MOVING PAST THE SEP RAND OBSESSION: SOME THOUGHTS ON THE ECONOMIC IMPLICATIONS OF UNILATERAL COMMITMENTS AND THE COMPLEXITIES OF PATENT LICENSING

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INTRODUCTION

Even a casual perusal of newspapers today will yield any number of articles about so-called "standards-essential patents" ("SEPs") and the "need" for regulation,[1] legislation,[2] and even White House intervention[3] in the use and licensing of such patents. The heightened attention SEPs have garnered is in many ways understandable: compatibility or interoperability standards are increasingly important and highly beneficial for the modern economy,[4] but the money at stake for the firms involved in developing and commercializing these standards means the risks of opportunistic or anti-competitive behavior are also high. On the other hand, a single-minded focus on SEPs—the obligations attached to them and their potential for abuse—is also lamentable. Such a narrow focus overlooks the fact that firms' interactions over SEPs are but one element of their much larger licensing negotiations—not to mention the potentially even broader commercial dealings—with one another, and as such cannot be meaningfully viewed in isolation.

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[1] *See, e.g.*, U.S. DEP'T OF JUSTICE & U.S. PATENT & TRADEMARK OFFICE, POLICY STATEMENT ON REMEDIES FOR STANDARDS-ESSENTIAL PATENTS SUBJECT TO VOLUNTARY F/RAND COMMITMENTS (2013) [hereinafter DOJ & PTO POLICY STATEMENT], *available at* http://www.justice.gov/atr/public/guidelines/290994.pdf.

[2] *See, e.g.*, *Standard Essential Patent Disputes and Antitrust Law: Hearing Before the Subcomm. on Antitrust, Competition Policy & Consumer Rights of the S. Comm. on the Judiciary*, 113th Cong. (2013) (statement of Sen. Patrick Leahy), *available at* http://www.judiciary.senate.gov/pdf/7-30-13LeahyStatement.pdf.

[3] *See, e.g.*, Jon Swartz, *Obama Nixes ITC Ban on Sale of Some Apple Products*, USA TODAY (Aug. 9, 2013, 6:21 PM), http://www.usatoday.com/story/money/business/2013/08/03/apple-samsung-itc/2615101/.

[4] While compatibility and interoperability are, in the strictest sense, different concepts, for simplicity I use interoperability throughout this Paper to cover both concepts.

In particular, patents that have *not* been declared as potentially essential for the practice of a cooperative interoperability standard can nonetheless influence firms' interactions over related standards in important ways. Similarly, firms sometimes make unilateral commitments on SEPs which go above and beyond the explicitly requested or mandated terms set by the relevant standard-setting organizations ("SSOs"), which by and large comprise pledges to disclose relevant patents and then to offer fair, reasonable, and non-discriminatory ("FRAND") licensing of SEPs. Commitments that go beyond FRAND, "extra-SSO" commitments, can also have important effects on industry innovation and commercialization. The existence of these interrelated obligations and licensing dealings means that an overly narrow focus on FRAND's implications for SEPs risks imposing policy rules that do not really smooth the standardization process or improve competition, and that instead saddle an industry with harmful unintended consequences.

This Paper discusses these issues, looking beyond the narrow confines of what limitations SSO commitments do and do not impose on their "essential patent" holding members. Specifically, this Paper considers three categories of patents: commercially important but nonessential patents; patents claimed to be essential for de facto rather than cooperative SSO standards; and SSO-declared SEPs with extra commitments attached, exceeding the SSO's stated FRAND obligations. Each category of patents plays its own role in the high technology landscape, and each can have a meaningful impact on an industry's innovation and competition. Considering how standards gain traction in a marketplace and how SEPs interact with other kinds of patents is a crucial aspect of considering the innovation/competition forest without getting lost in the SEP trees.

The remainder of this Paper is organized as follows. Part I begins with an economic assessment of patents truly outside of cooperative SSO spheres—those claimed "essential" for de facto standards and those not named to any standard at all (i.e., "commercially important patents"). Part II turns to patents within the context of cooperative standard setting, considering the role of unilateral commitments that exceed the requirements set by the relevant SSO. Part III considers two flavors of such "extra-SSO" commitments: unilateral declarations of maximum terms and conditions that will be sought in licenses for SEPs;[5] and firms' assurances to give up

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[5] Observe that only one SSO, VITA (the organization that promulgates VMEbus architecture standards), mandates that any participant declaring potentially essential patents also declare the maximum rates and most restrictive terms and conditions it will seek in licensing those patents. *See* VITA STANDARDS ORG., VSO POLICIES AND PROCEDURES § 10.3.2 (rev. 2009), *available at* http://www.vita.com/home/VSO/vso-pp-r2d6.pdf. Another SSO, IEEE, has a voluntary rates and terms disclosure policy, but few members have opted to make such disclosures over the six years that the policy has been in place. *See* IEEE STANDARDS ASS'N, IEEE-SA STANDARDS BOARD BYLAWS § 6.2 (2012), *available at* http://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf. All other SSOs, to the best of the

certain rights not addressed under the explicit requirements of SSOs, by and large promises not to offensively seek exclusionary orders against firms accused of infringing SEPs. Part III is followed by some concluding remarks.

I. PATENTS NOT NAMED AS POTENTIALLY ESSENTIAL FOR AN SSO STANDARD

This Paper first considers patents truly outside of SSO operations. Section A examines patents claimed essential for de facto standards, discussing the role that unilateral FRAND commitments play for de facto standard setting and then comparing and contrasting these commitments to SSO FRAND obligations for SEPs. Section B then briefly covers commercially important but non-SEP (and hence non-FRAND-bound) patents. Section C then ties the various types of obligations together, discussing how patents with different encumbrances interact in industry licensing negotiations.

A. *De Facto Standards-Essential Patents*

A de facto standard is an "[i]ndustry-wide accepted and adopted standard (such as TCP/IP) which has not been defined or endorsed by industry groups (such as W3 Consortium) or standards organizations (such as ISO)."[6] These are typically led by a single firm that wins a marketplace competition and thus ends up defining the operation of a particular technology aspect for an entire market, or at least a sizable portion of it.

As cooperative SSOs have become more prominent in the economy, particularly with interoperability standards for high-profile consumer goods like mobile phones, they have pushed de facto standard setting out of the limelight. But de facto standards have always been, and continue to be, important in many sectors of the economy. Products with strong network effects, like many computer components and software programs, often emerge from market competition as de facto standards.[7]

Author's knowledge, make no request at all for specific rates SEP holders will seek from licensees, aside from a FRAND licensing pledge.

[6] *See De Facto Standard Definition*, BUSINESSDICTIONARY.COM http://www.businessdictionary.com/definition/de-facto-standard.html (last visited Dec. 20, 2013). What is meant by "industry-wide" acceptance may vary, but antitrust rules generally set dominance at greater than or equal to 60 percent market share.

[7] *See, e.g.*, Stanley M. Besen & Joseph Farrell, *Choosing How to Compete: Strategies and Tactics in Standardization*, J. ECON. PERSP., Spring 1994, at 117, 118-19; *see also* Nicholas Economides & Andrzej Skrzypacz, Standards Coalitions Formation and Market Structure in Network Industries 3-4 (Jan. 2003) (unpublished manuscript), *available at* https://www.researchgate.net/publication/24132934_Standards_Coalitions_Formation_and_Market_Structure_in_Network_Securities.

In the consumer realm, the most famous example of a de facto standard is, of course, Microsoft Windows (and the Office suite of application programs that run on Windows), which has had a roughly twenty-year reign of dominance.[8] Another consumer-facing example is Adobe's PDF document format and readers.[9] Less visible to consumers, but no less influential, are the many de facto standards relevant for firm-to-firm dealings, such as Intel's microprocessor architecture or Hewlett Packard's Printer Command Language for laser printers.

In addition to those fields traditionally characterized by de facto standards, we might also expect to see some migration from cooperative standard setting to de facto standard setting if the rules and regulations attending SSO participation become too onerous for technology-contributing firms. On this front, the heightened scrutiny paid to FRAND commitments and SEP licensing mentioned in the Introduction has led to a number of sometimes draconian proposals for restricting SEP holders' licensing practices. For example, proposals have included royalty calculations based on patent counting, irrespective of the value the patented technology contributes to the standard;[10] single-digit binding caps on aggregate SEP royalties regardless of the firms holding SEPs;[11] and a categorical prohibition against seeking injunctive relief for infringement of SEPs.[12]

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8 In 2013, Microsoft's share of the personal computer operating system software market was reportedly still above 90 percent. *See Desktop Operating System Market Share*, NET MARKET SHARE, http://www.netmarketshare.com/operating-system-market-share.aspx?qprid=10&qpcustomd=0 (last visited Dec. 20, 2013).

9 In fact, Adobe's PDF file format moved from de facto standard status to officially sanctioned standard status when Adobe released specifications to ISO to incorporate them into a document standard in 2007. *See* Press Release, Adobe Sys. Inc., Adobe to Release PDF for Industry Standardization (Jan. 29, 2007), *available at* http://www.adobe.com/aboutadobe/pressroom/pressreleases/pdfs/200701/012907OpenPDFAIIM.pdf.

10 *See, e.g.*, Philippe Chappatte, *FRAND Commitments—The Case for Antitrust Intervention*, 5 EUR. COMPETITION J. 319, 340-43 (2009).

11 In 2002, Nokia, a vertically integrated player in the mobile telecom industry, called for such a cap in relation to the WCDMA 3G standard for mobile phones. *See* Press Release, Nokia Corp., Nokia Advocates Industry-Wide Commitment to 5% Cumulative IPR Royalty for WCDMA (May 8, 2002), *available at* http://press.nokia.com/2002/05/08/nokia-advocates-industry-wide-commitment-to-5-cumulative-ipr-royalty-for-wcdma/ ("Highlighting the fact that WCDMA technology has been adopted by the vast majority of mobile operators worldwide and is fast emerging as the global standard of choice for 3G, Nokia is advocating an industry-wide commitment that royalty rates for the 3G technology should not exceed 5% cumulatively. Under this proposal no manufacturer should pay more than 5% royalties covering all essential WCDMA patents from all patent holders. . . . Nokia is committed to licensing its essential patents under fair, reasonable, and non-discriminatory terms, subject to reciprocity."). Critics noted that had such a cap been imposed, it would have shifted profits to downstream manufacturers and away from upstream innovators.

12 *See, e.g.*, BRIAN T. YEH, CONG. RESEARCH SERV., R42705, AVAILABILITY OF INJUNCTIVE RELIEF FOR STANDARD-ESSENTIAL PATENT HOLDERS 21 (2012), *available at* http://www.law.berkeley.edu/files/CRS_SEP_Report_9-2012.pdf (referring to "proposals to categorically deny injunctive or exclusionary relief to SEP holders"). Note that even those calling for a cautious approach to *granting*

The heavy-handed nature of some FRAND proposals has led to concerns among innovative firms that regularly contribute technologies to voluntary interoperability standardization efforts. Specifically, these firms worry that the balance of interests between technology contributors and standard implementers so crucial to the success of cooperative SSO efforts will not be upheld. As a result the firms worry that they will not be able to earn fair and reasonable compensation for their contributed technologies. For example, at a conference held in Brussels in June 2013, representatives from Ericsson, Nokia, and Qualcomm all expressed alarm over the current state of the FRAND policy debate.[13] Daniel Hermele of Qualcomm observed that his firm "is considering 'holding back on improvements' at SSOs 'if standard policies prevent licensors from getting a fair return on their investment.'"[14] Likewise, Jenni Lukander of Nokia noted that "[w]hat is critical at this stage is that the balance that has existed in the system is maintained."[15]

While standards developed within SSOs tend to provide highly complex rules for the interoperation of multiple components in the target products and services, which in turn are developed by numerous firms across many industry niches, these standards typically can be broken into smaller pieces with individual firms defining relatively narrower de facto standards. In fact, it is important to recall that an early strand of the economics literature on standard setting focused on the choice between de facto and cooperative standard setting, recognizing that the different approaches reflect strategic options facing industry participants.[16] If overzealous regulation of cooperative standard setting leads to reduced SSO participation and increased marketplace battles over de facto standards—a result I hope will not come to pass—then de facto standard setting will become even more important to the economy than it already is and fewer "essential" patents will be bound by FRAND obligations.

Regardless of how a particular technology evolves into a de facto standard—either through the default mechanism of network effects at play in market selection or through the conscious choice of a market leader opting out of cooperative standard-setting efforts—many of the intellectual

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injunctive relief based on SEPs nonetheless recognize that certain circumstances call for an SEP holder's ability to *seek* an injunction and acknowledge the increased risk of licensee holdout should enjoinment be taken entirely off the table. *See, e.g.*, DOJ & PTO POLICY STATEMENT, *supra* note 1, at 6-7.

13 Matthew Newman, *Ericsson, Qualcomm, Nokia Cool on Contributing Technology to Standards Bodies*, MLEX (June 14, 2013, 5:22 PM) (on file with author).

14 *Id.* (quoting Qualcomm lawyer Daniel Hermele). These real-world concerns are consistent with the Author's own theoretical research on participation constraints for cooperative standard setting. *See* Anne Layne-Farrar, Gerard Llobet & Jorge Padilla, *Payments and Participation: The Incentives to Join Cooperative Standard Setting Efforts*, 23 J. ECON. & MGMT. STRATEGY 24 (2014).

15 Newman, *supra* note 13 (quoting Jenni Lukander) (internal quotation marks omitted).

16 *See, e.g.*, Joseph Farrell & Garth Saloner, *Coordination Through Committees and Markets*, 19 RAND J. ECON. 235, 236 (1988); *see also* Besen & Farrell, *supra* note 7, at 117-18.

property rights ("IPR") licensing issues present in SSO contexts are present in de facto standard contexts as well. Why? Quite simply, voluntary intellectual property ("IP") licensing announcements offer an important tool for persuading other industry participants to buy into a firm's technology option, thereby facilitating its acceptance as a de facto standard. That is, the same types of assurances can be important for de facto standards as for SSO standards.

By now everyone is familiar with the rationale for FRAND commitments as to cooperative interoperability standard-setting efforts involving numerous firms that, in the end, will compete with one another in the downstream markets implementing the standards so defined. On the one hand, implementers committing their own resources to the commercialization of standard-based products and services want assurances that the patented technologies defining those standards will be available on fair, reasonable, and non-discriminatory terms and conditions rather than being exploited for patent holdup.[17] On the other hand, firms investing in research and committing the fruits of that research and development ("R&D") to help define industry-wide cooperative standards want assurances that they will be fairly and reasonably compensated rather than subjected to patent holdout or reverse patent holdup.[18] Hence, SSOs establish IPR policies to bind their membership, including seeking FRAND commitments from contributing patent holders, in order to maintain incentives for both innovative and implementing firms to actively participate in cooperative standard-setting efforts.[19]

Similar forces are at work for de facto standards as well. High technology markets are often described as ecosystems.[20] Even if firms are not explicitly cooperating through an SSO to define a standard that will then act as a common platform upon which the firms can compete, they are often doing so implicitly. That is, cooperation and competition work in tandem in high technology markets,[21] which frequently are defined by the need for interoperability, with only the degree of competition versus cooperation being affected by firms' strategies.

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17 *See, e.g.*, Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 51-56 (2005).

18 Damien Geradin, *Reverse Hold-Ups: The (Often Ignored) Risks Faced by Innovators in Standardized Area*, *in* THE PROS AND CONS OF STANDARD SETTING 101, 112-13 (2010).

19 *See generally* Layne-Farrar, Llobet & Padilla, *supra* note 14 (discussing SSO participation incentives).

20 *See* JAMES F. MOORE, THE DEATH OF COMPETITION: LEADERSHIP AND STRATEGY IN THE AGE OF BUSINESS ECOSYSTEMS 22-29 (1996) (describing high technology markets as ecosystems).

21 This phenomenon led economists to coin the term "coopetition." While the term goes back much further, it gained significant traction in 1996 with the publication of a book by the same name. *See* ADAM M. BRANDENBURGER & BARRY J. NALEBUFF, CO-OPETITION (1996).

The U.S. competition agencies have recognized this dynamic. In a joint 2007 report on IP, the Federal Trade Commission ("FTC") wrote

> [t]o win a standards war, a firm may have to incur significant costs or limit its assertion of market power in order to establish an installed base of users. The winner of a standards war, however, may have significant market power, often because it can enforce its patent rights to prevent others from making products that conform to the standard.[22]

Ecosystem interdependencies within an industry mean that if a standard is to emerge—and, because of network effects, this is often highly desirable—other industry players need assurances that their own investments in some proprietary technology will not be exploited later by the technology's rights holder. To gain industry support, then, would-be de facto standard promulgators frequently offer IPR commitments and other promises of their own volition, without any externally imposed mandates.

Such voluntary commitments not only serve an analogous purpose to SSO FRAND commitments by providing assurances of good faith dealing in licensing "essential" patents, but also have broader effects on competition. In particular, voluntarily committing to FRAND for a de facto standard might slow (or stop altogether) the adoption of a competing de facto standard, or might reduce rivals' incentives to invest in the development of alternative technologies. In short, market forces—many of which are identical to those underlying FRAND commitments in SSOs—can drive firms to voluntarily restrict their licensing freedom for patents important to de facto standards.

There are many examples of such voluntary commitments. For instance, facing a reluctant community of software developers for its OpenSolaris Project in 2005, Sun Microsystems publicly announced that it would not enforce some 1,600 of its patents related to its Solaris operating system against open source developers. Sun stated, "Clearly we have no intention of suing open-source developers. . . . We haven't put together a fancy pledge on our Web site. . . . [But w]e're definitely looking into what would make sense and what would make the community feel more comfortable with the patent grant we have made available."[23]

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[22] U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 34 n.8 (2007), *available at* http://www.ftc.gov/sites/default/files/documents/reports/antitrust-enforcement-and-intellectual-property-rights-promoting-innovation-and-competition-report.s.department-justice-and-federal-trade-commission/p040101promotinginnovationandcompetitionrpt0704.pdf; *see also* David Balto & Robert Pitofsky, *Antitrust and High-Tech Industries: The New Challenge*, 43 ANTITRUST BULL. 583, 596-603 (1998).

[23] Stephen Shankland, *Sun: Patent Use OK Beyond Solaris Project*, CNET NEWS (Jan. 31, 2005, 2:27 PM), http://news.cnet.com/Sun-Patent-use-OK-beyond-Solaris-project/2100-7344_3-5557658.html (quoting Tom Goguen, head of Solaris marketing) (internal quotation marks omitted).

In a similar vein, and ostensibly with similar ecosystem building goals, Microsoft made the following pledge in 2006:

> Microsoft will generally license patents on its operating system inventions (other than those that differentiate the appearance of Microsoft's products) on fair and reasonable terms so long as licensees respect Microsoft's intellectual property rights. . . . Microsoft is committed to supporting a wide range of industry standards in Windows that developers can use to build interoperable products. Microsoft is committed to contributing to industry standard bodies as well as working to establish standards via *ad hoc* relationships with others in the industry.[24]

More recently, Twitter announced "a commitment from Twitter to [its engineers] that [Twitter's] patents can only be used for defensive purposes," unless the engineer authorizes offensive assertion.[25] The limitation is to remain in force even if Twitter sells or reassigns the patents to a third party; the transfer would specify that the original inventing engineer controls whether the patent is to be used beyond defensive purposes. This commitment is slightly different from the examples above, but it is the same in spirit. Twitter needs to attract and retain employees in a highly competitive labor market, employees who will then be motivated to actively contribute to the continued evolution of Twitter's products. As such, Twitter needs to assure highly mobile software engineers (both current and potential employees) that their inventions will not be subverted by Twitter's corporate strategies.

The significant role that these unilateral pledges can play in market development and competition on the merits also underscores the importance of ensuring that such pledges, once made, have some teeth. As explained in the literature,

> [r]ational firms do not offer something for nothing. Nothing requires a patentee to pledge non-enforcement of patents . . . . Widespread adoption of its technology may allow the company to capitalize on implementing the standard, developing complementary products, or

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[24] Press Release, Microsoft Corp., Windows Principles: Twelve Tenets to Promote Competition (July 2006), *available at* http://web.archive.org/web/20060721002532/http:/www.microsoft.com/presspass/newsroom/winxp/windowsprinciples.mspx. Note that this pledge was made in the midst of a European Commission investigation into Microsoft's practices related to interoperability. *See* Press Release, Microsoft Corp., Microsoft Statement on European Commission Decision (Dec. 16, 2009), *available at* http://www.microsoft.com/en-us/news/press/2009/dec09/12-16statement.aspx. Microsoft reiterated its RAND pledge in 2008 in its "Intereroperability Principles," noting as well a more unusual "at low royalty rates" promise. The 2008 pledge does not include the qualifier "generally," the inclusion of which might suggest less consistency in RAND practice for the 2006 promise. *See Interoperability Principles*, MICROSOFT CORP., http://www.microsoft.com/openspecifications/en/us/programs/interop/interoperability-principles/default.aspx (last visited Dec. 20, 2013).

[25] Adam Messinger, *Introducing the Innovator's Patent Agreement*, TWITTER BLOG (Apr. 17, 2012), https://blog.twitter.com/2012/introducing-innovators-patent-agreement.

> providing support for implementations of the standard. This quid pro quo is important, as it justifies holding the patentee to his promise.[26]

To see this point more clearly, consider the contrary. Suppose a firm can make public licensing statements one day, to the effect that it will offer fair and reasonable terms, only to renege on them the next, say by claiming its right to refuse licenses or by placing heavy restrictions on offered licensing terms. We can expect that practice to: 1) increase the odds of holdup in the short run, as those relying on the pledge have their asset-specific investments at risk of exploitation achieved through deception; and 2) hinder market development and competition in the long run as industry players learn that such assurances cannot be enforced and thus are not to be trusted.[27]

These same forces are at play in cooperative standard settings. When investment decisions are made in reliance on pledges for good faith dealings in the marketplace at some later date, those pledges should be upheld, regardless of whether the pledges are made by innovative firms in R&D or by downstream firms in commercialization. This is an important point for both de facto and cooperative standards. While the debate over FRAND is often embedded in discussions regarding SSO members that are downstream rivals,[28] the fact that SSOs are collaborations of competitors is not the key factor in the economic analysis of why a breach of FRAND may harm consumer welfare. To the contrary, even if an SSO had only pure upstream R&D firms contributing patented technologies to define standards that pure downstream firms implemented, that SSO would still want a FRAND pledge in place, and that pledge would still need to be enforced, for the investment and innovation incentive reasons discussed above.

In short, the purpose of unilateral, voluntary IPR assurances for de facto standards is much the same as FRAND commitments within cooperative SSO standards: encouraging participation in the standardization effort and fostering competition in the commercialization of the resulting standard.

B. *Commercially Important Patents, Supporting and Starring Roles*

Even for firms with many declared SEPs, the typical firm participating in an SSO holds more than just SEPs within its patent portfolio. Some of these non-SEP patents might play a supporting role to SEPs: they might "ring fence" the firm's SEPs but may not themselves rise to the level of

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26 Robert P. Merges & Jeffrey M. Kuhn, *An Estoppel Doctrine for Patented Standards*, 97 CALIF. L. REV. 1, 22-23 (2009) (footnote omitted).

27 The long term consequences follow from rational expectations theory. *See, e.g.*, John F. Muth, *Rational Expectations and the Theory of Price Movements*, 29 ECONOMETRICA 315, 316-17 (1961).

28 Such as, for instance, the debate over whether injunctions are an option for SEP holders.

essentiality. Other non-standards-declared patents may play a starring role of their own: they might cover differentiating technologies that enable their holder to compete more effectively in downstream markets, even for standard-compliant products and services.[29]

The former, supporting-role patents, are typically licensed along with SEPs.[30] This industry practice offers the licensee greater assurance of freedom to operate and removes the burden of specifically identifying an exhaustive list of the patent holders' SEPs.[31] The latter, starring-role patents, however, are unlikely to be licensed by a vertically integrated firm, who will want such differentiating patents for its own use when competing in the downstream market. Nonpracticing innovators, on the other hand, may license starring-role, differentiation patents, though the licensee may insist on exclusivity so as to maintain the value of differentiation.

The key point here is that truly non-essential patents—those not declared as potentially essential for a standard developed by an SSO nor claimed to be essential for a de facto standard—may be licensed (or not) and however their holder sees fit. These patents are not bound by FRAND commitments of any kind unless their holder voluntarily provides one.

To the extent rigid SSO FRAND rules push firms away from participation in SSOs, and those firms choose not to make any unilateral FRAND promises of their own (as they would be free to do), then it is likely that the body of unconstrained but actually essential patents will rise.[32] Contrary to policymaker goals in clarifying FRAND commitments, this outcome would increase the odds of patent holdup and is a clear case of unintended consequences.

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29 Yet other patents within a typical portfolio are likely to be essentially worthless, but as these generally play little to no role in licensing negotiations they are ignored here.

30 In this Author's experience, when the patent holder also holds differentiating patents that it does not wish to license, non-essential patents included in the license agreement are generally specifically enumerated. When the patent holder does not hold any non-essential patents that it will not license, the agreements typically reference technology-defined patent portfolios without specific patent lists.

31 Fully identifying all genuinely "essential" patents is generally a very difficult task, for a number of reasons. First, standards are moving targets until voted upon, with new technologies being proposed and gaining or losing favor among the working group responsible for defining a given component. Second, even after a standard has been defined, it can be a subjective judgment as to whether a particular patent's claims match the technical specifications of a standard. As a result, in this Author's experience, firms often name some patents to an SSO as potentially essential in order to meet the disclosure requirements but do not attempt to make exhaustive lists of all potentially essential patents. License agreements then reference patents that are "essential" for compliance with a standard without providing exhaustive lists of which patents are considered actually "essential." Though, as noted above, non-essential licensed patents may be specifically listed in the agreement. *See supra* note 30. Moreover, for clarity license agreements sometimes specifically name patents that are *not* included in the license.

32 This is precisely the outcome predicted in the model previously developed by Gerard Llobet, Jorge Padilla, and this Author. *See* Layne-Farrar, Llobet & Padilla, *supra* note 14, at 44.

C. *The Interplay of Commercially Important, De Facto Standard, and SSO Standard Patents*

Now consider all three forms of patents and their interplay. This is significant because commercially important patents and patents essential for de facto standards within a given industry—particularly high technology industries—invariably interoperate with patents named to cooperative or de jure standards relevant for that industry.

An example of such interactions within a single product can be found in laptop computers. One study identified around 250 unique standards that cover the typical laptop, with 112 (44 percent) developed by informal cooperative consortia; 90 (36 percent) by formal standards development organizations; and 49 (20 percent) by individual companies (e.g., de facto standards).[33] Regardless of whether the specific count of standards is accurate or not, this example clearly illustrates two realities of modern high technology industries. First, how industry players reach agreement on any given aspect of interoperability and standardization is open to strategic choice: informal consortia and fora, formal standard setting, or lone firm persuasion to achieve de facto standard status are all potential options. Second, formal standards development defines but one aspect of industry dealings. As a result, policymakers who treat SSO standards in isolation, without recognizing the role that technologies not covered by the formal SSO process can play, take significant risks that their policy interventions will not work as desired.

To better understand this last point, consider a hypothetical license negotiation. Suppose that two large, vertically integrated firms (each with its own R&D program, portfolio of patents, and downstream products) enter into a license negotiation. Further suppose that this negotiation is triggered, at least on the surface, by a newly issued interoperability standard developed within a formal SSO with a FRAND licensing policy in place.

Suppose that both firms (A and B) have declared they hold SEPs for the SSO standard, but that in addition Firm A claims it also holds patents essential for a de facto standard it leads and which is complementary to and found within the same end products as the formal cooperative standard.[34] The two firms will most likely want to negotiate a cross license to one another's patents. But it is unlikely that the negotiation talks will be limited to just one standard's declared SEPs. To the contrary, the talks will likely cover all IPR relevant for the licensed products, including Firm A's de facto

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[33] *See* Brad Biddle, Andrew White & Sean Woods, *How Many Standards in a Laptop? (And Other Empirical Questions)*, *in* PROCEEDINGS OF THE 2010 ITU-T KALEIDOSCOPE ACADEMIC CONFERENCE: "BEYOND THE INTERNET?—INNOVATIONS FOR FUTURE NETWORKS AND SERVICES" 123 (2010), *available at* http://www.itu.int/dms_pub/itu-t/opb/proc/T-PROC-KALEI-2010-PDF-E.pdf.

[34] For example, consider a laser printer with Wi-Fi capabilities for wireless printing (Wi-Fi being promulgated within the SSO IEEE) and incorporating HP's PCL (Printer Command Language).

standards-essential patents or SEPs relevant for the cooperative standards embedded within the same products. The discussion may include other elements as well, such as non-essential but nonetheless commercially important patents for the covered products, any supply relationships between the two firms, any joint research or joint development agreements contemplated by the firms, and so forth. In other words, IPR licenses are complex documents requiring a time-consuming, often intense negotiation process, which means incentives are generally aligned to roll all possible IPR of interest into the same discussion, albeit typically with explicit differences in rates and terms for each distinct licensing element and without conditioning the availability of any particualr SEP license on any other unrelated license. This sort of IPR bundling is efficient and is thus commonly seen in industry practice.

This Paper is *not* suggesting that FRAND licensing for SEPs implies anticompetitive tying of IPR. Most SSOs have rules establishing licensing reciprocity for SEPs only, and this makes sense.[35] As discussed above, patents that are not essential to the standard can cover features and product aspects that differentiate one firm's products from another firm's products on top of the common base provided by a standard, and so licensing decisions for these patents should be left to the patent holder. Forcing access to such starring-role, differentiating IPR, say by tying it to the licensing of SEPs, would not serve any procompetitive purpose.

What this Paper *is* suggesting is that it is important not to focus solely on restrictions that purportedly should apply to SEPs. Doing so risks forgetting that licenses to those SEPs will often be negotiated alongside discussions of de facto essential patents and non-essential commercially valuable patents. For example, if policymakers were to outright ban the seeking of injunctions for SEPs under all circumstances, then an SEP holder in licensing talks with a firm whose patent portfolio is composed largely of non-SEPs may face an increased risk of being a victim of patent holdup itself. In that case, the SEP holder cannot refuse a license nor seek an injunction and instead can at best use infringement litigation to obtain the same FRAND rates and terms it would have gotten through good-faith negotiations (had they occurred), but only at a higher cost due to litigation. Knowing the SEP holder is so constrained, the non-SEP holder can therefore hold out, attempting to force below-FRAND rates on the SEP holder.[36] This result

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35 Following the same logic, the FTC's consent order in the Motorola Mobility investigation included a reciprocity statement as well. In particular, respondents were allowed to condition their offer to license SEPs on "Reciprocity," defined to mean a requirement of a grant back license limited to RAND-encumbered SEPs essential to the same standard. The order prohibits the respondents from requiring "the Potential Licensee to license any Patent Claim not Essential to a Standard practiced by the Potential Licensee, or . . . any other patents or intellectual property." Motorola Mobility LLC, FTC File No. 121-0120 (Jan. 3, 2013), http://www.ftc.gov/sites/default/files/documents/cases/2013/01/130103 googlemotorolado.pdf (decision and order).

36 *See, e.g.*, YEH, *supra* note 12, at 5.

would be the case for a de facto standards-essential patent holder without any voluntary RAND[37] commitment constraining it; or one attempting to ignore any licensing pledge it had made; or a patent holder with patents that are commercially important but not technically essential for any standard.

Different scenarios could work to exacerbate the asymmetries highlighted in the hypothetical above. For instance, suppose now that Firm A holds only non-SEPs (either non-essential but commercially important patents or de facto standards-essential patents without unilateral FRAND encumbrances) while Firm B holds only SSO-disclosed SEPs. Firm B will be bound by the dictates of FRAND, but Firm A will not be. Contrary to traditional SEP holdup theory, Firm A could be in a much stronger bargaining position than Firm B, as long as Firm B cannot easily "work around" or otherwise avoid Firm A's patents. This follows because Firm A can refuse any license offer from B on the pretense that B is violating its FRAND commitment,[38] while at the same time threatening Firm B with infringement suits (including injunctions) in regard to its own non-SEPs. If Firm A's patents have little value or are easily substituted with other technologies, this strategy will not work.

But if Firm A's patents have commercial value or are broadly defined and/or vague enough to raise uncertainty over infringement, then this tactic may work quite well. In that case, Firm B's only recourse would be to sue A for infringement and damages. Even if Firm B were successful, however, under the limitations of FRAND Firm A would only pay a fair and reasonable rate, without penalty for its recalcitrance. And, given the uncertainties of patent trials,[39] Firm A has a reasonable chance of obtaining a ruling that Firm B's SEPs are not valid, not infringed, or non-essential, in which case Firm A would owe nothing to B. In short, based on the asymmetry in possible outcomes and irrespective of the true strength or value of B's SEPs, Firm A could have a strong incentive to threaten litigation while Firm B could have a strong incentive to concede to A's demands for below-FRAND terms—despite the fact that litigation is costly for *both* parties.

The implications of the above hypotheticals are manifold. First, unilateral FRAND pledges for de facto standards should be upheld as legally binding, so as to reduce at least one avenue of asymmetries in complex commercial licensing. Second, upholding unilateral FRAND pledges for de facto standards would also reduce the attractiveness of opting for de facto as compared to cooperative standard setting—parties considering opting out

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37 "Reasonable and non-discrimantory," as distinguished from FRAND, "fair, reasonable, and non-discriminatory." FRAND is more common in Europe while RAND is more common in the United States, though most scholars view the two acronyms as interchangeable.

38 As the policy debate and court rulings over the past few years have illustrated, establishing that a firm is an "unwilling licensee" is an extremely difficult hurdle for SEP holders to clear.

39 For instance, among patents that are litigated to final determination, 46 percent are held invalid. *See* Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, J. ECON. PERSP., Spring 2005, at 75, 80.

of SSOs would have to estimate the odds of establishing a de facto standard within the limitations of binding voluntary licensing pledges, without the aid of deceptive statements to convince industry participants to support the technology. Third, the rules and restrictions created by FRAND commitments should be considered carefully so as to not place SEP holders at a competitive disadvantage as compared to other types of patent holders.

As just explained, FRAND commitments—made either within the context of SSOs or unilaterally for de facto standards—need to count for something and should limit their makers as compared to parties that have not made any such FRAND commitments. Parties making voluntary statements for patents reading on de facto standards can establish their own boundaries. They can commit to as much or as little as they desire in their public FRAND pledges, taking into account what they believe is required to obtain the reliance they are attempting to engender in the industry. Parties making SSO FRAND pledges do not have such flexibility and must abide by the SSO's rules. Hence, to the extent that policymakers and courts weigh in on the metes and bounds of SSO FRAND commitments, they need to think carefully about the broad commercial context in which SEP holders must operate in order to maintain a reasonable commitment without tipping the commercial playing field.

II. UNILATERAL ADDITIONAL PLEDGES FOR STANDARDS-ESSENTIAL PATENTS

Part I discussed the various different types of patents important for high tech industry dealings. This Part hones in on SSO SEPs but considers commitments that patent holders may make that go above and beyond the SSO's stated FRAND policy. As noted in the Introduction, these "extra-SSO" commitments have thus far come in one of two flavors: maximum licensing term disclosures or commitments not to seek injunctive relief on SEPs. Part II considers each in turn.

A. *Disclosure of Voluntary Rates and Terms for Standards-Essential Patents*

While most SSOs request that members contributing patented technologies to standards commit to FRAND licensing for those patents, it appears that only one SSO requires declared SEP holders to also disclose the maximum licensing terms they will seek for their declared patents.[40] As a result,

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[40] To this Author's knowledge, VITA, the SSO that develops VMEbus architecture standards, is the only SSO with such a mandatory policy in place. *See* VITA STANDARDS ORG., *supra* note 5,

most licensing terms and conditions are bilaterally negotiated between SEP holders and standard implementers, with the agreement specifics held under close confidential wraps.

And yet, some firms have freely made public commitments to specific terms even though the SSO involved did not require or even request such specificity. In particular, in relation to the 4G mobile phone standard known as Long Term Evolution ("LTE"), a number of firms made public declarations of their intended FRAND rates. The policy debate around the 3G standard that came just before LTE, WCDMA,[41] included heated discussions of potential "royalty stacking," where SEP licenses in the aggregate could potentially stack up to a level that was "too high" for optimal commercialization.[42] In April 2008, hoping to signal early on in the LTE commercialization process that such concerns would not be an issue for 4G products and services, "a group of leading telecommunication companies committed themselves to a framework for 'establishing predictable and more transparent maximum aggregate costs for licensing [patents] that relate to 3GPP Long Term Evolution and Service Architecture Evolution (LTE/SAE) standards.'"[43]

All told, nine distinct entities volunteered the maximum royalty rates they would seek for a license to their SEPs relevant to the LTE standard. Nortel was the first to make a specific public statement, announcing in May 2009 that it would offer "a competitive handset royalty rate of about one percent."[44] Alcatel-Lucent then announced "we expect that we will license our LTE standard essential patent claims for handsets at a discounted royalty of no greater than 2 percent."[45] Ericsson announced its expected royalty rate for LTE handsets would be 1.5 percent; Huawei announced "a royalty rate with some flexibility, but not to exceed 1.5 percent" of "end user products"; Motorola committed to 2.25 percent of "systems and equipment" including handsets; Nokia announced 1.5 percent of the "sales price" for end user products that were compliant with LTE only (e.g., no dual mode); Nokia-Siemens Networks committed to 0.8 percent of end-use terminal

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§ 10.3.2. IEEE has a voluntary maximum rate disclosure policy, but very few members have opted to disclose such terms. *See* IEEE STANDARDS ASS'N, *supra* note 5, § 6.2.

41 WCDMA is the abbreviation for "Wideband Code Division Multiple Access."

42 *See* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1993-94 (2007). *But see* Damien Geradin, Anne Layne-Farrar & A. Jorge Padilla, *The Complements Problem Within Standard Setting: Assessing the Evidence on Royalty Stacking*, 14 B.U. J. SCI. & TECH. L. 144, 149 (2008).

43 Eric Stasik, *Royalty Rates and Licensing Strategies for Essential Patents On LTE (4G) Telecommunication Standards*, LES NOUVELLES, Sept. 2010, at 114, 114 (alteration in original).

44 *Id.* at 115 (quoting Press Release, Nortel, Nortel Strengthens the Case for Deployment of LTE by Publishing Competitive Royalty Rates (May 5, 2008)) (internal quotation marks omitted). Note that many of the company press releases cited in the Les Nouvelles article are to now broken web links, though most of these releases can be found on The Wayback Machine, web.archive.org.

45 *Id.* (quoting Alcatel-Lucent) (internal quotation marks omitted).

devices; Qualcomm stated that it expected to charge 3.25 percent of wholesale selling prices; and ZTE Corporation committed to a maximum rate of 1 percent of the sales price for end user products.[46]

If concerns over licensing terms for 4G were seen as hindering investments in the 4G standard and delaying network and/or handset upgrades from 3G, then the motives to make such "extra-SSO" declarations would be clear.[47] Analogous to the FRAND pledges made in regard to de facto standards, the nine firms above were likely attempting to soothe fears of holdup and/or royalty stacking through the increased transparency of initial licensing offers.[48] Just as unilateral pledges for de facto standards and general FRAND commitments for SSO standards can work to overcome implementer investment reluctance, additional pledges, above and beyond the FRAND promise to the SSO, may be useful to encourage the investments necessary for a shift to a new generation of a standard.

B. *Self-Imposed Restrictions for Standards-Essential Patents*

The second form that "extra-SSO" commitments have taken thus far are unilateral promises not to seek injunctive relief on the basis of SEPs (at least not offensively, where the counterparty has not sought an injunction first).

Between 2010 and 2012, Microsoft, Apple, and Google were involved in a series of patent acquisitions, including the high-profile Novell patent auction—which was won by the consortium CPTN, comprising Microsoft, Apple, and others—and the Nortel patent auction—which was won by the consortium Rockstar, again comprising Microsoft, Apple, and others.[49] Google responded by acquiring Motorola's patents in its acquisition of Motorola Mobility.[50]

In relation to the various patent acquisitions, the Department of Justice ("DOJ") had expressed concern that injunctions could be used to enhance

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46 *Id.* at 115-16 (internal quotation marks omitted).

47 In addition to commercial motivations, there could be antitrust motivations. In particular, signals to the FTC that LTE licensing would indeed be fair and reasonable could stave off agency intervention.

48 As Eric Stasik explains,

> Having made a public announcement, a potential licensee might reasonably expect this to be the opening offer in a negotiation. That is all that should be assumed from these announcements. For a company with no essential patents and no bargaining power, however, it is probably not unreasonable to expect little difference between the announced and actual royalty rates.

Stasik, *supra* note 43, at 116-17.

49 *See* Anne Layne-Farrar, *The Brothers Grimm Book of Business Models: A Survey of Literature and Developments in Patent Acquisition and Litigation*, 9 J.L. ECON. & POL'Y 29, 39-45 (2012).

50 *Facts about Google's Acquisition of Motorola*, GOOGLE, http://www.google.com/press/motorola/ (last visited Dec. 20, 2013).

an SEP holder's threat of holdup.[51] In response, Microsoft pledged not to seek injunctions on SEPs,[52] and Apple wrote a letter to the European Telecommunicastions Standards Institute promising not to seek injunctions on SEPs provided that the counterparty agreed to charge no more than Apple was willing to pay for that counterparty's SEPs.[53] DOJ made clear that Microsoft's and Apple's anti-injunction pledges were significant in its decision to clear the transactions.[54]

More recently, Google's settlement with the FTC included a pledge not to seek injunctions on FRAND-encumbered SEPs when certain procedural conditions have been met. In particular, in its press release corresponding to the final Consent Order, the FTC stated:

> The FTC alleged that this type of patent hold-up is what the standard setting organizations sought to prevent by instituting FRAND licensing requirements. According to the FTC, if left unchecked, this type of patent hold-up can lead to higher prices, as companies may pay higher royalties for the use of Google's patents because of the threat of an injunction, and then pass those higher prices on to consumers. This may cause companies in technology industries to abandon the standard-setting process and limit or forgo investment in new technologies, according to the agency.
>
> To remedy this concern, Google has agreed to a Consent Order that prohibits it from seeking injunctions against a willing licensee, either in federal court or at the ITC, to block the use of any standard-essential patents that the company has previously committed to license on FRAND terms.[55]

One might argue whether concessions of this sort are "voluntary," but the pledges made by Apple, Google/Motorola, and Microsoft are "extra-SSO" and work to allay concerns of the target party in regard to the risk of patent holdup.

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51 Press Release, U.S. Dep't of Justice, Statement of the Department of Justice's Antitrust Division on Its Decision to Close Its Investigations of Google Inc.'s Acquisition of Motorola Mobility Holdings Inc. and the Acquisitions of Certain Patents by Apple Inc., Microsoft Corp. and Research in Motion Ltd. (Feb. 13, 2012) [hereinafter DOJ Clearance Letter], *available at* http://www.justice.gov/opa/pr/2012/February/12-at-210.html.

52 Microsoft Legal & Corporate Affairs, *Microsoft's Support for Industry Standards*, MICROSOFT (Feb. 8, 2012), http://www.microsoft.com/en-us/legal/intellectualproperty/IPLicensing/ip2.aspx.

53 Daniel Eran Dilger, *Apple Asks ETSI Standards Body to Set Rules for Standards Essential Patents*, APPLE INSIDER (Feb. 7, 2012, 8:22 PM), http://appleinsider.com/articles/12/02/07/apple_asks_etsi_standards_body_to_set_rules_for_standards_essential_patents.

54 DOJ Clearance Letter, *supra* note 51 ("If adhered to in practice, these positions could significantly reduce the possibility of a hold up or use of an injunction as a threat to inhibit or preclude innovation and competition."). Note, however, that Rockstar's CEO, John Veschi, has stated that the consortium is not bound by the pledges made by individual consortium members. Robert McMillan, *How Apple and Microsoft Armed 4,000 Patent Warheads*, WIRED (May 21, 2012, 6:30 AM), http://www.wired.com/wiredenterprise/2012/05/rockstar/all/.

55 Press Release, Fed. Trade Comm'n, Google Agrees to Change Its Business Practices to Resolve FTC Competition Concerns in the Markets for Devices like Smart Phones, Games and Tablets, and in Online Search (Jan. 3, 2013), *available at* http://www.ftc.gov/opa/2013/01/google.shtm. Note the limitation to a "willing licensee."

CONCLUSION

This Paper has highlighted the important role that public licensing commitments of all sorts play in encouraging industry reliance on proprietary technologies and in spurring investments and commercialization in those technologies. Because of this important role, it emphasizes that *all* public licensing commitments—whether made to a formal SSO or not—should be viewed as binding so that those pledges may achieve some success in encouraging investments and may not instead be used in deceptive holdup. In covering such a broad array of commitments and "standard" formats, this Paper has stressed the interrelated nature of IPRs within high technology industries. Given those interrelationships, FRAND obligations to SSOs cannot be considered in isolation, but rather should be viewed and analyzed in light of the broader commercial dealings between firms within an industry.

The purpose of voluntary extra-SSO announcements, be they for general FRAND promises related to de facto essential standards, specific maximum rates on SSO SEPs, or forswearing injunctive relief for SSO SEPs, is much the same as that behind general FRAND commitments made to an SSO: to signal good-faith dealings and to allay concerns of holdup for key industry stakeholders. As a result, all of these commitments need to be honored for the same reasons as well.

To be perfectly clear, the message conveyed in this Paper is one of balance. Firms should be held to all of their public commitments, particularly the voluntary ones as the individual firms control both the existence and the substance of what is promised. Firms should be held to SSO FRAND commitments as well, but care should be taken in imputing to these commitments more than is stated in the SSO's IPR policy, as individual firms *do not* control agency and court interpretations of those policies.[56] Moreover, and equally important, it is in policymakers' and society's best interests to avoid (or at least to not exacerbate) asymmetries in firms' commercial dealings, which typically cover far more than a narrow discussion of licenses for SEPs. While targeted at patent holdup based on SEPs, some interventions could well lead to patent holdup or holdout of other sorts from other parties.

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[56] Of course, in the aggregate members do control the content of SSO IPR policies. However, any one member cannot alter the pledge the majority votes in.