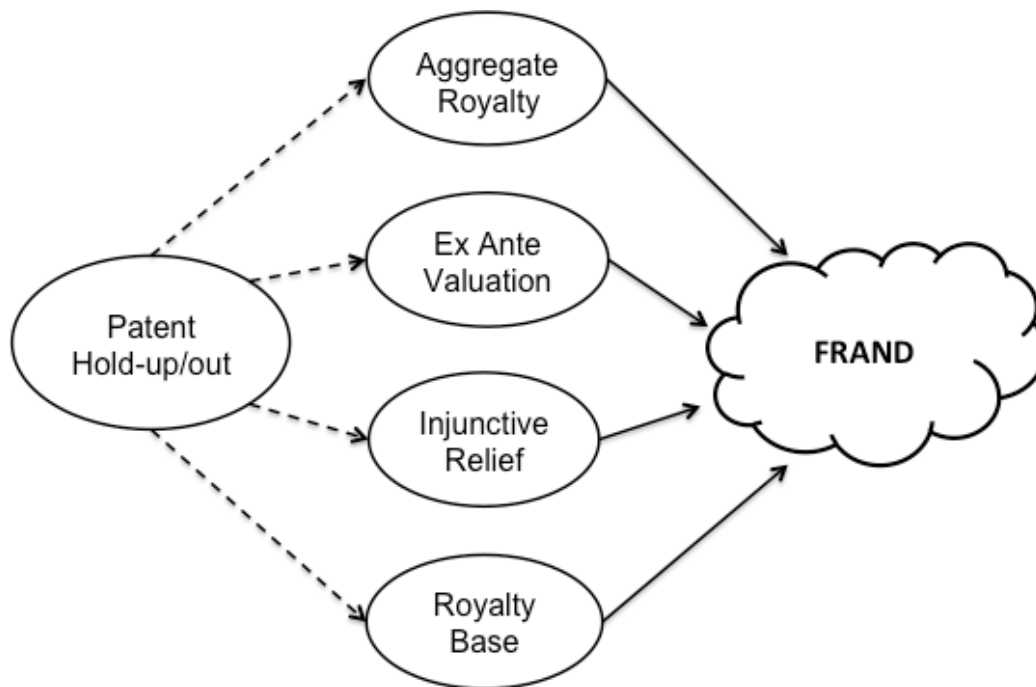


Figure 3: Key constituent concepts defining the meaning of FRAND

Multiple efforts to define these key concepts on the tool level through legal, economic, and business argumentation have been put forward due to the possibility of enacting a systemic effect. Below is a short description of each concept:

A. Patent Hold-up/out

Patent hold-up/out is the core concept at the epicenter of the FRAND debate. It arises from the interaction of the exclusivity of patents and the lock-in of standards in combination with the heterogeneity of business models discussed in section 2. The term “holdup” has a specific negative connotation in transaction cost economics based on the exploitation of opportunism.¹⁵ The contemporary meaning of holdup/out in the context of patents is typically understood as the opportunity of one party to expropriate value from another party through the following:

- SEP holders charging excessive FRAND royalties to implementing firms (i.e. supra-FRAND rates) that capture the non-SEP related investments
- Implementing firms delaying or refusing to pay FRAND royalties to SEP holders (i.e. sub-FRAND rates) that capture SEP-related R&D investments

The impact of patent hold-up/out can be deemed as having both distributional and welfare effects where the former is related to rent-shifting and the latter with economic efficiency and the need for potential policy remedies.

B. Aggregate Royalty

The issue of aggregate royalty is not an issue of the sheer number of SEPs but of the distributed ownership of SEPs among numerous owners. Patent hold-up/out is deemed to occur through the following:

- Royalty stack – when multiple SEP holders charge supra-FRAND rates to implementing firms
- Royalty gap – when SEP holders receive sub-FRAND rates from multiple implementing firms

¹⁵ The theoretical link between patent holdup and the concept of holdup in transaction cost economics has been questioned. See Galetovic, A., & Haber, S. (2017), “The Fallacies of Patent-Holdup Theory,” *Journal of Competition Law & Economics*, 13(1), 1-44 and Heiden & Petit, *supra* note 12.

The royalty stack/gap is a systematic issue that, in theory, results from a widespread over/underpayment of FRAND royalties by implementing firms deploying standard-enabled products and services. Preliminary empirical data shows the lack of evidence for a systematic royalty-stacking problem in relation to mobile telecommunication standards.¹⁶ A potential emerging royalty gap is observed but has not reached a systemic impact in the technology market.¹⁷

C. *Ex Ante* Valuation

The concept of *ex ante* valuation is related to the time period in which courts should base their determination of patent damages in the context of FRAND royalties.¹⁸ The traditional use of Georgia-Pacific factor 15 sets the timing at the point before the infringement took place. However, the following competing two FRAND-based valuation timeframes have been posited:

- SSO timeframe – this theory states that the value of SEPs needs to be discounted in relation to their marginal benefit over the comparable technologies under consideration by the SSOs.¹⁹
- R&D timeframe – this theory states that the SSO timeframe is not *ex ante* enough and should be placed at the time of the R&D decision of the contributing firm.²⁰

Despite the fact that Teece & Sherry (2002)²¹ describe that the practical, counterfactual determination of what the standard would look like if another technology had been adopted is difficult to determine *ex post*, the SSO timeframe model has been applied in U.S. court decisions on FRAND royalties.²²

D. *Injunctive Relief*

Injunctive relief in the context of FRAND is associated with the blocking of import and sale of infringed products and services. As patent hold-up/out requires the compulsion to accept supra/sub-FRAND rates (i.e. an act cannot be opportunistic if there is no compulsion to accept the act), the exclusivity provided by injunctive relief is a core legal tool in the debate through the following theories:

- Patent Holdup – by threatening the removal of the entire product or service from the market, injunctive relief provides the SEP holder an asymmetric bargaining position that can potentially produce a systematic impact on implementing firms and a systemic impact on social welfare (primarily static efficiency).
- Patent Holdout – by removing the threat of injunctive relief, implementing firms have no incentive to make FRAND payments, providing SEP implementers an asymmetric bargaining position that can potentially produce a systematic impact on SEP holders and a systemic impact on social welfare (primarily dynamic efficiency).

16 See Galestovic, A., Haber, S., & Zaretzki, L. (2018), "An estimate of the average cumulative royalty yield in the world mobile phone industry: Theory, measurement and results," *Telecommunications Policy*, 42(3), 263-276; Mallinson, K. (2015), "Cumulative mobile-SEP royalty payments no more than around 5% of mobile handset revenues," *IP finance*, 19; Sidak, J. G. (2016), "What aggregate royalty do manufacturers of mobile phones pay to license standard-essential patents," *Criterion J. on Innovation*, 1, 701.

17 See Heiden & Petit, *supra* note 12.

18 See Teece, D. J., & Sherry, E. F. (2016), "The IEEE's new IPR policy: did the IEEE shoot itself in the foot and harm innovation," *Tusher Center for the Management of Intellectual Capital*, who state the recent inclusion of *ex ante* valuation of SEPs in the new IEEE IPR policy "essentially amounts to the proposition that *all* of the gains from standardization should flow to implementers and/or consumers, and none (except via the volume effect) to patent holders whose technology is incorporated into the standard." See also Lee, W. F., & Melamed, A. D. (2015), "Breaking the Vicious Cycle of Patent Damages," *Cornell L. Rev.*, 101, 385.

19 See Swanson, D. G., & Baumol, W. J. (2005), "Reasonable and nondiscriminatory (RAND) royalties, standards selection, and control of market power," *Antitrust LJ*, 73, 1.

20 See Sidak, J. G. (2013), "The meaning of frand, part I: Royalties," *Journal of Competition Law and Economics*, 9(4), 931-1055 and Heiden & Andreasson, *supra* note 6.

21 Teece, D. J., & Sherry, E. F. (2002), "Standards setting and antitrust," *Minn. L. Rev.*, 87, 1913.

22 See *Microsoft Corp. v. Motorola, Inc.*, No. 10-cv-1823 (W.D. Wash.) and *In re Innovatio IP Ventures LLC*, No. 11-cv-09308 (N.D. Illinois). For an analysis, see Heiden, B. (2015), "Valuing Standard Essential Patents in the Knowledge Economy: A Comparison of F/RAND Royalty Methodologies in US Courts," *International Journal of Standardization Research (IJSR)*, 13(1), 19-46.

The potential impact of injunctive relief in regard to patent holdup theory has been seen as an important issue by competition authorities, while the potential impact of patent holdout has not been seen as an antitrust issue even though it can affect competition and economic efficiency.²³

E. Royalty Base

A FRAND royalty is determined by the combination of the royalty rate and the royalty base applied to the infringing product (or service). Competing theories of the location of the royalty base in the value chain are as follows:

- Component level – proponents claim that smallest-saleable patent-practicing unit (“SSPPU”) should be used as the royalty base for FRAND determinations.
- Product level – proponents claim that the product price paid by the consumer represents the proper royalty base for FRAND determinations

The difference between calculating FRAND royalties using the component versus the product level is between 1-2 orders of magnitude depending on the product and standard, which has created very different results, based on divergent economic theories of SEP damages.²⁴

Table 1 below shows the main areas of contention in relation to a patent holdup versus holdout logic and their comparative, underlying theoretical arguments.

	Patent Holdup	Patent Holdout
Aggregate Royalty	Multiple, independent claims produce a royalty stack	Multiple, under/non-payment produces a royalty gap
Ex Ante Valuation	SSO timeframe allows for comparison of competing technology contributions	R&D timeframe allows for comparison of competing technology investments
Injunctive Relief	Availability of injunction facilitates capture of supra-FRAND royalties	Unavailability of injunction facilitates delay leading to sub-FRAND royalties
Royalty Base	Product level royalty base leads to over compensation of SEPs compared to SSPPU	Component level royalty base leads to under compensation of SEPs compared to market value

Table 1: FRAND conceptual areas of contention

V. THE REIFICATION OF FRAND ON LEGITIMIZING ARENAS

The reification of institutional tools and blocks is a process of communication and acceptance, which can be described as a period of normative openness ending in normative closure. During the period of openness, stakeholders make claims that are eventually either accepted (possibly in modified form) or rejected by the other stakeholders. However, communicative claims require structural legitimacy (i.e. reified platforms where institutional tools are defined and accepted). Communicative claims can thus be seen as a game that takes place among different actors across different arenas. These different actors vie to have their claims of social reality accepted on these key arenas through various means of persuasion.

Using the example of patents in the context of standards we can construct an extended model of five key arenas where FRAND as a tool and specific SEPs as building blocks are being communicatively claimed by influential stakeholders (see figure 4 below).²⁵

²³ See for example the U.S. FTC Google Consent Order (2013) and the U.S. DOJ IEEE Business Review Letter (2015).

²⁴ See Petit, N. (2016), “The IEEE-SA Revised Patent Policy and Its Definition of Reasonable Rates: A Transatlantic Antitrust Divide,” *Fordham Intell. Prop. Media & Ent. LJ*, 27, 211; Putnam, J. D. (2017), “Economic Determinations in Frand Rate-Setting: A Guide for the Perplexed,” *Fordham Int’l LJ*, 41, 953; Contreras, J. L., & Gilbert, R. J. (2015), “Unified Framework for RAND and Other Reasonable Royalties,” *Berkeley Tech. LJ*, 30, 1451.

²⁵ Note that the model is focused on the U.S. perspective, but is also transferable to other countries (minus the ITC arena) and could be used to evaluate the global development of FRAND.

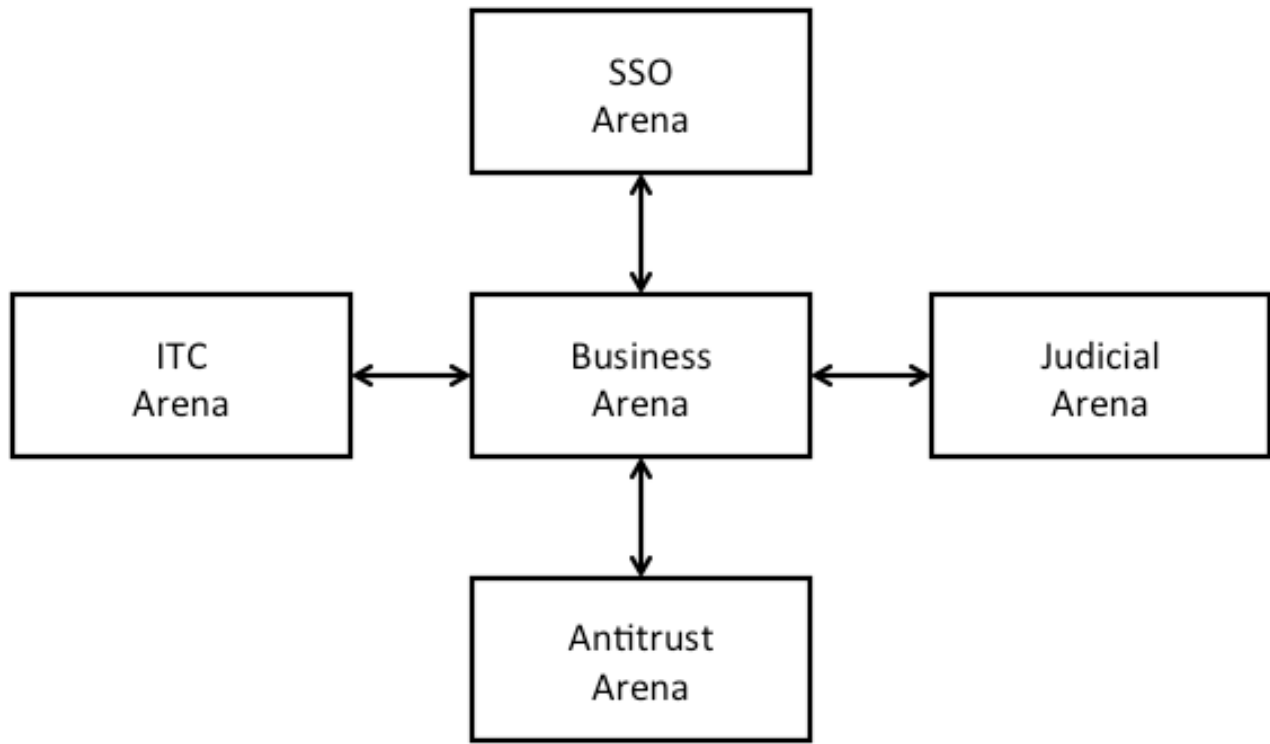


Figure 4: FRAND as a communicative game on five arenas²⁶

Below is a brief description of each of the arenas from a U.S. perspective:

A. Business Arena

This arena consists of commercial actors and associated market and financial institutions involved in the development and implementation of technology, products, and services in standards-enabled markets. It is placed in the middle because patent value is ultimately created and extracted in this arena through the influence and constraints of the other arenas.²⁷ Actors on this arena typically make communicative claims in their own economic interests (i.e. either short term or long term) and attempt to influence both the norms on the business arena (e.g. through new knowledge-based business models) as well as influence the development of norms in the other four arenas that collectively impact the meaning of FRAND. This is done through direct and indirect actions that affect specific SEPs, as well the general concept of FRAND (i.e. both on the block and tool level). Direct actions focused on specific technology contributions or SEPs include, for example, participation in the development of new standards through an SSO, filing patents and requesting reexaminations at the USPTO or other PTOs, participation as a litigant in a court or ITC proceeding, filing an antitrust complaint, and negotiation of FRAND licenses with other market actors. Indirect actions focused on redefining FRAND include, among others, lobbying for legislative change, filing *amicus* briefs to influence courts and regulatory actors, proposing changes to SSO IPR policies, and supporting academic and media channels. The business arena, in turn, is directly influenced by antitrust and SSO policies, legal norms and judicial rulings, and the competitive strategy of the different market actors. Firms operating in different parts of the value chain view FRAND and the value of SEPs differently, which creates a disequilibrium of interests that incentivizes and facilitates an environment for opportunistic behavior through direct and indirect means. While this has resulted in prolonged FRAND negotiations, increased litigation, and recently, the need for FRAND royalty rates to be determined by the courts, standards-enabled markets have historically shown signs of considerable success in general.²⁸

²⁶ See Petrusson, *supra* note 4.

²⁷ Note that most litigation is resolved outside of the courts, and even when court decisions are made, business actors often negotiate a settlement in the shadow of a potential appeal.

²⁸ See Galetovic, A., Haber, S., & Levine, R. (2015), "An empirical examination of patent holdup," *Journal of Competition Law & Economics*, 11(3), 549-578, which shows that SEP-reliant industries have the fastest quality-adjusted price declines in the U.S. economy.

B. Judicial Arena

This arena consists primarily of the federal district court system that adjudicates patent cases, including the Court of Appeals for the Federal Circuit (“CAFC”) and the Supreme Court. Courts are influenced directly by legislation, procedural law, expert testimony, and the argumentation of the litigants, and indirectly through *amicus* briefs submitted by concerned 3rd parties. Court decisions have a direct impact on specific SEP portfolios through the determination of patent validity, infringement, essentiality, damages, and ongoing FRAND royalties as well as through injunctive relief. In addition, court rulings also have a systemic effect on the meaning of SEPs and FRAND by creating new procedural law that impacts future courts and market expectations as discussed in all the appended papers. This includes, for example, the interpretation of Georgia-Pacific Factors, *ex ante* valuation, royalty stacking, royalty base, injunctive relief, and patent holdup from a FRAND perspective.

C. ITC Arena

In addition to the judicial arena there exists in the U.S. a quasi-judicial entity known as the International Trade Commission (“ITC”), which has the authority to block entry into the U.S. of imported goods that are deemed to infringe U.S. patents.²⁹ The ITC reports to Congress, POTUS, and the U.S. Trade Representative (“USTR”) and is influenced by changes in legislation and the veto power of the President and USTR. Recent shifts by U.S. district courts to a more stringent test for injunctive relief in combination with the fact that most telecommunication products are imported to the U.S. has generated increased caseload at the ITC based on its ability and perceived willingness by patent holders to grant exclusion orders.³⁰ Thus SEP holders have petitioned the ITC for exclusion orders against implementing firms that infringe their SEP portfolios. For example, in 2013 an exclusion order was granted by the ITC blocking certain Apple products for import in the U.S.-based on infringement of SEPs owned by Samsung. However, USTR through delegation from POTUS vetoed the order citing agreement with the guidelines with USDOJ-USPTO policy statement on FRAND remedies.³¹ Despite the previous veto, the ITC in 2015 issued an exclusion order against Nokia (now MMO) for the infringement of an SEP owned by Interdigital, providing in its decision the information requested in the previous USTR veto letter, in particular, the justification that MMO was practicing patent holdout as an unwilling licensee. This opens the door for ITC-based exclusion orders under the circumstance of refusal to license on FRAND terms.

D. Antitrust Arena

The key regulatory actors in the antitrust arena in the U.S. are the Federal Trade Commission (“FTC”) and the Antitrust Division of the Department of Justice (“DOJ”). The FTC is a quasi-judicial, independent organization charged with preventing anticompetitive business practices and protecting consumers.³² The Antitrust Division of the Department of Justice has a similar role of promoting competition and enforcing antitrust laws. Together, these actors have direct influence in determining the antitrust implications of IP transactions through, for example, evaluating mergers and acquisitions involving large SEP portfolios³³ and providing business review letters (“BRLs”) regarding cross-licensing, patent pool formation, and SSO IPR policies.³⁴ They also conduct investigations into the alleged anticompetitive use of FRAND-enabled SEPs by individual market actors.³⁵

²⁹ See 19 U.S.C. § 1337.

³⁰ See Chien, C. V., & Lemley, M. A. (2012), “Patent holdup, the ITC, and the public interest,” *Cornell L. Rev.*, 98, 1, who describe the rush to the ITC after the *eBay* decision.

³¹ See https://www.uspto.gov/about/offices/ogc/Final_DOJ-PTO_Policy_Statement_on_FRAND_SEPs_1-8-13.pdf.

³² See <https://www.ftc.gov>.

³³ For example, see DOJ investigation of Google’s purchase of Motorola Mobility, and Rockstar consortium’s purchase of the Nortel patent portfolio.

³⁴ For example, the DOJ has issued BRLs for 3G, MPEG-2, and DVD patent pools and for SSO IPR policies for IEEE and VITA – see <http://www.justice.gov/atr/business-reviews>.

³⁵ For example, see FTC consent orders in the cases of *Unocal*, *Dell*, *Rambus*, *Google/MMI* <https://www.ftc.gov/enforcement/cases-proceedings/1210120/motorola-mobility-llc-google-inc-matter>; and *Robert Bosch* <https://www.ftc.gov/enforcement/cases-proceedings/1210081/bosch-robert-bosch-gmbh>.

E. Standard Setting Organization Arena

This arena consists of various national and international organizations whose primary role is to define technical standards and publish the associated technical specifications. There are a great number and variety of standard setting organizations (“SSOs”) with the role of facilitating the collaborative development of industry standards.³⁶ While SSOs are generally considered to be pro-competitive, collective participation by competing firms creates an environment for opportunistic behavior with potential anti-competitive effects.³⁷ Many SSOs are private, non-profit organizations governed by private members, either individual professionals as with IEEE (Institute of Electrical and Electronics Engineers) or organizations as with ETSI (European Telecommunications Standards Institute). In addition, countries can also be members as is the case with ITU (International Telecommunication Union), which is a UN agency. Given that the actors in the business arena can also be members in the SSOs, there is a potential conflict of interest in the development of objective technical standards that must be overcome. This is particularly challenging due to the asymmetric distribution of market power in SSOs with predominantly corporate members. The recent controversial change in IPR policy at IEEE illustrates how SSOs can be used as an important arena to define the meaning of FRAND.³⁸

Figure 5 below shows an influence diagram describing how market interests can impact the meaning of FRAND through the legitimizing arenas discussed above.

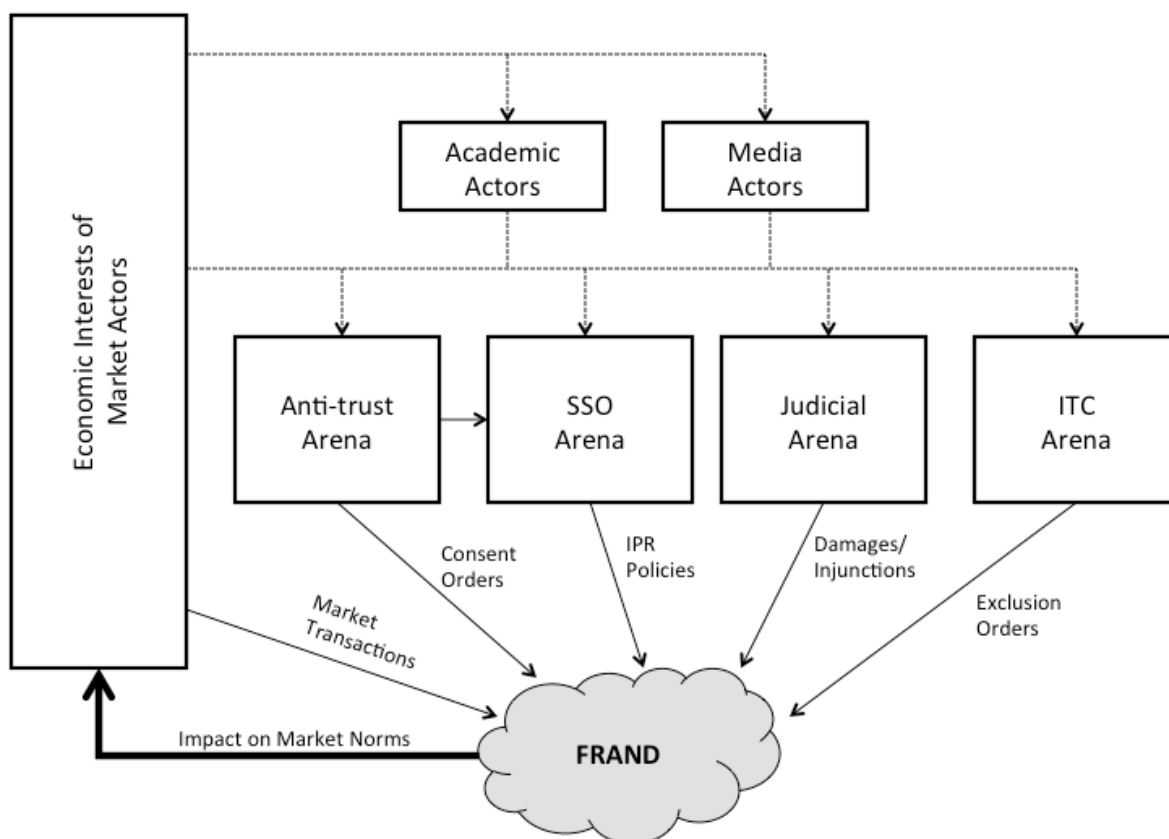


Figure 5: Influence diagram of legitimizing arenas defining the meaning of FRAND.

From the brief descriptions above, it is easy to see how different actors can play a communicative game on different arenas to try to enact their claims as a means to affect not only the validity of specific commercial building blocks but also the validity of the tools that are used to build them. While the different arenas have their own logic, they are also part of an interrelated system of design, development, validation, and enforcement. Additional arenas, such as legislative (i.e. Congress) and administrative (i.e. USPTO) could also be added to this communicative system defining the meaning of FRAND. Hopefully, this framework will lead to a better understanding of the institutional design process, in general, and the political economy of FRAND, in particular, for both market actors and policy-makers.

³⁶ See Bekkers, R., & Updegrave, A. (2013), “IPR policies and practices of a representative group of standards-setting organizations worldwide,” *Commissioned by the Committee on Intellectual Property Management in Standard-Setting Processes, National Research Council, Washington*, who identified over 840 SSOs in the ICT sector alone.

³⁷ See Anton, J. J., & Yao, D. A. (1995), “Standard-setting consortia, antitrust, and high-technology industries,” *Antitrust LJ*, 64, 247.

³⁸ See Sidak, J. G. (2016), “Testing for Bias to Suppress Royalties for Standard-Essential Patents,” *Criterion J. on Innovation*, 1, 301.

SEP LICENSING AFTER TWO DECADES OF LEGAL WRANGLING: SOME ISSUES SOLVED, MANY STILL TO ADDRESS

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I. INTRODUCTION

Over the past two decades, issues linked to the licensing of standard-essential patents (“SEPs”) have kept intellectual property (“IP”) and competition lawyers busy. As is well known, SEP licensing is a conflictual area for several reasons. First, companies have different business models. While some market players have developed a licensing business model and thus try to maximize licensing revenues, others generate the vast majority of their revenues through selling SEP-compliant products and thus have an interest in minimizing licensing fees. Second, there is a lot of money at stake, as SEP holders with large portfolios will often seek hundreds of millions of euros for the licensing of their patents, hence making litigation worth its costs. Finally, while SEPs should be licensed at fair, reasonable and non-discriminatory (“FRAND”) terms, what FRAND means in practice is subject to interpretation. In this fertile ground for disputes, EU competition law, and in particular Article 102 TFEU, has been often used as a defense by SEP implementers facing what they considered to be unreasonable demands from SEP holders.

Against this background, this short paper explores where we stand after two decades of European Commission (“Commission”) investigations, substantial patent litigation in national courts, and a major judgment of the Court of Justice of the European Union (“CJEU”) devoted to SEP licensing and its relationship with EU competition law. As will be seen, while consensus has been reached over several issues, a lot remains to be done. This paper is divided in four parts. Part II describes the issues that have been addressed, albeit not always satisfactorily, by competition authorities and courts over the past years. Part III discusses some of the SEP licensing issues that still largely need to be solved with a focus on six questions: (i) what is the nature of the FRAND commitment?; (iii) what is a FRAND license?; (ii) should the gaps left by the CJEU in *Huawei v. ZTE* be filled and if so how?; (iv) can a court that finds that local SEPs have been infringed force the infringer to take a global license on pain of an injunction?; (v) access for all v. license to all: What are the obligations of the SEP holder?; and (vi) how should SEP licensing adapt the IoT context? Part IV concludes.

II. SEP LICENSING AND EU COMPETITION LAW: SOME ISSUES SOLVED

While the complex relationship between standardization, SEP licensing and competition law was not entirely unknown from the Commission,² the Commission’s first major cases arose in the mid-2000s with the *Rambus* and *Qualcomm* investigations. These cases were then followed a few years later by the *Samsung* and *Motorola* investigations, and then by the landmark CJEU in *Huawei v. ZTE*. In this part, I provide a brief summary of these cases, the issues that were addressed and why many important issues remain unsolved.³

In *Rambus*, the Commission was concerned that Rambus had engaged in a “patent ambush” by intentionally concealing, during the formation of the standard, that it held patents and patent applications which were relevant to technologies used in the standard that was elaborated within JEDEC (the standard-setting organization (“SSO”) in question), and subsequently claiming unreasonably high royalties for those patents.⁴ In December 2009, the Commission brought this investigation to an end by adopting a commitments decision, whereby it rendered legally binding Rambus’s commitment to cap the licensing fees that Rambus could charge for certain patents essential to JEDEC’s standard for DRAM’s chips.⁵

The *Qualcomm* case was essentially also about alleged excessive royalties. Six firms active in the mobile phone equipment sector, including Nokia and Ericsson which at the time were major OEMs, filed complaints with the Commission, alleging *inter alia* that Qualcomm’s licensing terms and conditions for its patents essential to the WCDMA standard did not comply with Qualcomm’s FRAND commitment and thereby breached EU competition rules.⁶ The difficulty for the Commission was that, while Qualcomm’s royalties were alleged to be unreasonably high, it was not easy to demonstrate that they were “exploitative” within the meaning of Article 102(a) TFEU. After a long and thorough investigation, the Commission eventually decided in 2009 to bring its formal proceedings against Qualcomm to an end.⁷

² See, e.g. Communication from the Commission “Intellectual Property Rights and Standardization,” October 27, 1992, COM (92) 445 final.

³ This part draws on Damien Geradin, “European Union Competition Law, Intellectual Property Law and Standardization,” in J. Contreras Ed., *Cambridge Handbook on Technical Standardization Law* (2017).

⁴ See “Commission confirms sending a Statement of Objections to Rambus,” MEMO/07/330, August 23, 2007, available at http://europa.eu/rapid/press-release_MEMO-07-330_en.htm.

⁵ See “Commission accepts commitments from Rambus lowering memory chip royalty rates,” IP/09/1897, December 9, 2009, available at http://europa.eu/rapid/press-release_IP-09-1897_en.htm?locale=en.

⁶ Antitrust: Commission initiates formal proceedings against Qualcomm, MEMO/07/389, October 1, 2007, available at http://europa.eu/rapid/press-release_MEMO-07-389_en.htm.

⁷ “Commission closes formal proceedings against Qualcomm,” MEMO/09/516, November 24, 2009, available at http://europa.eu/rapid/press-release_MEMO-09-516_en.htm.

The outcome of the much-publicized *Qualcomm* case was clear: while the Commission was willing to investigate complaints alleging that abusive SEP licensing practices had been committed, it would not act as a “royalty regulator.” Handling disputes as to the level of royalties (or more generally licensing terms) was a task that should be left to courts or alternative dispute-resolution mechanisms.

The Commission was, however, soon again embroiled in SEP licensing disputes as it received in 2012 complaints against *Samsung* and *Motorola* arguing that by seeking injunctions against SEP implementers, which were willing to take a license, they had failed to honor its FRAND commitments and breached Article 102 TFEU.⁸ These investigations were more promising than the investigation that had been launched against Qualcomm because the focus was not to determine whether the royalties that Samsung and Motorola had sought to obtain from standard implementers were excessive, but whether the tool that was used to allegedly force these implementers to pay excessive royalties were compatible with Article 102 TFEU. These investigations thus allowed the Commission to address the perceived *source* of the problem (i.e. the leverage created using injunctions) rather than its *symptoms* (i.e. high royalty demands). These investigations raised complex legal and policy questions, however, as the use of injunctions is a remedy expressly recognized in patent law (rather than a special scheme devised by the investigated companies). Moreover, depriving SEP holders from relying on injunctions under any circumstances may incentivize standard implementers not to take a license, hence increasing the risk of “hold-out.”

In April 2014, the Commission adopted two decisions respectively against Samsung and Motorola. In the *Samsung* case, the Commission issued a commitments decision rendering legally binding the commitments that had been offered by Samsung, whereby Samsung agreed not to seek injunctions in the EU on the basis of SEPs for mobile devices against licensees who agree to be bound by a specified licensing framework.⁹ In the *Motorola* case, the Commission adopted an infringement decision in which it considered that Motorola held a dominant position on the market for the licensing of its GPRS essential patents and ruled that Motorola abused its dominant position by both seeking and enforcing “an injunction against Apple in Germany on the basis of an SEP which it had committed to license on FRAND terms and where Apple had agreed to take a license and be bound by a determination of the FRAND royalties by the relevant German court.”¹⁰

The most important development with respect to the compatibility of the use of injunctions to enforce SEPs emerged from the decision of the Düsseldorf patent court on 21 March 2013 to refer several questions to the CJEU, which arose in the context of a patent infringement action initiated by Huawei against its Chinese rival ZTE. In its response to the questions raised by the referring court, the CJEU, in its judgment of July 2015, developed a framework outlining the circumstances under which an SEP holder could seek an injunction against a standard implementer to enforce its patents without breaching Article 102 TFEU.¹¹ A significant feature of this framework is that it does not only place obligations on the SEP holder if it wants to be able to seek an injunction with breaching EU competition law, but also on the standard implementer if it wants to avoid being subject to a legally admissible injunction. The CJEU thus seeks to reduce the risks of both “hold-up” and “hold-out.”¹²

The CJEU provides that, in order not to breach Article 102 TFEU, a SEP holder which considers that its patent has been infringed can only bring an action for an injunction provided that prior to bringing such an action, it has alerted the alleged infringer of the SEP “by designating that SEP and specifying the way in which it has been infringed.”¹³ Once the alleged infringer has expressed its willingness to take a FRAND license, the SEP holder must present a written offer for a license on FRAND terms, specifying the amount of the sought royalty and the way in which that royalty is to be calculated.¹⁴ Then, the alleged infringer must respond to that offer diligently and in accordance with “recognised commercial practices in the field and in good faith.”¹⁵ If the alleged infringer decides not to accept the offer made to it, it may argue that the injunction is abusive only if it has submitted to the SEP holder, “promptly and in writing, a specific counter-offer that corresponds to FRAND terms.”¹⁶ In addition, the

8 Antitrust: Commission opens proceedings against Samsung, IP/12/89, January 31, 2012, available at http://europa.eu/rapid/press-release_IP-12-89_en.htm.

9 Case AT.39939 - *Samsung - Enforcement of UMTS standard essential patents*, April 29, 2014, C (2014) final. The licensing framework provides inter alia for a negotiation period of up to 12 months, and if no agreement is reached, a third-party determination of FRAND terms by a court if either party chooses, or by an arbitrator if both parties agree on this. The advantage of this framework is that it guarantees that licensing disputes that Samsung and potential licensees of its SEPs cannot solve on their own will be brought to an end by the intervention of an independent third party, i.e. an arbitral tribunal if the parties agree or a court if they do not.

10 Case AT.39985 - *Motorola - Enforcement of GPRS standard essential patents*, April 29, 2014, C(2014) 2892 final, at § 269.

11 C-170/13, *Huawei v. ZTE*, ECLI:EU:C:2015:477.

12 On hold ups and hold outs, see Colleen V. Chien, “Holding Up and Holding Out,” 21 (2014) *Mich. Telecomm. & Tech. L. Rev.* 1.

13 C-170/13, *Huawei v. ZTE*, *supra* note 11, at § 61.

14 *Id.* at § 63.

15 *Id.* at § 65.

16 *Id.* at § 66.

court notes that if the alleged infringer is practicing the SEP before a license has been formally concluded, it must, from the point at which its counter-offer is rejected, “provide appropriate security, in accordance with recognised commercial practices in the field, for example by providing a bank guarantee or by placing the amounts necessary on deposit.”¹⁷ Finally, in the absence of an agreement on the details of the FRAND terms following the counter-offer by the alleged infringer, “the parties may, by common agreement, request that the amount of the royalty be determined by an independent third party, by decision without delay.”¹⁸

Following the adoption by the CJEU of its *Huawei v. ZTE*, we could have hoped that now that the most contentious SEP licensing issue, i.e. the alleged use of injunctions to extract unreasonably high royalty fees from willing licensees, had been addressed as a proper licensing framework outlining the respective rights and obligations of SEP holders and implementers was in place, SEP licensing disputes would abate. This is not what happened, however, for several reasons.

First, a weakness of the *Huawei v. ZTE* framework is that it does not provide a solution when the SEP holder has made an offer and the standard implementer has made a counter-offer, and they are still unable to agree on the terms and conditions of the license. In that situation, the CJEU simply says that the parties “may” by common agreement request that the amount of the royalty be set by an independent third-party, but they are not obliged to do so. A more helpful approach would have been for the CJEU to say that in the case they are unable to agree the parties may agree to have the license terms by an arbitral tribunal or a court and, if they are unable to reach such an agreement after a given period of time, that the terms will be determined by an independent third-party.¹⁹

Second, the *Huawei v. ZTE* framework was quite general in nature and contained terms that were subject to interpretation. The exact meaning of each and every step of the CJEU’s framework has thus been litigated in national courts, which in some cases adopted inconsistent positions. For instance, one question that has arisen in litigation is whether the *Huawei v. ZTE* licensing framework is a “step-by-step” or a “cumulative” process. Following a step-by-step approach, as long as one of the parties does not fulfil one of its obligations (e.g. the SEP holder did not submit a FRAND offer), the other party does not have to fulfil its obligations under the next step (e.g. the implementer does not have to submit a counter-offer).²⁰ Following a cumulative approach, even if one of the parties has not fulfilled one of its obligations, the other should nevertheless fulfil its own obligations under the *Huawei v. ZTE* licensing framework.²¹ The German case-law is divided on this issue and a clear position has yet to emerge.

Third, because a preliminary ruling of the CJEU only responds to the questions raised by the domestic referring court, the *Huawei v. ZTE* decision does not say anything about a series of important issues, such as for instance the scope of a FRAND license. For instance, should an SEP holder be able to condition the granting of a license to the implementer’s acceptance to take a global portfolio license? As we will see, this issue was at the core of the *Unwired Planet v. Huawei* High Court and Court of Appeals judgments in the UK.²² Moreover, the *Huawei v. ZTE* judgment – and for that matter earlier Commission decisions – do not say anything about the way FRAND royalties should be calculated, and this remains a contentious issue in SEP licensing negotiations and litigation.

Fourth, with the advent of the Internet of Things (“IoT”), some SEP licensing issues become more prominent. For instance, as illustrated by the licensing dispute between Nokia and Daimler,²³ a particularly contentious issue is whether an SEP holder should be free to choose the level of the value chain where it licenses its SEP portfolio (for instance, the end product level), or whether it should be bound by its FRAND commitment and/or its obligations under EU competition law to grant a FRAND license to all implementers (including, for instance, component makers) seeking a SEP license.

¹⁷ *Id.* at § 67.

¹⁸ *Id.* at § 68.

¹⁹ This was the approach pursued in the Samsung commitments, see *supra* note 9.

²⁰ In support of this position, see, e.g. OLG Düsseldorf, *Sisvel v. Haier*, judgments I-15 U 65/15 and I-15 U 66/15 of January 13, 2016 (it is only an offer of the patentee that meets FRAND conditions that triggers the infringer’s obligations; if the patentee’s offer was not FRAND, the (potential) infringer would not have to react upon this offer); OLG Karlsruhe, *Pioneer v. Acer*, judgment 6 U 55/16 of May 31, 2016 (only a FRAND offer can trigger the obligation by the alleged infringer to make a FRAND counteroffer).

²¹ In support of this position, see, e.g. OLG Düsseldorf, *St. Lawrence v. Vodafone and HTC*, judgments I-15 U 35/16 and I-15 U 36/16 of May 9, 2016 (a willing SEP implementer always has the chance to comply with its obligations during the case and thereby avoid an injunction depending on the details of the case; a rectification of any omission should be possible during the proceedings); OLG Düsseldorf, *Sisvel v. Haier*, judgments I-15 U 65/15 and 4a O 144/14 of March 30, 2017 (the non-timely taking of a necessary step by a party, which it is obligated to take according to the licensing framework established by the ECJ, does not result in a so-called material preclusion. This means that the respective step may be, in any event, still taken before an action has been filed without this strongly impairing the material legal position of the inert party).

²² See Part III, Section D below.

²³ See *infra* Part III, Section E below.

In sum, the decisions as well as the soft law instruments adopted by the Commission over the past two decades combined with the CJEU's judgment in *Huawei v. ZTE* have addressed some important issues that arise in the context of SEP licensing, such as the risk of patent ambush and the risk that the unrestrained use of injunctions may be used by SEP holders to force SEP implementers to take licenses at non-FRAND terms, many issues still need to be resolved, as will be shown in Part III below.

III. SEP LICENSING AND EU COMPETITION LAW: SOME IMPORTANT ISSUES IN NEED TO BE SOLVED

In this Part, I focus on some of important SEP licensing-related issues that have not yet received a satisfactory resolution. In each case, I describe the question at stake, the status of the debate and some possible solutions.

A. What is the Nature of the FRAND Commitment?

Although this is a rather basic question, there is still no consensus on the legal nature of the FRAND commitment. On the one hand, it can be argued that FRAND has a contractual nature and that therefore a breach of a FRAND commitment amounts to a breach of contract. This position, which I believed is correct, has received support from UK and U.S. courts.²⁴ On the other hand, German courts have so far refused to accept the contractual nature of FRAND, preferring instead to accommodate competition law defenses of SEP implementers.²⁵

The view that the FRAND commitment is of a contractual nature is based on French contract law.²⁶ As the European Telecommunications Standards Institute ("ETSI") is based in Nice, France, its IPR policy, including the "irrevocable undertaking in writing ... to grant irrevocable licences on fair, reasonable and non-discriminatory ("FRAND") terms and conditions" that a company that has declared SEPs is invited to give as per Article 6 of that Policy, is governed by French law. French law experts have recognized that, according to French contract law, the FRAND commitment is a "*stipulation pour autrui*," i.e. a covenant that benefits third parties, in this case all companies that implement the SEPs in question.²⁷

This issue has recently come to the fore as the Tribunal Judiciaire de Paris ("Paris High Court"), has been asked to look into this issue by TCL, a Chinese company active in consumer electronics.²⁸ The background of this case is as follows. In 2015, Philips approached TCL to invite it to take a license for Philips' portfolio of 3G and 4G SEPs. As no agreement could be reached, Philips sued TCL for its UK SEPs before the High Court of England & Wales, requesting an injunction to put an end to the infringement. In February 2019, TCL filed a lawsuit before the Paris High Court seeking, *inter alia*, to enjoin Philips to grant a license on FRAND terms, which the court had jurisdiction to determine, as well as to enjoin ETSI to assist with the granting of the license. In July 2019, Philips filed a motion to dismiss before the case management judge arguing *inter alia* that the Paris High Court lacked jurisdiction to hear the claims brought against Philips. On February 6, 2020, the case management judge rejected Philips' motion to dismiss.²⁹

Although this judgment is only of a procedural nature, it is important for several reasons. First, the case management judge's rejection of Philips' motion to dismiss means that the Paris High Court will have to look into the substance of the matter, including whether FRAND is of a contractual nature. Indeed, TCL, but also ETSI, argued, in line with the position of leading French law experts, that the FRAND commitment amounted to a *stipulation pour autrui*, which was the result of an exchange of consent between a promisor (in this case, Philips) and a stipulator (ETSI) where the promisor irrevocably undertook to grant irrevocable FRAND licenses to one or more beneficiaries (in this case, TCL).³⁰ Philips rejected this view, arguing that that it was only bound by a non-contractual commitment to negotiate in good faith.

²⁴ See, e.g. *Microsoft Corp. v. Motorola Inc.*, 696 F.3d 872 (2012); High Court of Justice, *Unwired Planet v. Huawei*, [2017] EWHC 711 (Pat.), at §§ 140 *et seq.*

²⁵ See Haris Tsilikas, *Antitrust Enforcement and Standard Essential Patents*, Nomos, 2015, at p. 32.

²⁶ See ETSI Intellectual Property Rights Policy, available at <https://www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf>, at Article 12.

²⁷ See, e.g. the testimony of Professor Fauvarque-Cosson in *Unwired Planet v. Huawei*, *supra* note 24, at §§ 106 *et seq.*

²⁸ Florian Müller, "French court may hold ETSI FRAND declarations to be binding contracts to the benefit of third parties: cross-jurisdictional ramifications," February 21, 2020, available at www.fosspatents.com/2020/02/french-court-may-hold-etsi-frand.html.

²⁹ See Ordonnance du juge de la mise en état, N° RG 19/02085, February 6, 2020, available at https://www.scribd.com/document/448263102/20-02-06-TJP-Order-in-TCL-v-Philips-and-ETSI#from_embed.

³⁰ See Marianne Schaffner & Christophe Arfan, "FRAND undertakings: a long awaited legal qualification in Europe – Paris takes the lead," available at <https://www.reedsmith.com/en/perspectives/2020/02/frand-undertakings-a-long-awaited-legal-qualification-in-europe>.

The Paris High Court trial, which is expected to take place in a few months, thus represents a unique opportunity to clarify the nature of the FRAND commitment. Should the Paris High Court confirm that FRAND has a contractual nature, this could have repercussions beyond France. Considering that ETSI's IPR policy must be interpreted under French law, it would in my view become increasingly difficult for courts, for instance in Germany, to reject the contractual nature of FRAND.

B. What is a FRAND License?

One of the reasons why SEP licensing has generated so many disputes is because the FRAND commitment that SEP holders make to standard-setting organizations is inherently vague. Of course, much more is known about FRAND today than it was 10 or 15 years ago. First, there is a large amount of legal and economic literature explaining the nature and contours of that notion, although it often goes in direct direction.³¹ Moreover, several courts have determined FRAND rates and thus clarified the methodologies that can be used in performing that exercise. But more work needs to be done to increase consensus over what FRAND terms mean in practice.

1. What is fair and reasonable?

A common approach to determine a fair and reasonable royalty rate is the comparable licenses approach. This approach investigates the rates agreed to in other licenses that are comparable to the one in dispute. Courts have endorsed the comparable licenses methodology as a standard methodology used in valuing SEPs. For instance, in *Microsoft v. Motorola*,³² Judge Robart noted that a comparable contracts approach was the preferable approach to pursue. Likewise, in *TCL v. Ericsson*,³³ Judge Selna utilized a comparable contracts analysis as part of its assessment of the FRAND rate, although he also relied quite heavily on a top-down approach to inform the fair and reasonable rate.

There are two main challenges with this approach. First, comparable licenses may not necessarily be available, either because the SEP holder has not concluded any license yet or because earlier licenses are too different from the circumstances at play. Their informative value is therefore limited. There are also circumstances where some parties may argue that they cannot provide comparable licenses due to confidentiality reasons, although in most instances this difficulty can be overcome through confidentiality rings, whereby the parties agree that only specified persons (e.g. outside counsel and consultants) can access these documents. In recent judgments, German courts have also rejected claims by SEP holders that they could not provide comparable licenses, as the courts considered such licenses were needed to ensure that the terms offered are fair and reasonable.³⁴

Second, even when comparable licenses are available, they can differ from the focal agreement in several dimensions, such as (i) the type of contract: some licenses are one-way whether others are cross-licenses; (ii) the date of signing and the SEPs that are licensed (as patent portfolios can grow or shrink over time); (iii) the identity of the licensor and licensee, and the extent of the relationship between the two; (iv) the duration and scope of the license; (v) payment terms (some contracts may contain lump-sum amounts, while others may contain royalties that are based on the sales of the licensee); and (vi) non-monetary considerations explicitly or implicitly included as part of the contract (for instance, some licenses may be part of a broader cooperation between the parties); etc. While the presence of differences add complexity to the methodology, various economic techniques can be used “unpack” these differences and determine the “effective” (i.e. all things being equal) royalty rates agreed in each comparable license.

31 The question of the meaning of the terms “fair” and “reasonable” contained in the FRAND promise has absorbed the attention of legal and economic commentators in the last few years. See, e.g. Daniel Swanson & William Baumol, “Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power,” (2005) 73 *Antitrust Law Journal* 1; Damien Geradin & Miguel Rato, “Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty-Stacking and the Meaning of FRAND,” (2007) 3 *European Competition Law Journal*, 101; Mario Mariniello, “Fair, Reasonable and Non-Discriminatory (FRAND) Terms: A Challenge for Competition Authorities,” 7 (2011) *Journal of Competition Law and Economics* 523; Dennis W. Carlton & Allan Shampine, “An Economic Interpretation of FRAND” 9 (2013) *Journal of Competition Law and Economics* 531. Most of the literature does not distinguish between “fair” and “reasonable,” in part due to the fact that the term “fair” is specific to the EU context (U.S.-based SSOs tend to refer to the concept of RAND as one variant, not FRAND).

32 *Microsoft Corp. v. Motorola, Inc.*, 864 F. Supp. 2d 1023, 1031 (W.D. Wash. 2012).

33 *TCL Comm. Technology Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, et al., No. 8:14-cv-341 (C.D. Cal. 2017).

34 In OLG Düsseldorf, Decision 4c O 81/17, *Intellectual Ventures v. Vodafone*, the Court pointed out that a comparable license agreement signed by IV with a third party should not be kept as secret, since FRAND commitment contained the request of transparency. If the SEP holder does not provide the comparable license agreements, the SEP implementer could not know if the offer is FRAND, especially that it is not discriminatory. In LG Düsseldorf, Decision 4c O 72/17, *Intellectual Ventures v. Deutsche Telekom/Vodafone/Telefonica*, the court indicated that comparable agreements (if any) should be showed to the licensee.

Thus, the use of comparative licenses is an effective means to determine fair and reasonable royalties, and attempts made by SEP holders not to provide comparable licenses when such licenses are available should be seen suspiciously. In the absence of comparable licenses, litigants and courts can rely on the top down methodology discussed below. But even when comparable licenses are available nothing prevent litigants and courts to combine these different methodologies to determine fair and reasonable rates. Given the fact that there is no “silver bullet” solution to the determination of fair and reasonable rates, the combination of methods makes sense.

The top-down approach considers what portion of the value of a standard-compliant product is attributable to the technologies that make up the standard, and, among this portion, how the value should be distributed to the contributors of those technologies. This approach has been used in SEP FRAND rate disputes on a number of occasions, although the precise way in which it was pursued varied in practice.

- The first step of this approach consists in determining the aggregate royalty that should be used to compensate all SEP holders. In *TCL v. Ericsson*, Judge Selna reviewed public statements made on the appropriate magnitude of the aggregate royalty rate by patent holders before the standard was adopted.³⁵
- The second step is to apportion this aggregate royalty amongst the SEP holders on the basis of the relative strength and coverage of their portfolios. As a first step, the relative strength and coverage of a given portfolio can be assessed based on its share of the total number of patents considered to be essential to the standard. Instead of analyzing the essentiality of each patent declared essential, experts from the parties can sample a certain percentage of the patents at stake. Additional methodologies can then be used to assess the relative strength of a portfolio, such as testimonies from technical experts, citation and/or contribution analysis, etc.³⁶ Which methodology or combination of methodologies should be relied on depends on the circumstances of each case.

As a result of this approach, if the aggregate royalty is, for instance, 5 percent of the sales price of a given device and the relative strength of a given firm’s portfolio is 20 percent, the firm owning that portfolio should be allowed to charge a fair and reasonable rate of no more than 1 percent of the sales price of that device.

The top-down methodology has thus several advantages. First, it caps the cumulative royalty rate at a reasonable level and thus prevents royalty stacking. The difficulty is of course to determine what the aggregate royalty rate should be, especially in the absence of public pronouncements from relevant firms on the subject. As there is no silver bullet approach to this issue, the best courts can do is to consider a variety of information points before settling on a number. Third, when allocating this aggregate rate, it takes into account not only the number of SEPs (which may be a poor indicator of the value of an SEP portfolio), but also the strength of the portfolio based on a variety of factors.³⁷

Thus, while there is no perfect solution to determine how to determine fair and reasonable rates, a combination of methods will usually help courts to come to the determination of such rates.

2. What is non-discriminatory?

In a paper on the economic interpretation of FRAND, Dennis Carlton and Alan Shampine discuss what non-discrimination means in the FRAND context:

‘Non-discriminatory,’ in the context of a SSO setting standards for competing firms, can be interpreted to mean that all implementers of the standard should be offered licenses to the technology, and all ‘similarly situated’ firms should pay the same royalty rate.³⁸

³⁵ *TCL Comm. Technology Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, *supra* note 33.

³⁶ For instance, economists regularly use “forward citations” as an indication of a patent’s value. See, e.g. Forward citation analysis is a method used to assess relative patent value by examining the number of times a patent is cited as “prior art” by a later patent. Nathan Falk & Kenneth Train, “Patent Valuation with Forecasts of Forward Citations,” February 2016, available at eml.berkeley.edu/~train/patents.pdf; Dietmar Harhoff, et al., “Citation Frequency and the Value of Patented Inventions,” 81 (1999) *Review of Economics and Statistics* 511.

³⁷ Economic research has shown that in the IT industry the distribution of value among patents is highly skewed, i.e. most of the value is concentrated in a small number of patents (i.e. the top 1-5 percent). On this issue, see Mark Shankerman, “How Valuable is Patent Protection? Estimates by Technology Field,” 29 (1998) *Rand Journal of Economics* 77.

³⁸ Dennis Carlton & Allan L. Shampine, “An Economic Interpretation of FRAND,” 9(3) *Journal of Competition Law & Economics*, 531, 546.

While this approach is certainly correct, some have, mistakenly in my view, adopted a more relaxed interpretation of the concept of non-discrimination. In its *Huawei v. Planet* judgment, which will be discussed further in section C below, Birss J. for instance made a distinction between what he refers to as “hard-edged” discrimination, whereby all similarly-situated licensees have to pay the same royalty rates and “general” discrimination, where non-discrimination is “determined primarily by reference to the value of the patents being licensed.”³⁹ According to Birss J., the principle of non-discrimination contained in FRAND would be met as long as the royalty rate offered by the SEP holder reflects the intrinsic value of its portfolio. Although this is not entirely clear, this seems to suggest that provided that the royalty rate is fair and reasonable, it will automatically be non-discriminatory as well.

While this approach has been affirmed by the Court of Appeal, it is plainly wrong. First, it finds no support in case-law or in the literature. It also seems counter-intuitive, as it is hard to understand why the FRAND commitment would have a “ND” component if the analysis was exclusively centered on the fairness and reasonableness of the SEP holder offer. As far as the EU is concerned, this approach is not in keeping with the requirements of Article 102(c) TFEU, which is generally understood as requiring that similarly situated licensees benefit from similar licensing terms.⁴⁰

Thus, what a correct interpretation of the non-discriminatory requirement in FRAND means is that “similarly-situated” licensees (e.g. licensees that implement the SEPs in question in products affected to the same use) should be treated similarly. By contrast, different licensing terms may apply for the same SEP portfolio are implemented by implementers that are not similarly situated (e.g. because they produce products that are not affected to the same use). This issue will be further discussed in Section F below.

C. Should the Gaps left by the CJEU in Huawei v. ZTE be Filled, and if so, How?

As noted above, while the CJEU established a licensing framework establishing some principles that SEP holders need to comply with in order to be able to seek an injunction to enforce patents without breaching Article 102 TFEU, as well as principles that SEP implementers should follow if they want to avoid being subject to an injunction, the truth of the matter is that the CJEU left many issues open.

It is of course clear that the role of the CJEU was not to “regulate” the use of injunctions and that national patent courts should conserve a margin of appreciation allowing for both flexibility and experimentation. But, on the other hand, even within a single Member State such as Germany, there is a large degree of fragmentation – and in some cases significant inconsistencies – in the way courts have applied *Huawei v. ZTE*. This encourages forum shopping and legal uncertainty. Of course, within a country, higher courts can unify the case-law by tackling once and for all a contentious issue. But inconsistencies may then still exist between Member States, hence maintaining forum shopping incentives.

That leaves us with a limited number of options. One option would be for national courts to return to the CJEU through the preliminary procedure to ask it to clarify further some contentious questions. While the CJEU has a duty to answer the questions that it has been asked by a national court, the CJEU is unlikely to see its role as an “injunction regulator” and prescribe a detailed licensing framework. The boundaries of the ability of SEP holders to seek injunctions for enforcement of their SEPs may also be further defined by the Commission through competition decisions or through soft law instruments, but once again no set of rules or principles will cover every possible eventuality that may arise in the context of SEP licensing negotiations or litigation. Thus, while further guidance from the EU institutions may be held, one should hope that greater harmony and consistency will be progressively achieved by a combination of higher court decisions consolidating the case-law of lower courts, as well as a growing consensus amongst courts over best practices.

Considering the high volume of SEP litigation taking place in Germany and the tendency of German courts to grant injunctions even when SEPs are involved, it is also important to note that question marks have been raised about the compatibility of the approaches taken by German courts with the proportionality principle enshrined in the EU IP Enforcement Directive.⁴¹ While there are expectations that the German government would address this issue through its patent “reform” bill, the recently released draft of this bill, and in particular its amendment of § 139 of the

³⁹ *Unwired Planet v. Huawei*, *supra* note 24, at §§ 341 *et seq.*

⁴⁰ See Damien Geradin et al., *EU Competition Law and Economics*, OUP, 2012, at Sections 4.452 *et seq.* and the case-law cited there.

⁴¹ See, e.g. Maurits Dolmans, “We need proportionality review for patent injunctions under German law,” presentation made at Conference on Component-Level Licensing, November 2019 12, Brussels, referred to by Florian Müller in “German patent reform discussed at Brussels conference: automatic injunctions contravene EU law,” November 18, 2019, available at www.fosspatents.com/2019/11/german-patent-reform-discussed-at.html.

Patent Act, has been criticized for being “*designed only to cement the status quo on injunctions.*”⁴² Although it is too early to tell how the final version of the reform bill will look like on the issue of proportionality, an increased consideration of proportionality by German courts would lead to greater alignment with other EU Member State patent courts where this principle is typically given greater consideration.

As a final point, we note the attempts of some SEP implementers sued for patent infringement (or more generally involved in SEP infringement lawsuits) before European courts to block the granting of injunctions by such courts by filing anti-injunction lawsuits in the United States. Such attempts have, however, so far failed. For instance, the Munich Regional Court issued what could be labelled an “anti-anti suit injunction” in proceedings between Nokia and Daimler, following an attempt by Continental, a Daimler part supplier that is an intervener in the Munich proceedings, to have the Northern District Court of California – where it has filed a lawsuit against Nokia – to stop Nokia via an anti-injunction lawsuit from seeking an injunction against Daimler in the Munich Court.⁴³ Similarly, both the Paris High Court and High Court of England & Wales granted anti-anti injunctions against Lenovo. The Paris High Court demanded that Lenovo withdraw the anti-injunction lawsuit it had filed in the Northern District Court of California,⁴⁴ and imposed a €200,000 daily penalty payment should it fail to do so.⁴⁵ The High Court of England and Wales also granted an anti-anti injunction, but limited itself to denying Lenovo UK the right of action against IPCOM in the U.S..⁴⁶

D. Can a Court that Finds that Local SEPs Have Been Infringed Force the Infringer to take a Global License on Pain of an Injunction?

An important question is whether, other than by agreement between the parties, a patent court that has found that an SEP granted in its jurisdiction (e.g. a German or a UK SEP) has been infringed should be allowed to grant an injunction against the infringer unless it takes a global license at terms and conditions set by the court itself.

That question arose in the *Unwired Planet v. Huawei* UK case.⁴⁷ In that case, the High Court (Birss J.), once having found that Huawei had breached Unwired Planet UK SEPs, granted an injunction restraining the infringement of that patent unless Huawei agreed to enter into a global license (i.e. a license that covered not only the UK SEPs, but also those granted in other jurisdictions despite the fact that they cannot be adjudicated in the UK) at royalty rates set by the High Court itself.

The main arguments used by Birss J. to justify this unconventional approach are summarized as follows. First, he observed that worldwide portfolio SEP licenses are common in the industry.⁴⁸ Second, he considered that a willing licensor (with a sufficiently large and sufficiently wide geographical scope portfolio) and a willing licensee with more or less global sales negotiating a FRAND licensee would agree on a worldwide license. They would indeed regard country by country licensing as “madness,” according to Birss J., as a “worldwide licence would be far more efficient.”⁴⁹ In his view, the real inefficiency of country by country licensing is “the effort required to negotiate and agree so many different licences and then to keep track of so many different royalty calculations and payments.”⁵⁰ Finally, Birss J. found that a FRAND license should not prevent a licensee from challenging the validity or essentiality of licensed patents and should have provisions dealing with sales in non-patent countries.⁵¹ Thus, for instance, if the German court where *Unwired Planet* also sued Huawei found that all the German patents were invalid (or not essential), that would simply result in whatever consequences the worldwide license provided for.

42 See Florian Müller, “German ministry of justice outlines patent “reform” bill: thick but void smokescreen, designed only to cement the status quo on injunctions,” January 15, 2020, available at www.fosspatents.com/2020/01/german-ministry-of-justice-outlines.html.

43 See Munich I District Court, Nokia, case ID: 21 O 9333/19, July 11, 2019. For a discussion, see Florian Mueller, Nokia persuades Munich court to issue anti-antisuit injunction against Daimler supplier Continental, pre-empting decision by Judge Koh, July 30, 2019, available at www.fosspatents.com/2019/07/nokia-persuades-munich-court-to-issue.html.

44 *Lenovo (United States) Inc. v. IPCOM GmbH & Co., KG* (5:19-cv-01389) District Court, N.D. California.

45 Paris Court of First Instance, *IPCOM v. Lenovo*, case no RG 19/59311. For an analysis, see Enrico Bonadio & Luke McDonagh, “Paris Court Grants a Sep Anti-Anti-Suit Injunction in IPCOM v Lenovo: A Worrying Decision in Uncertain Times?,” January 9, 2020, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3505849.

46 Peter Ling, Paris “Court Grants Anti-Anti-Suit Injunction in IPCOM v. Lenovo,” December 2, 2019, *IPKat*, available at ipkitten.blogspot.com/2019/12/paris-court-grants-anti-anti-suit.html ; Christina Schulze, Paris and London courts award anti-anti-suit injunction, *Juve*, November 11, 2019, available at <https://www.juve-patent.com/news-and-stories/cases/paris-and-london-courts-award-anti-anti-suit-injunction/>.

47 *Unwired Planet v. Huawei*, *supra* note 24.

48 *Id.* at § 534.

49 *Id.* at § 543.

50 *Id.* at § 544.

51 *Id.* at § 567.

Huawei appealed this part of the High Court judgment to the Court of Appeals,⁵² which confirmed Birss J.'s approach. Huawei has furthered the Court Appeals' judgment to the Supreme Court.⁵³ At the time of writing, the Supreme Court has not handed down yet its decision.⁵⁴

I believe that Birss J.'s decision to force Huawei to take a global license to Unwired Planet's SEPs is wrong for several fundamental reasons, most of which were pointed by Huawei in its appeal of this decision.

First, when Birss J. observes that worldwide portfolio SEP licenses are common in the industry and that a willing licensor and a willing licensee negotiating a FRAND license would agree on a worldwide license, he confuses what it is appropriate for parties to do *with* consent with what it is appropriate for a court to do *without* the parties' consent. In other words, it is not because the parties may conclude a global portfolio license following bilateral negotiations or may agree to entrust a court to settle a licensing dispute by setting the terms and conditions of a global license that it necessarily means that a patent court should arrogate to itself the right to perform a similar mission.

Second, Birss J.'s suggestion that, but for its willingness to coerce Huawei to take a global license, Unwired Planet would have to enforce its SEPs on a country-by-country basis is not supported by any empirical evidence. What happens in the context of global SEP licensing dispute is that the SEP holder will sue the infringer in a few major jurisdictions – where the devices are manufactured and where the bulk of the sales take place, e.g. Germany, UK, the United States and China – and then depending on the outcome of the lawsuits filed by the SEP holder in these jurisdictions, the parties will bring the matter to a global or regional resolution.

Third, Birss J. invokes no valid reason why he should be allowed to alter the territorial nature of IP rights. Non-UK patents whose validity is disputed in other jurisdictions (in the *Unwired Planet* case in Germany and China) are not justiciable before an English patent court. For obvious reasons, the validity, essentiality and other features of these disputed patents should be determined by the courts of the granting jurisdiction. What Birss J. effectively did was to *presume* that Unwired Planet's non-UK patents were valid and infringed, while there was no material element suggesting that this was the case.

Fourth, Birss J.'s approach does not accord with the Commission's *Motorola* decision where the Commission endorsed an SEP licence covering the territory of Germany as being FRAND,⁵⁵ and the rejection by the Court of Appeals of this argument on the ground that the Commission had subsequently modified its position in its Communication setting out the EU approach to Standard Essential Patents⁵⁶ is totally unfounded. In that Communication, which is not binding, the Commission merely states, citing the High Court judgment, that "a country-by-country licensing approach may not be efficient and may not be in line with a recognised commercial practice in the sector."⁵⁷ While it is entirely true that SEP licenses are often concluded on a global basis with the consent of the parties, the above quote nowhere suggests that a patent court should be allowed to coerce an SEP implementer to take a global license at terms it sets without the consent of both parties to the dispute.

Fifth, even if it was acceptable for a patent court to grant an injunction for the breach of SEPs granted in its jurisdiction unless the infringer takes a global license at rates set by that court, it is hard to see why in the *Unwired Planet* case an English court was the appropriate forum to perform that mission. After all, in this case Huawei's devices were not produced in the UK and only a tiny amount of Huawei's global sales were made in the UK while over half of such sales were made in China.

52 *Unwired Planet v. Huawei*, Court of Appeals (Civil Division), [2018] EWCA Civ 2344.

53 *Unwired Planet International Ltd and another (Respondents) v. Huawei Technologies (UK) Co Ltd and another (Appellants)*, Case ID: UKSC 2018/0214 (The Court is asked to answer the following questions: 1. Does the English court have the power or jurisdiction, or is it a proper exercise of any such power or jurisdiction without the parties' agreement: to grant an injunction restraining infringement of a UK SEP unless the defendant enters into a global license under a multinational patent portfolio; to determine the rates/terms for such a license; and to declare that such rates/terms are FRAND? 2. If the answer to (i) is "yes," is England the proper forum for such a claim in the circumstances of the *Conversant* proceedings?).

54 The Supreme Court will also look at a twin case involving *Conversant*, an NPE, which had sued Huawei and ZTE for the infringement of its UK SEPs. It sought, by way of relief, a determination of FRAND terms for its global SEP portfolio. Huawei and ZTE challenged the jurisdiction of the High Court in relation to *Conversant*'s claim for the determination of a global FRAND license. Carr J. dismissed this challenge on jurisdiction but gave permission to appeal. *Conversant v. Huawei and ZTE*, [2018] EWHC 808 (Pat) Huawei and ZTE appealed jurisdiction to the Court of Appeal on two grounds. First, they said that the claim brought against them is not justiciable in the English court. Second, they said that the English court is not the natural or an appropriate forum for the claims against them. The Court of Appeals considered that the justiciability issue foreclosed by its judgment on the *Huawei v. Unwired Planet* case, see note 52. It also dismissed the appeal on the *forum non conveniens* issue. Court of Appeal (Civil Division), *Huawei and ZTE v. Conversant*, [2019] EWCA Civ 38. Huawei and ZTE filed a further appeal to the Supreme Court (*Huawei Technologies Co Ltd and another (Appellants) v. Conversant Wireless Licensing SARL (Respondent)*, Case ID: UKSC 2019/0041) raising the same issue as the appeal raised by *Huawei v. Unwired Planet* cited at note 53.

55 See *Motorola*, *supra* note 10.

56 Setting out the EU approach to Standard Essential Patents, Brussels, November 29, 2017, COM(2017) 712 final.

57 *Id.* p. 7.

Finally, the approach followed by the High Court is likely to stimulate “forum shopping.” Unless there is a reason to suggest that English courts are in a special position, which is clearly not the case, any court in the world could decide to force the SEP implementer to agree to a global license on the sole ground that it has breached a single SEP granted in its own jurisdiction. This would trigger a race to the jurisdiction that is the most favorable to the SEP holder, even if no devices are manufactured there and sales are very small.

Thus, it is to be hoped that the Supreme Court will strike down the approach pursued by Birss J. in *Unwired Planet* and that patent courts in other jurisdictions will not try to replicate it.

E. Access for All v. License to All: What are the Obligations of the SEP Holder?

One of the most hotly debated questions with respect to SEP licensing is whether, as a result of their FRAND commitment (or their obligations under EU competition law), SEP holders are under an obligation to grant FRAND licenses to all manufacturers implementing their patents or whether they can select the level of the supply chain at which they will grant a FRAND license.

There are different schools of thought on this issue. Proponents of the “access for all” approach consider that the FRAND declaration is not a requirement for licensing to all parties using standard technology; it is rather a mechanism to ensure that those who want to use standard technology can access that technology. By contrast, proponents to the “license to all” approach claim that rights holders must license all entities wishing to obtain licenses regardless of the level in the supply chain.⁵⁸

The arguments advanced by the proponents of these approaches are well-known. On the one hand, proponents of the “access for all” approach argue that SEP holders should be free to license their patents only to end-product manufacturers. They will typically invoke the fact that SEPs have been traditionally licensed at the end-product level, citing the example of mobile communication devices. They will also argue that licensing at the end-product level reduces transaction costs as all relevant SEPs are implemented in the end-product, whereas components may only implement some of the SEPs. Another argument often advanced to support licensing at the end-product level is that it facilitates monitoring the sales of licensed products and royalty payments. Finally, some have argued that a “license to all” approach would harm innovators as it would effectively impose a revenue cap and drive the royalties downwards.⁵⁹

On the other hand, proponents of the “license to all” approach often consider that components (e.g. modems) best reflect the value of standardized technology and that therefore SEPs should be licensed at the component level. The underlying assumption is that most wireless SEPs are implemented at the component level, and that component suppliers are the logical counterparts in licensing negotiations.⁶⁰ By contrast, licensing at the end-product level would allow SEP holders to capture the value created by other components (e.g. cameras in mobile devices) or technologies that are unrelated to the mobile communication SEPs (e.g. software that relates to the operating system, etc.). Another line of argument is that while manufacturers of mobile communication devices have significant knowledge of mobile communication technologies, it is not the case with respect to manufacturers of other connected products, such as for instance car manufacturers. Moreover, while licensing at the end product level is common practice in the mobile device industry, that is not the case in the vehicle manufacturing industry where OEMs typically expect to be delivered components that are free of third-party rights.⁶¹

The tensions between the “access for all” v. “license to all” approaches are perfectly illustrated by the licensing dispute between, on the one hand, Nokia and, on the other hand, Daimler and some of its component suppliers. While Nokia has pushed for Daimler (and other vehicle manufacturers) to take a license, Daimler has been reluctant to do so for the reason that, in the vehicle manufacturing industry, component suppliers are expected to deliver their parts free of third-party rights. This results from the facts that cars are made of thousands of parts supplied by a large number of component makers. Hence, it would be a huge burden for companies like Daimler to negotiate licenses for all technologies, standardized or not, that are embedded in their cars. On the other hand, component suppliers are anxious to obtain a FRAND license as, without such license, they cannot lawfully produce and sell their parts.

58 For a discussion of the arguments of each side, see Jean-Sébastien Borghetti et al., “FRAND Licensing Levels under EU Law,” February 2020, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3532469, at 3.

59 Axel Gautier, Nicolas Petit, “Smallest Salable Patent Practicing Unit and Component Licensing: Why 1\$ is not 1\$,” (2019) 15 *Journal of Competition Law & Economics* 690.

60 See Borghetti et al, *supra* note 58, at 3.

61 Tim Pohlmann, “Patent and Standards in the auto industry,” March 31, 2017, available at <https://www.iam-media.com/frandseps/patents-and-standards-auto-industry>.

In November 2018, Daimler, subsequently joined by some component suppliers, filed a complaint with DG Competition against Nokia on the ground that by refusing to license its 2G/3G/4G standard essential patents to suppliers of standard-compliant components for automotive vehicles Nokia has breached Article 102 TFEU.⁶² In April 2019, Nokia filed ten patent lawsuits at the regional courts of Düsseldorf, Mannheim and Munich. Specifically, Nokia filed four lawsuits with the Regional Court Mannheim, to be heard by the 2nd Civil Chamber. The Regional Court Düsseldorf (Civil Chamber 4a and 4c) and the Regional Court Munich (Civil Chamber 21) will each hear three complaints.⁶³ At the end of 2019, Nokia engaged in mediation with Daimler and its Tier-1 suppliers in order to solve the licensing dispute.⁶⁴ The outcome of this mediation has not been made public at the time of writing, although some have suggested that it was not successful.⁶⁵

While Nokia insists that mobile communication SEPs have so far been licensed at the end-product level and advances several reasons why it should be free to do so, it is important to understand the automotive supply-chain before taking position on this issue.⁶⁶ Automotive OEMs purchase their parts from “Tier-1” suppliers who produce component parts. Tier-1 suppliers in turn purchase the components they need to manufacture their parts from “Tier-2” suppliers. Tier-2 suppliers may in turn supply their own components from “Tier-3” suppliers and so on. As far as connectivity solutions are concerned, OEMs will buy telematic control units (“TCUs”) from Tier-1 suppliers. These TCUs comprise network access devices (“NADs”), which are either produced in-house by TCU makers or acquired from Tier-2 suppliers. NADs in turn comprise modems (comprising chipsets), which can also be produced in-house by TCU or NAD makers or acquired from tier-3 parties.

No one denies that Nokia should obtain fair compensation for its portfolio of SEPs. However, Nokia’s refusal to grant FRAND licenses to suppliers of connectivity solutions because it only wishes to grant such licenses to automotive OEMs raise a distinct set of issues for these OEMs and their suppliers.

The reasons why automotive OEMs are generally unwilling to take a SEP license are well known. First, as already noted above, unlike in the mobile device industry where licensing at the end-product level is common, vehicle manufacturers expect their parts to be free of third-party rights, which is unsurprising considering the extreme complexity of the automotive supply chain. Second, because their cars are comprised of thousands of parts embedding hundreds of different technologies, vehicle manufacturers have limited expertise with mobile communication technologies unlike their suppliers of connectivity solutions. Third, because of their “just-in-time” manufacturing processes, car manufacturers are extremely sensitive to supply disruptions and thus court injunctions.⁶⁷ By accepting to take FRAND licenses from Nokia, Daimler and other automotive, OEMs could also become the target of patent-assertion entities, which would create significant litigation exposure.

By contrast, component suppliers have very good reasons to request FRAND licenses from SEP holders. First, they need a FRAND license to lawfully make and sell their products or even to develop new standard-compliant products. By refusing to grant a FRAND license to connectivity solution suppliers, Nokia places them in a very difficult position. Second, because the extensive use of indemnification provisions contained in the supply contracts between automotive OEMs and their component suppliers, the latter may have to compensate the former for the cost of a license they have not been allowed to negotiate. This creates a situation of uncertainty whereby component suppliers are asked to manufacture and sell their products without a license, while having to compensate vehicle manufacturers or other suppliers downstream in the supply chain for the cost of that license.

62 See Foo Yun Chee, “Daimler asks EU antitrust regulators to probe Nokia patents,” *Reuters*, 29 March 2019, available at <https://www.reuters.com/article/us-eu-daimler-nokia-patents/daimler-asks-eu-antitrust-regulators-to-probe-nokia-patents-idUSKCN1RA2KF>.

63 Mathieu Klos, “Daimler faces next connected cars dispute,” April 11, 2019, *Juve*, available at <https://www.juve-patent.com/news-and-stories/cases/daimler-faces-next-connected-cars-dispute/>.

64 Foo Yun Chee, “Nokia, Daimler, others agreed to mediation to resolve licensing dispute,” *Reuters*, December 12, 2019, available at <https://www.reuters.com/article/us-eu-antitrust-nokia-daimler/nokia-daimler-others-agreed-to-mediation-to-resolve-licensing-dispute-idUSKBN1YG1CK>.

65 Florian Mueller, “Nokia makes antitrust mediation with Daimler and automotive suppliers over standard-essential patent licensing fail,” *Foss Patents*, January 12, 2020, available at www.fosspatents.com/2020/01/breaking-news-nokia-makes-antitrust.html.

66 See David Silver, *The Automotive Supply Chain, Explained*, May 31, 2016, available at <https://medium.com/self-driving-cars/the-automotive-supply-chain-explained-d4e74250106f>.

67 See, e.g. Jitendra Parasha, “Why Toyota’s Just-in-Time Method Is Critical to Its Success,” *Market Realist*, May 27, 2016, available at <https://rmarketrealist.com/2016/05/toyotas-just-time-method-critical-success/>.

Nokia's reply to the component suppliers' problem of having to manufacture and sell their products without a license is that licensed automotive manufacturers, by exercising "have-made rights" that would have been contractually granted by Nokia, could shield from infringement its unlicensed suppliers. Although there is some case-law on have-made rights in the United States,⁶⁸ which has been analyzed in commentaries,⁶⁹ the scope and exercise of such rights are rather unclear in Europe. In the following paragraphs, I analyze the extent to which the granting of have-made rights to automotive OEMs would grant sufficient comfort to unlicensed component suppliers.

A first issue relates to which supplier(s) would be immunized from infringement through the exercise of such have-made rights. In other words, could a licensed automotive manufacturer immunize from infringement its whole vertical supply chain through the exercise of have-made rights. That does not seem to be the case. First, there is no case law in the United States or anywhere supporting that view. In all litigated cases, the courts recognized that licensed OEMs could rely on third parties to manufacture products for their own use. Moreover, in German law, the concept of "have made rights" corresponds to the notion of "extended work bench,"⁷⁰ whereby a licensed manufacturer is allowed to have components of the licensed products made by a third-party supplier under its directions/specifications. This third-party supplier would not, however, be allowed to "have made" some of the components it may itself need from manufacturers higher in the supply chain (tier-2 or tier-3) as they would not be part of the extended work bench of the licensed OEM.

A second issue relates to the scope of these have made rights in terms of what they would allow third parties operating under such an extended work bench model to do. Here again, these have made rights would be restrictive in that they would only allow the third-party supplier to the licensed OEM to produce components for the sole use of that OEM. In other words, the third-party supplier would not be allowed to produce components for other OEMs (unless they are also operating as an extended work bench for this OEM) or to produce components to be sold through traders on the open market.

Thus, with respect to connectivity solutions, it seems that the granting of have-made rights to an automotive OEMs would allow the OEMs to immunize from infringement manufacturers of TCUs for the TCUs specifically produced for the OEM's vehicles. However, the OEMs or its Tier-1 suppliers would *not* be able to immunize their suppliers higher in the supply chain, such as for instance NADs or modem manufacturers, which would therefore be exposed to a serious risk of infringement proceedings.

The market consequences would therefore be significant. First, while have made rights could potentially immunize Tier-1 TCU suppliers from infringement proceedings, they would still be unlicensed (as operating under have made rights is not operating under a license) and their commercial margin of maneuver would be narrow. Second, Tier-1 suppliers would be immunized from infringement only as long as the automotive OEM for which they operate as an extended workbench are licensed. If for some reason the OEM was no longer licensed or breached the terms of its license, they would be exposed to infringement proceedings. Third, this approach would rigidify or even make impossible trade in connectivity components as the production and sale of such components would always have to be made in the context of an extended work bench relationship. Fourth, have made rights would not immunize from infringements manufacturers of components that are higher in the supply chain as their production would not fall under these rights. Thus, it is not clear how a Tier-1 supplier that does not produce NADs or modems could lawfully acquire such components from companies, such as Samsung, Huawei or LG. This would call for vertical integration even when it is inefficient. In other words, have made rights limit the commercial scope of Tier-1 TCU suppliers and do nothing to allow Tier-2 and Tier-3 suppliers to lawfully manufacture and sell their components down the supply chain.

In this respect, an approach whereby Nokia would limit itself to license automotive OEMs (with or without have made rights) to the exclusion of component suppliers would likely breach EU competition law.

First, a license with an automotive maker to the exclusion of component makers could breach Article 101 TFEU as, by disrupting the automotive supply chain and impeding trade in components, it would be capable of "affecting trade between Member States in a manner which might harm the attainment of the objectives of a single market between the Member States, in particular by sealing off national markets or by affecting the structure of competition within the common market."⁷¹

68 See *Carey v. United States*, 326 F. 2d 975 (1964); *Advanced Micro Devices, Inc. v. Intel Corp.*, 885 P. 2d 994 (1994); *Cyrix Corp. v. Intel Corp.*, 879 F. Supp. 666 (1995); *COREBRACE LLC v. Star Seismic LLC*, 566 F. 3d 1069 (2009).

69 Amber L. Hatfield, "Patent Exhaustion, Implied Licenses, and Have-Made Rights: Gold Mines or Mine Fields," (2000) *Computer L. Rev. & Tech. J.* 1.

70 See Christian Osterrieth, *Patent Law*, 5th ed. 2015, Rn. 695

71 C-295/04 to C-298/04, *Manfredi*, ECLI:EU:C:2006:461, at § 41.

Second, this approach would breach Article 102(b) TFEU by limiting “production, markets or technical development to the prejudice of consumers.” Large suppliers of mobile communications technology would no longer be able to carry out their own product development (at their own risk and expense) and would face significant restrictions in the way they can market their products as they could only operate as contract manufacturers. The lack of a license would also create considerable uncertainty and hurt investment in new technologies.

F. How should SEP Licensing Adapt to the IoT Context?

The advent of the IoT is creating a new challenge for SEP licensing. While until now the bulk of SEP licensing took place in the mobile communications industry, the manufacturers of an ever-growing number of “connected” products will now have to take FRAND licenses for SEPs. As we have seen in Section E above, this is already what is happening in the vehicle manufacturing industry.

While bilateral negotiations make sense when the number of SEP implementers is relatively low (as is the case for mobile communication devices and connected cars), transaction costs would make it impossible when the number of SEP implementers is extremely high as would, for instance, be the case with respect to connected home appliances and medical devices. In that case, some collective licensing mechanisms should be contemplated.

In that context, the formation of patents pools seems to be desirable to facilitate SEP licensing in the IoT space provided of course that these pools comply with EU competition rules and do not turn themselves into patent trolls. As to compliance with EU competition rules, some helpful guidance can be found in the Guidelines on the application of Article 81 of the EC Treaty [now Article 101 TFEU] to technology transfer agreements.⁷² As to the licensing terms of the pool, guidance can be found from the existing case-law on the determination of FRAND royalty rates. Now, to avoid the licensing disputes that have arisen in the mobile device and vehicle manufacturing industries, some original methods could be considered for the determination of licensing rates, such as for instance involving independent third-parties.⁷³ As to the rates themselves, the non-discrimination principle of FRAND should not prevent the application of different rates for different uses. It would indeed be absurd to charge the same rates for connected vehicles and smart meters as the connectivity needs of these products vary. The level of the royalty rates should also ideally take account of the significant growth of the addressable licensing market. Because the volume of licensed products will exponentially grow, the level of the rates should in principle decrease at least for the majority of applications.

Now, it does not mean that the formation of such pools will necessarily be easy. The main obstacle to the formation of pools in the field of mobile communication standards is linked to the fact that the respective interests of the main mobile communication SEP holders are not necessarily aligned given the variety of business models. It may thus be hard for SEP holders to agree on an internal compensation system. In addition, the main SEP holders have traditionally considered that they may be better off staying out of the pool and licensing their SEPs through bilateral negotiations, although when there are potentially hundreds or thousands of potential licensees, this would be an unlikely scenario. NPEs with small patent portfolios of dubious quality will generally avoid joining patent pools, which would only offer them small compensation given the size and quality of their portfolios, and rather pursue aggressive tactics on their own (such as, for instance, harassing SEP implementers with threatening letters in the expectation that some of them may pay the requested fee). Thus, while the joining of patent pools should remain voluntary, mechanisms should be developed to encourage participation.

If patent pools are the right vehicle for SEP licensing in the age of IoT, these pools should also be governed by adequate governance mechanisms, such as the appointment of an experienced pool administrator that is ideally independent from the licensors in the pool. In addition to the licensors’ committee typically supervising the work of the pool administrator, one could perhaps envisage the addition of an advisory committee that would be composed of independent third parties drawn from industry, academia, and people with significant licensing experience. This would ensure that the pool takes a holistic approach to its licensing operations.

⁷² OJ C 101, 27.4.2004, p. 2–42.

⁷³ Although this is a creative idea, nothing would prevent for instance a patent pool to give the task of setting its FRAND royalty rate(s) by a team of independent experts.

IV. CONCLUSIONS

While the past couple of decades have seen a lot of litigation before Member State courts, several major Commission investigations, and a landmark decision of the CJEU over various SEP licensing practices, many important issues remain to be satisfactorily addressed. This is not surprising, since the meaning of the FRAND commitment and, in particular, what FRAND licensing terms mean remains subject to contention. In addition, given the large financial amounts at stake, SEP holders and implementers are willing to engage in creative legal strategies to gain leverage in negotiation and litigation.

The advent of the IoT also raises a range of issues as the business model of the industries that are starting to manufacture connected products may not be consistent with the business model of smartphone OEMs on which current SEP licensing practice are based. With the number of SEP implementers likely to increase vastly in the years to come, as home appliances, medical devices, and a vast range of other products will use connectivity solutions, new licensing models will need to be developed with the aim of facilitating transactions and avoiding litigation.



PATENT POOLS AND OTHER FORMS OF AGGREGATION

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I. INTRODUCTION

In certain technological areas, particularly those involving key enabling technologies in the ICT sector, ownership of technologies and the patents that read on them has become fragmented. This has created challenges in the technology market for both buyers and sellers or, as is more commonly the case, licensors and licensees. Licensees are faced with the challenge of negotiating licenses with several patent holders. This is particularly the case when the patents read on standards whose implementation inevitably involve the infringement of standard essential patents (“SEPs”) unless these are subject of a license agreement. Patent holders, depending on whether they are vertically integrated or focus on R&D, may have different objectives for their licensing programs. In the case of enabling technologies which have a wide range of applications and support other technologies, users are also heterogeneous in their application of the technology and the value of said technology to their application varies accordingly.

In a context where both sides of the technology market face the challenge of negotiating licenses with several counterparties with heterogeneous business models, one mechanism to simplify the negotiation has been the creation of patent pools or other forms of aggregation of intellectual property rights. In the case of standard essential patents where licensees would need to negotiate with several patent holders, a patent pool or pools would limit the number of transactions licensees would need. Furthermore patentees, by jointly licensing, would similarly reduce their costs in running licensing programs.

This article recalls the provisions of the EU antitrust technology transfer guidelines and horizontal guidelines, reviews the issues that led to the European Commission creating an expert group on the aggregation of patents some years ago and the current relevance of their findings, and considers some subsequent developments.

II. EU ANTITRUST GUIDELINES ON TECHNOLOGY TRANSFER AND HORIZONTAL GUIDELINES

Where the creation of a patent pool inevitably involves collaboration between companies operating at the same level of a value chain and often competing for the inclusion of their technology in the development of a standard, there is a potential for antitrust issues to arise. Article 101 of the Treaty on the functioning of the EU addresses anticompetitive behavior based on collusion as follows:

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.

2. Any agreements or decisions prohibited pursuant to this Article shall be automatically void.

3. The provisions of paragraph 1 may, however, be declared inapplicable in the case of:

- any agreement or category of agreements between undertakings,
- any decision or category of decisions by associations of undertakings,
- any concerted practice or category of concerted practices,

which contributes 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 does not:

- (a) impose on the undertakings concerned restrictions which are not indispensable to the attainment of these objectives;
- (b) afford such undertakings the possibility of eliminating competition in respect of a substantial part of the products in question.

As the pooling of patents is seen as increasing efficiencies in terms of reducing transactions costs, it is recognized that these efficiencies may sufficiently offset concerns of anti-competitive behavior as provided for under the third paragraph of Article 101. In addition to this Treaty provision, the European Commission offers specific guidance on patent pools in its Guidelines on technology transfer agreements.² These guidelines set out the principles for the assessment of technology transfer agreements under Article 101 of the Treaty on the Functioning of the European Union where such agreements are defined in Article 1(1)(c) of the technology transfer Block Exemption Regulation.³

Specifically, paragraph 245 indicates that “Technology pools can 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.” Paragraph 246 then states that “*Technology pools may also be restrictive of competition*” and that “The creation of a technology pool... in the case of pools composed solely or predominantly of substitute technologies amounts to a price fixing cartel” and that “technology pools may also result in a reduction of innovation by foreclosing alternative technologies.”

For these reasons, per paragraph 247, “Agreements establishing patent pools and setting the terms and conditions for their operation are not ... covered by the block exemption”⁴ and “Such agreements are addressed only by these guidelines.”

Whereas paragraph 245 also states that “There is no inherent link between technology pools and standards, but the technologies in the pool often support a de facto or de jure industry standard,” the consideration of the conformity of standardization agreements with Article 101 is subject to assessment under the Commission’s horizontal guidelines.⁵

These latter guidelines, now subject to a review process, state in paragraph 263 that “Standardisation agreements usually produce positive economic effects...” and “Standards normally increase competition...” and that per paragraph 264, “Standard setting can however... also give rise to restrictive effects on competition...” These guidelines outline, in paras 280-286, where such agreements fall outside the scope of Article 101, and in paras. 308–324 offer guidance on how the assessment should be carried out.

² Communication from the Commission, Guidelines on the application of Article 101 of the Treaty on the functioning of the European Union to technology transfer agreements (2014/C 89/03) of 28.03.2014.

³ 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.

⁴ *Ibid.*

⁵ Communication from the Commission, Guidelines on the applicability of Article 101 of the Treaty on the functioning of the European Union to horizontal co-operation agreements (2011/C 11/01) of 14.01.2011.

III. EUROPEAN COMMISSION EXPERT GROUP ON PATENT POOLS

At the time of the second Barroso Commission, the Commission published its most recent policy statement on Innovation,⁶ which called for a series of actions to boost the innovation capacity of the EU. This included a commitment to make proposals on the development of a knowledge market and consider, i.e. ideas such as promoting patent pools and innovation brokering. The European Commission established an expert group to investigate whether there is a need for EU-level intervention to foster the development of patent or technology markets, in particular through the aggregation of patents. This built on a Staff Working Document,⁷ from an earlier group that examined options for patent valorization and other then-recent studies. The premise was that some patents might be either more valuable and or more likely to be used if they were aggregated in some way.

The latter consideration was based on the notion that, where only a small percentage of granted patents are exploited, such aggregation could enable the use of more patents and both spur innovation and ensure exploitation of the results of R&D investments.

The group of independent experts comprised of jurists and economists recognized that the market for patents is compromised by a lack of transparency, asymmetry in information, and high transaction costs and that, although not all patents have commercial value, potentially valuable patents are not being exploited. The group identified that one reason for the latter is often the immaturity of the underlying technology and the need for significant further investments to de-risk the projects. Other reasons included the challenge to value patents, uncertainty on patent quality, lack of access to risk capital, challenges in negotiation, complexity in the case of ICT patents, and challenges for smaller entities.

The group reflected on the opportunities for patent aggregation to address some of these challenges and the role, if any, that the European Commission or Union or other public intervention could play in fostering the creation and use of patent pools and other form of aggregation. The group made a number of observations, as follows.

Patent pools are particularly relevant in the context of standard setting as their aggregation of patents that are essential to the implementation of a particular standard can facilitate the uptake and diffusion of a new standard, and as such pools are seen as procompetitive as is recognized in the European Commission's Guidelines on technology and horizontal guidelines.⁸ The group recognized that other patent pools are created for other purposes, such as ensuring access to medicines.

The group concluded that pools can solve the problem of dispersed ownership by reducing the number of transactions, and hence transaction costs, for both sides. They also considered that pools could be an instrument used to develop and deploy technical solutions to address social needs where private interest may be insufficient. The experts were of the view that the public sector might consider fostering the setting up of patent pools in the case of specific strategically important technologies where lack of aggregation may be an obstacle to advancing and commercializing technologies. Beyond such specific cases, the experts were, however, of the view that the public sector should not support patent pools as a general means to foster innovation.

Regarding other forms of aggregation, the group did not support the idea of public funded technology development funds which were being launched in the early part of the decade 2010-2020, both because there was at that time little evidence of their success and a sense that there was no market failure when several novel business models were being tested. Subsequently, a number of these funds or intermediaries have either closed or changed their business model.

The specific recommendations of the group were to consider supporting mission-oriented pools, the establishment of technology development (as opposed to trading) funds, and to consider in antitrust guidelines conditions where it could be permissible to include substitutable patents in pools and, in the context of standard setting, discuss royalty levels.

6 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Europe 2020 Flagship Initiative Innovation Union, COM(2010) 546 final http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf#view=fit&pagemode=None.

7 <https://ec.europa.eu/docsroom/documents/9963?locale=en>.

8 See *supra* notes 2 and 5.

Around the same time, the European patent office convened a meeting of its scientific advisory board (“ESAB”) to discuss. Their conclusions⁹ were broadly similar, as outlined below.

On the one hand, patent aggregation may solve particular issues and shortcomings of patent markets, making them liquid and efficient. Patent aggregation may even facilitate the establishment of markets for technologies. This could allow for a more efficient use and dissemination of innovation, which should help increase dynamic competition. Furthermore, patent aggregation may imply additional rewards to innovators, thus possibly improving incentives to invest in innovation.

On the other hand, patent aggregation may result in anti-competitive behavior which could impede innovation and reduce welfare. Although most participants agreed that patent aggregation may have net social benefits, the effects of patent aggregators on competition should be monitored. The discussion during the workshop has made it clear that, since most aggregators are neither “bad” nor “good” and follow different strategies, their behavior should be assessed on a case-by-case basis.

Furthermore, many experts were of the view that European competition policy and competition authorities already have legislation in force and instruments at hand to deal with such anti-competitive behavior.

Subsequently, the European Commission has launched a financial instrument, InnovFinTT,¹⁰ to assist Universities and Public Research Organizations to commercialize their research results. It has also incorporated the idea of mission-oriented programs in its proposal for the next multi-annual program of funding of research and innovation¹¹. The latter provides for the creation of a European Innovation Council, which would provide proof of concept funding to de-risk projects. At the time of writing, the Commission is carrying out a review of the horizontal antitrust guidelines,¹² which address the formation of patent pools in the context of standardization.

IV. SELECTED RESEARCH FINDINGS

As, other than business review letters from agencies and reference to pools in determining FRAND rates, there have been few cases on the legality of the formation of or operation of patent pools, the remainder of the paper addresses some recent academic research.

Baron & Delcamp¹³ examined the development of pools over time. They examined the rate of inclusion of patents in pools and the type of patents that are added to pools at different stages of the lifetime of the pool. Their specific findings were that pools grow considerably after the launch of the pool and that while in addition to the pool founders other companies join pools, the patents that are added by pool founders after the launch of the pool are of an incremental nature and comprise rather narrower patent claims.

This has a number of implications of both a commercial and a policy consequence. Firstly, as pool founders continue to add patents to the pool at the same time as others join pools and contribute their patents, they, the founders, tend to retain a majority share of the number of the patents in the pool.

As the nature of the additional patents is, as indicated, incremental, this might be seen as a policy concern where allocation of royalties to pool members is based simply on the numbers of patents each patent holder has in the pool. However, this need not be of concern if the patents are valid.

9 [http://documents.epo.org/projects/babylon/eponot.nsf/0/ddf1c588a052305dc1257e27002e70e0/\\$FILE/esab_patent_aggregation_workshop_report_en.pdf](http://documents.epo.org/projects/babylon/eponot.nsf/0/ddf1c588a052305dc1257e27002e70e0/$FILE/esab_patent_aggregation_workshop_report_en.pdf).

10 https://www.eif.org/news_centre/publications/innovfin-technology-transfer-leaflet.htm.

11 https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en.

12 https://ec.europa.eu/competition/consultations/2019_hbers/index_en.html.

13 Justus Baron & Henry Delcamp, “The strategies of patent introduction into patent pools,” *Economic of Innovation and New Technology* Vol. 24 2015 776-800.

Merges & Mattioli¹⁴ measured the costs and benefits of patent pools by documenting the costs of assembling and running a patent pool and comparing this with the counterfactual by estimating the transaction costs if no pool had been formed. The basic finding is that many pools save hundreds of millions of dollars in transaction costs. They also estimate welfare losses that result from the inclusion of substitute technologies in pools and grant back provisions.

While the latter losses could offset the former savings, it is suggested that antitrust rules that limit the degree to which substitute patents are included in pools and outlaw compulsory grant-backs should ensure the net benefit to competition of the formation of a pool.

Choi & Gerlach¹⁵ analyzed patent pools and their effects on litigation incentives, overall royalty rates, and social welfare in the context that patent rights are probabilistic and patents can be rendered invalid. They suggest that patent pools of complementary patents could be used to discourage infringement by depriving licensees of the ability to selectively challenge patents and make them engage in an all or nothing negotiation. They then suggest that if patents are sufficiently weak, pools with complementary patents reduce social welfare by charging higher licensing fees and thus chill subsequent innovation incentives.

This could be a concern but for the fact that licensees are not forced to license from a pool but can individually negotiate licenses with the individual patent holders. As the probabilistic nature of patents is known, this consideration influences the valuation of the patents in negotiation with the probabilistic nature leading to a certain discount. This is to allow for the possibility that, if subsequently challenged, some of the patents could be found invalid, non-essential to the standard, and/or possibly not infringed. Moreover, as has been seen in litigation¹⁶ which involved the use of patent pools to determine FRAND rates, the royalty rates for patents in pools are generally lower rather than higher. Added to this is the fact that for inclusion of a patent in a pool, as opposed to a portfolio, a due diligence exercise is carried out to ensure inclusion of only essential and valid patents.

Using an economic model, Quint¹⁷ shows that pools of essential patents are always welfare increasing while pools that include nonessential patents can be welfare reducing and the latter applies even to pools limited to complementary patents. He acknowledges that the model does not address uncertainty in the scope and enforceability of patents or non-essential patents that are effectively essential.

This suggests that, in line with antitrust policy, pools of essential patents should be allowed and encouraged to be as inclusive as possible, while pools including complementary non-essential patents should be considered more cautiously.

In a theoretical modelling exercise, Reisinger and Tarantino¹⁸ analyzed pools licensing to competing manufacturers and found that the impact of pools depends on the industry structure. Whilst they are pro-competitive if no manufacturer is integrated with a licensor, the presence of vertically integrated manufacturers triggers a trade-off between horizontal and vertical price co-ordination. They find that pools are anticompetitive if the share of integrated firms is large and propose an approach to screen anticompetitive pools.

The concern is that pool members who are vertically integrated face lower *net* licensing costs, their solution is to require the independent licensing of each firm's portfolio and require a pool to maximize its royalties.

This theoretical model, however, is at variance with reality in that patent pools rarely include large vertically integrated firms. It is suggested that the implied discrimination against firms that are not vertically integrated could be addressed by a clear allocation of one-way royalties per portfolio as well as the calculation of net royalties.

14 Mattioli, Michael & Merges, Robert P. "Measuring the costs and benefits of patent pools," <http://www.repository.law.indiana.edu/facpub/2643>, Ohio State Law Journal Volume 2017 78 (2) 281-347.

15 Jay Pii Choi & Heiko Gerlach, "Patent pools, litigation and innovation," The RAND Journal of Economics, Volume 46(3) 2015.

16 *Microsoft v. Motorola* <https://www.essentialpatentblog.com/2015/07/ninth-circuit-affirms-judge-robarts-rand-decision-microsoft-v-motorola/>.

17 Daniel Quint, "Pooling with Essential and Non-essential patent," American Economic Journal: Microeconomics 2014, 6(1): 23-57.

18 Markus Reisinger & Emanuele Tarantino, "Patent pools, vertical integration and downstream competition," The RAND Journal of Economics, Volume 50 (1) 2019, <https://doi.org/10.1111/1756-2171.12266>.

Mattioli¹⁹ addresses the issue of pool outsiders, i.e. those patent holders who decline to join pools and how these “pool outsiders” impact the bargaining taking place in the pool. Using financial and industry data, he shows that counterintuitively, licensees are sometimes better off where cooperation between licensors is partial rather than complete, and that slightly fragmented property markets may be preferable to grand coalitions.

Theory had previously argued that by remaining outside pools, outsiders undermine the transaction cost savings. Mattioli’s finding is that the influence of outsiders is not what theory predicts. Rather than outsiders’ royalty demands influencing the pool rate, he finds the reverse applies and that pool rates serve as benchmarks in settling bilateral disputes. The implication of this finding is that some fragmentation of the licensing offer is beneficial, and in the author’s view preferable to the alternative of compulsory pool formation.

Baron & Pohlmann²⁰ investigated the effect of patent pools and innovation. Specifically, they found that after the announcement of the formation of a pool, there is an increase in patenting activity primarily attributed to future members of the pool. However, there is no impact of pool formation announcements on the citation-weighted filings.

These findings suggest that pool creation takes place after significant innovation has already occurred and hence the substantial effect of pools on innovation occurs prior to the creation of the pool.

Whereas these papers represent just a sample of research in this area, one could draw a tentative conclusion that patent pools still represent more of a solution than a problem in facilitating the licensing of patents and SEPs and that any negative impacts that emerge on a case-by-case basis could be addressed by existing antitrust rules.

Nevertheless, the question remains what if anything could and then should be done to incentivize the formation of pools that comprise the majority of SEPs and the main portfolio holders, notwithstanding their different interests and business models. This raises the question of how to motivate patentees to join pools that holders of major portfolios presently elect to stay outside of.

One mooted solution is the formation of mandatory pools that would represent a form of compulsory licensing. This would represent a coercion rather than an incentive and would raise questions on how the aggregate value of the pool would be determined and by whom, and the risk that such a provision could serve to dis-incentivize participation in open standards development, and chill incentives to invest in the risky R&D upstream.

The overall challenge remains that of ensuring a balanced framework that addresses the needs of both patentees and licensees in a context of open innovation, specialization and vertical dis-integration.

19 Michael Mattioli, “Patent pool outsiders,” Berkeley Technology Law Journal Volume 33225-286.

20 Justus Baron & Tim Pohlmann, “The Effect of patent pools on patenting – evidence from contemporary technology standards,” http://www.law.northwestern.edu/research-faculty/clbe/innovationaleconomics/documents/Baron_Pohlmann_effect_of_patents.pdf.

SEP LICENSING FOR THE INTERNET OF THINGS – CHALLENGES FOR PATENT OWNERS AND IMPLEMENTERS

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I. THE IoT WILL INCREASE THE DEMAND FOR AND IMPLEMENTATION OF STANDARDIZED TECHNOLOGY

While early forecasts of more than 27 billion devices in the Internet of Things (“IoT”) by 2020 may have been exaggerated, there can be no doubt that the number of IoT devices implementing standardized technologies is growing rapidly and will continue to grow for the foreseeable future. Many “dumb” devices will become “smart” when they implement standardized technology to connect to the IoT, and many new devices that never existed before will be invented. Diverse markets – everything from drones to agriculture – will make up the IoT and the characteristics, requirements, and the standardized technologies integrated in these devices will diverge accordingly.

Wireless technology, and in particular cellular communication technology (LTE/5G), will be the most prominent standardized technology in many IoT devices. But there are many more standards which will be useful and required in IoT devices and systems as well. Some will also be related to communication (WiFi, NFC, Bluetooth, just to name a few), and others will be specific to the application areas in which the devices will be deployed (smart meters, traffic control, automotive, etc.).

Even though the wireless technology created in the cellular communication industry is a prominent enabler of the IoT, the licensing policies and strategies narrowly developed for SEP licensing in the smartphone and cellular communications industry will not work effectively for the IoT, which will be comprised of a diverse range of devices and standardized technologies that need to be licensed.

As one glaring example, technology owners who seek to license their essential patents to implementers of IoT devices will now have to deal with a much more complex landscape of potential licensees in many different industries, rather than a finite list of competitors in a single market. Many of these manufacturers and potential licensees: (1) will be small and medium-sized enterprises (“SMEs”) without any licensing experience and perhaps no in-house legal expertise at all; (2) may not be aware of the need to take licenses to specific SEP portfolios; and (3) will have little or no detailed knowledge of the standardized technologies implemented in their products since they will integrate components implementing these standardized technologies from third party suppliers. Needless to say, many of these SMEs will not have the technical expertise required to evaluate the viability of a technology owner’s license offer or the quality of value of the IP offered in the license.

As a second example, the IoT will also impact the SEP licensing environment due to the dramatic changes in the technology owner landscape. For many newer standards, the number of SEP owners will grow considerably, and the current trend is that more of these SEP owners intend to monetize their SEP portfolios. Implementers seeking to take necessary SEP licenses for their IoT devices will face a herculean task – potentially dozens of bilateral licensing discussions – to secure these licenses in the absence of a joint licensing program. Moreover, the amount of effort to obtain these licenses is magnified by the global nature of technology ownership. More and more Asian companies hold considerable portfolios of standard-essential patents and it remains to be seen if and how these companies enter the SEP licensing market.

To summarize, policies for licensing SEPs for the IoT have to cope with a complex landscape of licensor and licensee participants with very different levels of expertise as well as with much more complex standardized technologies covered by a large number of SEP portfolios.

A. How to Increase Transparency of SEP Ownership?

All participants in the IoT must have a clear understanding of the technologies that are available for implementation in their products and how these technologies are covered by SEPs in order to create a smoothly functioning SEP licensing market. Moreover, there must be transparency regarding both how licenses can be requested and taken and which products may be licensed, and there needs to be clarity on the FRAND-compliant terms and conditions of those licenses.

Implementers of standardized technologies for IoT products need to understand which standardized technologies are available to them, how these technologies are covered by SEPs (FRAND-committed or otherwise), and the economic effects of implementing a chosen technology. This is particularly true in the situation where there are alternative, competing technologies among which the implementer has a choice.

Delivering this necessary information should be the task of companies developing standardized technologies, providers of intermediate components and products implementing the standard(s), and owners of standard essential patents, all of which are motivated to have their standardized technology implemented in as many products as possible. How the information should be collected and provided, is, however, very much dependent on the standard-defining organization (“SDO”) responsible for standardizing a technology, and their IPR policies and declaration

requirements. While for most standards it is entirely unclear which IPR might become or be essential, at least for standards developed under the umbrella of the European Telecommunications Standards Institute (“ETSI”), the universe of potentially essential IP is quite well known. Even with ETSI’s extensive IPR disclosure database, however, it remains unclear which IP will be granted and considered essential to a standard once the standard is finalized by the SDO.

To find the response to the question of which IPR is essential to a licensed standard remains one of the most challenging and time-consuming tasks in preparation for and during licensing negotiations. And due to the complexity and specialization of many standardized technologies, the exact make-up of a patent owner’s SEP portfolio very often remains disputed throughout negotiations and may eventually have to be decided through legal proceedings.

One way to dramatically increase efficiency in the SEP licensing economy would be to create an agency that can deliver independent and impartial evaluations of patents and identify those patents for which the patent owner can show evidence of their standard essentiality. The results delivered by such an agency would streamline the lengthy technical negotiation processes since essentiality can be assessed once for many negotiations, rather than repeatedly in sequential negotiations. As an additional step, publication of the results would permit licensees to understand the SEP landscape before negotiations even begin. Moreover, an independent and impartial essentiality assessment would allow SMEs without any expertise to nevertheless achieve a fair understanding of the strength of a licensor’s portfolio offered for license. If the vast majority of SEPs became the subject of independent essentiality assessments, then the entire industry could get an impartial view on the overall size of the SEP stack covering a specific standardized technology and any individual patent owners’ share. This information might later be useful for getting an estimate or range for the overall royalty value for the entire SEP stack and fair licensing terms for an individual patent owner.

It is fair to ask SEP owners to provide clear and reliable information about the quality of the IP offered for license. If well organized, the cost for essentiality assessments will not be prohibitively high and probably negligible in comparison to the prosecution cost of the IPR. And this cost can easily be recovered by reduced transaction costs in negotiations.

Going beyond SEP ownership, clear and transparent information is also needed on (i) the products for which licenses are available; and (ii) the relevant terms and conditions under which these licenses may be obtained. To avoid lengthy disputes during licensing negotiations or in court, great care should be taken to ensure that the license offers are compliant with the FRAND obligations to which the IPR owners have previously committed. If this level of transparency is achieved, not just for a single standardized technology but across all competing standardized technologies, companies building the IoT can make educated decisions on the best and most cost-effective technology for their device.

B. Who may Obtain a License?

One of the disputed issues in current SEP licensing negotiations relates to the question of at which level in complex value chains will licenses be made available. Many SEP owners favor licensing the end-product manufacturer (OEM-level licensing), while most end-product manufacturers prefer that their supplier takes a license instead. While the issue is still disputed in various courts and legislations, we can see some agreement developing that owners of SEPs can no longer unilaterally decide whom to offer SEP licenses to, but are rather obliged to offer SEP licenses to all third parties/implementers requesting a license offer.

For the development of an efficient licensing structure, the parties in licensing negotiations should take a number of criteria into account when identifying the most appropriate licensee in the value chain of IoT industries. For example, OEM-level licensing might not be the best solution for SEP licensing in the IoT. If the number of different industries and manufacturers in these industries exceeds the number of component manufacturers providing (identical) components implementing the licensed standard(s) to these industry participants, licensing on the level of these component manufacturers will be much more efficient and allows patent owners to reach many more licensees with a more limited number of licensing negotiations. As another example, the product manufactured and marketed by the licensee should make use of the licensor’s essential patent portfolio, and the licensor should have an in-depth knowledge about both technology aspects of the standard and the SEP landscape related to its products. Other aspects that should be considered are questions related to accountability, ease of reporting and administration of license agreements.

Regardless of which level is determined to be best suited for licensing in the IoT, it is imperative that a single licensee in the value chain should take over the task of securing the needed SEP licenses, rather than separate individual licenses for each participant in an industry value chain. Thankfully, it seems that all in the industry agree on this approach to avoid a thicket of duplicative licensing agreements.

The parties' ability to identify the most appropriate member in a complex industry value chain will be extremely important for the efficiency of the SEP licensing environment for the IoT.

C. Will Patent Pools help Streamline the SEP Licensing Process?

Patent pools can play a major role in the development of an efficient SEP licensing environment. They offer a single contact for implementers seeking a license and usually offer identical license terms and contracts to all licensees of their portfolios. At least on the offer side, the complex licensing landscape becomes simplified, and for implementers willing to take licenses the negotiation process may become much easier.

To avoid possible antitrust issues, patent pools have to ensure that the patents which they offer in a joint license are truly essential to the relevant standard. A patent owner will only be allowed to contribute its patents to the portfolio of a patent pool if the essentiality of its patents is first validated by an external agency or law firm.

Potential licensees of patent pools can therefore be confident that the patents offered for license are actually essential to the relevant standard. Patent pools do not typically check validity beyond the initial examination provided by the national patent office, so an issue remains regarding the potential invalidity of the pool patents, but if a patent pool can show a large number of implementers have decided to take a license this may be used as an indication that there probably is value in the license offer of the pool and that the terms and conditions of the offered license are indeed fair and reasonable.

Patent pools can only be successful if the pool administrator can develop a licensing model that is attractive for both patent owners and potential licensees. Also, it is important that pools must be set up in a way that their offer is compliant with the FRAND commitments undertaken by its licensors.

While patent pools can simplify the complex licensor landscape and make access to SEP licenses easier for implementers, the challenge remains for licensors to address a huge number of potential licensees in the IoT. That complexity may be reduced somewhat by carefully selecting the optimal licensee in industry supply chains, but there remains a huge task for licensors to offer licenses to all potential licensees under FRAND conditions. As a novel solution, one possibility to further reduce the number of negotiations needed would be to explore the option of having industry associations negotiate SEP licenses for their members, e.g. a reverse patent pool comprised of licensees. While any such proposal needs to be carefully scrutinized to avoid any conflict with competition law regulation, if an arrangement can be found that is compliant with antitrust regulations and streamlines licensing for both licensors and implementor industry members, the results could be impressive.

D. How to Reduce Litigation and Prevent the IoT from becoming the Next Wave of Patent Wars?

Given the complexity of SEP licensing for the IoT, will there be a rise in patent litigation? The answer to that question depends very much on the solutions that the key stakeholders in the SEP licensing field find to the issues described above. While there has been a recent rise in SEP litigation in the automotive industry (that currently manufactures the most advanced IoT products), the claims raised in litigation between SEP owners and implementor participants of automotive industry value chains frequently relate to antitrust related matters and the question of access to SEP licenses in complex industry settings matters, rather than infringement or invalidity allegations or FRAND royalty rate settings. That is in contrast with the long-running smartphone patent litigation cases, which tend to focus on the latter.

It remains to be seen if the players in the SEP licensing market for the IoT will find solutions to their disputed issues without litigation or if there will be a large increase in SEP license-related litigation. With the advent of many small and medium-sized players in this market litigation may prove too costly and economically unjustified in many cases. Small implementers may not have the economic resources for lengthy legal proceedings while SEP owners may not initiate litigation against unwilling licensees due to the small size of companies' affected businesses and the possible value of license agreements. On the other hand, not approaching these SME implementers implies losing possible licensing income and may subject rights holders to claims that their SEP licensing behavior leads to market distortion in the target markets.

II. CONCLUDING REMARKS

Developing and creating an efficient SEP licensing economy for the IoT will generate considerable benefits both for developers and implementers of standardized technology. Innovators will be able to receive their fair return on the R&D investment necessary to develop IoT standards, and implementers will be able to invent, develop, and market their IoT products safe from future threats related to the assertion of standard essential patents. Moreover, all participants would benefit from business conditions that are predictable, fair, and non-discriminating. The cost burden related to the development of standardized technology can be shared among all users of such a technology resulting in lower licensing costs for those products that are put on the market with the required SEP licenses.

If such an efficient SEP licensing market can be developed depends in part on the participants ability to find compromise positions on the issues and open questions described above. Without an agreement that is acceptable to most participants on who should be the participants in the SEP licensing business, what constitutes FRAND-compliant negotiation behavior by both licensors and licensees (e.g. what are the requirements for FRAND-compliant license contract terms and how to set a FRAND compliant value for SEP licenses), such an SEP licensing economy will not develop. Rather, issues for which no compromise position or solution can be found will have to be decided by courts. The delays resulting from these court proceedings will have negative consequences on the patent owners' ability to recover their technology development investments and will leave implementers and manufacturers under legal uncertainty, which in turn will have negative effects on their ability to bring innovative IoT products on the market.

With the advent of the first 5G-enabled IoT products (outside the smartphone and communication business) still a few years away, there is a time window in which both technology developers and implementers should try to find these compromise positions unburdened by unlicensed use of SEPs in past products. If they fail to find these compromise positions and defer the definition of FRAND compliance until after products are introduced into the market, there is a risk that final court decisions deciding on disputed topics will only be available at a time when these new standardized technologies will already have been replaced with successor technology and become obsolete.

But, if in the meantime the key players in the SEP licensing market take on the challenge of setting an accepted licensing framework for standard essential patents in the IoT product markets, the potential benefit for all participants will be significant.



THE POSSIBLE BENEFITS OF POOL LICENSING FOR THE INTERNET OF THINGS, AND THE PERILS OF PROPOSED REGULATORY INTERVENTIONS



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During the Leadership EU Roundtable on November 18, 2019, experts from industry, academia and the European Commission gathered in Brussels to discuss current issues and policy evolutions regarding the licensing of Standard Essential Patents (“SEP”). The discussions focused on topics of particular interest to emerging technologies such as the Internet of Things (“IoT”). The roundtable thus inscribed itself in an ongoing debate in Europe, partly initiated by the European Commission with its November 2017 communication², and carried forward in the ongoing work of the Commission’s expert group on SEPs as well as a number of recently published or forthcoming studies.³ The Commission in its communication refocused the longstanding debate about various issues with SEP licensing on recent technological trends, in particular IoT, and the situation of European small and medium enterprises (“SMEs”). The discussions at the IP Leadership Roundtable largely reflected this recent focus.

It is generally expected that the IoT will have applications in a wide array of different environments, including in industries with limited experience with wireless communication technology and the concomitant need for SEP licensing. Some of the actors in these industries fear that securing licenses to all the required SEPs will be overly cumbersome for them, and that licensing terms may disadvantage recent participants in the SEP technology market, in particular SMEs. Some commentators therefore believe that ongoing technological changes will require significant adjustments to current SEP licensing practices, which may entail regulatory measures and/or initiatives from a variety of private actors.

Within this context, there is a renewed interest in multilateral licensing instruments; including traditional patent pools, but also more novel propositions, such as licensee collectives or multilateral deliberations on aggregate royalty caps. I was therefore thrilled that Kirti Gupta and the roundtable organizers invited me to chair a session on patent pools, which was a welcome and timely opportunity to explore these important ideas. The session featured three panelists with complementary backgrounds: Lapo Fillistruchi, Associate Professor of Economics at Tilburg School of Economics and Management, as an academic expert on Intellectual Property Rights (“IPR”) and innovation; Patrick McCutcheon, Senior Expert for IP and competition law at the European Commission, providing a perspective from a public authority; as well as Matthias Schneider, Chief Licensing Officer at Audi, participating in the panel as a practitioner and industry voice. As the roundtable was held under Chatham House Rule, I will reflect on the topics of the discussion in general terms and from my personal perspective.

In order to better situate the panel discussion within recent trends and possible future evolutions, it is useful to briefly review the experience with existing pools. Patent pools have attracted significant academic and regulatory interest for some time, and a number of studies have analyzed existing pools for SEPs. Well before the modern debate on patent pools for SEPs, earlier patent pools – e.g. on sewing machines and aircrafts – functioned similarly to cartels. Owners of different, often competing technologies, would bundle their technologies and only license these through a pool. Unsurprisingly, such pools increased prices for downstream users, while reducing innovation incentives.⁴ In response to these adverse effects, antitrust enforcement agencies developed a tough stance on pooling of patents.

In the field of Information and Communication Technologies, however, implementers of complex technology standards, e.g. the manufacturers of mobile phones, often need licenses for a large number of complementary SEPs held by different owners. Patent pools are often seen as offering an attractive licensing solution for such standards, promising to cut transaction costs, promote transparency, and reduce the scope for opportunistic conduct among both SEP owners and standard implementers.⁵ In view of these potential benefits, competition authorities reconsidered their stance, and favorably reviewed patent pools for video coding and digital disc formats.⁶ Cognizant of the anticompetitive effects

² “Communication from the Commission to the Institutions on Setting out the EU approach to Standard Essential Patents,” November 29, 2017. <https://ec.europa.eu/docsroom/documents/26583>.

³ In particular, the European Commission’s Joint Research Center has commissioned a series of studies: Baron, Justus; Conterras, Jorge; Husovec, Martin; & Pierre Larouche. “Making the Rules – The Governance of Standard Development Organizations and their Policies on Intellectual Property Rights,” *JRC Science for Policy Report*, 2019. https://ec.europa.eu/jrc/sites/jrcsh/files/sdo_governance_final_electronic_version.pdf Blind, Knut; Boehm, Mirko. “The Relationship Between Open Source Software and Standard Setting,” *JRC Science for Policy Report*, 2019. https://publications.jrc.ec.europa.eu/repository/bitstream/JRC117836/jrc_the_relationship_between_open_source_software_final_online_compressed_logo.pdf. Another study on the feasibility of essentiality evaluations of declared SEPs is forthcoming.

⁴ Lampe, Ryan & Petra Moser, “Do patent pools encourage innovation? Evidence from the nineteenth-century sewing machine industry,” *The Journal of Economic History* 70.4 (2010): 898-920. Lampe, Ryan & Petra Moser, “Patent pools, competition, and innovation—evidence from 20 US industries under the new deal,” *The Journal of Law, Economics, and Organization* 32.1 (2016): 1-36.

⁵ An influential analysis that is particularly sanguine about the dangers of bilateral licensing and the benefits of patent pools is Shapiro, Carl, “Navigating the patent thicket: Cross licenses, patent pools, and standard setting,” *Innovation policy and the economy* 1 (2000): 119-150. There is significant controversy about the empirical relevance of the hypothesized adverse consequences of bilateral licensing.

⁶ See in particular U.S. Department of Justice, “Response to Trustees of Columbia University, Fujitsu Limited, General Instrument Corp., Lucent Technologies Inc., Matsushita Electric Industrial Co. Ltd., Mitsubishi Electric Corp., Philips Electronics N.V., Scientific-Atlanta, Inc., and Sony Corp.,” June 26, 1997 <https://www.justice.gov/atr/response-trustees-columbia-university-fujitsu-limited-general-instrument-corp-lucent> and U.S. Department of Justice, “Response to Hitachi, Ltd.’s, Matsushita Electric Industrial Co., Ltd.’s, Mitsubishi Electric Corporation’s, Time Warner Inc.’s, Toshiba Corporation’s, and Victor Company of Japan, Ltd.’s Request for Business Review Letter,” June 10, 1999. <https://www.justice.gov/atr/response-hitachi-ltds-matsushita-electric-industrial-co-ltds-mitsubishi-electric-corporations> [hereafter “Business Review Letters”].

of earlier pools, these new pools featured a number of institutional safeguards: modern pools are limited to patents that are all essential to the same standard (as determined by an independent expert), thus significantly reducing the risk that the pool may be used to eliminate potential competition between patented technologies. Furthermore, participation in the pools is entirely voluntary for SEP owners, and pool members are free to negotiate bilateral licenses with implementers who do not wish to take a license from the pool. Competition authorities found that pools with these characteristics are unlikely to create anticompetitive effects. This created a successful “template” for a number of other pools.⁷

Since the late 1990s, at least 60 pools were formed or at least launched.⁸ Nevertheless, while a number of these pools were very successful, several of these pools failed to attract interest among potential licensors and/or licensees. In other cases, pools only attracted marginal SEP owners, falling well short of creating a one-stop licensing solution for a standard. Overall, in the past, pooling has remained a marginal practice in many technological fields characterized by large numbers of SEPs (most notably telecommunications).

A number of important lessons can however be learned from the experience with existing pools. Many contemporary pools inherited several features from the trailblazing MPEG-2 and DVD pools, which often reduced their viability: for one, most pools redistribute their royalty revenue among participating SEP owners proportionally to the number of SEPs included from each firm. While this feature was explicitly recognized and welcomed in the Business Review Letters setting the template for contemporary pools (viewed as incentivizing pool members to fight the inclusion of non-essential patents), it reduces the attractiveness of pool participation for the owners of higher-quality portfolios,⁹ and contributes to fueling opportunistic and wasteful patenting strategies.¹⁰

Second, most pools are tied to a single standard. Essentiality of patents can thus be objectively assessed with respect to a stable set of technical specifications, virtually eliminating the risk that pools may be used to soften competition between rival technologies. Such a tight technical focus of a pool however reduces its attractiveness for potential licensees, who often seek broader licenses and freedom to operate a certain production activity with respect to the licensor’s entire portfolio of existing and future patents.

Third, most pool licensors limit their role to the negotiation and administration of licensing agreements, and do not participate in the assertion of pool members’ SEPs against unwilling licensees. The pro-competitive intent behind this separation is intuitive, as the collective enforcement of large bundles of alleged SEPs may make it difficult for standard implementers to critically assess the asserted patents’ validity and essentiality, and shield weak patents from scrutiny.¹¹ On the flip side, collective licensing through a pool in the absence of collective action on patent assertion is bound to yield insufficient enforcement efforts, as each pool member hopes for the threat of other pool members’ enforcement activities to motivate standard implementers to seek a license from the pool. Such assertion free-riding not only diminishes the licensing revenue of the pool, but also conflicts with the pool’s mission to level the playing field among standard implementers.

Finally, most patent pools post standard licensing terms at which licenses are available to all implementers. While individual SEP owners may also publish standard licensing contracts, it is generally understood that such general terms are subject to possible amendments in bilateral negotiations. Pool licensing administrators however are more often bound by the standard licensing terms jointly agreed upon by pool members, and large numbers of licensees of pools have indeed signed on to identical terms.¹² Such price posting is certainly helpful for demonstrating that participation in the pool satisfies the pool members’ obligation to offer licenses to their SEPs on non-discriminatory terms. Nevertheless, price posting may deprive the pool of valuable flexibility to accommodate licensees’ individual situations. Implementers with the strongest bargaining position are most likely to negotiate better terms with individual SEP owners; which may deprive the pool of the most significant potential licensees. Posting of standard licensing terms may also reduce the contribution of pools to the efficiency of SEP licensing, as bargaining over licensing terms is generally a welfare-enhancing feature that helps eliminate royalty stacking and the deadweight loss of patent protection.¹³

7 Gilbert, Richard J., “Antitrust for patent pools: A century of policy evolution,” *Stan. Tech. L. Rev.* (2004): 3.

8 Bekkers, Rudi, et al., “Selected quantitative studies of patents in standards,” available at SSRN 2457064 (2014).

9 Layne-Farrar, Anne, and Josh Lerner. “To join or not to join: Examining patent pool participation and rent sharing rules,” *International Journal of Industrial Organization* 29.2 (2011): 294-303.

10 Baron, Justus & Henry Delcamp, “The strategies of patent introduction into patent pools,” *Economics of Innovation and New Technology* 24.8 (2015): 776-800.

11 Pooling of SEPs generally creates a risk of softening implementers’ incentives to challenge patent validity, see in particular Choi, Jay Pil, “Patent pools and cross-licensing in the shadow of patent litigation,” *International Economic Review* 51.2 (2010): 441-460. Choi, Jay Pil & Heiko Gerlach. “Patent pools, litigation, and innovation,” *The RAND Journal of Economics* 46.3 (2015): 499-523.

12 The District Court of Duesseldorf e.g. heard a case in which pool licensing administrator MPEGLA demonstrated that more than 2,000 different licensees had subscribed to identical standard licensing terms; and found that the opposing parties failed to support allegations that actual licensing terms offered to individual licensees differed from the publicly available general terms. Landgericht Düsseldorf, 4a O 17/17 of November 9, 2018; ECLI:DE:LGD:2018:1109.4A.017.17.00; at 455

13 Spulber, Daniel F., “Patent licensing and bargaining with innovative complements and substitutes,” *Research in Economics* 70.4 (2016): 693-713.

It is easy to see why institutional features such as numerically proportional royalty-sharing schemes, review of individual patents' essentiality to a specific standard, separation of pool licensing and individual patent assertion, and posting of standard licensing terms were initially perceived to be strong guarantees against anticompetitive conduct. The empirical evidence however suggests that these features undermined the success and often the very viability of pools. This is all the more remarkable as economic theory has established that such institutional features are not vital to the pro-competitive character of pools. The one characteristic that effectively screens between pro-competitive and anti-competitive pools is a pool's voluntariness on both sides of the market: pools form part of a competitive licensing market, as individual SEP owners are free to decide whether they wish to participate in the pool, and individual implementers are free to decide whether they wish to seek a license from the pool or rather approach each SEP owner individually for a bilateral license.¹⁴ Contemporary pools can thus generally be regarded as pro-competitive, as only those pools that create value for both SEP owners and implementers are able to thrive.

Against this background, more recent years have seen cautious experimentation with limited departures from the institutional features incorporated in the initial "template," and some of the more successful pools have provided incremental innovations in these regards. OneBlue e.g. offers modest departures from strict numerical proportionality, and provides for some mechanisms to reward members' assertion efforts.¹⁵ More recently, Avanci presents a larger number of innovations; including the fact that its licensing terms were not posted *ex ante*, but first negotiated with significant licensees. Another significant characteristic is the pool's limited scope, allowing SEP owners to restrict the pool's mandate to some of the technological fields in which the standards and appurtenant SEPs are used. Finally, the pool is not limited to a specific set of SEPs, but offers a license for using a certain technology with respect to all of the pool members' patents. While it is too early for an overall assessment, these innovations have persuaded several significant SEP owners to join, several of which were traditionally reluctant to participate in pools.

Beyond the individual innovations that these pools present, they exemplify a beneficial approach to institutional change in SEP licensing: different licensing administrators experiment with different models, often in explicit competition with one another, and thus need to persuade stakeholders on both sides of the market of the benefits of their specific approach. Licensing models that add value over existing practice survive and spread, whereas other models that may seem appealing on paper reveal their shortcomings in practice. Entrepreneurship has thus delivered incremental but significant progress, whereas many attempts at mandating change from above have faltered.

In some instances, regulators nevertheless may support the (still cautious) experimentation with innovative pool models. Some institutional arrangements that may overcome problems with existing pools are still held back by the restrictive template set by the regulatory review of earlier pools. One example is involvement of pool licensing administrators in enforcement litigation, which – depending on the jurisdiction within Europe – may require legislative change. More generally, as European competition authorities offer no equivalent to the Business Review Letters of the U.S. Department of Justice, they may seek alternative routes to offer regulatory clarity and encourage experimentation with alternative pool models. In this regard, the failure to include an analysis of patent pools in the European Commission's 2011 Horizontal Guidelines is still felt as a missed opportunity (which may be corrected in a future revision).

These recent developments featured prominently in the panel discussion during the IP Leadership Roundtable. In particular, participants highlighted the promise of Avanci's new approach, with its direct relevance for IoT. The panelists and audience nevertheless also discussed the merits and perils of a very different approach, which would seek to achieve higher rates of SEP pooling through a mandate or other regulatory interventions. Some voices in Europe currently turn to copyright collection agencies as a model for mandating Intellectual Property Rights owners' participation in collective licensing. While such radical ideas seem unlikely to become a reality, and were flatly rejected by many roundtable participants, they may set the floor for other policies that sound moderate by comparison, even though they may produce similar effects. One such idea that was discussed during the roundtable would require individual SEP owners that decline to participate in a pool to offer licensing terms that are consistent with the share that they would collect from the pool, if they had chosen to join. Such a proposal formally falls short of mandating participation in a pool, but nevertheless makes it impossible for SEP owners to escape the terms set by the pool.

The experience with existing pools however sheds light on why making participation in pools mandatory (or quasi-mandatory) would be a bad idea. First, even after almost 30 years of experience with contemporary pools, there is no empirical evidence that licensing SEPs through a pool is *generally* more efficient or more beneficial for standard implementers than bilateral licensing. Indeed, bilateral bargaining has many virtues. Bargaining over royalty rates may effectively address concerns over royalty stacking,¹⁶ and be more protective of implementers wary of having to pay for patents that are either invalid or that they don't need.¹⁷

¹⁴ Lerner, Josh & Jean Tirole. "Efficient patent pools," *American Economic Review* 94.3 (2004): 691-711.

¹⁵ Peters, Ruud. "One-Blue: a blueprint for patent pools in high-tech," *Intellectual Asset Management* 9 (2011): 38-41.

¹⁶ Spulber, *supra* note 13.

¹⁷ Choi, *supra* note 11.

There is actually surprisingly little systematic empirical evidence on the effects of contemporary patent pools. A number of empirical studies have examined the effect of pool formation on a number of measures of innovative activity, and yielded inconsistent results.¹⁸ One study proposes to measure the economic costs and benefits of pool formation more generally, and concludes that the benefits of existing pools (e.g. savings on transaction costs) outweigh potential social costs.¹⁹ Such results however do not support the more general proposition that SEPs must always be licensed through pools. Individual examples alone may suffice to cast doubt on the simplistic view that a successful pool formation always helps the underlying standard succeed.²⁰ While the jury is still out on the aggregate effects of pools, the most likely answer is that patent pools create value for some standards, for some licensors, and for some licensees; and that the standards that most stand to benefit from a pool are those for which a pool already exists. It is difficult to evaluate just how big the residual margin of possible improvement is, i.e. how many additional implementers and SEP owners would actually benefit if regulatory intervention resulted in a larger number of pools. These uncertain benefits have to be weighed against the risk of disrupting existing effective bilateral licensing practices.

Second, making pools mandatory (or quasi-mandatory) risks undermining the existing pools and their benefits. As I have argued above, the voluntary character of pools is the most effective guarantee of their pro-competitive effects. Making pool participation mandatory would destroy that guarantee; and strong institutional protections would be required to ensure that the regulator does not create pools of the anti-competitive type. In the existing pools, individual SEP owners are protected from seeing their share in the pie being eaten up by a coalition of other SEP owners ganging up against them. Voluntary pools are immune against this type of abuse, because they need to offer each SEP owner a fair deal, or it will simply not join. If participation in pools became mandatory (or staying out was made sufficiently unattractive); coalitions of pool members would have both the incentives and a wide range of opportunities to rig the rules in their favor, e.g. by placing the thumb on the balance in the pool's experts' assessment of essentiality, by biasing the royalty sharing formula, or by imposing that the pool offers licensing conditions that uniquely favor their own downstream business interests in the standard. In many cases, a sufficient number of vertically integrated SEP owners may impose that the pool offers low royalty rates that fail to adequately compensate R&D specialists for their contributions.

In a scenario where pool participation is mandatory for SEP owners, avoiding each of these anti-competitive outcomes requires strict institutional guarantees and regulatory oversight. Experience with existing pools has shown the cost of such institutional guarantees. Mandatory pool participation would thus be a bad idea not only because there are situations in which pools are less efficient than bilateral licensing; it is a bad idea also because mandatory pools would likely be less efficient than the voluntary pools that we know. Even if regulatory oversight may be effective in averting drastically anticompetitive outcomes, it is still difficult to imagine that forcing unwilling SEP owners to participate in the formation of a pool would be a positive contribution to the attempts of willing members to create the high level of trust and common understanding that is required to set up a complex joint licensing operation.

Third and finally, heavy-handed regulatory intervention imposing pool licensing would run counter the successful model of institutional entrepreneurship that has delivered significant progress within existing pools. The institutional innovations of more recent pools (which were generally applauded by the industry experts speaking at the roundtable) are a response to the competitive pressures that pools face in the current licensing environment: licensing administrators must prove the added value of their business model not only with respect to other ways of creating a pool, but also and more importantly with respect to bilateral licensing. Therefore, further experimentation seems to be a more promising avenue towards creating more successful pools than a mandate or another, similarly intrusive regulatory intervention.

While the session mostly focused on patent pools, other models for multilateral negotiations of SEP licensing terms were also discussed. In particular, some experts advocated a model in which industry associations or other representative organizations negotiate SEP licensing terms with a SEP owner (or a pool) on behalf of a group of standard implementers seeking a license. This proposal has recently featured in a number

18 One study e.g. finds negative effects of pools on follow-on innovation: Joshi, Amol M. & Atul Nerkar, "When do strategic alliances inhibit innovation by firms? Evidence from patent pools in the global optical disc industry," *Strategic Management Journal* 32.11 (2011): 1139-1160. Another study however concludes that the same set of contemporary pools had positive effects on innovation: Vakili, Keyvan. "Collaborative promotion of technology standards and the impact on innovation, industry structure, and organizational capabilities: Evidence from modern patent pools," *Organization Science* 27.6 (2016): 1504-1524. In my own research, I found evidence that the prospect of future pool creation may induce additional patent filings, but I found little evidence for significant effects on innovation. Baron, Justus & Tim Pohlmann. "The effect of patent pools on patenting and innovation-evidence from contemporary technology standards," Unpublished Manuscript (2015).

19 Mattioli, Michael & Robert P. Merges. "Measuring the Costs and Benefits of Patent Pools," 78 *Ohio State Law Journal* 281 (2017) (2017).

20 IEEE's 1394 "FireWire" is an example of a standard for which licenses to a large share of the relevant SEPs were available through a pool, but nevertheless failed to gain as much traction as other, rival technologies. IEEE's 802.11 "WiFi" and 3GPP's fourth generation LTE standards on the other hand are among the standards with the largest number of declared SEPs; and in both cases pools have never attracted more than a small group of relatively marginal SEP owners. Notwithstanding the relative failures of efforts to provide pool licenses for WiFi and LTE SEPs, the underlying standards are widely deployed around the world in many different industries, and subject to vital technological innovation.

of initiatives, such as a study commissioned and published by the European Parliament's JURI committee.²¹ Given the hypothetical nature of the proposal, roundtable participants cautiously weighed its potential implications. Unlike the situation with patent pools, there is limited precedent or practical experience on which the analysis could draw.

Nevertheless, I find it reasonable to expect that the lessons learned from the experience with pools carry over to other collective instruments for SEP licensing. There is an intuitive potential for transaction cost savings if a number of similarly situated willing licensees pool their negotiation efforts. Willing licensees may legitimately bundle their efforts in analyzing the individual value contribution of different SEP portfolios, critically assessing asserted patents' validity and essentiality, and communicating with a large number of different SEP owners to raise awareness for their industry's specific needs and requirements. Such bundling of resources may produce economies of scale that would benefit both implementers and SEP owners alike.

Also similar to licensor pools, joint negotiation by organizations representing a group of licensees may reduce the scope for individual opportunism. Many implementers may be generally willing to pay a fair price for the technology they use, but are wary of finding themselves competing with other implementers that either eschew their licensing obligations or were able to secure a better deal. An industry association negotiating licensing terms on behalf of a larger group of implementers may attenuate these concerns, and reduce potential licensees' resistance to accepting an appropriate level of royalties.

These benefits have to be weighed against the risk of anticompetitive outcomes. Legitimate coordination and transaction cost savings should not pave the way for buyer cartels depriving IPR owners of their fair return on investment. The experience with pools indicates that the primary safeguard against such outcomes is voluntariness on both sides. No standard implementer should ever be forced to participate in a joint negotiation group. Similarly, no SEP owner should ever be forced to accept negotiating with such a group instead of directly approaching individual implementers. Therefore, individual implementers participating in a licensee negotiation group must nevertheless be willing to engage in bilateral negotiations with SEP owners, or be considered an unwilling licensee. Provided that an agreement among implementers to jointly negotiate licensing terms with SEP owners complies with these necessary conditions, it seems unlikely to present a risk of anticompetitive effects.

Voluntary participation in the group should not, however, be confused with the absence of a commitment to accept the outcome of the joint negotiation. SEP owners negotiating with an organization representing a group of implementers would legitimately expect that the individual implementers represented by the organization accept the licensing terms agreed upon in these negotiations. In the absence of such a commitment, negotiations with representative organizations become mere 'cheap talk', and create yet another opportunity for hold-out on the side of implementers. This is similar to a situation in which an individual pool member would suddenly withdraw its SEPs from the pool and aggressively assert its SEPs against pool licensees. Allowing for such opportunism would deprive either collective licensing mechanism of any value.

The discussions of the panel on patent pools at the Leadership EU Roundtable thus covered a lot of fertile ground. Overall, the debate was characterized by substantial agreement on the merits of the current European regulatory approach to patent pools and collective licensing models for SEPs more generally; which stands in stark contrast to proposed regulatory mandates or other binding regulations. The discussions at the conference however also highlighted potential for incremental improvements, which may provide food for thought for the ongoing debates within the European Commission's expert group and beyond.

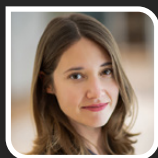
²¹ Luke McDonagh & Enrico Bonadio: "Standard Essential Patents and the Internet of Things," In-Depth Analysis for the JURI Committee of the European Parliament; January 2019; available at [http://www.europarl.europa.eu/RegData/etudes/IDAN/2019/608854/IPOL_IDA\(2019\)608854_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/IDAN/2019/608854/IPOL_IDA(2019)608854_EN.pdf).

DID *FTC v. QUALCOMM* CREATE AN ANTITRUST DUTY TO LICENSE STANDARD-ESSENTIAL PATENTS?

California

DUTY

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I. INTRODUCTION

In May 2019, Judge Lucy H. Koh of the U.S. District Court for the Northern District of California issued her findings of fact and conclusions of law in *FTC v. Qualcomm*.³ She found that Qualcomm violated the Sherman Act by, among other things, refusing to offer a license to its standard-essential patents (“SEPs”) to rival manufacturers of baseband processor modems. Several months earlier, in November 2018, Judge Koh also granted the Federal Trade Commission’s (“FTC’s”) motion for partial summary judgment, in which she found that the contracts between Qualcomm and two standard-setting organizations (“SSOs”), the Telecommunications Industry Association (“TIA”) and the Alliance for Telecommunications Industry Solutions (“ATIS”), obligated Qualcomm to offer licenses to its SEPs to rival modem manufacturers.⁴ In other words, Judge Koh found that Qualcomm’s refusal to license rival modem manufacturers violated not only Section 2 of the Sherman Act, but also Qualcomm’s contractual obligations pursuant to the commitment it made to offer licenses to its SEPs on reasonable and nondiscriminatory (“RAND”) terms.

As of March 2020, the decision of the district court is on appeal to the Ninth Circuit. Nonetheless, some firms have argued that the reasoning adopted in *FTC v. Qualcomm* is not limited to Qualcomm, but instead applies to *every* RAND (or “FRAND”) commitment and consequently ought to bind *every* SEP holder in the larger universe of *all* SSOs with respect to the larger universe of *all* implementers.⁵ Some commentators have urged the European Commission to follow Judge Koh’s lead and compel every SEP holder to offer licenses to its SEPs to component manufacturers, such as manufacturers of baseband processor modems.⁶ The salient question that arises is, Did *FTC v. Qualcomm* create an antitrust duty for SEP holders to license SEPs? As we will explain, it did not.

II. THE ANTITRUST DUTY TO DEAL: GENERAL PRINCIPLES

The Sherman Act does not obligate a firm to deal with its rivals. In 1919, the U.S. Supreme Court acknowledged this basic principle in *Colgate*, when it emphasized that the Sherman Act “does not restrict the long recognized right of [a] trader or manufacturer . . . to exercise his own independent discretion as to parties with whom he will deal.”⁷ The Court reiterated this principle in subsequent decisions.⁸ In *linkLine*, for example, the Court said that, “[a]s a general rule, businesses are free to choose the parties with whom they will deal, as well as the prices, terms, and conditions of that dealing.”⁹

The principle that a firm has no antitrust duty to deal with its rivals applies with even greater force in the context of patent rights. The U.S. Patent Act expressly gives a patent holder the right to make exclusive use of its patented invention.¹⁰ It would be antithetical to patent law to condemn as anticompetitive a patent holder’s refusal to license its patents to a rival, as doing so would destroy the very incentive to innovate that a patent system seeks to create. Antitrust scholars and economists have long recognized that forcing a firm to share its patented technologies with its rivals would facilitate free riding, reduce incentives to invest in innovation, and, in the long run, decrease rather than increase competition. Consequently, it should come as no surprise that, in the words of the Areeda-Hovenkamp antitrust treatise, American courts “have almost uniformly held that a refusal to license [a patent] cannot be an antitrust violation.”¹¹

3 *FTC v. Qualcomm Inc.*, 411 F. Supp. 3d 658 (N.D. Cal. 2019).

4 Order Granting FTC’s Motion for Partial Summary Judgment, *FTC v. Qualcomm Inc.*, No. 5:17-cv-00220-LHK, 2018 WL 5848999, at *12 (N.D. Cal. Nov. 6, 2018) [hereinafter Partial Summary Judgment, 2018 WL 5848999].

5 See, e.g. First Amended Complaint for Breach of FRAND Commitments and Violations of Antitrust and Unfair Competition Laws, *Continental Auto. Sys., Inc. v. Avanci, LLC*, No. 5:19-cv-02520-LHK (N.D. Cal. July 23, 2019), ECF No. 97.

6 See, e.g. Dave Djavaherian, President, PacTech Law, P.C., Presentation at the FOSS Patents Component-Level SEP Licensing Conference: Access to FRAND Licences Under the Contract Laws (Nov. 12, 2019), <https://www.scribd.com/presentation/435185173/19-11-12-Dave-Djavaherian-Presentation>; Evelina Kurgonaite, Secretary General, Fair Standards Alliance, Presentation at the FOSS Patents Component-Level SEP Licensing Conference: Could Judge Koh’s Reasoning Be Adopted Under Art. 102 TFEU? (Nov. 12, 2019), <https://de.scribd.com/document/435184753/19-11-12-Evelina-Kurgonaite-Presentation>.

7 *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919).

8 *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 408 (2004); see also *Pacific Bell Tel. Co. v. linkLine Commc’ns, Inc.*, 555 U.S. 438, 448 (2009).

9 *linkLine*, 555 U.S. at 448.

10 See 35 U.S.C. § 271(a).

11 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 709(b)(1), at 374 (4th ed. 2013).

In its 1985 decision in *Aspen Skiing*, the Supreme Court created an exception to the general rule that a firm has no duty to deal with its rivals.¹² The case concerned three independent operators of skiing facilities in Aspen, Colorado that offered an interchangeable admission ticket that enabled skiers to visit any of the three facilities at the Aspen resort.¹³ In 1967, Ski Co., one of the operators, acquired one of the competing facilities and opened another facility, such that it operated three of the four skiing facilities in Aspen.¹⁴ Ski Co. continued to offer interchangeable tickets until 1978, when it discontinued the practice and refused to include its remaining competitor, Highlands, in Ski Co.'s advertising campaigns.¹⁵ Highlands successfully sued Ski Co. under Section 2 of the Sherman Act,¹⁶ and, after the Tenth Circuit affirmed, the Supreme Court granted *certiorari* to decide the question of whether “a firm with monopoly power has a duty to cooperate with its smaller rivals in a marketing arrangement in order to avoid violating § 2 of the Sherman Act.”¹⁷ The Supreme Court affirmed. It reasoned that, although the decision to end an existing business cooperation is not necessarily anticompetitive, the jury found no business justification for Ski Co.'s decision to discontinue interchangeable tickets. Given that finding of fact, the Court said that “[t]he jury may well have concluded that Ski Co. elected to forgo these short-run benefits [resulting from the cooperation with its smaller rival] because it was more interested in reducing competition in the Aspen market over the long run by harming its smaller competitor.”¹⁸

Thus, in *Aspen Skiing*, the Court carved out an exception to the general rule that a firm does not have an antitrust duty to deal with its rivals. Two necessary (but not sufficient) requirements for conduct to fall under *Aspen Skiing's* exception are (1) evidence that a monopolist ended a presumably profitable existing course of dealing with a competitor; and (2) evidence of a monopolist's “willingness to forsake short-term profits to achieve an anti-competitive end.”¹⁹ It bears emphasis, however, that the Court subsequently said in *Trinko* that “*Aspen Skiing* is at or near the outer boundary of § 2 liability.”²⁰ Several courts, including the Ninth Circuit, have since found *Aspen Skiing's* exception to apply only if the decision to end an existing cooperative arrangement has *no* reasonable explanation other than to harm competition.²¹

III. THE FINDINGS IN *FTC v. QUALCOMM*

In *FTC v. Qualcomm*, Judge Koh found that Qualcomm had an antitrust duty to offer a license to its SEPs to competing modem manufacturers.²² She found that Qualcomm had previously licensed its SEPs to competing modem manufacturers²³ and that it subsequently ended that practice because it concluded that it was more lucrative to license its SEPs only to original equipment manufacturers (“OEMs”).²⁴ Judge Koh said that, because (1) Qualcomm terminated what she assumed was a profitable course of dealing; and because (2) such a decision by Qualcomm was in her assessment motivated by “anticompetitive malice,” Qualcomm's refusal to offer a license fell within the exception to a monopolist's general right to refuse to deal with competitors that the Supreme Court had recognized in *Aspen Skiing*.²⁵ However, several commentators have criticized Judge Koh's conclusion that Qualcomm had an antitrust duty to license its SEPs to its rivals.²⁶

12 *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 611 (1985).

13 *Id.* at 589.

14 *Id.* at 589–90.

15 *Id.* at 591.

16 *Id.* at 595.

17 *Id.* at 587.

18 *Id.* at 608.

19 *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 399 (2004).

20 *Id.* at 409; see also *In re Adderall XR Antitrust Litigation*, 754 F.3d 128, 134 (2d Cir. 2014).

21 See, e.g. *Aerotec Int'l, Inc. v. Honeywell Int'l, Inc.*, 836 F.3d 1171, 1184 (9th Cir. 2016) (quoting *MetroNet Servs. Corp. v. Qwest Corp.*, 383 F.3d 1124, 1132 (9th Cir. 2004)); *Novell Inc. v. Microsoft Corp.*, 731 F.3d 1065, 1075 (10th Cir. 2013) (Gorsuch, J.).

22 *FTC v. Qualcomm Inc.*, 411 F. Supp. 3d 658, 758 (N.D. Cal. 2019).

23 *Id.* at 760.

24 *Id.* at 751.

25 *Id.* at 758–62 (construing *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 602 (1985)).

26 See, e.g. Christine Wilson, *A Court's Dangerous Antitrust Overreach*, WALL ST. J., May 28, 2019, <https://www.wsj.com/articles/a-courts-dangerous-antitrust-overreach-11559085055>; Richard A. Epstein, *Judge Koh's Monopolization Mania: Her Novel Antitrust Assault Against Qualcomm Is an Abuse of Antitrust Theory*, 98 NEB. L. REV. 241 (2019); Lindsey M. Edwards, Douglas H. Ginsburg & Joshua D. Wright, *Section 2 Mangled: FTC v. Qualcomm on the Duty to Deal, Price Squeezes, and Exclusive Dealing*, 7 J. ANTITRUST ENFORCEMENT (forthcoming 2020); Erik Hovenkamp, *FTC v. Qualcomm, Antitrust, and Intellectual Property*, REGULATORY REV. (June 11, 2019) (agreeing with Judge Koh on the findings about exclusive dealing, but finding her conclusion about a duty to deal “precarious”).

Most notably, substantial evidence in the record contradicts Judge Koh's finding that Qualcomm's conduct satisfied the two necessary requirements for applying the *Aspen Skiing* exception. The evidence indicates that Qualcomm had always licensed its SEPs to OEMs, and that those license agreements historically generated most of Qualcomm's licensing revenue.²⁷ At some point in the past, Qualcomm executed *limited* license agreements with some modem manufacturers. Those agreements granted Qualcomm's rivals the freedom to operate — that is, the right to make and sell items practicing Qualcomm's claimed inventions without the risk of facing a suit for patent infringement. However, those limited licenses with rival modem manufacturers explicitly did not grant any rights to OEMs who purchased rivals' modems. After the Supreme Court clarified the doctrine of patent exhaustion, which provides that the authorized sale of a patented item terminates all the patent holder's patent rights to that item,²⁸ it became clear that even the limited license agreements that Qualcomm executed with modem manufacturers could exhaust Qualcomm's patent rights. Consequently, Qualcomm revised its agreements with modem manufacturers so as to continue to grant them the freedom to operate while preserving Qualcomm's ability to license (and collect royalties) from OEMs.²⁹

Qualcomm merely revised the form of the agreements that it had executed with some modem manufacturers. It never licensed its SEPs exhaustively to rival modem manufacturers. Consequently, one could question whether it was correct for Judge Koh to conclude that Qualcomm ended a presumably profitable existing course of dealing, as required by *Aspen Skiing*. That conclusion is even more questionable if one considers that, although in the past Qualcomm executed limited license agreements with some modem manufacturers, most of the modem manufacturers that currently operate in the industry have never had a license to Qualcomm's SEPs.

Furthermore, Judge Koh's conclusion that Qualcomm's supposed change in its licensing practice was motivated by a willingness to forsake short-term profits to achieve an anticompetitive end is contradicted by substantial evidence in the record. As Judge Koh herself observed, Qualcomm reformulated its licensing practice because it concluded that licensing SEPs only to OEMs was more lucrative.³⁰ Of course, the desire to maintain (or increase) licensing revenue is a normal business objective of any patent holder and certainly not evidence of anticompetitive malice.³¹ Judge Koh even found that other SEP holders (such as Nokia and Ericsson) that did not compete with manufacturers of baseband processor modems chose, like Qualcomm, to license their SEPs only to OEMs.³² In light of that evidence, it would be incorrect to conclude that Qualcomm's refusal to license rival modem manufacturers is irrational but for its anticompetitive effect.

One could also question whether it was appropriate for Judge Koh to apply *Aspen Skiing* in the context of patent licensing. *Aspen Skiing* concerned an industry that was not particularly technologically dynamic. It also did not involve a firm's refusal to license a patented technology. It thus seems fair to ask whether *Aspen Skiing* could apply at all in the context of patent rights. In *Trinko*, the Court said that “[c]ompelling such firms to share the source of their advantage is in some tension with the underlying purpose of antitrust law, since it may lessen the incentive for the monopolist, the rival, or both to invest in those economically beneficial facilities.”³³ The detrimental effects of forced cooperation are likely to be particularly acute in the context of patent rights, which are an essential tool to stimulate investment in innovation.

In sum, Judge Koh adopted an expansive reading of *Aspen Skiing* that has little support either in the facts of the case or in courts' prior decisions. Even the FTC distanced itself from Judge Koh's conclusion that Qualcomm's licensing practice satisfied the *Aspen Skiing* requirements. In its merits brief to the Ninth Circuit, the FTC said that it “does not argue that Qualcomm has a duty to deal with its rivals under the heightened *Aspen/Trinko* standard.”³⁴

27 Transcript of Meeting Between Qualcomm and the Internal Revenue Service at 71:18–23 (July 27, 2012), exhibit to Joint Notice Regarding CX6786-R, *FTC v. Qualcomm Inc.*, No. 5:17-CV-0220-LHK (N.D. Cal. Jan. 28, 2019), ECF No. 1455 [hereinafter IRS Transcript].

28 *Quanta Comput., Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 621 (2008).

29 See IRS Transcript, *supra* note 27, at 31:3–8; *id.* at 34:5–8, 35:12–36:11.

30 *FTC v. Qualcomm*, 411 F. Supp. 3d at 751.

31 *Id.* at 753–54.

32 *Id.* at 754–55.

33 *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407–08 (2004).

34 Brief of the Federal Trade Commission at 30, *FTC v. Qualcomm Inc.*, No. 19-16122 (9th Cir. Nov. 22, 2019).

IV. DOES A RAND COMMITMENT CREATE AN ANTITRUST DUTY TO DEAL?

In its merits brief to the Ninth Circuit, the FTC argued that, although Qualcomm did not have an antitrust duty to license under *Aspen Skiing*, Qualcomm nonetheless harmed competition by violating its voluntary RAND commitment to offer a license to its SEPs to its rivals.³⁵ The FTC acknowledged that a breach of a RAND commitment does not necessarily violate the Sherman Act, but the agency nonetheless argued that “Section 2 liability is appropriate when, as here, a monopolist SEP holder commits to license its rivals on FRAND terms, and then implements a blanket policy of refusing to license those rivals on any terms, with the effect of substantially contributing to the acquisition or maintenance of monopoly power in the relevant market.”³⁶ (Note that, although the FTC referred to a “FRAND” commitment, the two SSOs involved in the case — TIA and ATIS — have a RAND, rather than a FRAND, commitment.)

Judge Koh never addressed, let alone answered, the FTC’s contention. She held, on summary judgment, that Qualcomm’s RAND commitments to TIA and ATIS “require Qualcomm to license its SEPs to modem chip suppliers.”³⁷ She also found that Qualcomm’s failure to license its SEPs to rivals violated its contractual obligations pursuant to its RAND commitments.³⁸ But Judge Koh never explained the implication of that ruling for her conclusion of law that Qualcomm had an antitrust duty to offer licenses to its rivals. In other words, she predicated her conclusions about the existence of an antitrust duty to license exclusively on *Aspen Skiing*. Indeed, the FTC argued on appeal that, “although the district court applied a different approach” in concluding that Qualcomm had an antitrust duty to license, the Ninth Circuit “may affirm on any ground finding support in the record.”³⁹ However, at least three reasons weigh against the FTC’s contention that Qualcomm’s RAND commitment created an antitrust duty to license SEPs to rival modem manufacturers.

First, one could question whether Qualcomm had a contractual duty to offer a license to its SEPs to rival modem manufacturers. The FTC and Qualcomm disagreed about the correct interpretation of Qualcomm’s contractual obligations pursuant to its RAND commitments. The FTC argued that “Qualcomm’s contractual commitments to ATIS and TIA to make licenses to relevant SEPs available to ‘applicants’ on FRAND terms require Qualcomm to make such licenses available to rival modem-chip sellers.”⁴⁰ Qualcomm countered that the FTC ignored the qualifying language in the two contracts, which limits the SEP holder’s duty to offer licenses to applicants that need such a license to implement or to practice the relevant standards.⁴¹ Qualcomm argued that, because baseband processor modems cannot implement or practice a standard, manufacturers of baseband processor modems cannot be considered “applicants” for purposes of the contracts that Qualcomm executed with ATIS and the TIA.⁴² As explained earlier, Judge Koh found that the RAND commitments Qualcomm made to the two SSOs created a duty for Qualcomm to offer licenses to rival modem manufacturers.⁴³ However, the evidence that Judge Koh cited in her summary judgment was too insubstantial to support that conclusion. Neither the language in the contracts, nor the extrinsic evidence that Judge Koh summarized, unambiguously supported that conclusion. At the very least, the language of the contracts was ambiguous, such that it was appropriate to hear additional evidence, rather than decide the issue on summary judgment, as Judge Koh did.

Second, even if one were to assume that Qualcomm had a contractual duty to offer licenses to its SEPs to rival modem manufacturers, that proposition still would not support the finding of an antitrust duty to license. The Supreme Court addressed a similar question in *Trinko*, in which it found that, although regulations promulgated by the Federal Communications Commission (“FCC”) to implement Sections 251 and 252 of the Telecommunications Act of 1996 obligated Verizon to provide unbundled access to its network infrastructure to downstream competitors

³⁵ *Id.* at 69.

³⁶ *Id.*

³⁷ Partial Summary Judgment, 2018 WL 5848999, *supra* note 2, at *10.

³⁸ *Id.* at *14.

³⁹ Brief of the Federal Trade Commission at 69–70, *FTC v. Qualcomm Inc.*, No. 19-16122 (9th Cir. Nov. 22, 2019) (quoting *Cigna Prop. & Cas. Ins. Co. v. Polaris Pictures Corp.*, 159 F.3d 412, 418–19 (9th Cir. 1998)).

⁴⁰ Federal Trade Commission’s Motion for Partial Summary Judgment on Qualcomm’s Standard Essential Patent Licensing Commitments and Memorandum of Points and Authorities in Support at i, *FTC v. Qualcomm Inc.*, No. 5:17-cv-00220-LHK (N.D. Cal. Aug. 30, 2018).

⁴¹ Defendant Qualcomm Incorporated’s Opposition to Motion for Partial Summary Judgment on Qualcomm’s Standard Essential Patent Licensing Commitments at 1–3, *FTC v. Qualcomm Inc.*, No. 5:17-cv-00220-LHK (N.D. Cal. Sept. 24, 2018); see also *id.* at 19–20.

⁴² *Id.* at 20.

⁴³ Partial Summary Judgment, 2018 WL 5848999, *supra* note 2, at *12.

on “‘just, reasonable, and non-discriminatory’ [JRAND] terms,”⁴⁴ Verizon had no *antitrust* duty to deal with such competitors.⁴⁵ The Court reasoned that the FCC’s regulations did “not create new claims that go beyond existing antitrust standards.”⁴⁶ “That Congress created these duties [to deal],” the Court emphasized, “does not automatically lead to the conclusion that they can be enforced by means of an antitrust claim.”⁴⁷ In other words, although the Court acknowledged that Verizon had a duty to grant competitors access to its facilities on JRAND terms, it found that the duty arose from the Telecommunications Act of 1996 and not from antitrust law.⁴⁸ The Court’s reasoning in *Trinko* indicates that, even if Qualcomm had a contractual duty to offer licenses to its SEPs to competing modem manufacturers, that contractual duty would not create any new *antitrust* duty for Qualcomm beyond what already exists in American antitrust jurisprudence.⁴⁹ That duty would arise from a contract, not from antitrust law.

Judge Koh’s opinion offers limited evidentiary support for the FTC’s contention that Qualcomm’s refusal to license rival modem manufacturers permitted Qualcomm to acquire or maintain market power. At the outset, the allegation that an SEP holder could harm competition by licensing its SEPs to OEMs, rather than modem manufacturers, is economically unsound. An SEP holder cannot exclude a rival, much less use its SEPs to monopolize the market in which that rival competes, unless the SEP holder *enforces* its SEPs against that rival. The FTC did not allege that Qualcomm ever did so. Rather, the evidence that Judge Koh cited in her opinion indicates that Qualcomm had an “‘unwritten policy of not going after chip manufacturers.’”⁵⁰ Furthermore, although Judge Koh found that Qualcomm’s refusal to license “promoted” the exit of some modem manufacturers,⁵¹ she performed no rigorous analysis of exit from and entry into what she defined as the relevant markets. She also did not examine evidence about competition in her relevant product markets, such as evidence of prices or output level. One could thus question whether the Ninth Circuit would have a sufficient evidentiary basis to accept the FTC’s contention that Qualcomm’s refusal to offer a license to rival modem manufacturers had harmed competition.

V. CONCLUSION

In *FTC v. Qualcomm*, Judge Koh relied on *Aspen Skiing* to support her conclusion that Qualcomm had an antitrust duty to offer licenses to its SEPs to rival modem manufacturers. However, substantial evidence contradicted her finding that Qualcomm’s conduct satisfied the two necessary requirements for *Aspen Skiing* to apply. Even the FTC distanced itself from Judge Koh’s reliance on *Aspen Skiing* in its appeal to the Ninth Circuit and instead argued that Qualcomm’s refusal to license should be considered anticompetitive because it satisfied the traditional elements of a Section 2 violation. Judge Koh never addressed the FTC’s contention. Even brief consideration of the FTC’s argument, however, reveals that it is both contrary to controlling Supreme Court precedent and unsupported by the facts in evidence.

⁴⁴ *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 405–06 (2004).

⁴⁵ *Id.* at 410.

⁴⁶ *Id.* at 407.

⁴⁷ *Id.* at 406.

⁴⁸ *Id.* at 410.

⁴⁹ See, e.g. *In re Adderall XR Antitrust Litig.*, 754 F.3d 128, 135 (2d Cir. 2014) (“The mere existence of a contractual duty to supply goods does not by itself give rise to an antitrust ‘duty to deal.’”) (quoting *Pacific Bell Tel. Co. v. LinkLine Commc’ns, Inc.*, 555 U.S. 438, 450 (2009)).

⁵⁰ *FTC v. Qualcomm Inc.*, 411 F. Supp. 3d 658, 750 (N.D. Cal. 2019) (quoting Deposition of Andrew Hong (Legal Counsel, Samsung Intellectual Property Center) at 161:16–19, *FTC v. Qualcomm Inc.*, No. 5:17-cv-00220-LHK (N.D. Cal. Jan. 7, 2019), *exhibit to* Federal Trade Commission’s Submission of Trial Testimony That Occurred on January 8[, 2019], *FTC v. Qualcomm Inc.*, No. 5:17-cv-00220-LHK (N.D. Cal. Jan. 11, 2019), ECF No. 1253).

⁵¹ *Id.* at 749.

SSOS v. SILOS AND THE “QUALITY OF INNOVATION”

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I. INTRODUCTION

In this paper, we propose an analysis of how the “*organization of innovation*” may affect its ultimate “*quality*” in certain important dimensions. In general, we start by recognizing the existence of at least four institutionally stylized models for the organization of innovation along an industrial value chain. These models can be led back to (1) a traditional firm, (2) a standard setting organization (SSOs), (3) a silo/platform system, (4) an open source community. All these “models” organize the exchange of information relating to products and processes, on all the different levels of an industry’s value chain. In particular, they “solve” the problem of recognizing, aggregating and rewarding the contribution of the different levels of the chain.

We will concentrate only on the comparison between a standard setting organization (“SSO”) and a silo/platform system (“SILO”), because these are probably the most interesting and relevant frameworks for examining the present innovation processes in digital markets. Furthermore, we will limit our comparison to only a few of the dimensions that affect the quality of innovation, namely: price, speed, transparency/social accountability and competition, our idea being that these dimensions, and the problems they cause in the final outcome, will shed some light on the relative value and efficiency of each model, in terms of the elusive concept of the “*quality of innovation*.” After this Introduction, Section 2 compares SSOs and SILOs innovation processes with respect to price. Section 3 discusses the relative efficiency of the two models in terms of innovation’s speed. Section 4 concentrates on the issues of transparency and social accountability, while Section 5 is dedicated to the concerns that relate to the effect of innovation on competition. Section 6 concludes, by linking these themes, with the aim of interpreting the effect of organizational arrangements on the “*quality*” of innovation.

II. PRICE

In an SSOs, the setting of a standard is carried out cooperatively, but raises questions with respect to pricing innovation, specifically in regard to defining the correct distribution of rewards amongst the innovators, and between innovators and implementers. As for other kinds of patents, for standards, the *true* value is measured by market success, which is only realized *ex post*. However, licensing agreements are often negotiated at an earlier stage. As is widely known, the large majority of SSOs have chosen to ask members to commit to the licensing of any patent that is *essential* to the standard (“SEP”) operating on *fair, reasonable, and non-discriminatory terms* (“FRAND” or “RAND”). Generally speaking, the use of F/RAND terms entails various benefits.²

One of the most relevant advantages is that the technology encompassed by the standards is made available to all of the potential implementers without discrimination. On the other hand, SEP holders should be adequately rewarded for the use of their patents and should therefore be encouraged to continue to invest in R&D activities. Overall, the risk that SEP holders will gain an unfair bargaining advantage by *delaying* the manufacturers of standard compliant goods with FRAND licensing should significantly decrease. In this context, an issue that is of paramount importance is to identify the level of the royalties that may qualify as F/RAND. Besides the useful guidance that comes from the case law that has been developed in the U.S., in the last few decades the focus has shifted from the precise determination of the amount of the fee to the methodology that is to be used.³ It is now commonly accepted that F/RAND negotiations should be driven by a series of economic considerations, such as the need: (i) to promote the adoption of the standard to mitigate both the risk of patent delay and that of royalty stacking, and (ii) to guarantee the patent holders a return on its investment, remunerating them, in a reasonable way, for the economic value of the patented technology itself.

Notwithstanding the intense discussions over the use of agreed parameters, heated litigation on SEP royalties demonstrate that the effectiveness of an SSO’s “pricing” through the FRAND commitment is debatable. SEPs have high strategic value and, not surprisingly, there is more litigation in relation to them than there is to the “baseline” patents. As noted in a study that was financed by the European Commission (“EC”) in 2014, 6.7 percent (393 of a sample of 5,768 U.S. patents analyzed by the study) of patent litigation cases involved SEPs (as of 2014), whereas only 1.5 percent (89 of 5,768) involved other patents.⁴ According to the available analyses, the frequency of patent litigation, especially in the ICT sector, between the larger players, has increased considerably over the last 30 years, especially for SEPs (but also for baseline patents).

² Licensing on F/RAND terms for SEPs is a commitment for innovators that is created by SSOs’ policies and can be regarded as a contractual commitment by the patent holder to the SSO, and not to the public.

³ Key references are the much-cited seminal 1970 judgment *Georgia - Pacific Corp. v. U.S. Plywood Corp.* case, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), revisited and customized for SEPs by Judge Robart in *Microsoft Corp. v. Motorola, Inc.*, 2013 WL 2111217 (W.D. Wash. April 25, 2013), as well as the [policy adopted in 2015 by the Institute of Electrical and Electronics Engineers](#) (“IEEE”).

⁴ R.N.A. Bekkers, J. Baron, A. Martinelli, Y. Ménière, Z. O. Nomaler & T. Pohlmann, Selected quantitative studies of patents in standards, 2014, PIE/CIS Working Paper; Vol. 626, Tokyo, Hitotsubashi University.

The problem, in a nutshell, is that SSOs are coping with the crucial problem of “contractual incompleteness” (Williamson 1988), and their pricing of innovation omits to govern “the future.”⁵ While contractual incompleteness could also be framed as an intended and efficient feature of SSOs contracts (Tsai & Wright, 2015)⁶, a study on a wide sample of SSOs (N=36; see Baron and Spulber, 2018)⁷ shows that, overall, licensing requirements have become more stringent over time, with many SSOs adopting additional rules on SEP licensing. Economists have advanced different possible solutions for the royalty issue. One possibility is to interpret FRAND as an access obligation and to use an efficient component pricing rule (“ECPR”) tool in order to fix the access price. A second option is to interpret standardization as a cooperative game and to price royalties using fair apportionment instruments. An allocation through some sort of fair algorithm, applied only to actual SEP owners, and incorporating an adjustment for the effective success of the standard, may constitute an efficient way forward (Parcu & Silei, forthcoming).⁸

To understand SILOs’ pricing of innovation, it is necessary to briefly examine how this specific network form of economic coordination that is enabled by modularity and open interfaces works in reality.

A platform ecosystem consists of a leader firm, acting as a value network orchestrator, and a number of partners. Ecosystems allow agents to coordinate their multilateral dependence through a set of economic and technological rules, thus obviating the need to enter into customized contractual agreements with each single partner.⁹ The platform ecosystem takes a typical “hub and spoke” form, with an array of peripheral firms connected to the central platform via shared or open-source technologies and/or technical standards. By connecting with the platform, complementors not only generate complementary innovation but also gain access, directly or indirectly, to the platform’s customers. Innovation that is produced beyond the platforms’ core resources, therefore, creates highly valuable products and services.

The platform owner is able to influence the variety and depth of the innovation process by opening up more platform resources (APIs, SDKs, code libraries, templates), and by offering more favorable standard licensing agreements (“SLAs”) to developers. Parker et al. (2017) have shown that a platform’s strategy has a higher likelihood of success than a purchasing/subcontracting strategy, as long as the developer’s base reaches a sufficient size.¹⁰ This “inverts the firm” (*ibid.*), since it moves innovation activities – as well as the cost of failures – outside the platform, leaving the profit from possible successes mainly to the latter. In summary, innovation rewards are mainly appropriated by the platform, while the complementors suffer a large proportion of the risks. Even if a given SILO’s innovation pricing is very efficient for platform leaders, the final outcome in terms of total innovation may not be optimal.

Taking the complex pricing structure that has developed around online advertising as an example, Geradin & Katsifi (2020) argue that the auction mechanisms implemented by Google are extremely opaque and may lead to a loss of innovation, since the surplus that may have accrued to content creators is mostly captured by the platform, thus seriously reducing publishers’ incentives to innovate and to invest in content generation.¹¹

5 Williamson, O. E. (1988), The logic of economic organization, *JL Econ. & Org.*, 4:65.

6 Tsai, J. & Wright, J. D. (2015), Standard setting, intellectual property rights, and the role of antitrust in regulating incomplete contracts, *Antitrust LJ*, 80, 157.

7 Baron, J. & Spulber, D. F. (2018), Technology standards and standard setting organizations: Introduction to the Searle Center Database, *Journal of Economics & Management Strategy*, 27(3): 462-503.

8 Parcu, P. L. & Silei, D. (forthcoming), An algorithm approach to FRAND contracts.

9 Jacobides, M. G., Cennamo, C. & Gawer, A. (2018), Towards a theory of ecosystems, *Strategic Management Journal*, 39(8): 2255-2276.

10 Parker, G. & Van Alstyne, M. W., & Jiang, X. (2017), Platform ecosystems: How developers invert the firm, *MIS Quarterly*, 41(1): 255-266, March 2017.

11 Geradin, D. & Katsifis, D. (2020), “Trust me, I’m fair”: Analyzing Google’s latest practices in ad tech from the perspective of EU competition law, *European Competition Journal* (2020): 1-44.

III. SPEED

A second dimension for comparison refers to the pace of innovation processes or, in other words, to the speed at which innovation is produced and adopted. Lengthy innovation production is an historical and critical feature of SSOs, where innovation advances by discrete steps. Gupta (2014) describes the complex standardization process that took place during the 3rd Generation Partnership Project (“3GPP”).¹² This organization is split into 4 broad technical areas and 17 working groups; in a typical working group that is developing the technical *specifications* of a new feature, member organizations submit technical documents that are called *contributions*, which are reviewed and discussed among all the members before approval/rejection. As an example, Release 13 of the Long-Term Evolution (“LTE” Rel 13) standard – a standard for wireless broadband communication for mobile devices and data terminals – was developed through the submission and revision of some 730,000 technical contributions, which later gave rise to 1,261 technical specifications.

Clearly, any innovation that requires such laborious consensus-building is slowed down by the coordination processes, and a tradeoff can be manifested between high-quality outcomes and time. Most SSOs choose standards by voting, but decision rules vary significantly across SSOs, ranging from majority rule to full consensus. Studies found that the welfare implications of standards are highly sensitive to the decision procedure adopted (Farrell & Saloner 1988; Goerke & Holler, 1995) and, most importantly, that a supermajority decision rule is necessary in order to induce the standards’ organization to choose an efficient standard.¹³ The pace of the process may be even slower due to the presence of firms with vested interests, where proponents argue for their preferred solution, or simply hold out, until one side concedes. In these cases, Farrell & Simcoe (2012) suggest that it can be more efficient to relax the method of consensus, encouraging neutral participants in order to break deadlocks.¹⁴

In terms of the speed of innovation, SILOs appear to be an organizational “innovation” that is largely unrivalled. The speed of innovation in these ecosystems, as well as the intensity and speed of innovation in the surrounding industries, seems to be unprecedented. In particular, the production of innovation and its adoption are characterized by fluidity and continuity. In the app market, where innovation is produced on top of platforms’ core resources, developers are key to a platform’s ability to scale up rapidly, mainly because all the key processes of hiring, training, project selection, and so on, are all realized outside the core of the platform.

IV. TRANSPARENCY AND ACCOUNTABILITY

The transparency and accountability of the innovation process is a third category that we can use to compare SSOs and SILOs. In the context of SSOs, the complex rules governing participation and decisions are particularly effective in preserving the accountability and transparency of the standard-setting processes. Baron et al. (2019) underline that most SSOs have majority voting as a written policy, with the voting threshold ranging from simple to two-thirds majority.¹⁵ Individual voting is mostly kept secret, while many organizations have voting rules that are designed to avoid significant stakeholders being overruled. However, their empirical work shows that votes are rare: and consensus-finding, or even unanimity, are what happen in practice.

As regards transparency, SSOs’ policies may vary: some favor the transparency of the process over the transparency of the final outcome (the standard), which is sometimes available only against a fee. In any case, the tension between openness and the balance of interests remains a delicate matter for all SSOs. As discussed by Contreras (2017), standards have enjoyed a public character for much of their history, even when their primary function is to support purely commercial ends.¹⁶ In particular, since the 2000s, governmental agencies in the U.S. and the EU have begun to take explicit consideration of the public welfare arguments that relate to standards. In any case, while SSOs are not democratic institutions *per se*, and their legitimacy derives essentially from technical expertise, in many instances they perform tasks that are delegated by democratic institutions (this is the example of ETSI and CEN-CENELEC in the EU).

¹² Gupta, K. (2014), Technology standards and competition in the mobile wireless industry, *Geo. Mason L. Rev.*, 22, 865.

¹³ Farrell, J. & Saloner, G. (1988), Coordination through committees and markets, *RAND Journal of Economics*, 19(2): 235-252, Summer 1988; Goerke & Holler (1995), Voting on standardization, *Public Choice*, 83: 227-351 (1977).

¹⁴ Farrell, J. & Simcoe, T. (2012), Choosing the rules for correct standardization, *RAND Journal of Economics*, 43(2): 235-252, Summer 2012.

¹⁵ Baron, J., Contreras, J. L., Husovec, M., Larouche, P., & Thumm, N. (2019), Making the Rules: The Governance of Standard Development Organizations and their Policies on Intellectual Property Rights, JRC Science for Policy Report, EUR, 29655.

¹⁶ Contreras, J. (2017), From Private Ordering to Public Law: The Legal Frameworks Governing Standards-Essential Patents, *Harvard Journal of Law and Technology*, 30: 211.

On the other hand, a great part of the SILOs' success rests on their trade secrets. As an example, the essential technology behind PageRank, the core of the dominant search engine, is a well-kept secret. While there is a Google patent filed for PageRank (No. 6,285,999), many aspects of this search technology are not addressed by the patent (i.e. the number of parameters that are used to weight webpages). In the recent *Google Android* decision, the Commission commented on the many private features of the source code of the operating system Android, quoting a report that defines it "as the most closed open source project."¹⁷

Given the two main general functions of the Internet – interpersonal communication and content dissemination over digital media – the lack of transparency in regard to the ways in which algorithms process, sort and, ultimately, orient our social and economic life, presents worrying implications. Well known examples are the campaigns for the "Brexit" referendum and for the 2016 U.S. Presidential Elections. Since these episodes, several studies have addressed the circulation of misleading and false news on online platforms, and especially on Facebook and Twitter. While none of the phenomena observed during these episodes is new in itself, the relevant aspect is that online platforms help to promote the spread of news, both rapidly and globally, thus triggering the "viralization" of fake content. Moreover, many studies have underlined that algorithms may "inadvertently" discriminate against certain groups. Google's search algorithm, for example, has been accused of discriminating against women, people of color, minorities and underrepresented groups. Increasingly, the public requests addressed to SILOs ask for more transparency and accountability, which are, of course, not easy to achieve, as shown by the controversies surrounding the role of the major social media in political elections.

V. COMPETITION

The traditional tension between IP rights and competition law may become particularly serious in the case of IPRs that are linked to standards recognized by SSOs. First, while it is true that standard-setting brings pro-competitive benefits, at the same time, it involves, by its very nature, competitors sitting around a table agreeing on the selection of a particular technology for common adoption. In order to avoid companies using SSO activities that are outside their legitimate scope, for instance, as a cover to fix prices or to exclude or disadvantage competitors, it is vital that a respect for strict conditions of transparency is always ensured.

Nonetheless, at present, the most relevant antitrust concerns focus on the phase *following* the selection of a standard. In particular, they concentrate on the consequence of conferring significant market power on SEP holders once investments have been made, and implementers may *de facto* become "locked in." In this context, three possible types of conduct that raise anticompetitive concerns can be identified: patent ambush, which is related to deceptive behavior as a form of unilateral abuse; patent hold-up, and other disputes regarding licensing (including "reverse hold-up" or "hold-out"); and patent "thickets" or "royalty stacking," which is related to the accumulation of SEPs.

The first scenario represents a veritable breakdown of the standard-setting system. It can arise when a company hides the fact that it holds essential IPRs over the standard being developed and then starts asserting them only at a later stage, when the implementation process is well under way, putting the company in the position of charging a monopoly price.¹⁸ The way patent disclosure is regulated within SSOs to avoid the creation of ambush opportunities can certainly vary, depending on different factors. In the vast majority of cases, there is a provision that patents must be disclosed before technologies are considered for inclusion in a standard.

The second scenario occurs when operating in the downstream market is fully dependent on there being access to the technology in the upstream market, in this case, SEPs can be regarded as "essential facilities" and their holders may engage in anti-competitive behavior by either refusing to license the necessary patents to implementers, or imposing royalties at an exploitative level. In particular, excessive licensing terms usually reflect not just the value of the patent, but also the significant costs of switching to a new technology, or even exit costs if switching is impossible. Conversely, however, implementers may adopt a similar position by refusing to engage with a licensing negotiation, thus impeding SEP holders from receiving a legitimate royalty income, generating a "reverse hold-up" situation. Similarly, to what happens with disclosure rules, a great deal of diversity exists in how all these aspects are treated within SSOs; in this case, such organizations have a vested interest in ensuring that the standards they publish can be widely commercialized, making them particularly keen to ensure that access to SEPs is granted on FRAND terms and conditions.

¹⁷ Commission Decision of 18.7.2018 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union (the Treaty) and Article 54 of the EEA Agreement (AT.40099 – *Google Android*), p. 34.

¹⁸ The anti-competitive effects of non-disclosure of relevant IPRs have been analyzed in the *Rambus* case, in which a U.S.-based technology firm was accused of having engaged in such a conduct by the U.S. FTC and the EC. *Rambus Inc. v. FTC* 522 F 3d 456 (DC Cir 2008).

Finally, the accumulation of SEPs typically takes place when several patents protecting components of a complex modular technology exist, and different sets of elements can be assembled to yield a variety of technological products, generating “thickets” when patents belong to different firms.¹⁹ For the purpose of remaining competitive against their rivals, smartphone manufacturers are increasingly adopting this strategy, accumulating vast portfolios, which often represent a barrier to entry into patenting, while impeding technological development and innovation at the same time (Larouche & Van Overwalle, 2015).²⁰ A related concern is the accumulation of the royalties to be paid to a multitude of patent owners, which results in “royalty stacking.” Overall, although the discussion around these issues has recently started to capture increasing attention in policy discourse, the empirical evidence to support the intensity of the harmfulness of SEP-related abuses appears to be scarce.

By contrast, the market power acquired by dominant SILOs is clearly stronger, thus attracting worldwide anti-trust authorities’ attention (Evans & Schmalensee, 2013).²¹ A platform is typically dual- or multi-sided when presenting direct and indirect network effects. In particular, if network effects are strong and positive, large platforms tend to enjoy increasing returns to scale: users pay more to access a larger network, and margins improve as the user base grows. In the markets where they operate, platform orchestrators can use the resulting higher margins for greater investment in R&D or to lower prices, thus driving weaker rivals out of the market, which also leads to the dominance of a few large players, especially when multi-homing is costly, is not attractive or is impossible.

In this respect, an influential strand of economic literature has recently suggested that multi-sided platforms may provide particularly fertile ground for exclusionary conduct, such as exclusivity clauses or predatory prices, although it is vital to assess their effects on a case-by-case basis.²² This phenomenon can be transitory in those markets in which this type of platform may evolve through sequential winner-take-all battles, with superior new players replacing old ones.²³ Nonetheless, in other situations, a single platform can emerge as the winner, “taking all,” or almost all, of the market, which may give rise to permanent “tippy” outcomes, thus turning the market into a quasi-monopoly. This is what Schumpeter described as competition *for* the market, which is more likely to be primarily based on radical innovation, as opposed to competition *in* the market, which is normally characterized by evolutionary dynamics.

Finally, another recent major anti-trust concern in relation to SILOs relates to strategic “killer acquisitions” whereby digital platforms target smaller innovative companies for the ultimate purpose of eliminating potential future rivals by discontinuing their innovative projects.²⁴ Although these kinds of transactions were previously commonly identified as a concern in the pharmaceutical sector, they have been increasingly problematic in digital markets, especially due to the prohibitive challenges that are posed to anti-trust authorities who are called to assess future harm only in terms of potential competition.

VI. CONCLUSIONS

In this paper we have assessed SSOs and SILOs as two different models for organizing innovation. In contrast to other models, these two appear to be very successful, both in fostering innovation and in shaping the most important industries of the digital era. Neither model’s merits in the different areas of the digital economy are understood well, and we have not tried to explore the determinants of their respective reach. Instead, we sought to compare their results according to certain dimensions that may be relevant in terms of the “*quality of [the] innovation*” that is produced by each solution. Since quality is an elusive concept, we discuss it indirectly, comparing SSOs and SILOs through the way they perform according to the four dimensions of pricing, speed, transparency and accountability, and competition.

The result of our analysis is that, in relation to two categories, namely, speed and transparency/accountability, the response is relatively clear. There is little doubt that SILOs produce innovation more rapidly and continuously than do SSOs. Nevertheless, it is also clear that the innovation produced by SILOs is much less transparent and accountable than the consensus-building technical process brought about in major SSOs, sometimes with the support of a clear public mandate.

19 The main definition has been provided by C. Shapiro, “Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting,” in A. B. Jaffe et al., *Innovation Policy and the Economy*, 2001, Cambridge, MIT Press, pp. 119–150.

20 Larouche P. & Van Overwalle G. (2015), Interoperability standards, patent and competition policy, in P. Delimatsis (ed.), *The Law, Economics and Politics of International Standardisation*, 2015, Cambridge, CUP, pp. 367-393.

21 Evans, D. S. & Schmalensee R. (2013), *The Antitrust Analysis of Multi-Sided Platform Businesses*, NBER Working Paper No. 18783, 2013.

22 OECD, Hearing on Re-thinking the Use of Traditional Antitrust Enforcement Tools in Multi-sided Markets, Note by M. Katz (“Exclusionary Conduct in Multi-Sided Markets”); Note by A. Amelio, L. Karlinger & T. Valletti (“Exclusionary practices and two-sided platforms”), June 2017.

23 One prominent example often mentioned in this respect is given by the console war between Sony’s Playstation and Nintendo’s SNES.

24 M. Holmström et al., “Killer Acquisitions? The Debate on Merger Control for Digital Markets,” 2018 Yearbook of the Finnish Competition Law Association.

On the two other dimensions that we examined, namely, pricing and competition, the relative evaluation is more nuanced. On the one hand, the pricing of innovation by SSOs remains a thorny problem, which is addressed by F/RAND institutional arrangements, but which is still marred by major conflicts with implementers. On the other hand, the pricing of innovation in SILOs is easily solved by the proprietary dominance of the core, with its ability to embody (and appropriate) peripheral contributions. Doubt remains, however, whether this clear imbalance in favor of platform owners is a brake on future innovative efforts.

Finally, for SSOs, and focusing on competition, historical worries related to potential restrictive agreements, which are due to collusion among competitors (in the EU, these are violations of Art. 101 TFEU), seem to be less compelling. Instead, worries that are related to the abuse of the market power that is derived by SEP abuse (i.e. possible violations of Art. 102 TFEU), and the validity of the FRAND commitments as a safeguard, are still heavily debated. Regarding SILOs, presently, the public policy pendulum is offering a strong challenge to the winner-take-all characteristics and the lack of transparency of algorithms, both of which create serious concerns about the quasi-monopoly characteristics of major platforms. It is fair to note that, at least for now, these worries do not primarily concern the issue of innovation. The one important exception, however, is the debate regarding acquisitions by SILOs, recently dubbed as *killer mergers* which are realized with the possible primary purpose of absorbing or blocking innovative competitors.



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