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VERIZON COMMUNICATIONS INC.

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WORKSHOP ON STANDARD-SETTING ISSUES

PATENT STANDARDS WORKSHOP, PROJECT NO. P11 1204

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INTRODUCTION AND SUMMARY

The potential to enhance consumer welfare through collaborative standard setting is widely recognized. As the Commission noted in its Federal Register Notice, such standard setting "plays an important role in the modern economy": "[T]his kind of legitimate standard-setting process . . . can lead to innovation, better products and more competition."[1]

It also is widely recognized that these consumer welfare benefits may be undermined by opportunistic behavior. One form of such behavior, patent hold-up, has become increasingly pervasive.[2] Owners of patents with claims covering technology incorporated into standards can undercut much of the value of standard-setting activity by holding up those who implement industry standards.[3]

The "basic economics of patent holdup in the standard-setting context are well understood."[4] After implementers have taken steps to produce standard-compliant products, patent holders are able to take advantage of specific investments and switching costs to demand royalties higher than could have been obtained before the adoption of the particular technology and the implementation of the standard.[5]

This conduct harms consumer welfare. It reduces static efficiency by increasing prices of technology inputs and, potentially thereby, downstream products. It decreases dynamic efficiency by reducing incentives to develop and improve standard-compliant products.[6]

The currently used means to prevent patent hold-up—standard-setting organization rules and antitrust law—do not fully address the array of opportunistic behaviors involving patent hold-up. Application of traditional equitable principles, however, offers an elegant solution. Courts of equity long have taken into consideration a defendant's sunk costs and the public interest when considering whether to award monetary damages instead of injunctive relief. Under the Supreme Court's 2006 *eBay* decision, those generally applicable principles apply "in patent disputes no less than in other cases."[7] As explained below, application of those established equitable principles

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[1] 76 Fed. Reg. 28,036 (May 13, 2011).

[2] *See, e.g.*, Joseph Farrell, et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603 (2007); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007).

[3] U.S. Dep't of Justice & Fed. Trade Comm'n, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 37-38 (2007) ("2007 IP REPORT").

[4] Am. Bar Ass'n, HANDBOOK ON ANTITRUST ASPECT OF STANDARD SETTING 100 (2d ed. 2011); *see also* Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280, 286-301 (2010) (explaining economics of patent hold-up).

[5] *See, e.g.*, 2007 IP REPORT, *supra* note 3, at 38 (explaining that implementer of standards may face high switching costs due to the need for the development of an alternative standard and network effects); Farrell, *supra* note 2, at 619-21; Lemley & Shapiro, *supra* note 2, at 1995-2008.

[6] *See* 2007 IP REPORT *supra* note 3, at 35-40 & n.17.

[7] *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 390, 394 (2006).

in the patent standards context can help protect the benefits of collaborative standard setting.

I. COLLABORATIVE STANDARD SETTING IS ESPECIALLY VULNERABLE TO PATENT HOLD-UP AND CURRENT MEANS TO MITIGATE HOLD-UP DO NOT FULLY ADDRESS THE PROBLEM

A. The Potential For Patent Hold-Up Encourages Rent-Seeking Behavior

The potential for opportunism leads rational firms to engage in rent-seeking behavior. Firms may file or amend existing patent applications to cover technologies considered for or likely to be adopted into a standard.[8] Firms also may steer standard-setting organizations ("SSOs") to adopt technologies covered by the firm's patents or applications.[9]

This type of rent-seeking behavior is hardly uncommon. Licensing executives promote it.[10] Empirical data verifies its prevalence.[11] And it is evidenced by a number of litigations.[12]

The potential for hold-up is exacerbated by current law regarding patent continuations. Absent exogenous wrongful conduct, under current patent law, "there is nothing improper, illegal or inequitable in filing a patent application for the purpose of

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[8] *See* Neil Gandal, et al., *Intellectual Property and Standardization Committee Participation in the US Modem Industry*, *in* STANDARDS AND PUBLIC POLICY 208, 227 (Shane Greenstein & Victor Stango, eds. 2007); Brian DeLacey, Kerry Herman, David Kiron & Josh Lerner, *Strategic Behavior in Standard-Setting Organizations*, Harvard NOM Working Paper No. 903214 (2006) (discussing means by which firms have exploited SSO rules to steer standard-setting decisions), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=903214.

[9] *See* Timothy Simcoe, *Delay and de jure standardization*, *in* STANDARDS AND PUBLIC POLICY 260, 281 (Shane Greenstein & Victor Stango, eds. 2007) ("Participants with intellectual property in a technology have additional incentives to push for the selection of that design—particularly if they believe that it might generate substantial licensing revenues.").

[10] *See, e.g.*, Robert A. Myers, *Standards – An Important Patent Portfolio Licensing Opportunity*, LES NOUVELLES, June 2009, at 92, 95 ("Engineers need to be at technical meetings, advocating their new solutions and learning what others are doing so that they are in a position to invent improvements . . . . File for virtually any patentable concept. As the standardization develops, lesser ideas can be discarded, while those inventions supporting broader claims should be refined, amended, and continued as appropriate so that when they issue they are more likely to have been incorporated into the standard. Likewise, in negotiation with patent examiners as little as possible should be conceded to maintain claim coverage in possible future litigation.").

[11] *See* Rudi Bekkers & Joel West, *The limits to IPR standardization policies as evidenced by strategic patenting in UMTS*, 33 TELECOMMUNICATIONS POLICY 80, 83-91 (2009) (using multiple empirical measures to demonstrate strategic patenting with respect to UMTS 3G mobile telephone standard); Gandal, *supra* note 8, at 225-27 (using regression analysis of patenting activity by participants in standard-setting activity; "The obvious explanation for our finding is that firms with pending but not yet granted patents attend the committee to have the standard incorporate their intellectual property.").

[12] *See, e.g.*, *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007); *In re Union Oil Co. of Cal.*, Dkt. No. 9305 (F.T.C. July 7, 2004); *In re Rambus, Inc.*, Dkt. No. 9302 (F.T.C. Aug. 2, 2006), *vacated*, *Rambus, Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008).

obtaining a right to exclude a known competitor's product from the market; nor is it in any manner improper to amend or insert claims intended to cover a competitor's product the applicant's attorney has learned about during the prosecution of a patent application."[13] Moreover, patent applicants can delay the issuance of their patents, resulting in "submarine" patents that "permit patentees to hold-up [implementers] who have made investments in plant capacity, and upset the settled expectations of manufacturers in a variety of industries."[14] As the Commission has recognized, this type of opportunistic behavior "wastes inventive resources," "imposes redesign costs that might have been avoided," "fosters high royalties, inflated by a competitor's exposure to operational disruption," and "magnifies potential competitors' risks and reduces their incentive to develop substitutes for the patentee's invention."[15] "Such behavior wastes resources, raises costs and risks, and potentially deprives consumers of the benefits of innovation and competition."[16]

B. Implementers Of Collaboratively Set Standards Are Especially Vulnerable To Patent Hold-Up

The problem of patent hold-up is especially acute for collaboratively set industry standards for a number of reasons. First, collaboratively set standards are generally developed in open organizations and through transparent decision-making.[17] Although these SSO characteristics promote procompetitive purposes, such as allowing firms to begin developing standards-specific manufacturing assets prior to the finalization of the standard, they magnify the potential for opportunism. The openness of SSOs allows broader membership, increasing the number of participants who are able to observe and influence the direction of standard-setting efforts and thereby engage in rent-seeking behavior. The transparency of decision-making allows even non-participants to access information that facilitates such behavior.

Second, such standards are likely to be subject to multiple patent rights claims.[18] Collaborative standard setting often occurs in industries characterized by patent thickets,

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[13] *Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 874 (Fed. Cir. 1988); *see also Multiform Desiccants, Inc. v. Medzam Ltd.*, 133 F.3d 1473, 1482 (Fed. Cir. 1998).

[14] Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 80 (2004); *see also* Fed. Trade Comm'n, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY, ch. 3, at 40 (2003) ("2003 IP REPORT").

[15] 2003 IP REPORT, *supra* note 14, ch. 4, at 28-29.

[16] *Id.*

[17] *See, e.g.*, Am. Nat'l Standards Inst., *ANSI Essential Requirements: Due process requirements for American National Standards*, at 4 (Jan. 2010) ("Participation shall be open to all persons who are directly and materially affected by the activity in question."), *available at* http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/2010%20ANSI%20Essential%20Requirements%20and%20Related/2010%20ANSI%20Essential%20Requirements.pdf; European Telecommunications Standards Institute ("ETSI"), *ETSI Rules of Procedure* 10-11 (Apr. 20, 2011) (full voting membership open to any legal person in certain geographic area), *available at* http://portal.etsi.org/directives/28_directives_may_2011.pdf.

[18] *See* 2003 IP REPORT, *supra* note 14, ch. 2, at 28, 34, 52; Bekkers & West, *supra* note 11, at 90 (comparing 2G (GSM) to 3G (UMTS) standards and finding dramatic increase in number of essential patents (140 to 1227), the number of patent holders (23 to 72), and the estimated cumulatively royalty rates (0-13% to 30%)); Shapiro, *supra* note 4, at 282 (listing studies and bases for concern regarding patent

resulting in standard-compliant products being covered by hundreds, if not thousands, of patents.[19] The number of patents, combined with the secrecy of patent applications, prevents SSOs or their members from knowing of all potential patent rights that may cover standardized technologies.[20]

Third, implementers of collaboratively set standards are more susceptible to lock in. Collaborative standard setting is often used to ensure interoperability, resulting in higher switching costs due to network effects.[21] Implementers thus face collective switching costs: firms implementing interoperability standards cannot switch to alternative technologies without other firms, perhaps the entire industry, doing likewise.[22]

C. The Current Means Used To Mitigate Patent Hold-Up In The Standard-Setting Context Are Insufficient

Academics, economists, and industry participants have focused on two potential means to address the patent hold-up problem affecting collaborative standard setting: SSO rules and antitrust law. Neither is sufficient.

1. SSO Rules Cannot Fully Address the Problem

Most SSOs have implemented rules that attempt to avoid or to mitigate patent hold-up. These rules fall into three categories: disclosure obligations, licensing

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thickets); Comments of Cisco Systems & Research in Motion 1, FTC Project No. P111204 (June 17, 2011) ("Cisco & RIM Comments") ("For Cisco and RIM, the phenomenon of 'patent hold-up' is real."). For the 4G LTE standard, the problem is magnified yet again. There currently are 2,687 declared patents for that standard. *See* ETSI, Dynamic Reporting on IPR Declarations, *available at* http://ipr.etsi.org/DynamicReportingResult.aspx. The estimated cumulative royalty rate for only 10 of 39 declared patent holders is 14.8%. Eric Stasik, *Royalty Rates And Licensing Strategies For Essential Patents On LTE (4G) Telecommunication Standards*, LES NOUVELLES, Sept. 2010, at 114, 116.

[19] *See, e.g.*, 2003 IP REPORT, *supra* note 14, ch. 2, at 28; Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, *in* 1 INNOVATION POLICY AND THE ECONOMY 119 (Adam Jaffe, Joshua Lerner & Scott Stern, eds., 2001). *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, 165-66 (2008) (arguing that patent thickets do not result in hold-up or royalty stacking).

[20] *See, e.g.*, 2003 IP REPORT, *supra* note 14, ch. 2, at 28 ("'the large number of issued patents in [the computer hardware industry] makes it virtually impossible to search all potentially relevant patents, review the claims, and evaluate the possibility of an infringement claim or the need for a license'").

[21] With regard to the impact of network effects on switching costs, see, e.g., Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP., Spring 1994, at 93; Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424 (1985); Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND J. ECON. 70 (1985).

[22] *See* Robert P. Merges & Jeffrey M. Kuhn, *An Estoppel Doctrine for Patented Standards*, CAL. L. REV. 1, 11 (2009) (standards-related patent opportunism "strategies are inefficient" and do not advance "the goal . . . of providing incentives for innovation").

commitments, and ex ante royalty rate disclosures. Although these types of rules may help, they do not fully mitigate the danger of patent hold-up.[23]

a. Disclosure Obligations Are Insufficient

In theory, disclosure obligations allow SSO participants to make informed decisions when selecting technologies for inclusion in a standard and facilitate ex ante licensing negotiations, thereby preventing hold-up. In practice, however, disclosure obligations fall far short of this goal.

This failure results from a number of factors that create large gaps in the coverage of disclosure policies. First, because of burden issues, most SSOs do not require a participant company to search its patent portfolio.[24] The obligation to disclose is thus limited to patents known by company personnel to cover a technology being considered for inclusion in the standard. In fact, most SSOs further limit the disclosure obligations to those patents known by the particular company individual participating in the standard-setting activity.[25] Second, because of ambiguities in patent claims and applications, even good faith efforts may fail to discover that a company possesses an essential patent or patent application.[26] Third, firms commonly thwart the efficacy of disclosure obligations by making "blanket" declarations that they possess essential patents without specifying any, strategically timing disclosures,[27] or "dumping" long lists of supposedly essential patents on the SSO.[28] Fourth, some SSOs limit disclosure obligations to issued patents,

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[23] While many SSOs implement one or more of these types of rules, not all SSOs do so. *See* Benjamin Chiao, Josh Lerner, & Jean Tirole, *The Rules of Standard-Setting Organizations: An Empirical Analysis*, 38 RAND J. ECON. 905 (2007) (noting diversity in standard setting rules). While some argue that this diversity reflects efficient private ordering, the interests of dominant SSO members (and the rules that they promulgate) may not be aligned with consumer interests. *See* Farrell, *supra* note 2, at 608-09.

[24] *See* Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL L. REV. 1889, 1905 (2002); Comments of American National Standards Institute, at 5, FTC Project No. P111204 (June 21, 2011) ("ANSI Comments") ("The ANSI Patent Policy does not impose a duty on a patent holder to undertake a search of its patent portfolio in order to be able to make a definitive statement to a SDO or ANSI as to whether it has any essential patents."); Comments of Alliance for Telecommunications Industry Solutions, at 6, FTC Project No. P111204 (June 14, 2011) ("ATIS Comments") (ATIS disclosure policy limited because of "evolving nature of standards, the difficulties of identifying with certainty whether a patent actually reads on a standard or draft standard, and the costs of searching large portfolios").

[25] *See, e.g.*, ANSI Comments, *supra* note 24, at 5 ("The ANSI Patent Policy does not … 'impute' knowledge of an employer corporation to an employee participant in the standards-setting process.").

[26] *See, e.g.*, *id.* ("As a practical matter, it is often virtually impossible to identify every potentially essential patent claim. Often the implication of a specific patent in connection with a particular standard may not be easy to determine or evaluate. Patent searches are expensive, time-consuming, require a potentially complex legal and technical analysis and may still not be dispositive.").

[27] Because firms often make specific investments during the standard-setting process, late disclosures may result in patent hold-up even before a standard is finalized. *See* Farrell, *supra* note 2, at 628.

[28] *See* Rudi Bekkers, et al., *Standardizing Intellectual Property Disclosure Data*, Nat'l Bureau of Econ. Research ("NBER") Preconference on Standards, Patents & Innovation (May 7, 2011), *available at* http://home.ieis.tue.nl/rbekkers/Bekkers_et_al_(2011)_NBER_preconference.pdf; Timothy Simcoe, *Explaining the Increase in Intellectual Property Disclosure* 9 (Dec. 1, 2005) (study of patent disclosures at nine SSOs over multiple years, finding that "[h]alf of all IPR disclosures fail to identify a specific patent or patent application."), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1396332.

excluding patent applications.[29] Finally, disclosure obligations do not apply to non-participants.[30]

b. Licensing Obligations Are Insufficient

SSO rules requiring licensing commitments are also insufficient.[31] Such rules generally obligate SSO participants to license their essential patents on reasonable and nondiscriminatory (RAND) terms, but these rules too have large gaps in coverage. Although some SSOs require a commitment to RAND licensing to participate, RAND obligations are more typically linked to disclosure obligations, thereby incorporating all of the problems associated with those obligations.[32] Moreover, many SSOs limit licensing obligations to other SSO members, preventing non-participant implementers from benefitting from the RAND commitment.[33] And, of course, SSO rules requiring licensing commitments cannot bind non-participants.

More fundamentally, RAND licensing obligations fail to prevent hold-up because the licensing terms are left undefined.[34] The SSOs have not set clear parameters for what

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[29] *See, e.g.*, ATIS Comments, *supra* note 24, at 5 ("ATIS's policy applies only to issued patents and not to patent applications . . . .").

[30] *See, e.g.*, Comments of Qualcomm Incorporated, at ii, FTC Project No. P111204 (June 13, 2011) ("SSO patent disclosure rules, of course, can do nothing to control the behavior of non-members").

[31] *See, e.g.*, Cisco & RIM Comments, *supra* note 18, at 4 (stating that numerous disputes over what is "reasonable" demonstrate that RAND licensing commitments have not "effectively curbed opportunistic behavior").

[32] *See, e.g.*, *Guidelines to the Intellectual Property Rights Policy of the Telecommunications Industry Association* 5 (2005) (requiring RAND commitment for "disclosed or identified" IPR), *available at* http://www.tiaonline.org/standards/procedures/manuals/documents/IPRGuidelines_edition1_companion_to_4th_ed_engmanual.pdf; *Guidelines for Implementation of the ANSI Patent Policy* § 3.1 (2011) (requiring RAND commitment only "[i]f an ANSI-Accredited Standards Developer (ASD) receives a notice that a proposed ANS or an approved ANS may require the use of such patent claim"), *available at* http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/Guidelines%20for%20Implementation%20of%20ANSI%20Patent%20Policy%202011.pdf; Consumer Electronics Association, *CEA Procedures Technology & Standards Procedures Manual, CEA-EP-23-M* § 7.3 (Sept. 2009) (discussing disclosure obligations and requiring RAND commitment for patent known to cover technology, otherwise standard is withdrawn), *available at* http://www.ce.org/Standards/EP23-M_ANSI_All_changes_accepted.pdf. *See also* Am. Bar Ass'n Section of Science & Tech. Law, STANDARDS DEVELOPMENT PATENT POLICY MANUAL 54-56 (Jorge L. Contreras, ed. 2007) (describing three licensing commitment options used by SSOs: (1) RAND for essential patents disclosed by the participant; (2) RAND for all essential patents held by the participant; and (3) RAND for essential patents covering contributions made by the participant); Damien Geradin & Miguel Rato, *Can Standard-Setting Lead to Exploitive Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101, 102, 108 (2007) (arguing that current "FRAND regime works" but admitting that most SSO's require a RAND commitment only "[o]nce a disclosure is made, or contemporaneously with [a] disclosure").

[33] Lemley, *supra* note 24, at 1906. In addition, some argue that whether a non-participant may benefit from a RAND licensing commitment turns on issues of state contract law, and in some instances, non-participants may not be able to enforce such a commitment. *See* Lemley, *id.* at 1915 (stating that non-members likely cannot enforce SSO rules). *But see* Opinion & Order, *Apple Inc. v. Motorola Mobility, Inc.*, No. 11-cv-178-bbc (W.D. Wis. June 7, 2011), ECF No. 93 (finding that non-member stated contract-based claim under Wisconsin law).

[34] The Commission's recommendation that RAND royalties be capped by "the incremental value of the patented technology over alternatives available at the time the standard was chosen" would mitigate the

is "reasonable," and implementers are left to cede to what patent holders deem reasonable or face the possibility of an injunction stopping production of standard-compliant products.[35]

c. *Ex Ante Royalty Rate Disclosures Are Insufficient*

Rules requiring ex ante royalty rate disclosures also cannot fully prevent hold-up. Such rules are based on disclosure obligations, incorporating the limitations of those obligations.[36] Moreover, to avoid antitrust concerns regarding collective bargaining, policies requiring royalty rate disclosures are typically limited to a disclosure of a maximum rate.[37] Apparently because of the limited utility of such disclosures, few SSOs use such measures and most existing policies only call for voluntary disclosures.[38]

2. *The Courts Have Limited the Utility of Antitrust Law To Address Patent Hold-Up*

Although antitrust law can address patent hold-up,[39] its application is limited to instances involving exclusionary or collusive conduct, and it does not address every type

prospect of hold-up in these circumstances, assuming that injunctive relief were not available to the RAND-committed patent holder. Fed. Trade Comm'n, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 23 (2011) ("2011 IP REPORT").

[35] *See* Myers, supra note 10, at 98 ("One 'definition': is that *FRAND is whatever the parties agree to, with or without litigation*."); Joseph Scott Miller, *Standard Setting, Patents, and Access to Lock-in: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 375-76 (2007) (summarizing various views regarding meaning of RAND); Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 5 (2005) ("It is widely acknowledged that, in fact, there are no generally agreed tests to determine whether a particular license does or does not satisfy a RAND commitment.").

[36] *See* Letter from Thomas O. Barnett, Assistant Att'y Gen., U.S. Dep't of Justice, Antitrust Div., to Robert A. Skitol, at 4 & n.9 (Oct. 30, 2006) ("VITA BRL") (requiring member to disclose patents that member knows or believes are essential and defining "members" as "*individuals* who *represent* a VITA member company"), *available at* http://www.usdoj.gov/atr/public/busreview/219380.pdf; Letter from Thomas O. Barnett, Assistant Att'y Gen., U.S. Dep't of Justice, Antitrust Div., to Michael A. Lindsey, at 6 (Apr. 30, 2007) ("IEEE BRL") (requiring individual participant to make a "reasonable and good faith inquiry" but not a patent search), *available at* http://www.usdoj.gov/atr/public/busreview/222978.pdf.

[37] VITA BRL, *supra* note 36, at 5-6; IEEE BRL, *supra* note 36, at 4; *Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180 (D. Conn. 2001) (antitrust claim alleging conspiracy to fix licensing rate paid by licensees); J. Gregory Sidak, *Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations*, 5 J. COMPETITION L. & ECON. 123 (2009) (discussing economic effect in SSO context of collective bargaining for patent license).

[38] *See* DG for Enterprise of the European Comm'n, *Preliminary Results, EC Study on the Interplay Between Standards and Intellectual Property Rights (IPR)* 14 (Nov. 23, 2010) (finding only four of twenty-four SSOs (including U.S. and international SSOs such as ANSI, IEEE, JEDEC, TIA, VESA, ETSI, and W3C) allowing for voluntary royalty rate disclosures, none mandating such disclosures).

[39] *See, e.g., Broadcom*, 501 F.3d at 314 (holding that "(1) in a consensus-oriented private standard setting environment, (2) a patent holder's intentionally false promise to license essential proprietary technology on FRAND terms, (3) coupled with an [SSO's] reliance on that promise when including the technology in a standard, and (4) the patent holder's subsequent breach of that promise, is actionable anticompetitive conduct").

of opportunistic behavior.[40] The utility of antitrust law to address hold-up is thus not only limited, but also restricted because such conduct is often difficult to prove in the context of standard-setting activity, especially where there are disputes regarding the interpretation of SSO policies.[41] And in the view of one appellate court, even deceptive conduct leading to patent hold-up is not enough to create antitrust liability absent a finding that the SSO would have adopted an alternative to the patented technology.[42]

Antitrust law thus cannot address even clear instances of opportunistic conduct aimed at implementers of collaboratively set standards. For instance, while the Commission may be able to reach such opportunistic conduct as the repudiation of an earlier good-faith RAND commitment through Section 5 of the FTC Act,[43] standards implementers face challenges in using antitrust law to defend against such conduct.[44] Moreover, the use of information obtained from an SSO to amend patent applications to obtain claims covering a standard, without more, has been viewed as outside the purview of antitrust law.[45]

II. TRADITIONAL EQUITABLE PRINCIPLES OFFER AN ELEGANT SOLUTION: USING EQUITABLE CONSIDERATIONS TO DENY INJUNCTIVE RELIEF TO PREVENT PATENT HOLD-UP OF COLLABORATIVELY SET STANDARDS

As neither SSO rules nor antitrust law can reliably prevent the undermining of consumer welfare caused by patent hold-up involving collaboratively set standards, another solution is required. For several reasons, we believe that the solution lies in the general principles of the equitable law of injunctions. First, the threat of injunctive relief

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[40] *See* Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (And One Not to Do)*, 48 B.C.L. REV. 149, 167-68 (2007) (discussing limited role of antitrust in policing hold-up).

[41] Cisco & RIM Comments, *supra* note 18, at 2 ("[I]t is very difficult to prove that opportunistic behavior in standards development was intentional and deceptive. Additionally, limiting hold-up to only instance of intentional and deceptive conduct ignores practical realities that many implementers of a standard face."); *see also Hynix Semiconductor Inc. v. Rambus, Inc.*, 609 F. Supp. 2d 988, 1026 (N.D. Cal. 2009) (unclear SSO policy did not include duty to disclose); *TruePosition Inc. v. Andrew Corp.*, 568 F. Supp. 2d 500, 521 (D. Del. 2008) (upholding jury finding of failure to prove equitable estoppel where SSO policy imposed duty to disclose but no deception in light of private information given to defendant). *But see Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008) (finding duty to disclose, despite unclear SSO rules, based on members' shared expectations and applying equitable estoppel).

[42] *Rambus, Inc. v. FTC*, 522 F.3d 456, 466-67 (D.C. Cir. 2008).

[43] Statement of the Federal Trade Commission, *In re Negotiated Data Solutions LLC*, No. 051-0094 (F.T.C. Jan. 23, 2008) (Statement of the Commission), *available at* http://www.ftc.gov/os/caselist/0510094/080122statement.pdf.

[44] *See, e.g.*, *Vizio, Inc. v. Funai Elec. Co.*, No. CV 09-0174 AHM (RCx), 2010 U.S. Dist. LEXIS 30850, at *14-15 (C.D. Cal. Feb. 3, 2010) (holding that repudiation of RAND commitment not exclusionary conduct). *But see Research in Motion Ltd. v. Motorola, Inc.*, 644 F. Supp. 2d 788 (N.D. Tex. 2008) (denying motion to dismiss antitrust claim based on alleged repudiation of RAND commitment).

[45] *See* Herbert Hovenkamp, *Patents, Property, and Competition Policy*, 34 J. CORP. L. 1243, 1253 (2009) ("[t]here is probably little room for application of the antitrust laws, given that the Federal Circuit has expressly approved the use of continuation and divisional applications to write updated claims on a competitor's existing products or technology").

is at the heart of the patent hold-up issue.[46] Second, the traditional principles of equity are broad enough to address both public and private concerns. Third, while equitable principles consider a patent plaintiff's deceptive or bad faith conduct, they are not limited to cases involving such conduct.

In *eBay, Inc. v. MercExchange, L.L.C.*, the Supreme Court held that whether a permanent injunction should issue in a patent case turns on the "four-factor test historically employed by courts of equity."[47] To obtain an injunction, a plaintiff must demonstrate: "(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction."[48] In considering these factors, the district courts should be guided by "traditional principles of equity."[49]

As explained below, traditional equitable principles weigh heavily against an injunction targeting a complex, multicomponent product that complies with an industry standard, once significant switching costs arise. An injunction in such a case is highly likely to give the plaintiff unwarranted hold-up power, allowing it to extort value greater than the contribution of the patented technology. Damages, by contrast, let the plaintiff fully recover for any harm from the encroachment on its property, minimizing the risk of hold-up. As we demonstrate below, these circumstances give rise to both public and private concerns that courts of equity have used to deny injunctions in analogous situations.

As the Commission already has suggested, this is particularly true if the party seeking the injunction has entered into a RAND obligation.[50] Such a patent holder has made clear its willingness to license its patent to all comers, effectively acknowledging the sufficiency of monetary compensation. Moreover, having made representations regarding the availability of a license on which the defendant—indeed an entire industry—reasonably has relied, traditional principles of equity estop such a patent holder from obtaining injunctive relief.

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[46] *See* 2011 IP REPORT, *supra* note 34, at 144 ("Where a patentee asserts a patent seeking an ex post licensing agreement, and the infringer has sunk costs in product design and production using the patented technology, switching to an alternative technology may be very costly. In that case, the patentee can use the threat of an injunction to obtain royalties covering not only the value of its invention compared to alternatives, but also a portion of the costs that the infringer would incur if it were enjoined and had to switch. This higher royalty based on switching costs is called the 'hold-up' value of the patent."); Shapiro, *supra* note 4, at 303; Lemley & Shapiro, *supra* note 2, at 1994-2017; Farrell, *supra* note 2, at 638 ("A patent holder that can credibly threaten an injunction can threaten to withdraw more surplus than its technology contributed."); Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1179-80 (2009) ("an award of injunctive relief may render the patentee substantially better off than it reasonably could have anticipated at the time of invention").

[47] 547 U.S. at 390.

[48] *Id.* at 391.

[49] *Id.* at 394.

[50] 2011 IP REPORT, *supra* note 34, at 234-235.

A. Under *eBay*, Injunctions Generally Should Be Denied When They Would Prevent Compliance With A Collaboratively Set, Widely Implemented Industry Standard

The Commission already has recommended that "[c]ourts should give careful consideration under each of *eBay*'s four factors to the consequences of issuing an injunction prohibiting use of patented technology incorporated into an industry standard."[51] Additional guidance from the Commission is needed, however, because courts are not uniformly giving the appropriate "careful consideration" to the consequences of issuing an injunction in the context of an industry-implemented standard, including when the patent holder made a RAND commitment.[52]

1. Massive Switching Costs Traditionally Weigh Heavily Against an Injunction in Non-Patent Cases

As a general rule, in the non-patent context, courts apply the traditional principles of equity to deny injunctive relief where, as in standards scenarios, massive switching costs are at stake.

In encroachment cases (and the closely aligned field of nuisance cases), courts have denied injunctions where the public maintains a strong interest in the continuance in the encroaching activity.[53] For example, where "[c]onsumers of electric light and power may suffer impairment of service if the utility's transmission lines are ordered to be removed because they trespass upon the plaintiff's land," then "the interests of the third persons militate against the injunction."[54] Courts also consider economic costs that, "though they do not directly harm the whole community, may do so indirectly."[55] Thus,

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[51] *Id.*

[52] *Compare TruePosition*, 568 F. Supp. 2d at 532 (ignoring defendant's argument that it "would suffer hardship because it [was] 'locked into practicing standardized technology'") (citation omitted), *and Commonwealth Sci. & Indus. Research Org. v. Buffalo Tech. Inc.*, 492 F. Supp. 2d 600, 602, 606 (E.D. Tex. 2007) (granting injunctive relief despite RAND commitment), *with Hynix Semiconductor Inc. v. Rambus Inc.*, 609 F. Supp. 2d 951, 978 n.21, 984-85 (N.D. Cal. 2009) (denying injunctive relief where defendant locked into industry standard "in large part because [plaintiff] did not disclose" its patents to SSO); *Telcordia Techs., Inc. v. Cisco Sys. Inc.*, 592 F. Supp. 2d 727, 751 (D. Del. 2009) (denying injunctive relief where plaintiff "did not inform the telecommunications industry that it intended to seek patent protection for the standard").

[53] *See, e.g.*, Alyson G. Barker, *Patent Permanent Injunctions and the Extortion Problem: The Real Property Analogy's Preservation of Principles of Equity*, 88 J. PAT. & TRADEMARK OFF. SOC'Y 256, 259 (2006) ("In cases dealing with nuisance, encroachment, and violation of zoning laws . . . . [C]ourts have at times recognized that an overwhelming public or third-party interest compels the denial of an injunction even where the property owner's right to exclude has been established.").

[54] RESTATEMENT (SECOND) OF TORTS § 942 cmt. b (1979); *see also Lambert v. Holmberg*, 712 N.W.2d 268, 277, 271 Neb. 443, 453 (Neb. 2006) (affirming denial of injunction to prevent connection to private sewerline where nominal impediment to the plaintiff's "exclusive rights to possession of their sewerline . . . is outweighed by the public interest in efficient and safe disposal of sewage"); *Franc v. Bethel Holding Co.*, 807 A.2d 519, 541, 73 Conn. App. 114, 145 (Conn. App. Ct. 2002) (affirming grant of compensatory damages but denial of injunctive relief for nuisance).

[55] Dan B. Dobbs, DOBBS LAW OF REMEDIES § 5.7(2), at 769 (2d ed. 1993); *cf. R.R. Comm'n of Tex. v. Pullman Co.*, 312 U.S. 496, 500 (1941) ("The history of equity jurisdiction is the history of regard for public consequences in employing the extraordinary remedy of the injunction.").

"[i]f an injunction closing or limiting the operation of the defendant's business will cause the loss of an investment, courts weigh this factor against the injunction."[56]

Relatedly, where the defendant has large sunk costs, such that the cost of the injunction for the defendant outweighs the harm to the plaintiff, injunctive relief will be denied.[57] This could be the case, for example, where "the defendant has built a substantial structure such as a house or factory in such a way that a part of it is on the plaintiff's land—eaves overhang slightly, or footings project into the plaintiff's land a few inches underground, or the structure is actually built in part on the surface of plaintiff's land."[58] In such cases, while courts will not sanction private eminent domain, they also will not countenance extortion or economic waste.[59] "If the encroachment can be removed only by destroying a part of the defendant's large building, but the harm it does to the plaintiff is quite small, the mandatory injunction would compel economic waste or else put the plaintiff in position to demand an unconscionably high price to let the building stay in place."[60]

As the Supreme Court has recognized, application of these well-established principles has resulted in "classes of controversies" in which "the public interest has been deemed so strong that a general principle of noninterference by injunction has been adopted with respect to them."[61] For example, in *City of Harrisonville v. Dickey Clay Manufacturing Co.*, the Court reversed the grant of an injunction because it would have forced a city defendant either to abandon its $60,000 sewage disposal plant, leaving the residents "to the primitive methods theretofore employed," or to build an auxiliary plant for $25,000.[62] The plaintiff, on the other hand, suffered "wholly financial" injury—$100 per year in depreciation—that was "many times" less than the annual interest on the cost of installing an auxiliary plant.[63] Given the prejudice to the public interest from an injunction, the Court found the reasons for denying the injunction "compelling."[64] The Court thus remanded, making "denial of an injunction conditional upon prompt payment

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[56] Dobbs, *supra* note 55, § 5.7(2) at 769; *see also Kratze v. Indep. Order of Oddfellows*, 500 N.W.2d 115, 118, 122, 442 Mich. 136, 139, 148 (Mich. 1993) (where building encroached by 1.2 feet, order "to remove the encroachment was not consistent with justice and equity and should be vacated"). One commentator has concluded that, at least in the Seventh Circuit, "[d]espite an exclusive right to property, where the sole purpose of an injunction is to obtain an economic windfall, the court will refuse to grant injunctive relief." Barker, *supra note* 53, at 272.

[57] RESTATEMENT OF PROPERTY § 563 (1944) ("Injunctive relief against violation of the obligation arising out of a promise respecting the use of land will be denied if the harm done by granting the injunction will be disproportionate to the benefit secured thereby.").

[58] Dobbs, *supra* note 55, § 5.10(4), at 815 (footnotes omitted).

[59] *See* Christopher M. Newman, *Patent Infringement as Nuisance*, 59 Cath. U. L. Rev. 62, 85 (2009) (suggesting that, as a general matter, "[t]here comes a point in practice when we simply do not believe that the failure of *A* and *B* to strike a deal really demonstrates that *A*'s subjective enjoyment of the resource outweighs the value that would be generated by *B*'s potential use").

[60] Dobbs, *supra* note 55, § 5.10(4), at 816.

[61] *City of Harrisonville v. Dickey Clay Mfg. Co.*, 289 U.S. 334, 338 n.2 (1933).

[62] *Id.* at 339.

[63] *Id. See Weinberger v. Romero-Barcelo*, 456 U.S. 305, 311 (1982) ("An injunction should issue only where the intervention of a court of equity 'is essential in order effectually to protect property rights against injuries otherwise irremediable.'") (quoting *Cavanaugh v. Looney*, 248 U.S. 453, 456 (1919)).

[64] *Dickey*, 289 U.S. at 338.

as compensation of an amount equal to the depreciation in value of the farm on account of the nuisance."[65] The Court's opinion in *Dickey* has been frequently cited and followed as setting forth a general guiding principle in equity.[66]

In situations where the defendant has large sunk costs, "to issue an injunction would not be doing justice. It would make the court a party to extortion."[67] That is because "[t]he brutal fact is that if the injunction were granted the defendant would probably make overtures for purchase of the space in which he were trespassing, or an easement therein, and his bargaining position would be so bad that the plaintiff might extract a large sum from him."[68] The law thus should choose damages over an exclusion remedy because the market will not succeed in establishing the true valuation of the property.[69] That choice does not leave the property owner without remedy: "[r]elief by way of damages operates to shift the harm suffered from the person who suffered it to the person who caused it."[70]

2. Damages, Rather Than Injunctive Relief, Generally Is the Appropriate Remedy Where There Is a Widely Implemented Technology Standard

These general principles of equity offer a sensible solution to the problem of patent hold-up in the context of a collaboratively set, widely implemented industry standard.

First, as with the defendant that constructs a building that intrudes onto the plaintiff's property, an injunction would impose serious hardship on the standards implementer. Even though the patent covers only a small portion or component of the product,[71] injunctive relief would require the implementer to abandon specific

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[65] *Id* at 339. *See Weinberger*, 456 U.S. at 312 ("courts of equity should pay particular regard for the public consequences in employing the extraordinary remedy of injunction").

[66] *See, e.g.*, *Salazar v. Buono*, 130 S. Ct. 1803, 1816 (2010) (plurality opinion) ("'Where an important public interest would be prejudiced, the reasons for denying the injunction may be compelling'") (quoting *Dickey,* 289 U.S. at 338); *Weinberger*, 456 U.S. at 311-12 (citing *Dickey* and holding that the Federal Water Pollution Control Act did not withdraw courts' equitable discretion and did not require enjoining all discharge of pollutants); *Exxon Corp. v. FTC,* 589 F.2d 582, 594 (D.C. Cir. 1978) (citing *Dickey* and affirming denial of injunctive relief and stating that "the burden on these particular appellants is considerably heightened by the clear public interest in maximizing the effectiveness of the investigatory powers of Congress"). Indeed, there is a direct line from the Court's reasoning in *Dickey* to *Weinberger*, and to *eBay*.

[67] RESTATEMENT (SECOND) OF TORTS § 941 cmt. c (1979).

[68] *Id.*; *see also Marseilles Hydro Power, LLC v. Marseilles Land & Water Co.*, 299 F.3d 643, 651 (7th Cir. 2002) (rejecting injunctive relief as "inequitable and indeed extortionate" because plaintiff wanted it only to induce a monetary settlement).

[69] Guido Calabresi and A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1107 (1972).

[70] RESTATEMENT OF PROPERTY § 563 cmt. b (1944).

[71] *See* 2003 IP REPORT, *supra* note 14, ch. 2, at 28 ("For example, one panelist noted that in industries such as semiconductors in which the ratio of patents to products is high, a firm cannot make a new product 'without infringing hundreds if not thousands of patents.' Another commentator concurred: participants in the semiconductor industry receive 'thousands of patents . . . each year and manufacturers can potentially infringe on hundreds of patents with a single product.'"); *id.*, ch. 2, at 34 ("None of the panelists disputed

investments made to produce standard-compliant products and to incur substantial switching costs.[72] As the Commission has recognized, it is this possibility that allows patent hold-up: if the infringer "has sunk costs" that make switching very costly, "the patentee can use the threat of an injunction to obtain royalties" that include the infringer's switching costs—the "hold-up" value of the patent.[73] The greater the hardship on the implementer, "the more an IP holder can charge for a license."[74]

Second, injunctive relief allows the patentee to hold up the standard's implementers. "A patent holder that can credibly threaten an injunction can threaten to withdraw more surplus than its technology contributed."[75] Injunctive relief shifts leverage to licensing patent holders that is not a "natural consequence of the right to exclude" but rather "comes from the ability of a patent owner to capture value that has nothing to do with its invention."[76] "In this situation, the patentee's compensation is no longer aligned with the value of its technology compared to alternatives."[77]

Third, allowing injunctive relief against a product compliant with a widely adopted industry standard adversely affects the public interest. Just as an electric utility company or sewage treatment plant benefits the public, so too do collaboratively set standards that allow for interoperability and substitution among various manufacturers' products. Consumers of certain products, such as mobile telephony, may be completely shut out of a network by injunctive relief.[78] And even if current users still have access to

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the existence of densely overlapping patent rights (i.e., a patent thicket) in the computer hardware industries. One panelist stated that more than '90,000 patents generally related to microprocessors are held by more than 10,000 parties.' Likewise, he reported, there are approximately 420,000 semiconductor and systems patents held by more than 40,000 parties. This panelist observed that the number of patents on semiconductor-related inventions has increased to the point where there is an 'unavoidable overlap' of intellectual property."); *id.*, ch. 2, at 52 ("A number of panelists confirmed the existence of a patent thicket in the software industry, which makes avoiding patent infringement very difficult.").

[72] *See* Farrell, *supra* note 2, at 619-21; Lemley & Shapiro, *supra* note 2, at 1995-2008.

[73] 2011 IP REPORT, *supra* note 34, at 58; Edith Ramirez & Lisa Kimmel, *A Competition Policy Perspective on Patent Law: The Federal Trade Commission's Report on the Evolving IP Marketplace*, THE ANTITRUST SOURCE, Aug. 2011, at 1, 5 ("[r]emedies that permit a patentee to capture the hold-up value of the patent do nothing to improve the alignment between economic value and reward in these situations because the hold-up value of the patent has nothing to do with the economic contribution of the patented technology and everything to do with the sunk costs of the infringer").

[74] 2007 IP REPORT, *supra* note 3, at 37-38.

[75] Farrell, *supra* note 2, at 638. *See also* Newman, *supra* note 59, at 63 (assuming the infringer is compelled to reach an agreement with the patent holder in the face of a looming injunction, "it is undesirable for the IP owner to command a disproportionately large share of those gains where they result primarily from the *other* party's productive investments").

[76] Ramirez & Kimmel, *supra* note 73, at 9 ("[i]njunctive relief for minor technologies incorporated into multi-component products encourages opportunism by allowing the patentee to extract a settlement that far exceeds the value of its technology"); *see also* Lemley & Shapiro, *supra* note 2, at 2009-10; Shapiro, *supra* note 4, at 301 ("patent holders gain a negotiating advantage based on hold-up when downstream firms . . . must make investments specific to the use of the patented technology prior to the resolution of uncertainty about patent validity and infringement").

[77] 2011 IP REPORT, *supra* note 34, at 144.

[78] *See, e.g.*, United States' Statement of Interest 7, *NTP, Inc. v. Research in Motion, Ltd.*, No. 3:01CV767 (E.D. Va. Nov. 8, 2005) (urging court to delay issuance of injunction to allow government to assess whether there was "a substantial public interest that would be impaired by enjoining commercial use of BlackBerry™ devices").

a network, they may eventually lose the benefits of interoperability if, as is likely, the enjoined implementer no longer provides such services as software updates and patches.

The public interest is further at risk because an injunction may have an industry-wide impact. Because of interoperability and network effects, an injunction against one standards implementer can bring down the standard. To switch away from the infringing technology would require the industry to abandon its substantial investments in the standard and develop a new one.[79] In effect, therefore, an injunction against one implementer can be an injunction against the industry.

This reality means that the economic costs of an injunction against an implementer of a widely adopted industry standard are not solely borne by the particular defendant but also by the public. Consumers are harmed if the industry is forced to move to a new standard. "[D]eveloping an alternative standard could be costly and may delay the introduction of a new product."[80] Consumers thus may bear the costs of switching and of delay. Moreover, consumers who purchased the standard-compliant product may be stranded in the old standard, their products not being compatible with the new standard.[81] Consumers also are harmed if the industry does not move to a new standard. Implementers are forced to pay hold-up royalties, which may be passed down to consumers.[82] Moreover, the threat of hold-up diminishes incentives to innovate improvements to standard-compliant products.[83]

Denying injunctive relief in these situations will not decrease dynamic efficiency. As the Commission has determined, the threat of injunctive relief can lead to *overcompensation* of patent holders, not undercompensation.[84] Disfavoring injunctive

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[79] 2007 IP REPORT, *supra* note 3, at 38.

[80] *Id.* at 37.

[81] *See* Carl Shapiro, *Setting Compatibility Standards: Cooperation or Collusion?*, *in* EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY 81, 88 (Rochelle Cooper Dreyfuss, et al., eds., 2001) (describing stranding effect).

[82] *See* 2007 IP REPORT, *supra* note 3, at 36-40 & n.17; *see also* Ramirez & Kimmel, *supra* note 73, at 4 ("This ex post shift in bargaining power can encourage inefficient strategic behavior by patentees and distort the incentives of firms to invest in follow-on technologies or the resources needed to bring a product to market. Moreover, the additional royalty payments may be passed along to consumers in the form of higher prices on final products."); 2007 IP REPORT, *supra* note 3, at 40 n.31 ("Nov. 6 Tr. at 26-27 (Farrell) ('I think it's also relevant to observe that to the extent that the people paying royalties are competing against each other and are all — or believe that they're all paying roughly the same royalty, there's a lot of pass-through, so it's the final consumer rather than these competitors who end up paying.')"); Cotter, *supra* note 46, at 1174 (discussing patent hold-up as a form of market failure); Merges & Kuhn, *supra* note 21, at 11 (standards-related patent opportunism "strategies are inefficient" and do not advance the goal of "providing incentives for innovation"); Anne Layne-Farrer, Gerard Llobet & A. Jorge Padilla, *Preventing Patent Hold Up: An Economic Assessment of Ex Ante Licensing Negotiations in Standard Setting*, 37 AIPLA Q.J. 445, 455 (2009) ("This type of hold up bargain destroys the incentives to invest in the first place.").

[83] *See, e.g.*, Cotter, *supra* note 46, at 1168-69; 2011 IP REPORT, *supra* note 34, at 227 ("The risk that patentees that have made no technical contribution to a product can extract hold-up value from manufacturers increases uncertainty and costs and discourages innovation by those manufacturers.").

[84] 2011 IP REPORT, *supra* note 34, at 144; *see also id.* at 226-27 (demonstrating fallacy of arguments in Gregory Sidak, *Holdup, Royalty Stacking and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714 (2008), Einer Elhauge, *Patent Holdup and Royalty*

relief therefore would ensure that patent holders obtain appropriate returns, either through a negotiated license or court-awarded monetary relief.[85] Moreover, injunctive relief against standards implementers is not necessary to encourage innovation; substantial empirical evidence demonstrates that obtaining rewards from patents is hardly the only force driving innovation in industries characterized by collaborative standard setting.[86]

To avoid these undesirable results, damages, not injunctive relief, generally should be the remedy when an injunction would prevent compliance with a widely adopted industry standard. "[D]enying [injunctive] relief is the most powerful way to prevent patent holdup and realign the incentives in patent licensing negotiations."[87] Such a guiding principle fully accords with *eBay*, as it is merely an application of the "traditional principles of equity."[88] As the Chief Justice noted in his *eBay* concurrence, "there is a difference between exercising equitable discretion and writing on an entirely clean slate."[89] "'[L]imiting discretion according to legal standards helps promote the basic principle of justice that like cases should be decided alike.'"[90]

Such a categorical legal standard is warranted, even outside the standards context, when a defendant has massive sunk costs and the allegedly infringing technology is only part of a complex multicomponent product or network. This should be recognized as one of the "classes of controversies" where the public interest is "so strong that a general principle of noninterference by injunction" should be adopted.[91] The harm to the public interests from injunctive relief in this context is precisely the same as the harms recognized by traditional equity cases. Injunctive relief not only results in economic

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Stacking, 4 J. COMPETITION L. & ECON. 535 (2008), and Vincenzo Denicolò, et al., *Revisiting Injunctive Relief: Interpreting eBay in High-Tech Industries with Non-Practicing Patent Holders*, 4 J. COMPETITION L. & ECON. 571 (2008)); Shapiro, *supra* note 4, at 302-07 (rebutting criticisms of policy recommendation to limit injunctive relief).

[85] Because court-awarded monetary relief is determined under the assumption that the patent is valid and infringed, such relief errs in favor of awarding adequate returns for innovation. *See* 2011 IP REPORT, *supra* note 34, at 167 ("This assumption ensures that the patentee, having incurred the risk and burden of trial and prevailed, is fully compensated.").

[86] *See, e.g.*, 2003 IP Report, *supra* note 14, ch. 3, at 1-3; James Bessen & Michael J. Meurer, PATENT FAILURE : HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 92 (2008) (returns on innovation appropriated through different means in different industries); Wesley M. Cohen, Richard R. Nelson & John P. Walsh, *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (Or Not)*, NBER Working Paper No. 7552 (2000) (finding that patents are more important drivers of innovation in certain industries, and observing that firms in the electronics industry patent for defensive reasons); Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The patent paradox revisited: an empirical study of patenting in the U.S. semiconductor industry*, 1979-1995, 32 RAND J. ECON. 101-128 (2001) (discussing strategy of obtaining patents to use as "bargaining chips").

[87] Lemley, *supra* note 40, at 167.

[88] *eBay*, 547 U.S. at 394.

[89] *Id.* at 395 (Roberts, C.J., concurring). The Federal Circuit recently reiterated that "'[C]ourts of equity must be governed by rules and precedents no less than the courts of law . . . [because] the alternative is to use each equity chancellor's conscience as a measure of equity, which alternative would be as arbitrary and uncertain as measuring distance by the length of each chancellor's foot. . . .'" *Therasense, Inc. v. Becton, Dickinson & Co.*, Nos. 2008-1511, 2008-1512, 2008-1514, 2088-1595, 2011 U.S. App. LEXIS 10590, at *42-43 (Fed. Cir. May 25, 2011) (quoting *Lonchar v. Thomas*, 517 U.S. 314, 323 (1996)).

[90] *eBay*, 547 U.S. at 395. (quoting *Martin v. Franklin Capital Corp.*, 546 U.S. 132, 139 (2005)).

[91] *Dickey*, 289 U.S. at 338 n.2.

waste and invites extortionate conduct. It places the patent holder in an unwarranted bargaining position that far outstrips the value of the patent's invention. These additional economic burdens are in turn borne directly by the consumer of the implementer's products. Even economic costs that are not passed directly to consumers can harm the public interest indirectly.

Indeed, where traditional equitable principles would counsel against an injunction in the real property context, an injunction is even less warranted in the patent context. The Supreme Court in *eBay* observed that "the creation of a [property] right [for patents] is distinct from the provision of remedies for violations of that right," [92] implicitly recognizing that protecting a patent property right does not necessarily require a property remedy.[93] Moreover, one of the basic justifications for injunctions in the real property context does not apply with equal force in the patent context. Because real property is a good that can only be used by one party at a time, and use by another diminishes its future availability, injunctions are advanced to prevent a tragedy of the commons through overconsumption of the property.[94] This rationale does not apply in the patent context, because multiple parties can use a patent simultaneously; the use of a patent does not diminish its ability to be used by the patent holder or others in the future.[95] Rather, patents may give rise to the opposite problem: too many property owners with a right to exclude results in an underuse of resources.[96] This tragedy of the anti-commons reduces consumer welfare[97] and counsels against injunctive relief.

B. Injunctions Should Be Denied To Holders Of Patents Subject To RAND Commitments

Injunctions are particularly unwarranted when the patent is subject to a previous commitment to an SSO to license its technology on RAND terms. In that situation, not only do the above traditional equitable principles counsel against an injunction, additional ones do as well. First, a holder of a patent subject to a RAND commitment will neither be able to show that monetary damages are insufficient to compensate for their injury nor to establish the requisite irreparable harm. Second, the representation that the patent may be licensed by all comers, and the reliance by implementers of the standard on that representation, estops the patent holder from seeking injunctive relief. These considerations warrant denial of injunctive relief even when the potential licensee claims that the patent is invalid or not infringed or that the royalty sought is too high.

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[92] 547 U.S. at 392.

[93] *See* Peter Lee, *The Accession Insight and Patent Infringement Remedies*, UC Davis Legal Studies Research Paper No. 246 (Feb. 2011).

[94] *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

[95] *See* Lee, *supra* note 93, at 49 (suggesting that "in some sense, the nonrival nature of intellectual property provides opportunities for shared access and simultaneous exploitation that physical property does not").

[96] *See* Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 624, 677 (1998).

[97] *See* Michael Heller, THE GRIDLOCK ECONOMY: HOW TOO MUCH OWNERSHIP WRECKS MARKETS, STOPS INNOVATION, AND COSTS LIVES 49-106 (2008).

1. A RAND Commitment Precludes Claims that Monetary Relief Is Insufficient or that the Patent Holder Will Suffer Irreparable Harm Absent Injunctive Relief

As *eBay* reiterated, the traditional test for an injunction requires both a showing that the remedies at law, including money damages, are insufficient and a showing of irreparable injury.[98] In the usual case, a RAND commitment will preclude the ability to make either showing.

a. Monetary Relief Is Sufficient

In all but the very rare case, a holder of a patent subject to a RAND commitment cannot establish that monetary relief is insufficient. By definition, a RAND commitment obligates a patent holder, in exchange for reasonable compensation, to license its technology to an entire industry. That commitment is, in essence, an acknowledgement that monetary relief is sufficient to compensate the patent holder for the use of its invention.[99] And the initial acknowledgement is made during the standards-setting process, at a time when the patent holder faces competitive pressures from rival technologies that the SSO members might choose for the standard. Once that competitive threat has abated, and the industry is locked into the standard, it is even harder to see how the patent holder credibly can claim that money is not enough.[100]

Current precedent supports the conclusion that agreeing to license broadly on RAND terms demonstrates that monetary relief is sufficient. The Federal Circuit and lower courts recognize that "the fact a patentee has previously chosen to license the patent may indicate that a reasonable royalty does compensate for an infringement."[101] To be sure, where a patent holder has agreed only to selectively license—*i.e.*, to license to some but not others—such a willingness to license is simply "one factor for the district court to consider" when considering whether injunctive relief is appropriate.[102] But when the patent holder has "engaged in a *pattern* of granting licenses under the patent," the Federal Circuit has recognized that it is "reasonable to expect that invasion of the patent right can be recompensed with a royalty rather than with an injunction."[103] For example,

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[98] *eBay*, 574 U.S. at 391.

[99] *See, e.g.*, Miller, *supra* note 35, at 358 (RAND commitment is a grant to "the adopter community [of] an irrevocable right to use [the patent holder's] patented technology to comply with the standard in exchange for a reasonable royalty and other reasonable terms, the details of which are negotiated later without any possibility of a court injunction").

[100] Doug Lichtman, *Understanding the RAND Commitment*, 47 HOUS. L. REV. 1023, 1033 (2010) (SSO participants do not "opt for RAND in order to randomly and artificially increase each patent holder's ultimate leverage").

[101] *See, e.g.*, *Acumed LLC v. Stryker Corp.*, 551 F.3d 1323, 1328 (Fed. Cir. 2008); *Hynix*, 609 F. Supp. 2d at 985-86 (finding the willingness of the patent holder to license its technology evidence that the patent holder "is primarily concerned with monetary compensation").

[102] *Acumed*, 551 F.3d at 1328; *see eBay*, 547 U.S. at 393 (rejecting a categorical rule that willingness to license establishes a lack of irreparable harm in context of selective licensing).

[103] *Polymer Techs., Inc. v. Bridwell*, 103 F.3d 970, 974 (Fed. Cir. 1996) (emphasis added); *see Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1362 (Fed. Cir. 2008) (observing in the preliminary injunction context that a patentee that is "simply interested in obtaining licenses, without itself engaging in commerce

on remand in *eBay*, the district court concluded that the harm to the plaintiff was "compensable in monetary damages" because it had "continued to follow a consistent course of licensing its patents to market participants and is plainly willing to accept royalties for future utilization of the patent."[104] Of course, a RAND commitment goes even further—it is not merely a pattern or consistent practice of licensing, but a promise to license to any and all takers on reasonable terms. In that situation, it should be the rarest of cases (if any) in which such a patent holder can establish that monetary relief is insufficient.

b. Irreparable Harm Is Highly Unlikely

The sufficiency of monetary relief is, under traditional equitable principles, alone enough to preclude injunctive relief. But injunctive relief is inappropriate for another reason: it is highly unlikely that a holder of a patent subject to a RAND commitment can establish irreparable injury.

Just as the RAND commitment makes it implausible that monetary relief is insufficient, it also undermines any claim of irreparable harm from the invasion of the patent holder's right to exclude. Even a patent holder's selective licensing of its technology weighs heavily against injunctive relief, as that demonstrates that the patentee is "willing, ultimately, to forgo its exclusive rights for some manner of compensation."[105] The RAND commitment demonstrates not just willingness to forgo that right, it is an agreement to do so.

Furthermore, other equitable considerations that generally bear on the irreparable harm inquiry—such as whether the patent holder is practicing or is in direct market competition with the infringer—do not weigh in favor of injunctive relief when a RAND commitment has been made. The RAND commitment is a promise to license competitors and non-competitors alike, and without regard to whether the patent holder practices the invention. In that context, Justice Kennedy's admonitions in his *eBay* concurrence regarding non-practicing entities (NPEs) are applicable. As with NPEs, a patent holder with a patent subject to a RAND commitment is using the patent "primarily for obtaining licensing fees."[106] Just as with NPEs, "an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent."[107] This is particularly true "[w]hen the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations."[108] In accordance with Justice Kennedy's concurrence,

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. . . may add weight to permitting infringing activity to continue during litigation, on the premise that the patentee is readily made whole if infringement is found").

[104] *MercExchange, L.L.C. v. eBay, Inc.*, 500 F. Supp. 2d 556, 569 (E.D. Va. 2007).

[105] *Advanced Cardiovascular Sys., Inc. v. Medtronic Vascular, Inc.*, 579 F. Supp. 2d 554, 560 (D. Del. 2008) (noting that the plaintiff's "willingness to forego its patent rights for compensation support[ed] the court's conclusion that ACS will not suffer irreparable harm absent an injunction").

[106] *eBay*, 547 U.S. at 396 (Kennedy, J., concurring).

[107] *Id.*

[108] *Id.*

the court in *Ricoh Co. v. Quanta Computer, Inc.* rejected a nonpracticing entity's motion for a permanent injunction and instead instructed the parties to negotiate a license among themselves.[109] That same rationale applies in the RAND context. If the patent holder who is avowedly willing to license is unable to come to an agreement about a reasonable rate, any litigation that results is not about vindicating the right to exclude but about the reasonableness of royalty rates—e.g., a damages suit.

2. A RAND Commitment Estops Injunctive Relief

Traditional principles bar injunctive relief for yet another reason: a RAND commitment estops the patent holder from seeking such relief.

When a party makes a representation of fact to induce another to act, and the other reasonably relies to his detriment, the party is estopped from seeking relief in equity. This principle should bar injunctive relief here, and limit the patent holder to royalties. In making a RAND commitment, a patent holder makes a representation regarding the availability of a license upon which members of the standard setting organization (and often the industry in general) reasonably rely, incurring significant sunk costs.[110] Under these circumstances, the patent holder should be estopped from seeking injunctive relief.[111] "[W]here the patent holder makes an unconditional promise to license on RAND terms, and where the SSO acts in reliance on that assurance in issuing its standard, and economic benefits accrue to the patent holder as a result of the standard's issuance," the "patent holder must be viewed as having surrendered its right to exclude those implementers willing to take a license on RAND terms."[112]

3. Patent Holder Counter-Arguments Are Unavailing

In the face of these compelling equitable principles, some argue that injunctive relief should nonetheless be available despite a RAND commitment when the standards implementer either (1) refuses to take a license on the basis that the royalty rate is not "reasonable"; (2) challenges the validity of the patent; or (3) defends on grounds of non-infringement. None of these situations warrants injunctive relief.

The first argument—that injunctive relief should be allowed where an implementer rejects a royalty demand as too high—would simply reinstate the RAND-committed patent holder's ability to engage in hold-up. A patentee would be able to

[109] No. 06-cv-462-bbc, 2010 U.S. Dist. LEXIS 38220, at *2-3 (W.D. Wis. Apr. 19, 2010).

[110] *See Broadcom*, 501 F.3d at 314 (explaining how a standard can create "lock-in," and how a patent holder, by making a RAND commitment, can induce reliance).

[111] A RAND commitment may also signify "a patentee's waiver of the statutory right to exclude others from making, using, or selling the patented invention," i.e., an implied license, legally estopping the patent holder from seeking an injunction. *See Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571, 1580-81 (Fed. Cir. 1997).

[112] Brief of Atheros Commc'ns, et al. as Amici Curiae in Support of Defendants-Appellants and Vacature of Permanent Injunction at 24, *Commonwealth Scientific & Indus. Research Org. v Buffalo Tech. (USA), Inc.*, No. 07-1449, 2007 WL 4618639 (Fed. Cir. Dec. 10, 2007) (joined by Belkin International, Inc., Consumer Electronics Association, Dell Inc., Hewlett-Packard Co., Intel Corp., Netgear, Inc., Nortel Networks, Inc., Nvidia Corp., Oracle Corp., Sap AG, and Yahoo! Inc.).

obtain an injunction by demanding an unreasonable royalty, thereby prompting the implementer's rejection. Allowing injunctive relief merely because the potential licensee rejects a patent holder's royalty demand would thus allow the patent holder once again to obtain the "hold-up" value of the patent.[113] But equitable relief in the form of an injunction is "not intended as a club to be wielded by a patentee to enhance his negotiating stance."[114]

If the potential licensee refuses to meet a reasonable royalty demand that it is required to pay, the patent holder can get it in court. It does not need the power to seek an injunction to do that. Nor is the threat of injunctive relief is not necessary for parties to negotiate licenses short of litigation. Potential licensees have ample incentives to take a license on reasonable terms. These include high transactions costs, such as uncertainty in business planning and the threat of having to incur significant litigation expenses. Such expenses through trial average $6.25 million for patent cases with greater than $25 million in damages at risk.[115] In addition, potential licensees face the prospect of court-awarded damages that exceed the royalty that could be obtained in pre-litigation negotiations.[116] The patentee's pre-litigation demands are discounted by the chance that the patent will be found invalid or not infringed. By contrast, the court-awarded relief is not so discounted. Moreover, in an appropriate "exceptional" case, a potential licensee could be subjected to attorneys' fees.[117] These risks deter bad faith negotiation tactics by potential licensees.

The second argument—that injunctive relief should be allowed when an implementer makes a validity challenge—flies in the face of public policy. Both patent and competition law are served when questionable patents are challenged.[118] Allowing injunctive relief in such situations would create a severe disincentive to bring a validity challenge, insulating potentially invalid patents from scrutiny and harming the public.[119]

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[113] 2011 IP REPORT, *supra* note 34, at 144.

[114] *Foster v. Am. Mach. & Foundry Co.,* 492 F.2d 1317, 1334 (2d Cir. 1974); *see also MercExchange, L.L.C.,* 500 F. Supp. 2d at 572 (cautioning that patent holders can "negotiate to maximize the value of a license, entered into as a settlement to, or avoidance of, litigation").

[115] Am. Intellectual Property Law Ass'n, *Report of the Economic Survey 2009*.

[116] *See* 2011 IP REPORT, *supra* note 34, at 167; Edward F. Sherry & David J. Teece, *Royalties, Evolving Patent Rights, and the Value of Innovation*, 33 RESEARCH POLICY 179, 183-85 (2004) (showing that royalty of patent shown to be valid and infringed exceeds value before such a showing, preventing a "heads I win, tails I break-even" litigation strategy). In contrast, a threat of injunctive relief or enhanced damages will result in "exaggerated" damages. Lichtman, *supra* note 100, at 1039-43; *see also* Miller, *supra* note 35, at 375 ("Such a holdup cannot occur, however, if the court confronted with a license dispute interprets the RAND promise, consistent with its core function, as an irrevocable waiver of the patentee's right to extraordinary relief for infringement, i.e., an injunction (preliminary or permanent) or enhanced damages for willful or bad faith infringement.").

[117] 35 U.S.C. § 285 (award of attorneys' fees limited to exceptional cases).

[118] *See Cardinal Chem. Co. v. Morton Int'l, Inc*., 508 U.S. 83, 100-01 (1993) (noting the "importance to the public at large of resolving questions of patent validity"); *Edward Katzinger Co. v. Chicago Metallic Mfg. Co.,* 329 U.S. 394, 400 (1947) (noting the "necessity of protecting our competitive economy by keeping open the way for interested persons to challenge the validity of patents which might be shown to be invalid").

[119] *See Blonder-Tongue Labs., Inc. v. University of Ill. Found*., 402 U.S. 313, 349-50 (1971) (describing the Court's "consistent view" that "the holder of a patent should not be insulated from the

The third argument—that injunctive relief should be allowed where an implementer defends on non-infringement grounds—also would harm the public interest. The policy would punish an implementer for seeking to design and use a non-infringing alternative to the patented technology. Patent law, however, encourages such efforts: "One of the benefits of a patent system is its so-called 'negative incentive' to 'design around' a competitor's products, even when they are patented, thus bringing a steady flow of innovations to the marketplace."[120] Punishing an implementer for making a non-infringement challenge would create a disincentive to design around patents and thereby harm consumer welfare.

CONCLUSION

In sum, the traditional principles of equity weigh heavily against an injunction where a defendant has large sunk costs and the allegedly infringing technology is only part of a complex multicomponent product or network. Courts of equity long have recognized that allowing an injunction in analogous situations creates economic waste and allows the plaintiff more than the worth of its contribution. Such injunctions also may directly harm the public interest, including downstream producers and consumers who ultimately pay the added costs. Damages, not injunctive relief, are the appropriate remedy. This is particularly true where the plaintiff is seeking an injunction for the infringement of a patent that is subject to a RAND commitment. Only in the rarest of cases will such a plaintiff be able to establish that monetary relief is insufficient and that it will suffer irreparable harm absent an injunction.

assertion of defenses and thus allowed to exact royalties for the use of an idea that is not in fact patentable or that is beyond the scope of the patent monopoly granted"); *United States v. Singer Mfg. Co.*, 374 U. S. 174, 199 (1963) (White, J., concurring) (agreement not to challenge patents violated antitrust law and subverted public policy).

[120] *State Indus. Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed. Cir. 1985); *see also Westvaco Corp. v. International Paper Co.*, 991 F.2d 735, 746 (Fed. Cir. 1993) ("Designing or inventing around patents to make new inventions is encouraged.").