OPEN SOURCE SOFTWARE AND STANDARDS DEVELOPMENT: Competition Law Implications

By: Richard S. Taffet
Michael Zymler[1]

I. Introduction

Technical standards developed by standards development organizations ("SDOs") increasingly involve software-based solutions that implicate open source licensing. This is the case particularly in the information, communications and telecommunications ("ICT") sector, where SDOs such as the European Telecommunications Standards Institute ("ETSI") are supporting open source projects.

SDOs such as ETSI typically operate pursuant to policies and procedures based on principles of consensus, due process, balance, and openness. They also generally operate subject to consensus-defined intellectual property rights ("IPR") policies that contemplate inclusion of patented solutions in standards. As such, SDO IPR policies reward IPR owners for their investments in innovation and incentivize the contribution of those new and innovative technologies to standards by providing SEP owners the opportunity to offer licenses for their IPR on fair, reasonable and non-discriminatory ("FRAND") terms. FRAND-based IPR policies balance SEP owners' interests with those of standards implementers by ensuring that implementers are able to access standards and essential patents to those standards ("SEPs") through licensing or otherwise. This balanced approach has led to extraordinary technical and competitive advances, most notably illustrated by the successive generations of cellular and wireless standards that have met consumer demand for greater abilities to communicate and for the introduction of, among other things, the Internet of Things.

Open source software ("OSS"),[2] in contrast, is used in implementations often defined in less heterogeneous groups, for example in consortia or similar forums, which typically do not fully observe the same consensus-based procedural principles as SDOs.[3] In addition, open source development often does not accommodate FRAND-based IPR policies that adequately compensate SEP-owners for their risky investments, opting instead at times to prohibit patented technology in open source solutions or by requiring royalty free licensing or including patent retaliation clauses.

However, both technical standards development and open source solutions can drive innovation and competitiveness, and, when they align to achieve common outcomes – as the European Commission

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1 Mr. Taffet is a partner in the New York office and Mr. Zymler an associate in the London office of Morgan, Lewis & Bockius LLP. The authors acknowledge the support provided for this paper by 4iP Council EU AISBL. The views expressed in this paper, however, are solely their own.

2 For purposes of this paper, we use the term "open source software" or "OSS" to mean software for which the original source code is released under a license to use, modify and redistribute the code.

3 *See* in this respect JRC Science for Policy Report to the European Commission, *The Relationship between Open Source Software and Standards Setting* (2019) (the "JRC Report"), at p. 71 ("*SDO processes are more inclusive with regard to engaging a broadly defined set of stakeholders. They are also integrated with industry and policy making.* [Open Source Software] *communities mostly involve enterprises, other organisations and individual software developers without a systematic multi-stakeholder engagement*.").

has commented – it is a "win-win" situation.[4] Nevertheless, how to achieve such alignment, or even if such alignment is possible, is subject to significant debate. Many factors may influence how and whether standards and open source regimes are able to interact, but perhaps the most significant factor in this regard is how each treats IPR.[5] Put differently, how can open source solutions and open source licensing co-exist with SDO consensus FRAND-based procedures and IPR policies that balance the interests of technology innovators and standards implementers? More pointedly, for the purposes of this paper, what are the competition law implications in integrating standards development and open source efforts so they "*promote and accelerate the uptake of advanced technology developments,*"[6] rather than create risks of competitive harm that will deter innovation?

This paper considers these competition law issues. First, we discuss how both standards and open source development promote innovation and competition. (Part II.) We then consider the potential for complementary integration of standards and open source, and steps already being taken toward such an end. (Part III.) Next, we address issues relating to ensuring procompetitive integration of standards and open source, and avoiding potential anticompetitive outcomes, specifically in relation to the treatment of IPR. (Part IV.) We then conclude. (Part V.)

These observations have specific relevance to the dialogue involving harmonization of SDO standards development and open source. While such harmonization based on stakeholder consensus can lead to pro-competitive outcomes (the "win-win" situation, according to the European Commission), some seek to limit and constrain such harmonization by advocating a narrow definition of open source licensing that would limit the ability to even use the identifier "open source" unless the owner of IPR foregoes its rights. These efforts reflect the same potentially anticompetitive attributes as competition enforcers have previously identified because they will advance the self-interests of a discrete stakeholder group over industry consensus, and inhibit market-driven outcomes concerning how best to accommodate and harmonize FRAND-based standards development and open source development.

II. Standards and Open Source Promote Innovation and Competition

There can no longer be any dispute that standards and open source development can support innovation and growth. More than a decade ago, the European Commission explained that "*standards support market-based competition and help ensure the interoperability of complementary products and services. They reduce costs, improve safety, and enhance competition. Due to their role in protecting health, safety, security, and the environment, standards are important to the public.*"[7] This has been

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[4] Communication from the European Commission to the European Parliament, the Council and the European Economic and Social Committee, *Setting out the EU approach to Standard Essential Patents*, COM (2017) 712 Final, Brussels, 29.11.2017 ("EC SEP Communication"); *see also* Kappos, David, *Open Source Software and Standards Development Organizations: Symbiotic Functions in the Innovation Equation*, The Columbia Science & Technology Law Review, Vol. XVIII at 259, Spring 2017 ("Kappos").

[5] *See* JRC Report at p. 16.

[6] EC SEP Communication at p. 12.

[7] European Commission, *Standardisation Policy*, *available at* https//ec.europa.eu/growth/single-market/European-standards/policy_en; *see also* Kroes, Neelie, European Commissioner for Competition Policy, *Speech at the OpenForum Europe: Being Open about Standards* (June 10, 2008) ("Kroes"), *available at* http://Europa.eu/rapid/press-release_SPEECH-08-317_en.htm ("*Standards are clearly more important than*

repeated in the European Commission's more recent statements: "*In the context of current advances in technology, open source software (OSS) implementation is, in addition to standards, also driving innovation, and is becoming increasingly widespread, including in the area of ICT standards.*"[8] "*It is present everywhere*" – the cloud, supercomputers, block chain, the internet of things ("IoT") and artificial intelligence,[9] and it allows for incremental innovation.[10]

The U.S. antitrust agencies are in accord:

> *"Industry standards are widely acknowledged to be one of the engines driving modern economy. Standards can make products less costly for firms to produce and more valuable to consumers. They can increase innovation, efficiency, and consumer choice; foster public health and safety; and serve as a 'fundamental building block for international trade.' Standards make networks, such as the Internet and wireless telecommunications, more valuable by allowing products to interoperate. The most successful standards are often those that provide timely, widely adopted, and effective solutions to technical problems."*[11]

Particularly in ICT standards, use of patented technologies is not only common, but imperative. This is because, as a court in the United Kingdom recognized, "[a]*s a society we want the best, most up to date technology to be incorporated into the latest standards and that will involve incorporating patented inventions.*"[12] This reflects the thinking of leading standards organizations. For example, the International Telecommunication Union ("ITU") has observed in connection with its IPR Policy that is common with the ISO and IEC, that technical standards *"seek to reflect the state of the art and* […] *draw*[ing] *on the best available technologies to formulate specifications that ensure groundbreaking innovations can be shared across the world.*"[13] ETSI is likewise in accord, noting that its strategy is to "*support*[…] *the deployment of*

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ever. They often facilitate economies of scale but their real impact on technology markets is with interoperability […]. *Interoperability encourages competition on the merits between technologies from different companies, and helps prevent lock-in*").

8 EC SEP Communication at p. 12; *see also* JRC Report at p.21.

9 European Commission, *Communication to the European Commission: Open Source Software Strategy 2020-2023, Think Open*, (2020) 7149 final, Brussels 21.10.2020 ("EC Open Source Communication") at p. 2; *see also* Kappos at p. 261; JRC Report at p. 71.

10 EC Open Source Communication at p. 2.

11 U.S. Dep't of Justice & Fed. Trade Comm'n, Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition, 33 (Apr. 2007); *see also* Microsoft Corp. v. Motorola, Inc., 795 F.3d 1024, 1030 (9th Cir. 2015) ("*Standardization provides enormous value to both consumers and manufacturers. It increases competition by lowering barriers to entry and adds value to manufacturers' products by encouraging production by other manufacturers of devices compatible with them*").

12 Judgment of the High Court of Justice of 5 April 2017 in Unwired Planet Int'l Ltd. v. Huawei Tech. Co., Ltd [2017] EWHC 711 (Pat), para. 83. Appeal dismissed in the judgment of the Court of Appeal of 23 October 2018 in Unwired Planet Int'l Ltd. v. Huawei Tech. Co., Ltd [2018] EWCA Civ 2344. Appeal dismissal confirmed in the judgement of the Supreme Court of 26 August 2020 in Unwired Planet Int'l Ltd. v. Huawei Tech. Co., Ltd [2020] UKSC 37. *See also* Microsoft Corp. v. Motorola, Inc., 696 F.3d 872 (9th Cir. 2012) ("*The catch with standards 'is that it may be necessary to use patented technology in order to practice them.*'").

13 ITU Telecommunications Standardization Bureau, *Understanding Patents, Competition & Standardization in an Interconnected World*, 3 (2014), *available at* https://www.itu.int/en/ITU-T/Documents/Manual_Patents_Final_E.pdf.

new technologies,"[14] "*encourage* [its] *members to bring the results of their research activities* […] *for standardization,"*[15] and "*address*[…] *the technical issues that will drive the economy of the future and improve life for the next generation."*[16]

To achieve the goal of attracting the best available technology, IPR polices of the most successful SDOs afford patent owners who contribute their technologies to standards the opportunity to realize sufficient returns on their R&D investments, which is central to maintaining proper incentives for innovation and the contribution of those innovations to standards. This has long been understood and was noted by then European Commissioner for Competition, Neelie Kroes:

> *"*[It] *is vital to reward R&D investment and innovation that would otherwise not be made. The patent system is a tremendously effective mechanism to create incentives to innovate, and reward successful innovation* […]. *Intellectual property protection for technology will always be necessary to give just rewards for investment in R&D. There will always be an important place for proprietary technology and formal proprietary standards."*[17]

Successful SDOs maintain such incentives in balance with the equally important goal of affording standards implementers access to standardized technologies, i.e., SEPs. ETSI's IPR policy is express in this regard. It states that it "*seeks a balance between the needs of standardization for public use in the field of telecommunications and the rights of the owners of IPRs."*[18] Thus, the ETSI IPR policy's "*objective* […] *is to balance the rights and interests of IPR holders* […] *and the need for implementers to get access to the technology defined in* [our] *standards*".[19] ITU's IPR policy is to the same effect and deliberately seeks to "*strike a working balance between the interests of SEP owners and implementers* […] *by ensuring that owners of intellectual property will be motivated to contribute their patented technologies to the standards-development process and that the standards incorporating these technologies will remain widely available to implementers."*[20]

Open source licensing has been described to have different objectives, at least partially. According to the JRC Report to the European Commission:

> "*IPR regimes serve partially different purposes in SDOs compared to OSS communities. OSS licenses mirror and follow collaboration models and represent how*

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14 ETSI, *About Us*, *available at* https://www.etsi.org/technologies/14-about.

15 ETSI, *The Standard - News from ETSI, February 2016*, *available at* https://www.etsi.org/images/files/ETSInewsletter/etsinewsletter_feb2016.pdf.

16 ETSI, *Annual Report April 2018, available at* https://www.etsi.org/images/files/AnnualReports/etsi-annual-report-april-2018.pdf.

17 Kroes, p. 5.

18 ETSI, *Intellectual Property Rights Policy*, clause 3.1, *available at* http://www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf.

19 ETSI, *Intellectual Property Rights (IPRs), available at* https://www.etsi.org/intellectual-property-rights.

20 ITU News, *Balancing Innovation & Intellectual Property Rights in a Standards-Setting Context*, No. 9 (2012), *available at* https://itunews.itu.int/en/3049-Balancing-innovation-and-intellectual-property-rights-in-a standards-setting-context.note.aspx.

participants envision the jointly created products to be used, resulting in the strong copyleft, weak- copyleft and permissive OSS licenses."[21]

Thus, open source development traditionally has involved owners of copyrights in computer program source code making the source code available to developers, and developers then building on a common infrastructure subject to software licenses defined by the open source community.

The term "open source," however, has been used and understood, publicly and in commercial agreements, in different ways. The term itself encompasses a litany of licenses that organically came into existence after the shareware era, as various developers and entities sought to share their code for general use, sometimes under simple form licenses intended to grant copyright rights, and sometimes under more expansive license terms to expressly include patent rights. One community-based approach, while not the exclusive approach, has become somewhat better known than some others. This "community" based approach typically has relied on licensing models approved by the Open Source Initiative ("OSI"), which lists in excess of 70 licensing variations.[22] OSI has obtained a U.S. trademark registration for the term "open source" but only when used with OSI's logo, and has not been able to obtain a registration for the words independently. Their registration therefore disclaims exclusive rights to the term "open source" itself. The OSI license variations all require royalty free license terms[23] and range from copyleft licenses, which generally require the distribution of any modifications on the same terms,[24] to permissive licenses that do not place restrictive terms on software redistribution.[25] An example of a copyleft license is the General Public License or GPL, and examples of permissive licenses are the Berkeley Software Distribution (BSD) license and the MIT license.[26] Notably, the originators of the BSD and MIT licenses, the University of California at Berkeley and the Massachusetts Institute of Technology, respectively, both endorse the licenses as copyright-based, without patent license implications. In the context of standards, the OSI advocates that a standard is not "open" if conforming implementations in open source software are prohibited; if any essential patents are licensed other than royalty-free for unrestricted use or subject to non-assertion promises when practiced in open source implementations of the standard; or if any license agreement or other form of paperwork to deploy conforming implementations of a standard is required.[27] OSI's position is that FRAND terms "*that require an implementor* [sic] *to have a relationship with the patent holder before use of the standard* [i.e., enter a license] – *are toxic to open source communities.*"[28]

III. Integrating Standards And Open Source Development

The differences between how SDOs and the open source community treat IPRs notwithstanding, integrating open source projects and standards development processes is still envisioned as a "win-win"

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21 JRC Report at p. 68.

22 OSI, *Licenses by Name, available at* https://opensource.org/licenses/alphabetical.

23 *See* https://opensource.org/osd-annotated.

24 OSI, *Frequently Answered Questions, available at* https://opensource.org/faq.

25 *Id.*

26 Kappos at p. 263-264.

27 OSI, *FRAND and Open Standards*, *available at* https://opensource.org/node/616.

28 *Id.*

situation.[29] Although attempts to combine elements of OSS licenses with FRAND licensing conditions may so far have had limited success,[30] the European Commission, for one, has committed to continue its collaboration with the open source community and SDOs to promote an effective relationship between them. It explains: "*the alignment of open source and standardization can speed-up the standards development process and the take-up of ICT standards, and* […] *standards can provide for interoperability of open source software implementations.*"[31]

Different commentators have proposed different approaches for integrating OSS solutions with standards projects governed by SDO policies involving FRAND patent licensing. One, for example, opines that open source and FRAND licensing are compatible, and reliance on permissive open source licenses may permit reconciliation between OSS and SDO FRAND-based IPR policies.[32] Another commentator suggests that open source and FRAND licensing are complementary if development and implementation of a standard are autonomous, with FRAND licensing applying to the former and OSS principles to the latter.[33] ETSI has stated its support for a complementary integration of standards and open source solutions:

> "*Open Source software and standards* [are] *not competitive but complementary. Open Source can bring innovation, fast development and the involvement of a committed global community and many companies have found a solid business case to develop and use Open Source software. On the other hand,* […] *standards bring long-term stability, wide consensus and a cohesive view of large and complex systems, together with ensuring interoperability, confidence in products, and services, and offering economies of scale.*"[34]

ETSI, in fact, is exploring approaches for putting its views on open source software into practice. It has announced a number of open source projects that complement its standards development activities.[35] One example is a pilot project called Open Source MANO project, which is a framework to develop a non-normative software reference implementation of ETSI's MANO standard, and a second example is ETSI's TDL Open Source Project, which aims to develop tools to generate and manage the ETSI standardized Test Description Language ("TDL").[36] Notably, however, ETSI's support of open source

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29 EC SEP Communication at p. 12.

30 JRC Report at p. 18.

31 EC SEP Communication at p. 12.

32 Kappos at p. 263-264.

33 Vivant, Michel, *Open source: a way for a reasonable standard implementation?* E.I.P.R.2018, 40(7).

34 ETSI, *Open Source and Standards Work Together at ETSI* (Nov. 24, 2015), *available at* https://www.etsi.org/newsroom/news/1029-2015-11-news-open-source-and-standards-work-together-at-etsi.

35 The Alliance for Telecommunications Industry Solutions ("ATIS"), the U.S. organizational partner in the 3GPP and oneM2M platforms, is likewise pursuing combined standards and open source projects. For example, last year ATIS announced the use of open source implementations of the Narrow-band to 3GPP and oneM2M standard. *See* ATIS, *Successful testing of NB-IoT connectivity for OS-IoT platform brings oneM2M connectivity to a broader range of devices and global markets than ever before possible* (Feb. 15, 2019), *available at* https://www.atis.org/press-releases/atis-brings-open-source-onem2m-support-to-embedded-cellular-iot-modules/.

36 ETSI, *Update on use of Software/Open Source by ETSI Groups*, ETSI/BoardOSS(20)084002r1 (Oct. 22, 2020).

development is not based on any particular definition of "open source." Rather, as it has consistently done with respect to the treatment of IPR generally, ETSI remains business model neutral.

IV. Protecting Procompetitive Standards and Open Source Development

ETSI's neutral stance, which is entirely consistent with its consensus-based approach to standards development where account is taken of all stakeholder interests, is fundamental to avoiding potential anticompetitive effects that otherwise could arise if a particular treatment of IPR were imposed that is inconsistent with the interests of all stakeholders. Consensus-based approaches to standards development, which recognize principles of openness, balance and due process, guard against such outcomes, and the potentially anticompetitive effects that may result. The standards community has long recognized the necessity of a consensus-driven approach in connection with IPR, and this approach is even more important as open source solutions become more prominent. Competition enforcers are in accord regarding the procompetitive potential of such an approach, and the risk of anticompetitive outcomes if restrictions on IPR are imposed. Actual experience confirms the reality of such risks where consensus-based procedural safeguards are absent. Finally, competition law provides the necessary tools to challenge conduct that impose IPR restraints to deter effective standardization and diminish competition and innovation.

The American National Standards Institute ("ANSI"), founded in 1915, acts as an umbrella organization accrediting SDOs to create and maintain American National Standards. ANSI's core principles are balance, consensus, openness and due process. They are embedded in ANSI's Patent Policy, which strikes "*a balance among intellectual property rights, competing interest in implementing a given standard, the standards-setting milieu, and the avoidance of unnecessary rigidity that may inhibit U.S. competitiveness both nationally and in increasingly global markets.*"[37] Accordingly, predating ETSI, ANSI long recognized that the imposition of "*generalized, one-size-fits-all guidelines* […] *do not appear to be needed or warranted; in fact, they may very well be counterproductive*" because restrictive IPR policies could "*stifle competition and the standardization of technological advances. Different approaches by different groups with different participants and different objectives provide the necessary flexibility to maximize the overall results for the U.S. community as a whole.*"[38]

These policy views, shared by ETSI, are stressed by the European Commission as well, specifically in connection with ICT standardization:

> "*ICT standardization requires a balanced IPR policy, based on FRAND licensing terms* […]*. A balanced policy should take into account a variety of needs: fair return on investment to incentivize R&D and innovation, a sustainable standardisation process, wide availability of technologies in an open and competitive market, and the difficulty for SMEs to participate* […]*. Against this background, a fast, predictable, efficient and*

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[37] Written Testimony of then-ANSI General Counsel, *Standards-Setting Practices: Competition, Innovation and Consumer Welfare* at 2, to FTC & DOJ Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy Hearings (April 18, 2002), *available at* https://www.ftc.gov/news-events/events-calendar/2002/02/competition-ip-law-policy-knowledge-based-economy-hearings.

[38] *Id.* at 15-16.

> *globally acceptable licensing approach, which ensures a fair return on investment for standard essential patent (SEP) holders and fair access to SEPs for all players – and especially SMEs – of the value chain would be beneficial."*[39]

Even within a system that allows for "free" licensing, the European Commission recognizes the need to ensure innovators a fair return on investments:

> "*Using multiple technologies and standards inherent to the deployment of complex IoT systems may naturally involve patented or protected technologies. It can be anticipated that service or higher layer technologies may be deployed under "free" licensing schemes (e.g. APIs to stimulate creation of large communities of developers). At the same time, a number of stakeholders have underlined that other technologies, having necessitated huge investment in research and standardisation development, may be licensed under fair, reasonable, and non-discriminatory (FRAND) terms; the latter ensure fair access to the standard for the implementers and fair return for the standard essential patents holders."*[40]

Although not specifically directed toward use of open source solutions in standardization, the European Commission's observations apply in that context. This is further reinforced by the European Commission's later statement in its SEP Communication that:

> "[T]*here is an urgent need to set out key principles that foster a balanced, smooth and predictable framework for SEPs. These key principles reflect two main objectives: incentivising the development and inclusion of top technologies in standards, by preserving fair and adequate return for these contributions, and ensuring smooth and wide dissemination of standardised technologies based on fair access conditions."*[41]

It is on the basis of these "key principles" that the European Commission expressed its confidence in a "win-win" situation resulting from the integration of open source solutions in standardization.[42]

The U.S. Department of Justice ("DOJ") is in accord, recently commenting:

> "*As long as an SSO's IP policies are the product of a consensus or a clear majority that includes both standard-essential patent holders and implementers, the Department of Justice should have no reason for concern. On the other hand, if an SSO's policy making*

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[39] Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of Regions, *ICT Standardisation Priorities for the Digital Single Market* (19 April 2016), at p. 13, *available at* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0176&from=en.

[40] Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of Regions, *Advancing the Internet of Things in Europe* (19 April 2016), at p. 20, *available at* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0110&from=EN.aw

[41] EC SEP Communication at p. 2.

[42] *Id.* at p. 12.

> *decisions appear to be dominated by implementers, and the resulting policies or standards appear to be heavily skewed toward implementers and away from innovators, that's already two strikes."*[43]

Thus, SDOs, the European Commission and the U.S. DOJ all recognize the procompetitive benefits and importance of balanced IPR policies, which support and naturally result from consensus-based procedures that also abide by principles of openness, balance, and due process. This should not be of any surprise because consensus-based procedural rules guard against specific stakeholder interest groups controlling important decision-making with respect to the technical content of a standard, whether open source software should play a role in standardizations efforts, and how IPR used in the standard or the open source solution is treated. If it were otherwise, the risk that a standard or a licensing obligation in connection with SEPs or copyrighted software would be the result of a sellers' or buyers' cartels, rather than the effective workings of a competitive marketplace, would be heightened, and effective standardization would suffer.

Competition agencies recognize these risks. The European Commission's Horizontal Guidelines, for example, expressly note the potential for competition law risks where rules favor one constituency of stakeholders rather than reflect a consensus position supporting a balanced approach for all stakeholders.

> "*Any standard-setting agreement which clearly* ***discriminates*** *against any of the participating or potential members could lead to a restriction of competition. For example, if a standard-setting organisation explicitly excludes upstream only companies (that is to say, companies not active on the downstream production market), this could lead to an exclusion of potentially better technologies."*[44] (Emphasis in original).

Although not specifically mentioning IPR policies, the Horizontal Guidelines' admonition against standard-setting agreement discrimination forcefully applies because of the competitive harm that restrictive policies may cause to lessen incentives to invest in innovation and contribute innovative technologies to the standards development process, and thereby reduce competition. Such risks are of particular concern, also, as the Horizontal Guidelines recognize, where buyers (here potential SEP licensees) have significant market power, which may be the case given the predominance of implementer members in standards bodies. As the Horizontal Guidelines provide:

> "*If the parties* [to a purchasing agreement] *have a significant degree of market power on the purchasing market (buying power) there is a risk that they may force suppliers to reduce the range or quality of products they produce, which may bring about*

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[43] Remarks of Asst. Att'y General Delrahim, Makan, U.S. Dep't of Justice, Antitrust Division, *The "New Madison" Approach to Antitrust and Intellectual Property Law*, (March 16, 2018), *available at*, https://www.justice.gov/opa/speech/file/1044316/download.

[44] European 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) ("Horizontal Guidelines"), para. 297.

> *restrictive effects on competition such as quality reductions, lessening of innovation efforts, or ultimately sub-optimal supply."*[45]

The U.S. DOJ is more explicit, commenting that the primary risk in the standards context may be "buyer side" collusion. This is because of the disproportionate participation of implementers in standards development as compared to those contributing technology, and the incentive of technology "buyers" to potentially reduce their costs by devaluing standardized IPR. Depriving IPR owners of a reasonable return on their investment in innovation, however, risks diminishing incentives for firms to invest and provide technical solutions to standards. While this may provide a short-term benefit to standards implementers in the form of lower input costs (though that is not a certainty), the long-term impact due to the diminished quality of standards resulting from the unavailability of optimal technical alternatives, ultimately will make standards less socially beneficial. The U.S. DOJ recently explained the potential adverse effect on competition that might result in such circumstances:

> "*As experience has shown, a group of implementers working collectively may have both the motive and the means to impose anticompetitive policies or rules that favor their interest to the detriment of others. Any such collusion can also be a serious threat to innovation if the conduct leads to under-investment by patent holders in the standard setting process. Balance is therefore important not only to encourage participation and competition among patent holders in the standard setting process, but also to ensure more significant antitrust concerns do not arise."*[46]

Accordingly, the U.S. DOJ has now twice expressly observed that "'[i]*f a standards-setting process is biased in favor of one set of interests, there is a danger of anticompetitive effects and antitrust liability.*'"[47]

The U.S. DOJ's observation, as indicated, is based on experience. That experience involves the 2015 adoption of a non-consensus based IPR policy by the Institute of Electrical and Electronic Engineers ("IEEE"). The 2015 policy made changes to the then-existing IEEE Patent Policy by, among other things, limiting the ability of SEP owners to seek injunctions until a final adjudication of FRAND terms; restraining SEP owners' licensing freedom by mandating the royalty base that could be used in a FRAND license; and "suggesting" definitions of a reasonable royalty in connection with SEPs. Based on an econometric analysis regarding the adoption of these changes, one commentator concluded that the outcome reflected a biased process that "*deviated from the safe-guards that the IEEE had guaranteed to its members in both the foundational documents of the IEEE and its history of consensus-driven policy making.*" What's more, this commentator states that his analysis "*suggest*[s] *that decision making at the IEEE was controlled by parties that* [sought] *to devalue SEPs,*" and that the process failed to "*protect the interest of SEP holders that were disproportionately responsible for technologies that the IEEE had*

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45 Horizontal Guidelines, para. 202.

46 Letter from Asst. Att'y Gen Delrahim, Makan, U.S. Dep't of Justice, to Muirhead, Sophia A., Gen. Counsel, Institute of Electrical and Electronics Engineers (Sept. 10, 2020), at p. 11, *available at* https://www.justice.gov/atr/page/file/1315291/download.

47 *Id.* at p. 10, *quoting* Letter from Hesse, Renata B. Acting Asst. Att'y Gen. U.S. Dep't of Justice, to Lindsay, Michael A., Esq., (Feb. 2, 2015), at p. 7, *available at* https://www.justice.gov/atr/response-institute-electrical-and-electronics-engineers-incorporated.

incorporated in its standards."[48] Indeed, in seeking a Business Review Letter from the U.S. DOJ regarding whether the new IEEE Patent Policy would be challenged under U.S. antitrust laws, counsel for the IEEE expressly acknowledged that "*the* [new] *IEEE patent policy is itself intended to protect implementers.*"[49]

In 2015, the U.S. DOJ stated its intention not to challenge the new IEEE Patent Policy. Since then, however, views have evolved, including as the result of actual experience under the IEEE's policy. Even while the new patent policy was under development, owners of patents potentially essential to IEEE standards announced that they would not commit to license their technology under the new policy because of the impact on their patent rights.[50]

Empirical data confirms that SEP owners acted on these stated intentions. One industry analyst examined license commitments submitted to IEEE under the new 2015 Patent Policy during the 18 month period from January 2016 to June 2017, and found that almost 75% of all patent declarations submitted to IEEE for the 802.11 (WiFi) standard, and nearly half of all patent declarations submitted to IEEE during the relevant period for any standard, were negative, meaning the submitting entity indicated it was not willing to license its patents on terms required by the IEEE Patent Policy.[51] Before the 2015 revisions, by contrast, there were hardly any negative license commitments submitted.[52]

Another industry analyst conducted a similar review of license commitments submitted to IEEE by owners of potential SEPs and observed the same precipitous decline in technical contributions to IEEE after the new policy became effective. Based on data compiled by this analyst, following the effective date of the revised IEEE Patent Policy, the average net submission rate of non-duplicative letters of assurance – i.e., commitments to license SEPs on FRAND terms – declined by 84%, counting known negative and missing letters of assurance as negative numbers.[53]

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48 Sidak, Gregory J., *Testing for Bias to Suppress Royalties for Standard-Essential Patents*, 2016-1 The Criterion Journal on Innovation 301 ("Sidak"), p. 303 (2016); *see also* Froeb, Luke and Shor, Michael, *Innovators, Implementers and Two-sided Hold-up*, The Antitrust Source, at p. 1 (August 2015) (IEEE policy revisions "*seem designed to shift bargaining rents toward implementers and away from the developers of technology*" raising concern that the policy revisions "are likely […] *to reduce innovation*").

49 Letter of Lindsay, Michael A., to Baer, William J., Asst. Att'y General, U.S. Dep't of Justice Antitrust Division (Nov. 7 2014).

50 Mallinson, Keith, *Development of innovative new standards jeopardized by IEEE patent policy*, at p. 1 (Sept. 2017), ("Mallinson") *available at* https://www.4ipcouncil.com/application/files/6015/0479/2147/Mallinson_IEEE_LOA_report.pdf; *see also* Sidak at p. 302; Lloyd, Richard, *Ericsson and Nokia the Latest To Confirm That They Will Not License Under the New IEEE Patent Policy*, IAM (April 10, 2015), *available at* https://www.iam-media.com/frandseps/ericsson-and-nokia-latest-confirm-they-will-not-license-under-new-ieee-patent-policy; Letter from Shay, Lawrence F., Executive Vice President of Intellectual Property, InterDigital, Inc., to Law, David, Patent Committee Chair, IEEE-SA Standards Board (Mar. 24, 2015), *available at* http://wpuploads.interdigital.com.s3.amazonaws.com/uploads/2015/03/Letter-to-IEEE-SA-PatCom.pdf.

51 Mallinson at p. 1.

52 *Id.* at p. 11.

53 Katznelson, Ron D., *The IEEE Controversial Policy on Standard Essential Patents – The Empirical Record Since Adoption* (Oct. 29, 2016, updated March 2017), *available at* http://bit.ly/IEEE-LOAs.

These developments led the U.S. DOJ to revisit the potential of anticompetitive effects as a result of the restrictive terms of IEEE Patent Policy in favor of standards implementers and against the interests of SEP owners. Specifically, in January 2018, U.S. DOJ's Principal Deputy Assistant Attorney General for Antitrust announced that "[t]*he Division has begun scrutinizing what may appear to be buyer's cartel or seller's cartel behavior that's designed to artificially shift bargaining leverage from IP creators to implementers, or vice-versa. In particular, the Division is focused on rules of SSOs that purport to clarify the meaning of "reasonable and nondiscriminatory*," *but that may instead serve to skew the bargain clearly in the direction of implementers*."[54]

Soon thereafter, the Assistant Attorney General for Antitrust, himself, weighed in, commenting that "*standard setting organizations should not become vehicles for concerted actions by market participants to skew conditions for patented technologies' incorporation into a standard in favor of implementers because this can reduce incentives to innovate and encourage patent hold-out,*" and "*because a key feature of patent rights is the right to exclude, standard setting organizations and courts should have a very high burden before they adopt rules that severely restrict that right or – even worse-amount to a de facto compulsory licensing scheme.*"[55]

Further, most recently, the U.S. DOJ took the "extraordinary step" to supplement its 2015 Business Review Letter in relation to the IEEE Patent Policy. The primary purpose of doing so was because the 2015 Letter was incorrectly being cited as endorsing the IEEE policy; it did no such thing. The supplement was also to align outdated analysis in the 2015 Business Review Letter with current law and policy.[56] With respect to aligning the 2015 Letter with current law, the U.S. DOJ specifically focused on the IEEE Patent Policy's restrictions on SEP owners' abilities to seek injunctive relief against infringers and the IEEE policy's restrictive definition of "reasonable royalties," commenting that even though the IEEE policy only "recommends" restrictions, the recommendations "*likely will bear on the parties' negotiations of a license and may affect the extent to which comparable prior licenses* […] *may factor into royalty negotiations.*"[57] The U.S. DOJ also observed that the IEEE policy and the Division's 2015 Letter "*did not devote attention to potentially harmful implementer conduct seeking to undermine the bargaining position of patent owners in the standards development process.*"[58]

The IEEE's experience in connection with its restrictive Patent Policy, and the U.S. DOJ's reaction to it, alone should raise alarms about any proposals that would limit IPR owners' rights as a condition of integrating open source solutions in standards. And, such alarms may ring louder as experience is gained with IEEE's approach to open source projects. This is because the IEEE followed essentially the same process for adopting revisions to its Operating Procedures related to OSS as it did in connection with the

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54 Finch, Andrew C., Principal Dep. Asst. Att'y Gen., Antitrust Div., U.S. Dep't of Justice, Remarks Prepared for the Heritage Foundation (January 23, 2018), *available at* https://www.justice.gov/opa/speech/principal-deputy-assistant-attorney-general-andrew-c-finch-delivers-remarks-heritage.

55 Asst. Att'y Gen. Delrahim, Makan, Antitrust Div., U.S. Dep't of Justice, Keynote Address at University of Pennsylvania Law School (March 16, 2018), *available at* https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-keynote-address-university.

56 Letter from Asst. Att'y Gen Delrahim, Makan, U.S. Dep't of Justice, to Muirhead, Sophia A., Gen. Counsel, Institute of Electrical and Electronics Engineers (Sept. 10, 2020), at p. 1.

57 *Id.* at p. 7.

58 *Id.* at p. 8.

2015 revisions to its Patent Policy, and the OSS revisions also at least create a risk that inappropriate open source licensing will diminish the ability of patent owners to realize adequate monetary returns to incentivize innovation and the contribution of innovation to the standards process. Specifically, Section 6.5.2.2 of the IEEE Operations Manual the application of the IEEE Patent Policy to open source projects, and states: "The IEEE SA patent policy applies to Open Source that is incorporated in a standard, even if a CLA [Contributor License Agreement] has been submitted. IEEE does not determine whether there is consistency between Letters of Assurance and CLAs. A call for patents notice shall be posted on the IEEE Open Source Platform in the area where CLAs are submitted for all Open Source developed by the Working Group that is incorporated normatively or informatively in a draft or approved standard."[59] In other words, the IEEE takes no position on what form of open source license is used as a CLA, which will permit restrictive OSS licensing that could prohibit royalty bearing FRAND patent licenses in connection with SEPs for implementing an IEEE standard that also includes an open source component.

Doubts should be cast on the competition law propriety of any non-consensus proposals or efforts to compel or permit use of particular open source licensing models that would prohibit FRAND royalty bearing licensing or that would otherwise restrict SEP owners' freedom to negotiate FRAND licenses. The IEEE's approach is susceptible to such possibilities because it could lead to a race to establish projects dependent on restrictive OSS licensing, which could disincentivize SEP owners from participation in IEEE Working groups using such licenses. Such restrictive requirements would, thus, risk the same outcomes as have occurred under the current IEEE Patent Policy; diminished availability of superior technology available through FRAND licenses. It would also implicate the same competition law concerns that have now been identified by the U.S. DOJ; potential for buyers' cartels. Legal concerns will exist not only under U.S. antitrust law; the European Commission's Horizontal Guidelines already reviewed make clear that the same concerns will likely exist in Europe. The concern about the exercise of monopsony power is confirmed by cases involving unilateral conduct under the EU's Article 102 TFEU, which prohibits the abuse of a dominant position and which notes that such an abuse "*may, in particular, consist in* […] *directly or indirectly imposing unfair purchase* […] *prices.*"

For example, in *CICCE v Commission*, the Court of Justice of the European Union considered a complaint by an undertaking that French television companies had abused their dominant position by setting unfairly low license fees for the purchase of films. While the Court dismissed the complaint, it did not dispute the European Commission's original finding that unfairly low purchase prices could in principle constitute an abuse under Article 102 TFEU.[60]

That principle was subsequently confirmed by the UK's Office of Fair Trading, the predecessor to the UK Competition and Markets Authority, in its decision in *Association of British Travel Agents and British Airways plc*:

> *"Although there have not yet been any cases in which the payment of excessively low prices has been found to amount to an abuse of a dominant position, it is clear from*

[59] *See* https://standards.ieee.org/about/policies/opman/sect6.html.

[60] Judgment of the CJEU of 28 March 1985 in Case 298/83, *Comité des industries cinématographiques des Communautés européennes (CICCE) v Commission*, para. 22.

the case CICCE v Commission that such conduct is in principle capable of constituting an abuse."[61]

Integrating standards and open source software solutions must be considered in these contexts. More to the point, to the extent such integration is defined by consensus-driven approaches that balance the interests of all stakeholders and avoids rules and policies that favor one segment of participants, the greater the likelihood that anticompetitive outcomes will be avoided. Consensus-driven procedures specifically in relation to IPR will permit, as the JRC Report suggests there is a need for,[62] creative approaches for market-driven models for collaboration that maximize the positive, innovation-enhancing attributes of standards and open source software, permit the most efficient complementary use of both, and ensure "*the widest availability of technology embodied in standard*[s and open source implementations] *in the widest possible variety of circumstances, without unduly diminishing the innovation incentives that patent law was designed to create*."[63]

V. Conclusion

Current efforts to integrate standards and open source development should not only be encouraged but aggressively supported, where appropriate. Such efforts, however, must account for the distinct characteristics of standardization and open source development, while not imposing exclusive, arbitrary or restrictive approaches for IPR in connection with each. Competition law and experience counsel against doing so, and favor instead allowing market-driven models supported by industry consensus to define the parameters for successful integration. The innovation and competition enhancing potential of both standards and open source solutions depends on such an approach.

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61 OFT Decision of 12 December 2002 in Case CA98/19/2002, *Association of British Travel Agents and British Airways plc*, para. 28.

62 JRC Report at p. 18.

63 Brooks, Roger G. and Geradin, Damien, *Interpreting and Enforcing the Voluntary FRAND Commitment* (July 20, 2010), *available at* https://ssrn.com/abstract=1645878; *see also* Larouche, Pierre, Padilla, Jorge and Taffet, Richard S., *Settling FRAND Disputes: Is Mandatory Arbitration a Reasonable and Non-Discriminatory Alternative?* (April 2014) at p. 8 (FRAND "*allows the counterparties to pursue their respective marketplace-driven priorities and reach agreement on license terms, where agreement is the best indicator that such terms are 'reasonable,' as distinct from terms that would be imposed or defined by specified formulae as proposed by some*"), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2346892.