

STANDARD SETTING, PATENTS, AND ACCESS LOCK-IN: RAND LICENSING AND THE THEORY OF THE FIRM

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INTRODUCTION

Voluntarily established compatibility standards pervade the information and communications technology (“ICT”) sectors, touching everything from basic internet and wireless communication protocols to the design of computer buses, ports, and peripherals. The standards embodied in detailed product and process specifications, which facilitate smooth interoperability among parts provided by competing suppliers, “are an inevitable outgrowth of *systems*, whereby *complementary products work in concert to meet users’ needs*.”¹ As the ICT sectors grow in importance, so too do voluntary standard-setting organizations (SSOs).²

ICT firms also avidly pursue U.S. utility patents.³ The rates at which

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1. Carl Shapiro, *Setting Compatibility Standards: Cooperation or Collusion?*, in EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY 81, 82 (Rochelle Cooper Dreyfuss et al. eds., 2001) (emphasis in original).

2. *See id.* at 97 (“As more and more products work in conjunction to form systems, interface standards play a bigger and bigger role in the economy. And, as computer and communications systems encompass a larger portion of economic activity, compatibility standards become an ever-more important aspect of competitive strategy.”); CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 228 (1999) (“Network economics and positive feedback make cooperation more important than ever. Most companies need to cooperate with others to establish standards and create a single network of compatible users.”). For example, demonstrating that standard-setting activity has grown to the point where it attracts the sustained attention of a large numbers of scholars, in 2002 the publisher Idea Group launched an academic journal entitled *International Journal of IT Standards & Standardization Research*. *See* IDEA GROUP, INC., *Int’l J. of IT Standards & Standardization Research*, <http://www.idea-group.com/jitsr> (last visited Jan. 8, 2007) (describing the journal).

3. Utility patents cover useful, new, and nonobvious products and processes. 35 U.S.C. §§ 101-103 (2000). This is the type of patent that most people think of as simply a patent. The two other types of patents—design patents (which cover new, original, and ornamental designs for articles of manufacture, 35 U.S.C. §§ 171-173 (2000)), and plant patents (which cover distinct and new varieties of plants that are asexually reproduced, 35 U.S.C. §§ 161-164 (2000))—are not

inventors seek and obtain U.S. utility patents have grown significantly since the mid-1980s.⁴ With respect to computer technology, this growth has been spurred, at least in part, by two important court decisions squarely embracing the patentability of computer software inventions.⁵ Whatever the cause, the annual lists of the top twenty-five recipients of U.S. patents from 1995 to 2003 read like a “Who’s Who” of ICT firms: IBM has been the top patent recipient in each of those years; the others include (in alphabetical order) Advanced Micro Devices, Canon, Fujitsu, General Electric, Hewlett-Packard, Hitachi, Intel, Lucent, Matsushita, Micron Technologies, Motorola, NEC Corp., Philips, Samsung, Sharp, Siemens, Sony, Sun Microsystems, Toshiba, Xerox.⁶ Their respective patent holdings are, of course, just the tip of the iceberg.

Given that both standard setting and intellectual property (“IP”) protection are common to the forward edge of ICT, it is not surprising that “SSOs increasingly encounter situations in which one or more companies claim to own proprietary rights that cover a proposed industry standard.”⁷ The “[t]wo sets of rules” that overlap in this situation—one for IP, another for interoperability standards on products embodying IP—“are critical for the long-run prospects of the economy.”⁸ Moreover, the tension created by the union of patent rights (the

pertinent here.

4. The marked increase in U.S. utility patent application and grant rates is both well-documented and frequently discussed, often in terms of “exploding” growth or an “explosion.” See, e.g., Nancy J. Linck et al., *A New Patent Examination System for the New Millennium*, 35 HOUS. L. REV. 305, 307 (1998); Note, *Estopping the Madness at the PTO: Improving Patent Administration Through Prosecution History Estoppel*, 116 HARV. L. REV. 2164, 2165 (2003). For a compact graphical depiction of the growth in annual U.S. utility patent application filings and grants from 1960 to 2001, see WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 340, fig. 12.1 (2003).

5. See *AT&T Corp. v. Excel Commc’ns, Inc.*, 172 F.3d 1352, 1361 (Fed. Cir. 1999) (overturning trial court decision rejecting computer invention as unpatentable subject matter); *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1377 (Fed. Cir. 1998) (same); see also John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 990-91 & n.7 (2003) (discussing the spike in patent applications on software-embodied business methods in the wake of the *State Street* and *Excel* cases).

6. The pertinent Patent Office report is called “Patenting by Organizations.” See, e.g., OFFICE OF ELEC. INFO. PRODS., U.S. PATENT & TRADEMARK OFFICE, *PATENTING BY ORGANIZATIONS* (2003), available at http://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports_topo.htm#TOPO (follow “Links to Report: Patenting by Organizations Report, 2003”).

7. Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1893 (2002); see also Knut Blind & Nikolaus Thumm, *Intellectual Property Protection and Standardization*, 2 J. IT STANDARDS & STANDARDIZATION RES. 61, 63 (2004) (“Since [intellectual property rights] tend[] to concentrate in the areas of greater technical complexity, it becomes virtually impossible to adopt a standard without incorporating proprietary material.”).

8. Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 1 (2005).

purpose of which is to encourage investment in innovation by conferring a right to exclude competitors from using a technology) and group-set standards (the purpose of which is to give competing market actors a common, accessible specification around which to build and compete) is fundamental. It is the tension between free access and tight control.⁹

SSOs respond to this tension between common access and proprietary control by choosing an approach to participants' patent rights that falls somewhere along the continuum from closed (i.e., there is no stated patent policy at all, leaving default patent rules in place) to open (i.e., the policy requires participants to make any standard-pertinent patent available to all comers on a royalty free basis).¹⁰ What has come to be the most common patent policy "occup[ies] a middle ground,"¹¹ requiring those who participate in setting a standard to promise to license, on reasonable and nondiscriminatory terms ("RAND"), the patents they own that prove essential to implementing the standard. In his empirical study of patent policies among telecommunications and computer-networking SSOs as they stood in June 2002, Professor Lemley found that thirty-six of the forty-three SSOs (i.e., eighty-four percent) had written IP policies and that twenty-nine of the thirty-six written policies (i.e., eighty-one percent) required the SSO's participants to promise to license their patents on RAND terms.¹²

9. As Professor Farrell explained more than fifteen years ago, "if technology used in a proposed standard is protected, as by patents or copyright, then its owner would benefit much more from the standard's adoption than would others." Joseph Farrell, *Standardization and Intellectual Property*, 30 JURIMETRICS J. 35, 43 (1989). As a result, "the more a standards body becomes an arena in which to fight over intellectual-property spoils, the less likely it is to reach rapid agreement on choosing the 'best' technology, or on any choice at all." *Id.*; see also *id.* at 44 ("strong intellectual property protection probably retards formal standardization because it increases vested interests"); Robert P. Feldman et al., *The Effect of Industry Standard Setting on Patent Licensing and Enforcement*, IEEE COMM. MAG., July 2000, at 112 ("The ideal of open, widely promulgated standards is at odds with a patent owner's right to exclude others from making, using, or selling the patented invention . . . [because this right] would serve to undermine rapid and widespread adoption of the standard, resulting in reduced value of the standard.").

10. See Lemley, *supra* note 7, at 1901-02 (describing this continuum of policies).

11. *Id.* at 1902.

12. *Id.* at 1904, 1906 & n.48. In this study, Professor Lemley "surveyed the rules and bylaws of forty-three different SSOs . . . to which companies in the telecommunications and computer-networking industries, where many of the most contentious IP issues arise, were likely to belong." *Id.* at 1903. The study's Appendix summarizes the IP policies of the different SSOs. *Id.* at 1973-80. A more recent empirical study of SSO patent policies observed a similar, albeit smaller, rate of RAND licensing: Of the fifty-nine SSOs the authors studied, thirty-six (i.e., sixty-one percent) had patent policies requiring, at a minimum, RAND licensing. Benjamin Chiao et al., *The Rules of Standard Setting Organizations: An Empirical Analysis*, in NEGOTIATION, ORGS. & MARKETS RES. PAPERS (Harvard NOM Research Paper No. 05-05), Feb. 9, 2005, at 26 tbl. 1, available at <http://ssrn.com/abstract=664643>.

Other students of voluntary standard setting have noted that SSOs most often condition participation on agreement to a RAND policy. See, e.g., CARL F. CARGILL, OPEN SYSTEMS

Indeed, the RAND policy has become so popular that it has been incorporated into both copyright law¹³ and federal procurement policy.¹⁴ Most SSOs also require participants to disclose standard-pertinent patents and other intellectual property rights of which they are aware, although these requirements are far more varied in their details than the RAND policies.¹⁵

STANDARDIZATION: A BUSINESS APPROACH 31-32 (1997) [hereinafter CARGILL, OPEN SYSTEMS]; Carl Shapiro, *Navigating the Patent Thicket: Cross-Licenses, Patent Pools, and Standard Setting*, in *INNOVATION POLICY AND THE ECONOMY* 119, 128 (Adam Jaffe et al. eds., 2000), available at <http://faculty.haas.berkeley.edu/shapiro/thicket.pdf>; Michael G. Cowie & Joseph P. Lavelle, *Patents Covering Industry Standards: The Risks to Enforceability Due to Conduct Before Standard-Setting Organizations*, 30 *AIPLA Q.J.* 95, 100 (2002); Michael J. Schallop, *The IPR Paradox: Leveraging Intellectual Property Rights to Encourage Interoperability in the Network Computing Age*, 28 *AIPLA Q.J.* 195, 226-27 (2000).

13. See 17 U.S.C. § 512(i)(1)(B), (2)(A) & (B) (2000) (conditioning eligibility for safe harbors against copyright infringement liability on an Internet service provider's accommodation of "standard technical measures," and defining such measures as those which, *inter alia*, result from a "multi-industry standards process" and "are available to any person on reasonable and nondiscriminatory terms"). The statute does nothing to specify what constitutes "reasonable and nondiscriminatory terms" for purposes of § 512, and the three congressional committee reports on the Act are utterly silent on this point. See H.R. REP. NO. 105-796, at 72-76 (1998) (Conf. Rep.), as reprinted in 1998 U.S.C.C.A.N. at 639, 649-652 (relevant portion of section-by-section analysis); H.R. REP. NO. 105-551, pt. 2, at 49-66 (July 22, 1998) (same); H.R. REP. NO. 105-551, pt. 1, at 24-29 (1998) (same); S. REP. NO. 105-190, at 40-56 (1998) (same). There are, to date, no reported cases on what constitutes "reasonable and nondiscriminatory terms" for purposes of this copyright provision.

14. In Office of Management & Budget Circular A-119, entitled *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, OMB "directs [federal] agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical." OFFICE OF MGMT. & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, OMB CIRCULAR NO. A-119, FEDERAL PARTICIPATION IN THE DEVELOPMENT AND USE OF VOLUNTARY CONSENSUS STANDARDS AND IN CONFORMITY ASSESSMENT ACTIVITIES § 1 (1998), available at <http://www.whitehouse.gov/omb/circulars/a119/a119.html>. Specifically, "[a]ll federal agencies must use voluntary consensus standards in lieu of government-unique standards in their procurement and regulatory activities, except where inconsistent with law or otherwise impractical." *Id.* § 6. The Circular expressly defines "voluntary consensus standards" to include RAND licensing: "These standards include provisions requiring that owners of relevant intellectual property have agreed to make that intellectual property available on a non-discriminatory, royalty-free or reasonable royalty basis to all interested parties." *Id.* at § 4(a).

15. According to Professor Lemley, "[t]he majority of SSOs that had a policy (twenty-four of thirty-six) imposed either an express or implied obligation that members disclose IP rights of which they are aware. . . . There was greater variation, however, with respect to what must be disclosed." Lemley, *supra* note 7, at 1904. He also notes that, although "SSOs are remarkably diverse in their IP rules," the RAND promise is a "notable example" of the fact that "there are specific terms that seem to have been widely adopted." *Id.* at 1954 & n.272.

What, then, does the promise to license on reasonable and nondiscriminatory terms mean in detail? This very question has absorbed the attention of several legal and economics commentators in the last few years.¹⁶ This literature has quickly converged on three consensus points about the meaning of the RAND promise. First, the nondiscrimination part of the promise is straightforward, requiring that participants license similarly situated adopters on the same terms.¹⁷ Perhaps most important, as Swanson & Baumol explore at length in their recent article on RAND licensing, an SSO participant who competes downstream with other adopters in the market for the standardized technology must treat its adopter-licensees no less favorably than it treats itself.¹⁸ In other words, it should charge licensees what it “implicitly charges itself for use of the [intellectual] property.”¹⁹

Second, when patent-owner participants negotiate royalty rates with adopters, “[r]easonable *should* mean the royalties that the patent holder could obtain in open, up-front competition with other technologies, not the royalties that the patent holder can extract once other participants are effectively locked in to use technology covered by the patent.”²⁰ Patent law’s default damages rule, which

16. See SHAPIRO & VARIAN, *supra* note 2, at 199-200, 238, 241; Shapiro, *supra* note 12, at 128, 136; Cowie & Lavelle, *supra* note 12, at 140-50; James C. DeVellis, *Patenting Industry Standards: Balancing the Rights of Patent Holders With the Need for Industry-Wide Standards*, 31 AIPLA Q.J. 301, 346-48 (2003); Lemley, *supra* note 7, at 1912-18, 1923-27, 1948-57; Mark R. Patterson, *Inventions, Industry Standards, and Intellectual Property*, 17 BERKELEY TECH. L.J. 1043, 1056-73 (2002); Schallop, *supra* note 12, at 227; Swanson & Baumol, *supra* note 8, at 10-45; David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913, 1953-64 (2003); Robert M. Webb, *There Is a Better Way: It’s Time to Overhaul the Model for Participation in Private Standard-Setting*, 12 J. INTEL. PROP. L. 163, 203-09 (2004).

A separate subliteration focuses on the patent disclosure obligations that SSOs impose on participants, as well as the antitrust analysis of those situations where a participant has arguably failed to adhere to a disclosure obligation. The leading sources are 2 HERBERT HOVENKAMP ET AL., *IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW* § 35.5b (2002); Cowie & Lavelle, *supra* note 12, at 103-40; and Janice M. Mueller, *Patent Misuse Through the Capture of Industry Standards*, 17 BERKELEY TECH. L.J. 623 (2002).

17. See Lemley, *supra* note 7, at 1913, 1965 & n.325; Patterson, *supra* note 16, at 1053. Of course, even as straightforward a requirement as treating like parties alike is not without some complications, as Professors Teece and Sherry explore at length. See Teece & Sherry, *supra* note 16, at 1960-64. See also Feldman et al., *supra* note 9, at 114-15 (discussing nondiscrimination term).

18. Swanson & Baumol, *supra* note 8, at 29.

19. *Id.* They present a framework for making explicit this implicit price to the patentee, adapting a concept from the regulated industries domain known as the efficient component pricing rule (“ECPR”), or the parity principle. *Id.* at 30-45. According to their analysis, “a royalty [should] be deemed ‘nondiscriminatory’ for RAND purposes when it satisfies ECPR conditions, which ensure that it is competitively neutral and offers no special advantages to any competitor in the final product market, including the IP owner itself.” *Id.* at 57 (emphasis in original).

20. SHAPIRO & VARIAN, *supra* note 2, at 241 (emphasis in original). Swanson & Baumol

specifies that a patentee's damages will "in no event [be] less than a reasonable royalty for the use made of the invention by the infringer,"²¹ has generated a large body of cases the courts can use to determine a reasonable royalty in the standard-setting context.²² The consensus on these two points, at least, appears well founded.

state, in similar terms, that "the concept of a 'reasonable' royalty for purposes of RAND licensing must be defined and implemented by reference to ex ante competition, i.e., competition in advance of standard selection." Swanson & Baumol, *supra* note 8, at 10-11. They propose that SSOs obtain this pre-selection competition by "conducting 'auctions' of their standards in which IP holders 'bid' for favorable standard selections through the submission of RAND commitments coupled with specifically disclosed 'model' or 'representative' licensing terms." *Id.* at 16.

Professor Patterson offers an additional account, consistent with Swanson & Baumol's later auction model, of a royalty attributable to the contributed technology's ex ante inherent technical advantages, but not to the fact of standardization itself. *See* Patterson, *supra* note 16, at 1056-73; Mark R. Patterson, *Antitrust and the Costs of Standard-Setting: A Comment on Teece & Sherry*, 87 MINN. L. REV. 1995 (2003) (elaborating further on his approach); *see also* Cowie & Lavelle, *supra* note 12, at 148; Daniel J. Gifford, *Developing Models for a Coherent Treatment of Standard-Setting Issues Under the Patent, Copyright, and Antitrust Laws*, 43 IDEA 331, 351 (2003); Lemley, *supra* note 7, at 1966-67 & n.332. In addition, two articles suggest that a reasonable royalty should be a low one in absolute terms. *See* Stanley M. Besen & Joseph Farrell, *Choosing How to Compete: Strategies and Tactics in Standardization*, 8 J. ECON. PERSP. 117, 125 & n.12 (1994) (equating "acceptable terms" with "low-cost licensing," citing licenses of IBM and Unisys patents on proposed modem compression standard); Peter C. Grindley & David J. Teece, *Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics*, 39 CAL. MGMT. REV. 8, 20 (1997) ("Industry standards bodies sometimes require that patent holders agree to license their patents with low or zero royalty fees, often on a non-discriminatory basis. . . . The 'reasonable rate' royalty involved is likely to be low, though need not be zero.").

21. 35 U.S.C. § 284, ¶ 1 (2000).

22. *See* Cowie & Lavelle, *supra* note 12, at 140-41 (noting the relevance of the patent damages statute); Lemley, *supra* note 7, at 1914 & n.84 (same). "A reasonable royalty has been defined as 'an amount "which a person, desiring to manufacture and sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make and sell the patented article, in the market, at a reasonable profit."' " JANICE M. MUELLER, AN INTRODUCTION TO PATENT LAW 401 (2d ed. 2006) (quoting *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1157-58 (6th Cir. 1978)). Moreover, "[i]n determining the contours of the hypothetical negotiation [about the reasonable royalty], district courts have traditionally considered evidence . . . on an extensive list of factors as set forth in the leading case of *Georgia-Pacific Corp. v. United States Plywood Corp.*" *Id.* at 402-03. Of the fifteen *Georgia-Pacific* factors, two factors seem especially adapted to take account of the peculiarities of the standard setting process: factors #9 ("The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.") and #13 ("The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer."). *See Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (listing fifteen factors).

Third, there is a common refrain that the RAND promise's meaning is unclear to a troubling degree and that SSOs do too little to explain its meaning. For example, Professor Patterson, after noting that "the 'nondiscriminatory' element of [RAND] policies is straightforward," frets that "the definition of 'reasonable' is not so clear. Moreover, the standard-setting bodies themselves make little effort to define the term."²³ In a similar vein, Swanson & Baumol opine that "a RAND commitment is of limited value in the absence of objective benchmarks that make clear the concrete terms or range of terms that are deemed to be reasonable and nondiscriminatory."²⁴ From widespread comments such as these and others,²⁵ it appears well accepted in the literature that SSOs are doing less than they should to spell out the RAND promise's details. Indeed, one commentator goes so far as to argue that the seemingly vague RAND promise is a "tool for misuse" and that SSOs should thus be held to have violated the antitrust laws when they fail "to require, or at least affirmatively encourage, 'ex ante' disclosure of intended license terms prior to voting [to adopt a standard], with a related mechanism for collective negotiation of the license agreement."²⁶

We should, however, reject the current consensus that the conventional RAND promise is materially underspecified. The consensus view mistakenly knocks as deficient a powerfully concise and effective means for restructuring the basic legal context within which SSO patent-holders and standard-adopters

23. Patterson, *supra* note 16, at 1053.

24. Swanson & Baumol, *supra* note 8, at 5. What Swanson & Baumol appear to miss is the independent value that comes not from listing concrete terms or a range of terms, but rather from (re)structuring the property law context within which negotiation over the terms takes place. To indulge a sports analogy, some of the enabling value for a tennis game comes from the standard set of rules, and some comes from choosing to play on clay rather than on grass (or vice versa).

25. See Shapiro, *supra* note 12, at 128 ("Perversely, by leaving the precise licensing terms vague, this caution [about avoiding the appearance of an unlawful buyers' cartel] can in fact lead to ex post holdup by particular rights holders, contrary both to the goal of enabling innovation and to consumers' interests."); Cowie & Lavelle, *supra* note 12, at 100-01 ("[A]mong the questions that the SSO regulations frequently do not address [is] . . . What constitutes a 'reasonable' or 'nondiscriminatory' royalty?"); Lemley, *supra* note 7, at 1964-65 ("Virtually no SSO specifies the terms on which licenses must be granted beyond the vague requirement that they be 'reasonable' and 'nondiscriminatory.' Indeed, some SSOs expressly forbid discussion of such issues when a standard is under consideration, presumably for fear of antitrust liability. Further, private licenses are normally confidential. The result is uncertainty over the cost and scope of patent licenses that may not prove much better than having no policy at all.") (footnotes omitted); Schallop, *supra* note 12, at 227 ("the meaning of 'reasonable' and 'fair' is not entirely clear").

26. Robert A. Skitol, *Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting*, 72 ANTITRUST L.J. 727, 728-29 (2005). Curran and Webb, in separate articles, also advocate that adopters be permitted to negotiate collectively for the license(s) they need to practice a standard. See Patrick D. Curran, Comment, *Standard-Setting Organizations: Patents, Price Fixing, and Per Se Legality*, 70 U. CHI. L. REV. 983, 1001-08 (2003); Webb, *supra* note 16, at 221-25. Unlike Skitol, however, neither argues that a SSO risks antitrust liability when it fails to help adopters bargain collectively for a license.

negotiate patent licenses. Admittedly, SSOs could doubtless make their IP policies, including the RAND promise, more detailed. For example, an SSO's RAND policy could expressly state that, in determining a reasonable royalty, the central question is the patented technology's *ex ante* technological value as determined by a pre-selection auction mechanism, rather than the technology's *ex post* coordination value. Nor do I doubt that such detail, were it added, could reduce uncertainty on some occasions to the mutual benefit of participants and adopters alike. However, though I myself once concluded that the RAND promise's meaning is badly underspecified, I now think that view is unsound.

We already know the RAND promise's core meaning, because we know its function. I conclude that by making this promise all the participants who own patents in the resulting standard grant the adopter community an irrevocable right to use its 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. The participants thus cast themselves into a common venture, creating the possibility for post-standardization, mutually beneficial bargaining over patent license terms by precluding both subsequent patent-based shutouts and holdups from threatened shutouts. Indeed, the details of the license that the parties later negotiate are quite minor compared to the paramount importance of establishing the patentee's inability to seek an injunction.²⁷

The RAND promise locks in adopters' access with all the clarity that is needed to achieve this core function. In fact, the same commentators to which I have already referred strongly point the way to this very conclusion by repeatedly highlighting the central role of the RAND promise in preventing participant patent owners from obtaining injunctions against adopters.²⁸ What the existing literature has *not* done, and what this Article does, is put the core meaning of the RAND promise—an irrevocable waiver of injunctive relief and other extraordinary remedies—on a solid footing by showing that it is a transaction-cost-minimizing governance structure equivalent to the separate patent licensing corporation that sits at the center of the typical patent pool.

The fundamental clarity of the RAND promise in common use is no small point—at least, not for the lawyers. Professor Lemley's observation in 2002 regarding the RAND promise remains true today: "there has not been much in the way of judicial explication of this term so far."²⁹ The courts and the Federal Trade Commission have, however, ruled on disputes about a variety of SSO

27. Where the parties cannot reach a license agreement, "[the] courts will determine what royalty is reasonable based on industry custom—here, the treatment of patents of similar scope in related industries," as they already do in conventional patent cases. Lemley, *supra* note 7, at 1914. The key difference from a conventional patent infringement case is that the reasonable royalty applies not only to past use of the patented technology but also to continued use after the suit ends (rather than being negotiated after suit, at the patentee's option, in the shadow of an actual injunction against further use of the patented technology).

28. See *infra* Part II.

29. Lemley, *supra* note 7, at 1954 n.272.

patent disclosure rules.³⁰ Perceived lack of clarity in an IP policy's terms played the decisive role in *Rambus Inc. v. Infineon Technologies, Inc.*,³¹ the leading federal appellate court case that directly interprets and applies a SSO IP disclosure policy.³² The Federal Circuit focused on gaps in the disclosure policy to explain its rejection of Infineon's claims that Rambus had committed fraud in the standard setting process at issue in the case:

In this case there is a *staggering lack of defining details* in the EIA/JEDEC patent policy. When direct competitors participate in an *open standards committee*, their work *necessitates a written patent policy with clear guidance on the committee's intellectual property position*. A policy that does not define clearly what, when, how, and to whom the members must disclose does not provide a firm basis for the disclosure duty necessary for a fraud verdict. Without a clear policy, members form vaguely defined expectations as to what they believe the policy requires—whether the policy in fact so requires or not.³³

The case focused on a disclosure policy, but it surely holds a lesson for RAND policies as well.

It seems inevitable that the courts will be called on to interpret and apply the RAND promise, whether the litigation begins as a patent infringement suit brought by a participant patent owner³⁴ or as an antitrust or other suit brought by an adopter.³⁵ Indeed, in a quite recent and intriguing development, wireless

30. For a detailed discussion of these cases, see HOVENKAMP ET AL., *supra* note 16, § 35.5b; Mueller, *supra* note 16, at 653-69.

31. 318 F.3d 1081 (Fed. Cir. 2003).

32. For a concise review of the *Rambus* case, see David Alban, Note, *Rambus v. Infineon: Patent Disclosures in Standard-Setting Organizations*, 19 BERKELEY TECH. L.J. 309 (2004).

33. 318 F.3d at 1102 (emphasis added). My goal here is not to quarrel with the particular analysis or outcome in *Rambus*. Rather, it is simply to highlight the central role that perceived clarity is likely to play in any court review of the terms of a SSO's IP policy.

34. There has already been district court litigation of this sort. See *Agere Sys. Guardian Corp. v. Proxim, Inc.*, 190 F. Supp. 2d 726 (D. Del. 2002); *Townshend v. Rockwell Int'l Corp.*, 55 U.S.P.Q.2d (BNA) 1011 (N.D. Cal. 2000). Cowie & Lavelle conclude that "[i]n the near future it seems likely that the courts will begin to decide cases involving the interplay between standards commitments to license on a 'reasonable' basis and the requirements of 35 U.S.C. § 284," the basic patent damages statute. Cowie & Lavelle, *supra* note 12, at 148.

35. Again, there has already been district court litigation of this sort. See *ESS Tech., Inc. v. PC-Tel, Inc.*, No. C-99-20292 RMW, 1999 WL 33520483, at *1 (N.D. Cal. Nov. 4, 1999). In July 2005, Broadcom Corp. sued Qualcomm Inc., alleging antitrust and other wrongs relating to Qualcomm's license terms for patents thought to be essential for complying with a wireless telephony standard. See Ashlee Vance, *Broadcom Finds an Antitrust Suit for Qualcomm*, THE REGISTER, July 5, 2005, available at http://www.theregister.co.uk/2005/07/05/broadcom_anti_qualcomm. A copy of Broadcom's complaint is available at http://www.broadcom.com/qualcomm_antitrust.pdf. Qualcomm has, as of March 2006, filed three patent infringement complaints against Broadcom. The third suit "concerns key patents for a high-speed wireless

handset maker Nokia Corp. has reportedly filed a Delaware state court suit against Qualcomm Inc., which licenses many patents essential to practicing wireless telephony standards.³⁶ Nokia filed the suit after Qualcomm sued Nokia for patent infringement in three different fora: U.S. District Court, England's High Court, and, most recently, the U.S. International Trade Commission.³⁷ According to its own press release about the suit, Nokia "is asking the Court to order Qualcomm to abide by its written contractual obligations to international [SSOs] to license intellectual property essential to" the telephony standards on RAND terms, *and*—most interestingly, in the context of this Article—"is seeking a Court order to affirm that Qualcomm is *not entitled to injunctive relief* in relation to alleged infringement of patents declared essential to a standard."³⁸ Nokia's request that the court declare injunctive relief to be out of bounds, based on Qualcomm's having undertaken the RAND promise, goes to the heart of what the RAND promise means. The prospect that a court may undermine the widely adopted RAND policy out of a mistaken sense that it is fatally unclear, thereby disrupting settled expectations among legions of standards adopters and sending ripples through both copyright law and federal procurement policy, is worrying indeed.

As a final preliminary matter, the RAND promise, embedded in SSO bylaws to which participants agree, is primarily a matter of contract law.³⁹ As a consequence, there is a sense in which one cannot interpret the RAND promise in the abstract; the individual wording of different policies could make a difference, depending on the particulars of a dispute. The popularity of the RAND promise suggests, however, that the policy embodies a core feature of the patent rights/standard setting interaction that is deeper than any particular policy's wording. My goal here is not to parse the wording of any particular policy nor to map the minutiae of a doctrinal pigeonhole in which to place a given license dispute about such a policy. Rather, I shall describe the RAND

standard known as W-CDMA." Reuters, *Qualcomm Files Third Suit Against Broadcom*, cnet news.com, Mar. 29, 2006 (copy on file with author). Notably, "Qualcomm seeks an injunction against Broadcom . . . as well as monetary damages." *Id.*

36. See Nancy Gohring, *Nokia Files Complaint Against Qualcomm*, INFOWORLD, Aug. 9, 2006, http://www.infoworld.com/article/06/08/09/HNnokiasuesqualcomm_1.html.

37. See Nancy Gohring, *Qualcomm Files Patent Infringement Suit Against Nokia*, INFOWORLD, Nov. 7, 2005, http://www.infoworld.com/article/05/11/07/hnqualcommsuit_1.html (describing U.S. district court case); Nancy Gohring, *Qualcomm Sues Nokia in U.K.*, INFOWORLD, May 25, 2006, http://www.infoworld.com/article/06/05/25/78666_HNqualcommsuesnokia_1.html (describing High Court case); Dan Nystedt, *U.S. ITC Investigating Nokia Trade Practices*, INFOWORLD, July 11, 2006, http://www.infoworld.com/article/06/07/11/HNqualcommbannokia_1.html (describing ITC case).

38. Nokia Corp., *Nokia Asks Delaware Court to Enforce Qualcomm's Contractual Obligations in Essential Patent Licensing*, Aug. 9, 2006, <http://www.nokia.com/A4136001?newsid=1068193> (emphasis added).

39. See Lemley, *supra* note 7, at 1909-18 (analyzing the enforceability of SSO IP policies as contracts). It is also a matter of property law because it is a contract about a property right.

promise's core enabling function for standard setting and to give an account of its theoretical underpinnings that should animate a court's reasoning in a suit about a RAND promise. It is thus sufficient to illustrate the RAND promise with a popular model policy—namely, the patent policy of the American National Standards Institute (“ANSI”).

ANSI, an umbrella organization founded in 1918 that accredits SSOs in the United States, has fostered voluntary industry standard setting and established model SSO policies.⁴⁰ The basic patent policy for ANSI-accredited SSOs states that “[t]here is no objection in principle to drafting a proposed American National Standard in terms that include the use of a patented item, if it is considered that technical reasons justify this approach.”⁴¹ With regard to adopters' access to the technology covered by a standard-essential patent, the policy triggers a demand for a written statement from the patent holder whenever there is “notice that a proposed American National Standard may require the use of a patented invention.”⁴² The written statement requirement provides as follows:

3.1.1 Statement from patent holder

Prior to approval of such a proposed American National Standard, the Institute shall receive from the identified party or patent holder (in a form approved by the Institute) either: assurance in the form of a general disclaimer to the effect that such party does not hold and does not currently intend holding any invention the use of which would be required for compliance with the proposed American National Standard or *assurance that*:

a) a license will be made available without compensation to the applicants desiring to utilize the license for the purpose of implementing

40. See Shapiro, *supra* note 1, at 86. ANSI provides information about its history at http://ansi.org/about_ansi/introductino/history.aspx?menuid=1. For an ICT industry expert's perspective on ANSI's history and accomplishments, see CARGILL, OPEN SYSTEMS, *supra* note 12, at 242-49. Because ANSI's standard-setting model is highly formalized, *id.*, one might suspect that its IP policy is not representative of the approach taken by less formal industry consortia, i.e., “collection[s] of like minded companies who are devoted to doing something using the same basic technology . . . [and] believe that, if they could get a common technology out, they could all compete using this common technology.” *Id.* at 125. On the RAND licensing point, however, the most formal SSOs and less formal consortia appear to occupy common ground. For example, the Internet Engineering Task Force (“IETF”) consortium is the most important SSO for the Internet. See *id.* at 256-61 (describing IETF's work). Its RAND policy, which I describe in a brief appendix to this Article, *infra*, is quite close to that of ANSI.

41. AMERICAN NATIONAL STANDARDS INSTITUTE, ANSI ESSENTIAL REQUIREMENTS: DUE PROCESS REQUIREMENTS FOR AMERICAN NATIONAL STANDARDS 9, ¶ 3.1 (Jan. 31, 2006), available at <http://public.ansi.org/ansionline/Documents> (follow “Standards Activities” hyperlink; then follow “American National Standards” hyperlink; then follow “Procedures, Guides, and Forms” hyperlink) [hereinafter ANSI ESSENTIAL REQUIREMENTS].

42. *Id.*

the standard; or

b) *a license will be made available to applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination.*⁴³

In addition, ANSI retains a record of this written statement,⁴⁴ and the published standard itself is required to notify adopters that “compliance with th[e] standard may require use of an invention covered by patent rights.”⁴⁵ As ANSI’s then-General Counsel, Ms. Amy Marasco, explained, “[i]f the patent holder submits a patent statement to the effect of either (a) or (b) [of ¶ 3.1.1 of the ANSI patent policy], this creates third-party beneficiary rights in implementers of the standard.”⁴⁶

Thus, by adopting a RAND policy such as ANSI’s, SSO participants (who will also be adopters, in need of access to standard-essential patents) grant an irrevocable, property-like use right to all adopters. Put another way, they contract out of an injunction-backed property rule, and into a reasonable-royalty liability rule.⁴⁷ The adopters’ locked-in access right, rather than the patent

43. *Id.* ¶ 3.1.1 (emphasis added).

44. *Id.* ¶ 3.1.2.

45. *Id.* ¶ 3.1.3.

46. Amy A. Marasco & Elizabeth Dodson, *Invention and Innovation: Protecting Intellectual Property in Standards-Setting*, 2 J. IT STANDARDS & STANDARDIZATION RESEARCH 49, 50 (2004); see also *id.* at 57 (noting that Marasco was, at that time, ANSI’s General Counsel). In his empirical study, which predates Marasco’s article by two years, Professor Lemley expresses guarded support for the third-party beneficiary theory. See Lemley, *supra* note 7, at 1914-15. In addition to the then-existing trial court decision he notes, *id.* at n.88, another trial court has since concluded that a standard adopter can use a third-party beneficiary theory to enforce a SSO’s IP policy. See *Agere Sys. Guardian Corp. v. Proxim, Inc.*, 190 F. Supp. 2d 726, 738 (D. Del. 2002) (granting the adopter leave to amend its answer and counterclaims to include a breach of contract count, on third-party beneficiary grounds).

47. The *locus classicus*, at least in intellectual property law, is Robert P. Merges, *Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996) [hereinafter Merges, *Contracting*]. Professor Merges shows that patentees have used patent pools as a form of private ordering to clear mutually blocking patent portfolios that would otherwise halt commercialization in a valuable market space. *Id.* at 1340-58; see also Robert P. Merges, *Institutions for Intellectual Property Transactions: The Case of Patent Pools*, in EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY 123, 146-54 (Rochelle Cooper Dreyfuss et al. eds., 2001) [hereinafter Merges, *Institutions*] (discussing the MPEG-2 and DVD pools). More recently, Merges has briefly noted the similar institutional function of patent pools and SSOs. See Robert P. Merges, *From Medieval Guilds to Open Source Software: Informal Norms, Appropriability Institutions, and Innovation* 4, 18-19 (Conference on the Legal History of Intellectual Property, University of Wisconsin Law School Institute for Legal Studies, Nov. 13, 2004), available at <http://ssrn.com/abstract=661543>. Professor Lemley, for his part, lauds SSOs as another form of private ordering, but in doing so stresses what he sees as “important differences between SSOs and

owner's traditional right to obtain a court injunction against unauthorized use,⁴⁸ frames all subsequent license negotiations. In this respect, the structure-changing words "a license *will* be made available" play a more fundamental role than the substantive words "reasonable terms and conditions that are demonstrably free of any unfair discrimination,"⁴⁹ on which most current analyses focus.

Part I of this Article highlights both the features of voluntary standard setting that drive the meaning of the RAND promise and the conventional backdrop for negotiating a patent license that the RAND promise is designed to displace. Part II shows that most who have analyzed the RAND promise's meaning expressly describe it as a mechanism that should prevent a participant-patentee from using an injunction threat to hold up the adopter community for disproportionate royalty payments. Part III first provides a brief discussion of the pertinent transaction cost economics literature, then shows how the corporate form generally and patent pool central licensing companies more specifically are the access lock-in institutions to which the RAND promise is functionally equivalent. Part III also offers some suggestions about the new challenges SSOs likely face in realizing the RAND promise.

I. STANDARD SETTING AND DEFAULT PATENT RULES

SSOs tackle a wide variety of technology problems, even within the limits of the ICT sectors. The details of the standard setting process vary somewhat from group to group and from technology to technology. There are many resources describing the standard-setting process generally, detailing many groups' processes and particular standards outputs.⁵⁰ It is not necessary, however, to rehearse a host of such details here. Instead, it suffices to review a small number of key facts about both the typical standard-setting context and patent law's default rules favoring injunctive relief (which ill fit voluntary standard setting).

patent pools." Lemley, *supra* note 7, at 1951, 1951-54 (describing these differences). One goal of this Article is to show that the RAND promise serves the same function as a patent pool's central licensing entity, thereby making the similarities between SSOs and pools far more important than the differences.

48. See 35 U.S.C. § 283 (2000) ("The several courts having jurisdiction of cases under [the Patent Act] may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable."); Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1247 (Fed. Cir. 1989) ("It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it.").

49. ANSI ESSENTIAL REQUIREMENTS, *supra* note 41, ¶ 3.1.1.

50. The interested reader should begin with CARGILL, OPEN SYSTEMS, *supra* note 12; CARL F. CARGILL, INFORMATION TECHNOLOGY STANDARDIZATION: THEORY, PROCESS, AND ORGANIZATION (1989) [hereinafter CARGILL, INFORMATION TECHNOLOGY]; MARTIN LIBICKI ET AL., SCAFFOLDING THE NEW WEB: STANDARDS AND STANDARDS POLICY FOR THE DIGITAL ECONOMY (2000); SHAPIRO & VARIAN, *supra* note 2, at chs. 7 & 8; and STANDARDS POLICY FOR INFORMATION INFRASTRUCTURE (Brian Kahin & Janet Abbate eds., 1995).

A. *The Typical Standard Setting Context*

Contemporary standard setting is a technical process undertaken for a business end. The space for group-set *de jure* standards exists only where a single firm cannot supply a single solution to the market and thereby establish a *de facto* standard.⁵¹ “A corporation will accept and use standards only if it believes that it cannot control the market directly and that standards can.”⁵² The goal of ICT compatibility standardization is thus plural supply of a single interface, i.e., different parts made by different producers working together to accomplish the consumer’s desired results. When this need arises for a set of specifications to which different producers can conform, an SSO can pick up the task as a new standardization project (or interested producers can form a new SSO). The typical scenario, of interest here, is anticipatory standard setting that enables an emerging technology,⁵³ for “history proves that the consensus process of formal standard setting is time and again critical to launching new technologies.”⁵⁴

The typical SSO, the workhorse of the standard setting process, comprises two parts: the administrative management part, and the working group(s) part.⁵⁵ The working group is the basic unit that meets collaboratively to draft a written specification embodying a standard.⁵⁶ The working group is peopled with volunteers from the interested firms (and sometimes from government agencies and academic departments) who are technical, not legal or business, experts.⁵⁷

51. The space for group-set standards is necessary, but not sufficient, for their creation. Firms may, of course, choose to battle in the marketplace to become the *de facto* standard. For discussion of historical examples and business strategies, see PETER GRINDLEY, *STANDARDS STRATEGY AND POLICY: CASES AND STORIES* (1995) and SHAPIRO & VARIAN, *supra* note 2, at ch. 9 (entitled “Waging a Standards War”). My focus here is on the firms that have chosen to work with others to create a standard. How firms choose between market battle or collaborative standard setting is beyond the scope of this Article.

52. CARGILL, *INFORMATION TECHNOLOGY*, *supra* note 50, at 42.

53. *See id.* at 45 (“[T]he IT industry is moving, in many cases, to standards that anticipate the actual creation of a product and are used to define a market”); SHAPIRO & VARIAN, *supra* note 2, at 236 (“Companies developing new technology *collectively* tend to welcome standards, because standards typically expand the total size of the market and may even be vital for the emergence of the market in the first place.”); Skitol, *supra* note 26, at 735-36 (“[T]he essence of information technology (IT) standard setting in many contexts today is joint development of new technologies necessary to the creation and growth of new markets and the related necessity for interoperability among new products”).

54. SHAPIRO & VARIAN, *supra* note 2, at 237.

55. *See* CARGILL, *OPEN SYSTEMS*, *supra* note 12, at 118-19.

56. *Id.*

57. *See id.* at 123; Lemley, *supra* note 7, at 1907 (“A company’s representative to such an SSO is normally an engineer with little or no understanding of patent law.”); Marasco & Dodson, *supra* note 46, at 50 (“The standards-setting participants are often technical experts who do not

These volunteers, as technical experts, each contribute technology ideas to the process from which a final specification emerges.⁵⁸ If it is to succeed, the standard-setting process entails evaluating a participant's contributions and suggestions primarily on their technical, practical merit (including cost-effectiveness), rather than on the identity of the firm she represents in the standard-setting process. "[S]tandards developers understand that they are participating in an activity that may transcend individual or corporate needs and goals. If the participants are involved only to espouse their own causes, at the expense of the common good, the system will not work."⁵⁹

The common good at which the working group aims—a detailed specification embodying an interface standard that separate firms can use to grow the market for the standardized product—is unknown at the start of the process.⁶⁰ Most importantly, at the start, participants do not know which sponsoring firms will turn out to have contributed the technologies essential to the standard, or which of the essential technologies, if any, are covered by patents owned by the sponsoring firms. Each participant thus sees that, at the end of the process, its sponsoring firm is as likely to require one or more patent licenses from other sponsoring firms as it is to own a patent that all adopters require. Indeed, the process could easily result in a situation where multiple participants hold multiple patents on small, interlocking pieces of the standard. Whatever the final outcome, participants make the RAND promise behind a veil of ignorance about their ultimate status as patentees or licensees.⁶¹

The only thing the sponsoring companies know for certain is that once the standard's selection ushers in a new network technology by setting the interface specifications, "these same companies [will] shift gears and compete head to head for their share of that network."⁶² Indeed, the competitively driven

have legal or business responsibilities with regard to licensing issues."'). The fact that it is frontline, technical SSO participants who undertake the RAND promise, rather than intellectual property lawyers or business licensing experts, should not interfere with a court's construing the RAND promise according to its intended function. Just as two tradespeople can agree on the legally definitive terms of a service contract without legal expertise, so too can engineers agree with a SSO to make standard-essential patents available to all future adopters on RAND terms without legal expertise. *But cf.* Lemley, *supra* note 7, at 1956 ("IP rules have largely been an afterthought for most SSOs. SSOs are made up of engineers who want to pick the right technical standard, not lawyers who want to clear rights. . . . SSO IP rules . . . are often put together without much participation by lawyers, and without much thought to the sorts of disputes that might arise.").

58. See CARGILL, INFORMATION TECHNOLOGY, *supra* note 50, at 43 (explaining that the standard-setting process "is based on the belief that all parties can and will contribute something").

59. CARGILL, OPEN SYSTEMS, *supra* note 12, at 163.

60. *Id.* at 124 ("When a working group begins its creative function, there is no guarantee as to what will emerge from the standards process: The common good is a complete unknown.").

61. See HOVENKAMP ET AL., *supra* note 16, § 35.6c3, page 35-54.2 (describing this "veil of ignorance").

62. SHAPIRO & VARIAN, *supra* note 2, at 228; *see also* Gifford, *supra* note 20, at 357 (stating that when "producing firms agree on compatibility, they remain free to compete fiercely on

diffusion of interoperable technologies is among the central benefits consumers enjoy from industry adoption of accessible standards.⁶³

The jockeying for competitive advantage has foreseeable consequences for patent licensing. Patent license disputes from outside the SSO context suggest that if participants were to wait until after the standard were set before working out any license terms those who turned out to own essential patents could hold up patentless adopters for a disproportionate share of the standardized technology's substantial coordination value.⁶⁴ The holdup plays on a gap in projected returns that depends on continued access to the standardized technology: once the standard is set, users invest in making goods and services that use the specification. If a user were then denied access to the standard technology and the standard-compliant assets were sold at salvage value, the return on those investments would be far lower than first projected (when continued access was assumed). After all, if other providers enjoy continued access to the standard and the interface-dependent market thrives, how much will consumers pay for the shut-out party's nonstandard product? This scenario is not unique to the standards setting context. Economists have long called the problem "asset specificity."⁶⁵ The RAND promise, which is an early agreement on the

everything else: the quality of their products, their features, and their prices").

63. See Swanson & Baumol, *supra* note 8, at 3 ("[S]tandards and associated technical specifications can facilitate entry and competition by promoting substitutability and interoperability of products and processes and by intensifying 'intra-standard' rivalry.").

64. See Shapiro, *supra* note 12, at 124-26 (describing such patent license holdups); Swanson & Baumol, *supra* note 8, at 9-10, 19-20 (same). I say *disproportionate* share because "the 'true' or underlying value of [the licensor's] intellectual property . . . is normally best measured by adopters' willingness to pay for it when they know their alternatives and *have not yet made investments specific to that technology.*" Joseph Farrell & Carl Shapiro, *Intellectual Property, Competition, and Information Technology*, in *THE ECONOMICS OF INFORMATION TECHNOLOGY: AN INTRODUCTION* 49, 81 (Hal R. Varian ed., 2004) (emphasis added). Of course, adopters with essential patents of their own may be able to obtain royalty-free cross-licenses. See Lemley, *supra* note 7, at 1949 (discussing royalty-free cross-licensing).

In a recent paper, Professors Lemley and Shapiro offer a model for the holdup and royalty stacking problems that beset patent licensing where the market product embodies many separately patented inventions. As they note, "[i]n the information technology sector in particular, modern products such as microprocessors, cell phones, or memory devices can easily be covered by dozens or even hundreds of different patents." Mark A. Lemley & Carl Shapiro, *Patent Holdup & Royalty Stacking* 1 (Stanford Law and Economics Olin Working Paper No. 324, 2006), available at <http://ssrn.com/abstract=923468>. Interestingly, their detailed examples of royalty stacking problems pertain to standardized technology—third generation wireless telephony, and wireless local area networking. *Id.* at 25-27.

65. The *locus classicus*, at least in law, is Benjamin Klein et al., *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978). As Professor Paul Joskow summarizes,

[r]elationship-specific investments are investments which, once made, have a value in alternative uses that is less than the value in the use originally intended to support a

framework for later negotiation, is timed to take advantage of the tempering effect of the veil of ignorance⁶⁶ and is designed to prevent this holdup problem.⁶⁷

Given the risk of holdup, it is natural for an outsider to wonder why SSOs insist merely that each participant promise to license all adopters on reasonable terms later rather than insisting that participants negotiate detailed license terms with the adopter community before a standard is finalized. There are two main reasons, one legal and one practical. First, assuming it were possible for participants to hammer out detailed license terms before the standard is determined, the prospect of antitrust liability deters a SSO from being a forum for adopters to bargain as a group with participant patentees. As ANSI's General Counsel observed, "discussing licensing issues may impose a risk that the [SSO] and the participants will become targets of allegations of improper antitrust conduct."⁶⁸ SSOs fear liability for acting, in effect, as a buyers' cartel that artificially suppresses the price that a patentee can command for access to its technology.⁶⁹

specific trading relationship. Once specific investments have been made a potential "hold-up" or "opportunism" situation is created if the parties can bargain over the ex post quasi rents (the difference in asset values between the intended and next best use) created by specific investments.

Paul L. Joskow, *Asset Specificity and Vertical Integration*, in 1 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 107, 108 (Peter Newman ed., 1998). Unfettered haggling over appropriate patent royalties for continued access to standardized technology, if it takes place after the market built on the standard has been launched, threatens just this sort of holdup.

66. Professor Vermeule, examining constitutional law, describes a "veil of ignorance rule" as "a rule that suppresses self-interested behavior on the part of decisionmakers . . . by subjecting the decisionmakers to uncertainty about the distribution of benefits and burdens that will result from a decision." Adrian Vermeule, *Essay, Veil of Ignorance Rules in Constitutional Law*, 111 YALE L.J. 399, 399 (2001). The RAND promise subjects SSO participants to just this sort of uncertainty about future benefits and burdens, with the intended effect. See Lemley, *supra* note 7, at 1951 ("SSOs tend to set a uniform IP policy and apply it across the board . . ." and "[b]ecause the members of the SSO generally don't know in advance whether they will be the owner or the licensee of any particular IP right, the policy is more likely to be drafted evenhandedly."). Moreover, even those commentators who conclude that the RAND promise does not adequately constrain patent owners recognize ex ante bargaining's tempering effect. See Skitol, *supra* note 26, at 734; Webb, *supra* note 16, at 221.

67. Shapiro, *supra* note 12, at 128, 136; Lemley, *supra* note 7, at 1895 (stating that the "promise" of SSO IP policies is to "solv[e] patent holdup problems"); *id.* at 1952 ("Bargaining under the veil of ignorance is particularly likely to solve holdup problems in which society as a whole would benefit from a deal, but once property entitlements are distributed those who receive them have an incentive to 'hold up' others for a disproportionate share of the returns.").

68. Marasco & Dodson, *supra* note 46, at 50.

69. See HOVENKAMP ET AL., *supra* note 16, § 35.6b; Shapiro, *supra* note 12, at 128 ("[M]any [SSOs] are wary of sanctioning any specific agreement regarding the magnitude of licensing terms for fear of antitrust liability, as such agreements might be construed as 'price-fixing.'"); Cowie & Lavelle, *supra* note 12, at 102 ("SSOs have been reluctant to specify or become involved in setting

Second, it is *not* possible to specify in advance a set of detailed, tailored

royalty rates for patented technology for fear that they will be accused of price fixing or another violation of the antitrust laws.”).

Several commentators, while acknowledging this widely held fear, argue that SSOs *should* be able to negotiate detailed license terms (such as precise royalty rates) with patent owners on behalf of adopters, without fear of antitrust liability. See Curran, *supra* note 26, at 994 (acknowledging current fear); *id.* at 1001-08 (arguing for per se legality of collective license negotiations); Patterson, *supra* note 16, at 1053 n.41 (acknowledging current fear); *id.* at 1078-80 (arguing for collective license negotiations); Skitol, *supra* note 26, at 729 (acknowledging current fear); *id.* at 735-42 (arguing that current fear is based on erroneous view of antitrust law). Interestingly, in a September 2005 address to a standard setting policy conference at Stanford University, Federal Trade Commission Chair Deborah Platt Majoras signaled greater openness to such ex ante license negotiations. According to Majoras,

joint ex ante royalty discussions that are reasonably necessary to avoid hold up do not warrant per se condemnation. Rather, they merit the balancing undertaken in a rule of reason review. We would apply the rule of reason to joint ex ante royalty discussions because, quite simply, they can be a sensible way of preventing hold up, which can itself be anticompetitive. Put another way, transparency on price can increase competition among rival technologies striving for incorporation into the standard at issue. They may allow the “buyers” (the potential licensees in the standard-setting group) to get a competitive price from the “sellers” (the rival patentees vying to be incorporated into the standard that the group is adopting) before lock in ends the competition for the standard and potentially confers market power on the holder of the chosen technology. . . . If joint ex ante royalty discussions succeed in staving off hold up, we can generally expect lower royalty rates to lead to lower marginal costs for the standardized product and lower consumer prices.

Deborah Platt Majoras, Chair, Fed. Trade Comm’n, Remarks at Standardization and the Law: Developing the Golden Mean for Global Trade: Recognizing the Procompetitive Potential of Royalty Discussions in Standard Setting 7-8 (Sept. 23, 2005), available at <http://www.ftc.gov/speeches/majoras/050923stanford.pdf>. See also R. Hewitt Pate, Assistant Attorney General for Antitrust Division, U.S. Dep’t of Justice, 2005 EU Competition Workshop: Competition and Intellectual Property in the U.S.: Licensing Freedom and the Limits of Antitrust 9 (June 3, 2005), available at <http://www.usdoj.gov/atr/public/speeches/209359.pdf> (“It would be a strange result if antitrust policy is being used to prevent price competition. There is a possibility of anticompetitive effects from ex ante license fee negotiations, but it seems only reasonable to balance that concern against the inefficiencies of ex post negotiations and licensing hold up.”). Following up on Commissioner Majoras’s speech, and positing that even “[t]he mere possibility of an antitrust challenge, even under the rule of reason standard, inhibits many SSOs from allowing most forms of ex ante royalty communications,” Kelly and Prywes urge that the antitrust enforcement agencies should create safe harbors for at least some ex ante royalty communications. John J. Kelly & Daniel I. Prywes, *A Safety Zone for the Ex Ante Communication of Licensing Terms at Standard-Setting Organizations*, ANTITRUST SOURCE, March 2006, at 5, 7-11. In any event, to interpret the RAND promise, one need not decide whether SSOs are right to fear antitrust liability in these circumstances, or whether we should change the antitrust laws clearly to permit ex ante license negotiations.

license terms for standard-essential patents. Frontline workgroup participants are not equipped to engage meaningfully with the details of licensing deals that will shape the market for the interface: “individuals who participate in standard setting are, for the most part, engineers unschooled in business considerations and unequipped to address the costs and related competitive implications of their technical specification-writing exercises.”⁷⁰ And even if they *were* expert in business and licensing details, SSO participants would *still* face data gaps that render highly detailed *ex ante* negotiations nearly impossible.

Some of the gaps would relate to the existence of patents. For example, before the standard is established, it is unclear which if any of the participants will own standard-essential patents. This uncertainty is compound, comprising questions about both whose technology the standard will incorporate and whether the contributor in question owns a patent covering that technology.⁷¹ Once all essential patents come to light, negotiations may take into account each patent’s centrality to the standardized technology, relative to all the other essential patents.

Other gaps would relate to the future market for products that include that standardized interface. What unstandardized products will discipline the price of standardized products early in the product cycle, and how will that change as more people adopt the standardized product? What plans, if any, should be made for adjustable license terms that take account of dramatic price changes in the market, and what should the adjustment formulae be?⁷² Calibrated royalty rates should take account of the answers to these and myriad other patent and market questions, but most of the answers will not be known (or known in sufficient detail) until after the SSO has established the standard and producers have begun selling standardized products. *Ex ante* licensing is thus likely to take place only at a general level, e.g., with short terms sheets that forswear royalties above a

70. Skitol, *supra* note 26, at 734.

71. If the contributor seeks a patent at around the same time as the standard-setting process takes place, it may be years before the patent issues and the precise scope of its coverage is clear. *See infra* note 78 (discussing typical time lag in patent issuance and changes in claim scope during patent prosecution). It seems likely that many patents will be sought during or after standard setting, if only because anticipatory standards are likely to pull in contributions at the forward edge of each participant’s technology development process.

72. In the *ESS* case, for example, one of the reasons alleged to explain the unreasonableness of the patentee’s royalty demand was a significant change in modem chipset price from 1996 to 1998. According to the plaintiff adopter *ESS*,

while the proposed royalty payments may have been appropriate when chipsets sold for approximately \$50 per unit [in 1996], chipsets were selling for approximately \$10 per unit by March 1998 . . . [and] due to the changed modem market, the proposed royalty payments were unreasonably expensive and did not allow for new market entrants to compete with existing market participants.

ESS Tech., Inc. v. PC-Tel, Inc., No. C-99-20292 RMW, 1999 WL 33520483, at *1 (N.D. Cal. Nov. 4, 1999).

benchmarked cap.⁷³

It is folly to expect, much less insist upon, ex ante negotiation of detailed, tailored license terms much beyond the royalty-free and RAND options.⁷⁴ Against this backdrop, the RAND promise's mandate that license terms be "reasonable" is not needlessly vague. Rather, it is appropriately open-textured, given that participants in the standard-setting process do not yet know the contours of the standard that will emerge, or how the as-yet-unknown patents essential to the standard should be valued in the standard-based market that develops. As Professor Lemley notes, "parties need not specify a price in order to create a binding agreement. In the absence of a price, courts will supply a reasonable and customary price term," and other reasonable terms as well.⁷⁵

73. As Swanson & Baumol note, such ex ante competition in license terms is likely to drive royalties down to the patentee's incremental cost of maintaining a license program, at least where the competing technologies offer similar production cost profiles. See Swanson & Baumol, *supra* note 8, at 16, 19. The standard setting arm of the Institute of Electrical and Electronics Engineers ("IEEE"), known as the IEEE Standards Association, see <http://standards.ieee.org/>, is considering a set of proposed rule changes to permit more ex ante discussion of RAND terms. See Jeffery B. Fromm & Robert A. Skitol, *Update on the Antitrust Ghost in the Standard-Setting Machine*, 5 IEEE MICRO 77, 77-78 (2005) (describing proposed rules changes). This additional discussion would take place at a general level: first, the patentee "would commit to licensing that is either royalty-free or RAND and, if RAND, would be encouraged (though not required) to state the maximum royalty rate"; and second, a patentee "who provide[s] the RAND commitment would be encouraged (though not required) to attach a sample license agreement." *Id.* at 78.

74. On this point, I strongly differ with those who urge that SSO participants can establish detailed license terms for standard-essential patents before the details of the standard itself are known. See, e.g., Curran, *supra* note 26, at 984 (proposing "[a] rule of antitrust per se legality for single-source patent price bargaining [that] would permit SSOs to bargain with patent owners over the price of patent licenses before adopting patented technologies as industry standards"); Skitol, *supra* note 26, at 729 ("A much more sensible and effective approach [than requiring RAND terms] would be for the SSO to require, or at least affirmatively encourage, 'ex ante' disclosure of intended license terms prior to voting . . ."); Webb, *supra* note 16, at 221 (proposing "the requirement that the participants in a standard-setting process negotiate a detailed license before the standard-setting deliberations begin"). If the price that adopters are asked to pay for patent access is to have any connection to the prices the market later sets for standard-compliant products, the access price cannot be set in advance at anything other than a price which is reasonable that will be decided with greater accuracy later. The license price term that is available in advance of determining the standard's details is \$0, or some incremental cost of licensing that is close to \$0. It is not surprising, then, that \$0 and "reasonable royalty" are the price terms that most SSOs use. See Lemley, *supra* note 7, at 1906. For additional structural terms that could facilitate post-standardization license negotiations, see *infra* note 111 (describing suggestions from Professor Lemley).

75. Lemley, *supra* note 7, at 1914 (citing E. ALLAN FARNSWORTH, CONTRACTS § 7.17 (2d ed. 1990)).

B. Default Patent Rules

The typical SSO's openness goals are difficult to square with patent law's tilt toward injunctive relief that protects the patentee's power to exclude others. This pro-injunction tilt is the norm in the shadow of which standards adopters must bargain with patentees for standard-essential patent licenses, unless the parties have taken themselves out of this shadow by making the RAND promise or by some other means. Brief reflection on patent law's injunction rules, especially the preliminary injunction rules, is adequate to show that the RAND promise is calculated to displace them.

Assume an adopter has been selling an item that implements a standard, and that this adopter and a participant patentee are unable to reach negotiated terms for a standard-essential patent. Any suit between the adopter and the patentee over the license terms will entail considering the adopter's liability for patent infringement.⁷⁶ The gravamen of the patentee's claim will be that the adopter, by making and selling the standard-compliant good or service, directly infringes the essential patent in question in violation of section 271 of the Patent Act.⁷⁷

In the typical case, the adopter will find it difficult to deny infringement. First, if the patentee has done a competent job drafting the formal patent claim that corresponds to the standard-essential technology, the close correspondence between the patent right and the standard will be easy to establish. Indeed, it will often be the case that the formal patent claim was drafted *after* the standard was codified by the SSO, making it virtually certain that the claim will correspond tightly to the standard's terms.⁷⁸ Second, the adopter will likely have stated, in its marketing materials, that the good or service accused of infringement complies with the standard. Perhaps there is even a certification program for the standard to support those marketing statements.⁷⁹ In light of such marketplace

76. See *supra* notes 34-35.

77. 35 U.S.C. § 271(a) (2000) (“[W]hoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”).

78. The typical patent application takes about 2.5 years to issue from the Patent Office. See Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 64, 71 (2004) (reporting results of a study of Patent Office prosecution time for all patents issued from 1976 through 2000). During this process, the applicant and the Patent Office engage in a back-and-forth process to finalize the text of the formal claims that the patent will contain. See *id.* at 76-79 (describing this process). “The Federal Circuit has made it clear that the law permits the drafting of claims written during prosecution specifically in order to cover a competitor’s products,” so long as “the patentee can find some support in the original patent application for the current claims.” *Id.* at 77; see also *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 909 n.2 (Fed. Cir. 2004) (approving the practice). Just as they can draft claims to cover specific products, patentees can draft claims to cover specific standards.

79. For example, the Wi-Fi Alliance, a “non-profit industry association of more than 275 member companies devoted to promoting the growth of wireless Local Area Networks (WLANs),” administers “testing and certification programs [to] ensure the interoperability of WLAN products

statements (which the patent infringement jury will definitely hear about), the adopter can hardly deny that it complies with the standard. An adopter accused of infringing a standard-essential patent will also find it difficult, as many accused infringers do, to prove that the patent claim is invalid or unenforceable and thus of no legal consequence. Each claim in an issued patent enjoys a presumption of validity,⁸⁰ and, in a full-blown patent trial, the patent challenger must prove both invalidity and unenforceability using a “clear and convincing” standard.⁸¹ At the preliminary injunction stage, the patent challenger can carry its burden on invalidity and unenforceability a little more easily by raising a substantial question about the patent’s validity that the patentee is unable to dispel before trial.⁸² Even so, the deck is stacked in the patentee’s favor.

The adopter’s weak noninfringement and invalidity positions make it likely that the patentee can obtain a *preliminary* injunction against the adopter’s continued use of the standard-essential technology. Under current doctrine,⁸³ once that patentee has demonstrated a strong showing of likelihood of success on the merits of its infringement claim (taking due account of any substantial defenses the accused infringer has raised) irreparable harm against the patentee is presumed and a preliminary injunction is likely to issue.⁸⁴ Importantly,

based on the IEEE 802.11 specification.” Press Release, WiFi.org, Wi-Fi Alliance to Certify Pre-Standard IEEE 802.11n Products Next Year (Aug. 29, 2006), <http://www.wi-fi.org/OpenSection/news/pressrelease-082906-80211n/en/>. According to the WiFi Alliance website, “[s]ince the introduction of the Wi-Fi Alliance’s certification program in March 2000, more than 3000 products have been designated as Wi-Fi CERTIFIED™, encouraging the expanded use of Wi-Fi products and services across the consumer and enterprise markets.” *Id.* Someone who markets a product as “WiFi certified” will have trouble credibly arguing that the product fails to comply with IEEE’s 802.11 specification.

80. 35 U.S.C. § 282 (2000) (“A patent shall be presumed valid. Each claim of a patent . . . shall be presumed valid independently of the validity of other claims . . .”).

81. *See, e.g.*, *Unitherm Food Sys., Inc. v. Swift-Ekrich, Inc.*, 375 F.3d 1341, 1349 (Fed. Cir. 2004), *rev’d*, 126 S. Ct. 280 (2006) (applying this standard of proof).

82. *See, e.g.*, *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1350-51 (Fed. Cir. 2001) (reversing the grant of preliminary injunction in the patentee’s favor); *New England Braiding Co. v. A.W. Chesterton Co.*, 970 F.2d 878, 882 (Fed. Cir. 1992); *Nutrition 21 v. United States*, 930 F.2d 867, 869 (Fed. Cir. 1991) (same).

83. At the moment, the law is in flux on this point. In May 2006, the Supreme Court rejected the Federal Circuit’s approach of granting a near-automatic permanent injunction after a finding of patent infringement. *See eBay Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1838-39 (2006). The district courts are split on whether the Supreme Court’s decision in *eBay* eliminates the Federal Circuit’s use of a presumption of irreparable harm, and the Federal Circuit has not yet ruled on the question. *Compare* *z4 Techs., Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 439-40 (E.D. Tex. 2006) (rejecting the presumption), *with* *Christiana Indus. v. Empire Elecs., Inc.*, No. 06-12568, 2006 WL 2087642, at *2 (E.D. Mich. Aug. 4, 2006), *vacated in part*, 2006 WL 2375956 (E.D. Mich. Aug. 16, 2006) (accepting the presumption).

84. *See, e.g.*, *Oakley, Inc. v. Sunglass Hut Int’l*, 316 F.3d 1331, 1345 (Fed. Cir. 2003) (affirming grant of preliminary injunction); DONALD S. CHISUM, CHISUM ON PATENTS §

preliminary relief of this sort can be swift. In Amazon's notorious infringement case against Barnes & Noble on the Bezos one-click patent, the Patent Office issued the patent on September 28, 1999,⁸⁵ Amazon sued Barnes & Noble on October 21, 1999,⁸⁶ and the trial court, after a five-day hearing that began on November 16, 1999, issued a preliminary injunction against Barnes & Noble's check-out process on December 1, 1999.⁸⁷ In other words, the suit went from a dead start to a preliminary injunction in one month and eleven days. Although the Federal Circuit would vacate this preliminary injunction fourteen and one-half months later,⁸⁸ Barnes & Noble had already suffered reduced sales for that period, which included two Christmas seasons. Map the speed of this proceeding onto the critical early stage of a new standardized product's market launch. How many standard adopters will sit on the sidelines for fourteen months while their licensed competitors sell standard-compliant items? If the patentee obtains a preliminary injunction, the case is over as a practical matter; the patentee will dictate the adopter's license terms.⁸⁹

In light of patent law's default rules favoring injunctions, it is easy to see why individual SSO participants would not want to adopt a standard and invest in complying with it while at the same time exposing themselves to preliminary or permanent injunctions designed for business contexts far removed from standard setting for interoperability, such as a pioneer drug maker's effort to prevent sales of a competing generic drug. The RAND promise is designed to replace the pro-injunction tilt with ready adopter access to standard-essential

20.04[1][e][i] (2002). More than a decade ago, Professor Merges brought out the central importance of this pro-injunction tilt in securing patent rights as property and thereby fostering efficient private ordering. See Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2661-67 (1994).

85. Method and System for Placing a Purchase Order Via a Communication Network, U.S. Patent No. 5,960,411 (issued Sept. 28, 1999), available at <http://www.uspto.gov/patft/index.html>.

86. *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 73 F. Supp. 2d 1228, 1232 (W.D. Wash. 1999) (granting preliminary injunction), *rev'd*, 239 F.3d 1343 (Fed. Cir. 2001) (vacating preliminary injunction).

87. *Id.*

88. The Federal Circuit vacated the injunction on February 14, 2001, concluding that Amazon failed to dispel the serious question Barnes & Noble raised about whether the one-click patent was invalid for obviousness. See *Amazon.com*, 239 F.3d at 1343.

89. In their empirical study of preliminary injunctions in patent cases, Professors Lanjouw and Lerner describe the preliminary injunction's "powerful impact" as a litigation "weapon":

[P]ractitioner accounts suggest that . . . many firms request preliminary injunctions not just to avoid "irreparable harm" but also to impose financial stress on their rivals. An injunction proceeding itself raises the legal expenditure required to pursue a case through to a trial ruling. If, in addition, a plaintiff can shut down a significant fraction of a defendant's operations for months or years while an issue is being resolved, the defendant is likely to experience a sharp reduction in operating cash flow.

Jean O. Lanjouw & Josh Lerner, *Tilting the Table? The Use of Preliminary Injunctions*, 44 J.L. & ECON. 573, 573-74 (2001).

patent licenses. With access assured, adopters trust enough to make the investments needed to bring the standardized technology to market, driving rapid market growth for mutual benefit.

II. RECOGNITION THAT THE RAND PROMISE DISPLACES INJUNCTIONS

Patent law's pro-patentee injunction norm is ill-suited to the open SSO milieu, the basic premise of which is vigorous competition among adopters who have ready access to the technology they need to produce the standardized item. Economists and lawyers who have analyzed the standard-setting process recognize this fact, openly discussing both the tension between a patentee's conventional injunction-backed bargaining power and dependable long-term access to SSO output, and the role of the RAND promise in resolving that tension. Oddly, having identified this core function of the RAND promise, these same analysts suggest that the promise's basic meaning lies elsewhere.

For example, Professors Shapiro and Varian (both economists), in their illuminating work on the business strategies common to the network technology domain, identify the cession of control as a key step in cooperative technology adoption for a network market. According to Shapiro & Varian,

[t]he underlying idea is *to forsake control* over the technology to get the [consumer adoption] bandwagon rolling. If the new technology draws on contributions from several different companies, *each agrees to cede control* over its piece in order *to create an attractive package*: the whole is greater than the sum of the parts.⁹⁰

They also identify the RAND promise as the means for ceding control:

A fundamental principle underlying the consensus approach to standards is that they should be "open," with no one or few firms controlling the standard. Thus, a *quid pro quo* for having one's technology adopted in a formal standard is a commitment to license any patents *essential* to implementing the standard on "fair, reasonable, and nondiscriminatory" terms.⁹¹

Professor Shapiro emphasizes this same basic function of the RAND promise in subsequent work on standard setting, linking participants' insistence on the RAND commitment at the threshold of the formulation stage to the prevention of holdup problems at the implementation stage. According to Shapiro,

once a standard is picked, any patents (or copyrights) necessary to comply with that standard become truly essential . . . and the standard itself is subject to "hold-up" if these patent holders are not somehow obligated to license their patents on "reasonable terms." . . . [F]or precisely this reason, standard-setting bodies require participants to license any essential patents on reasonable terms as a *quid pro quo*

90. SHAPIRO & VARIAN, *supra* note 2, at 199-200 (emphasis added).

91. *Id.* at 238 (emphasis in original).

before adopting any standards.⁹²

In other words, the RAND promise is the very “somehow” by which participant-patentees are “obligated to license their patents on reasonable terms.”⁹³ Oddly, earlier in the same discussion, Shapiro suggests that holdup can occur even with a RAND policy where a patent owner’s “precise licensing terms” are left “vague” in an effort to avoid the appearance of an unlawful buyers’ cartel: “this caution can in fact lead to ex post holdup by particular rights holders, contrary to both the goal of enabling innovation and to consumers’ interests.”⁹⁴ 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.⁹⁵ All that remains for the court to do, once it properly construes the RAND promise, is to referee the parties’ conflicting claims about whether the patentee’s license terms are reasonable and nondiscriminatory.⁹⁶

Legal analysts have shown a similar blend of keen insight and befuddlement

92. Shapiro, *supra* note 12, at 136; *see also id.* at 124-26 (describing the general patent holdup problem).

93. *See id.*

94. *Id.* at 128.

95. The Patent Act provides that in an infringement case “the court may increase the damages up to three times the [compensatory damages] amount found or assessed.” 35 U.S.C. § 284 (2000). The courts have interpreted this provision in conventional cases removed from standard setting to permit, but not compel, enhanced damages where the infringement was willful or in bad faith. *See Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1342 (Fed. Cir. 2004) (en banc). In other words, “enhanced damages are punitive, not compensatory.” *Sonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1574 (Fed. Cir. 1996). The threat of punitive damages in conventional cases helps deter infringement that may be difficult to detect. *See Roger D. Blair & Thomas F. Cotter, An Economic Analysis of Damages Rules in Intellectual Property Law*, 39 WM. & MARY L. REV. 1585, 1640 (1998) (concluding that “[s]ome enhancement of the patentee’s [damages] award . . . may be necessary to deter those infringers who know about the patent, or who could learn about it at a reasonable cost, but whose conduct otherwise might go undetected or undeterred”). A punitive damages award is, however, improper in the context of an adopter who has negotiated in good faith, albeit unsuccessfully, with the owner of a standard-essential patent who is bound by the RAND promise. *But cf. id.* at 1641 (concluding that “a finding that the defendant’s conduct is only marginally unlawful weighs against” enhanced damages, and “may even counsel in favor of limiting the recovery to an award of compensatory damages only”). First, the adopter has not acted in disregard of the patentee’s rights but actively sought to come to reasonable license terms with the patentee. Second, infringement of a standard-essential patent is not so hard to detect that it warrants extra deterrence both because the adopter has sought out the patentee and because adopters must actively communicate their use of the standard to attract consumers (which communication patentees can readily detect).

96. As indicated earlier, the courts have some models to aid them in this inquiry. *See supra* notes 17-22 and accompanying text.

about the RAND promise's meaning. For example, Mr. Schallop concludes that the RAND policy's meaning "is not entirely clear."⁹⁷ At the very same time, however, he focuses in on its precise meaning: "this contractual language, at a minimum, requires that essential IPR owners not chill the adoption and proliferation of the . . . standard through the enforcement of their essential patent rights by enjoining competitors from practicing the standard."⁹⁸ Similarly, Mr. DeVellis concludes that, "[a]lthough the meaning of 'reasonable' is not well settled, it seems to require, at a minimum, that patent holders offer terms that will not prevent their competitors from practicing the standard."⁹⁹ He also concludes that a useful "patent policy *must create a duty* requiring members to agree to reasonable licensing terms."¹⁰⁰ An irrevocable waiver of injunctive relief that ensures adopters' long-term access to standard-essential technology is, of course, the lynchpin of such a "duty," i.e., an obligation to license for which adopters have a corresponding access right.

Professor Lemley, who offers the most extended and penetrating legal analysis of the RAND promise, repeatedly casts its role in conferring long-term access on adopters as a patentee's waiver of the injunction right. In describing the SSOs that use the RAND policy, he states that "[t]hey permit their members to own IP rights, but require those members to commit in advance to licensing those rights on specified terms and *to forgo injunctive relief altogether*."¹⁰¹ Similarly, in describing the relief available to a frustrated adopter who brings a contract action against a participant-patentee over failure to license, he concludes that "[s]pecific performance of *an obligation to license* on royalty-free or [RAND] terms seems particularly appropriate; the defendant [patentee] *had already agreed to give up a legal right in exchange* for something of value, and is merely being prevented from asserting *the right it had given up*."¹⁰² After reviewing patent law's implied license doctrine as an alternate interpretive route, Professor Lemley concludes that implied license is the better route precisely because it more firmly removes the injunction threat:

I think it is preferable as a policy matter to construe an IP owner's agreement to an SSO IP-licensing requirement as the grant of a license itself, rather than merely a contract with the SSO. . . . [M]ost importantly, the implied-license approach reduces opportunism by IP owners. Under the contract approach, IP owners have an incentive to assert claims for patent infringement against users of well-established

97. Schallop, *supra* note 12, at 227.

98. *Id.*; *see also id.* at 230 (concluding that the RAND promise "ensures that a participant will not significantly hinder the proliferation of the standard by threatening to unduly interfere (e.g., attempt to license at an overvalued royalty rate) or enjoining others (e.g., via an injunction) from practicing the standard because of its patent").

99. DeVellis, *supra* note 16, at 346.

100. *Id.* at 347 (emphasis added).

101. Lemley, *supra* note 7, at 1902 (emphasis added).

102. *Id.* at 1916 (emphasis added).

standards, even if the owners previously agreed to license those patents on reasonable and nondiscriminatory terms. By threatening to prevent use of the standard, they can coerce significantly more than a reasonable royalty from users. Determining that IP owners have already licensed their patents prevents such opportunism.¹⁰³

In short, whether denominated a contract or an implied license, the key goal on which Lemley rightly focuses is removing the threat of injunction from the patentee's arsenal. He uses these insights into the RAND promise's function as a bridge to Professor Merges' work on collective rights organizations, analyzing SSO IP policies as a form of private ordering (albeit a "messy" one) and contrasting them with patent pools.¹⁰⁴ Finally, extending prior analyses of the RAND policy, he shows that a participant's commitment to license essential patents is ongoing, not temporary.¹⁰⁵

Notwithstanding his cogent focus on the RAND promise's role in eliminating the threat of injunction, and thus of post-standardization holdup, Professor Lemley also describes the RAND policy as unclear and uncertain: "while IP owners at many SSOs [in the study] were required to license their rights on reasonable and nondiscriminatory terms, it isn't clear what those obligations mean in practice,"¹⁰⁶ and SSO IP policies "are ambiguous on important terms."¹⁰⁷ He suggests the SSOs have left the meaning of the RAND policy ill-defined by failing to explain it in more detail:

- "While 'reasonable and nondiscriminatory licensing' thus appears to be the majority rule among SSOs with a patent policy, relatively few SSOs gave much explanation of what those terms mean or how licensing disputes would be resolved."¹⁰⁸
- "One of the most common requirements imposed on IP owners is an obligation to license IP rights on reasonable and nondiscriminatory terms. But virtually no SSO policies specify what that phrase means, leaving courts to decide what terms are 'reasonable.'"¹⁰⁹
- "Virtually no SSO specifies the terms on which licenses must be granted beyond the vague requirement that they be 'reasonable' and 'nondiscriminatory.' . . . The result is uncertainty over the cost and scope of patent licenses that may not prove much better than having no policy at all."¹¹⁰

He also urges SSOs to "give content to the reasonable and nondiscriminatory licensing requirement," concluding that, "without some idea of what those

103. *Id.* at 1925.

104. *Id.* at 1948-57.

105. *Id.* at 1912, 1914 & n.83.

106. *Id.* at 1906.

107. *Id.* at 1957.

108. *Id.* at 1906.

109. *Id.* at 1913.

110. *Id.* at 1964-65.

[RAND] terms are, reasonable and nondiscriminatory licensing loses much of its meaning.”¹¹¹

Professor Lemley is right to urge that SSOs can enhance their IP policies by elaborating upon the full meaning of the RAND promise, but he errs in suggesting that the RAND promise “loses much of its meaning” in the absence of such elaboration.¹¹² So long as the RAND promise is construed according to its core function as an irrevocable waiver of extraordinary remedies, it is hard to know what more the SSOs that rely on it should be required to say to make it an effective means to eliminate post-adoption holdup. It locks in the adopters’ right to access the technology on reasonable terms. Parties can negotiate license terms later without fear of an injunction or treble damages, and with far more information about the scope of standard-essential patents and market conditions. The courts have “experience with determining reasonable royalties in the patent context,”¹¹³ and the parties can resort to them if negotiations fail.

All these economists and lawyers have advanced our understanding of the RAND promise by squarely identifying its core function of preventing post-standardization holdup. At the same time, their hesitation to conclude that the RAND policy’s core function dictates its basic meaning suggests that its meaning is unclear, or lies elsewhere. It does not.

III. THE RAND PROMISE AS GOVERNANCE STRUCTURE

The central question for those who plan to collaborate on an ICT standard that may be covered by a privately owned patent is this: who, if license negotiation fails, holds the access right to the patent—the patent owner, or individual adopters? The animating theory of group standard-setting dictates that it must be the adopters. If the owner of a standard-essential patent can enjoin (or threaten to enjoin) would-be adopters from practicing the standard, the very enterprise of adopting a standard fails to meet its basic purpose. The RAND promise is intended to reallocate the access right from the patentee to the

111. *Id.* at 1964. His suggestions for adding content to the RAND policy—all of which strike me as highly worthy of adoption—do not actually make the RAND promise’s core role in precluding injunctions any more explicit. He recommends that SSOs “require members who assert patents to make available to others a copy of all their licenses involving the patent”; “specify[] whether royalty rates must be identical for all parties, or whether potential licensees in different situations may be treated differently”; “prevent certain kinds of restrictive nonprice license terms such as grantback clauses and noncompetition agreements”; and “set up some means of dispute resolution within the [SSO] to help resolve royalty disagreements,” such as “an arbitration group specializing in standards conflicts.” *Id.* at 1965-66 & n.329. See also Mark A. Lemley, *Ten Things to Do About Patent Holdups of Standards (and One Not To)* 4-11 (Stan. Pub. Law Working Paper No. 923470, 2006), available at <http://ssrn.com/abstract=923470> (describing five steps SSOs can take and five legal reforms others can make to ameliorate holdup and royalty stacking problems in standards patent licensing).

112. Lemley, *supra* note 7, at 1964.

113. *Id.* at 1966 & n.331.

adopters. This is the RAND promise's central function and meaning.

Can matters truly be this simple? Can the RAND promise's function be merely to lock in adopters' right to access, for a reasonable fee, any standard-essential patent? The holdup problem that the RAND promise solves has, in fact, long been a subject of analysis in the transaction cost economics literature, part of the broader literature on the theory of the firm.¹¹⁴ The theory of the firm helps illuminate the RAND promise's simplicity and power. By deploying it here, I connect analyses of SSO treatment of participants' IP rights to a growing literature that uses the theory of the firm to understand the contours of IP law more generally.¹¹⁵

A. *Transaction Cost Economics and the Opportunism Problem*

Why do complex, hierarchical business firms exist at all? Put another way, why is not all commerce conducted at arms' length in spot markets by independent individual actors? "In mundane terms, the issue is that of make-or-buy. What is it that determines which transactions are executed how?"¹¹⁶

Professor Coase sparked a sprawling literature on the theory of the firm with his seminal 1937 article, *The Nature of the Firm*,¹¹⁷ which explores these interlocked questions. In the piece, he first contrasts "alternative methods of coordinating production," "exchange transactions on the market," in which "price movements direct production," and "a firm," in which "market transactions are eliminated and in place of [which] is substituted the entrepreneur-co-ordinator, who directs production."¹¹⁸ Given the existence of these alternative mechanisms, Coase argues, the challenge is "to discover why a firm emerges at all in a

114. See generally Oliver Hart, *An Economist's Perspective on the Theory of the Firm*, 89 COLUM. L. REV. 1757, 1760-63 (1989) (summarizing transaction cost economics as part of the theory of the firm).

115. See Dan L. Burk, *Intellectual Property and the Firm*, 71 U. CHI. L. REV. 3 (2004); Paul J. Heald, *A Transaction Costs Theory of Patent Law*, 66 OHIO ST. L.J. 473 (2005); Robert P. Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L.J. 1477 (2005) [hereinafter Merges, *Transactional View*]; Robert P. Merges, *Intellectual Property Rights and the New Institutional Economics*, 53 VAND. L. REV. 1857 (2000) [hereinafter Merges, *Property Rights*]; Oren Bar-Gill & Gideon Parchomovsky, *Intellectual Property Law and the Boundaries of the Firm* (University of Pennsylvania, Institute for Law & Economics Research Paper 04-19; Harvard Law School, Center for Law, Economics, and Business Discussion Paper No. 480, 2004), available at <http://www.ssrn.com/abstract=559195>; Dan L. Burk & Brett H. McDonnell, *The Goldilocks Hypothesis: Balancing Intellectual Property Rights At the Boundary of the Firm* (University of Minnesota Law School Legal Studies Research Paper No. 06-11, 2006), available at <http://www.ssrn.com/abstract=890944>.

116. Oliver E. Williamson, *Introduction, in THE NATURE OF THE FIRM: ORIGINS, EVOLUTION, AND DEVELOPMENT* 3, 4 (Oliver E. Williamson & Sidney G. Winter eds., 1993).

117. R. H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386 (1937), available at <http://www.jstor.org>.

118. *Id.* at 388.

specialised exchange economy.”¹¹⁹ His answer, in a phrase, is *transaction costs*: “The main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price mechanism.”¹²⁰ He identifies a number of component costs of market exchange, including the cost “of discovering what the relevant prices are” in the market, “[t]he costs of negotiating and concluding a separate contract for each exchange transaction which takes place on a market,” and the rising cost of writing a contract fully to govern an increasingly long-term exchange relationship.¹²¹ Indeed, on this last point—the cost of contracting for a long-term relationship—Coase surmises that “[a] firm is likely therefore to emerge in those cases where a very short term contract would be unsatisfactory.”¹²² The long-term relationship among SSO members, who both establish a standard and continue to license each other’s IP rights in practicing the standard, is such a case.

Of course, if organizing a firm economizes on transaction costs, compared to the costs of transacting in a market, one might naturally wonder, “Why is not all production carried on by one big firm?”¹²³ The answer, once again, is cost: “Naturally a point must be reached where the costs of organizing an extra transaction within the firm are equal to the costs involved in carrying out the transaction in the open market, or, to the costs of organizing by another entrepreneur.”¹²⁴ In short, “[w]hich transactions go where depends on the attributes of transactions, on the one hand, and the costs and competence of alternative modes of governance, on the other.”¹²⁵

“Transaction cost economics,” building on the foundation laid by Coase, “is mainly concerned with the governance of contractual relations.”¹²⁶ The transaction costs that drive organizational choice include both “ex ante costs of drafting, negotiating, and *safeguarding* an agreement” and “ex post costs of maladaptation and adjustment that arise when contract execution is misaligned.”¹²⁷ Among the key ex post problems against which transacting parties seek to safeguard is the opportunism occasioned by asset specificity—the situation where a party invests in an asset that has far more value inside a specific trading relationship than outside it.¹²⁸ Once a party makes a relationship-specific

119. *Id.* at 390.

120. *Id.*; *see also id.* at 392 (“[T]he operation of a market costs something and by forming an organization and allowing some authority (an ‘entrepreneur’) to direct the resources, certain marketing costs are saved.”).

121. *Id.* at 390-91.

122. *Id.* at 392.

123. *Id.* at 394.

124. *Id.*

125. OLIVER E. WILLIAMSON, *THE MECHANISMS OF GOVERNANCE* 25 (1996).

126. *Id.* at 222.

127. *Id.* at 379 (emphasis in original).

128. *See* Joskow, *supra* note 65, at 108; Klein et al., *supra* note 65, at 298-99. Professor Hart, in an overview piece about transaction cost economics, gives the following examples of relationship-specific investments:

investment, its trading partner may be able to extract a higher share of the ex post surplus.¹²⁹ How can parties guard against this opportunism? One option is to bring the transaction within a firm by integrating the separate operations into a single business or by creating a safeguard in their contract from the outset to reduce the likelihood of opportunism.¹³⁰ Professor Oliver Williamson, for example, explores the use of a contract-based “hostage,” or bonding mechanism, that establishes sufficient trust to induce an exchange.¹³¹ “If the first party reneges on the deal, the second can keep the hostage[,]” which “makes performance of the original deal more likely.”¹³²

All such contractual safeguard approaches, however, face a limiting condition. No contract can ever fully anticipate, and make provision for, all possible circumstances and outcomes in a complex relationship. Indeed, this limiting condition is built into the very fabric of a transaction cost perspective: a fully detailed contract would be infinitely costly; therefore, no one writes them.¹³³ “Incompleteness of contracts,” in turn, “opens the door to a theory of ownership.”¹³⁴ When a contract that governs a complex relationship does not address a situation, the default positions dictated by basic property law rules will determine the parties’ options for moving forward. In other words, “ownership is a source of power when contracts are incomplete.”¹³⁵ As a result, one way to

locating an electricity generating plant adjacent to a coal mine that it going to supply it; a firm’s expanding capacity to satisfy a particular customer’s demands; training a worker to operate a particular set of machines or to work with a particular group of individuals; or a worker’s relocating to a town where he has a new job.

Hart, *supra* note 114, at 1762.

129. See Hart, *supra* note 114, at 1762-63; Joskow, *supra* note 65, at 108; Klein et al., *supra* note 65, at 298-99.

130. See Joskow, *supra* note 65, at 108; Klein et al., *supra* note 65, at 299-300, 302-03.

131. See WILLIAMSON, *supra* note 125, at 120-44 (ch. 5).

132. Merges, *Transactional View*, *supra* note 115, at 1483. Professor Merges gives the following example of a hostage-type contractual safeguard against opportunism:

One example is a performance bond, such as in a construction contract. A building contractor has all sorts of ways to delay, cheat, or otherwise trouble a client who wants a new building. So the client requires the contractor to post a fixed amount of money in the form of a bond, which the client can seize if the contractor acts opportunistically.

Id.

133. As Professor Hart puts it, “in practice, transaction costs are pervasive and large. A consequence of the presence of such costs is that the parties to a relationship will *not* write a contract that anticipates all the events that may occur and the various actions that are appropriate in these events.” Oliver D. Hart, *Incomplete Contracts and the Theory of the Firm*, in *THE NATURE OF THE FIRM: ORIGINS, EVOLUTION, AND DEVELOPMENT* 141 (Oliver E. Williamson & Sidney G. Winter eds., 1993).

134. *Id.*

135. OLIVER HART, *FIRMS, CONTRACTS, AND FINANCIAL STRUCTURE* 29 (1995). See also Hart, *supra* note 114, at 1766 (“[W]hen contracts are incomplete, the boundaries of firms matter in that these boundaries determine who owns and controls which assets.”); Merges, *Transactional View*,

guard against opportunism is to allocate to the more vulnerable or important party a residual property right that helps protect his relationship-specific investment.¹³⁶

The turn to property right allocation as a safeguard against opportunism illuminates the core function of the RAND promise as a matter of economic theory. SSO participants cannot write a contract that fully takes account of the royalty issues raised by standard essential patents that the participants themselves may own (or come to own later). This is so not because the participants are lazy, but because it is virtually impossible for them to write a full contract. SSO participants thus require a different opportunism preventing mechanism if they are to establish sufficient trust for the standard-setting process to move forward. The property rights approach to transaction cost economics suggests that, by focusing on who holds the access rights to standard essential patents, the parties can allocate the access right so as to minimize the threat of opportunism that might drive away SSO participants or standards adopters. The source of the potentially derailing holdup is a patentee's strong right to block access to its technology with the aid of a court backed injunction. The solution, then, is to reallocate the right to access the patent for standards compliance, a property-like right, to the adopter community as a whole. All participants are willing to do so because, behind the veil of ignorance that shrouds the final outcome of the standard setting process, participants are at least as likely to gain from eliminating the threat of disproportionate royalty demands from others as they are to lose the chance to extract disproportionate royalties from others.

The economic theory, at least, is straightforward. But do we see parties using real-world, property-based governance mechanisms to protect themselves from opportunism by reallocating rights to access and use technology? In fact, we do. It is to those real-world governance mechanisms I now turn.

supra note 115, at 1486 (“[T]here are many real-world transactions in which comprehensive contracts are difficult to specify, write, and enforce. The deep legal default rights that accompany property ownership come strongly into play here. They make it safe for parties to enter contracts when virtually no other form of transactional safeguard would work as well.”).

136. See Joskow, *supra* note 65, at 111 (“The property rights approach focuses on ownership of physical and intangible assets . . . where ownership carries with it the authority to determine how these assets will be used. . . . Ownership and the rights of control that go along with it change the status quo bargaining point within the firm and the ultimate allocation of the rents over which the bargaining takes place. That is, when specific investments are involved, ownership of the specific assets allocates the residual rights of control to the party that makes the specific investment.” (citations omitted)); see also Margaret M. Blair, *Closing the Theory Gap: How the Economic Theory of Property Rights Can Help Bring “Stakeholders” Back Into the Theory of the Firm*, 9 J. MGMT. & GOVERNANCE 33, 35 (2005) (“The gaps in incomplete contracts can be filled by a variety of different decision rules, or institutional mechanisms for decision-making. One such decision rule is the assignment of ‘property rights’ which give the holders the right to make all decisions about the use of some assets that have not been otherwise assigned by contract.” (footnote omitted)).

B. *The Corporate Form and Opportunism Prevention*

Corporate law and IP law scholars have offered accounts of two anti-opportunism governance mechanisms that are germane to understanding the meaning of the typical SSO RAND promise. One mechanism is the basic corporate form itself, which creates a separate legal person who holds the capital assets contributed by its founders and who uses the assets according to a governing board's direction. This separate legal entity, by taking ownership of founders' contributions, locks the assets into the venture that the corporation is founded to pursue. The other mechanism is the patent pool, which typically uses a separate licensing corporation to receive patents or licensing rights assigned by the pool's founders (as well as subsequent contributors). With the patent assets locked in to the central licensing entity and a royalty distribution mechanism established, the parties can compete in the market using the technology that stocks the pool.

The common thread in these two governance stories is that they prevent opportunism by locking assets into a long-term relationship in such a way that contributors cannot withdraw them from the common venture and thus destroy others' relationship-specific investments in the venture. Nor can the contributors even threaten to withdraw assets, in an effort to extract a greater share of the return on the group's venture once group work on their common goal has begun. This common thread makes both examples highly pertinent to understanding the RAND promise. Serving the same safeguard function as the corporate form, or the central licensing entity, the RAND promise locks in access to the contributing participant's technology for the entire standard adopter community. It does so by waiving the patentee's ability to resort to patent law's extraordinary remedies, such as injunctions and punitive damages.

1. *Corporate Law and Locking in Capital.*—"What is a business corporation? What purposes does and should it serve?"¹³⁷ For many years, the dominant answers within corporate law scholarship have been "a 'nexus' of private contracts" and maximizing returns to the shareholder.¹³⁸ The nexus of contracts approach "has provided insights into some important problems" but "obscured other problems."¹³⁹ In a series of papers, Professors Margaret Blair and Lynn Stout, writing separately and together, have used insights from

137. Margaret M. Blair & Lynn A. Stout, *Specific Investment: Explaining Anomalies in Corp. Law* (Vanderbilt Univ. Law Sch., Law and Economics Research Paper No. 05-26; UCLA Sch. of Law, Law and Economics Research Paper No. 05-27), available at <http://ssrn.com/abstract=819365> [hereinafter Blair & Stout, *Anomalies*].

138. *Id.* at 4-6. On the "nexus of contracts" approach, see J. Mark Ramseyer, *Corporate Law*, in *THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW* 503-04 (Peter Newman ed., 1998).

139. Margaret M. Blair, *Why Markets Chose the Corporate Form: Entity Status and the Separation of Asset Ownership from Control* 1 (Georgetown Univ. Law Ctr., Business, Economics & Regulatory Policy Working Paper No. 429300, 2003), available at <http://www.ssrn.com/abstract=429300>.

transaction cost economics to explore the problem of how to encourage people with different assets and skills to make specific investments in a long-term collaborative business—a scenario that raises the specter of opportunism.¹⁴⁰ They argue that “one of the most important functions of corporate law” is “the creation of a legal and institutional basis for accumulating enterprise-specific physical capital, as well as specialized organizational and other intangible capital, and for ‘locking in’ that capital by discouraging premature asset withdrawal by managers, investors, and their heirs.”¹⁴¹

Blair and Stout begin by identifying complex business ventures as instances of “team production,”¹⁴² i.e., “production in which 1) several types of resources are used and 2) the product is not a sum of separable outputs of each cooperating resource . . . [and] 3) not all resources used in team production belong to one person.”¹⁴³ Examples include “building railroads, developing new technologies, [and] creating trusted brand names.”¹⁴⁴ Such ventures cannot succeed with specific investments from different participants, but “[s]pecific investment is discouraged when individual investors have a legal right to prematurely withdraw their contributions (and with it, the ability to opportunistically threaten to withdraw) in order to ‘hold up’ their fellow investors and extract a larger share

140. See *supra* notes 137, 139; *infra* notes 141, 151.

141. *Id.* at 2 (citation omitted). Another phrase corporate law scholars have used, besides “lock in,” is “‘affirmative asset’ partitioning.” See Henry Hansmann & Reinier Kraakman, *The Essential Role of Organizational Law*, 110 *Yale L.J.* 387, 393-94 (2000) (describing affirmative and defensive asset partitioning). Their focus, however, is “how affirmative asset partitioning reduces the cost of credit for legal entities,” *id.* at 398, rather than how to encourage varied parties to make venture-specific investment.

Blair and Stout have their critics, of course. See, e.g., Larry E. Ribstein, *Should History Lock In Lock-In?* (Illinois Law and Economics, Working Paper No. LE06-005, 2006), available at <http://www.ssrn.com/abstract=883648>. The goal of this Article is not to take sides on the nuances of corporate law scholarship. Rather, it is to show that theoretical insights from transaction cost economics, and opportunism prevention in particular, aid in understanding and interpreting existing real-world solutions to the problem of coordinating contributions from many parties in the development of a long-term, complex business venture (such as growing a competitive market on a standardized technology platform in the ICT sector). Blair and Stout, for their part, maintain that their approach “is consistent with the ‘nexus of contracts’ approach to understanding corporate law.” Margaret M. Blair & Lynn A. Stout, *A Team Production Theory of Corporate Law*, 85 *VA. L. REV.* 247, 254 (1999) [hereinafter Blair & Stout, *Team Production*]. And, as Professor Stout recently noted, “incorporation [is not] the only way to lock in capital[,]” although it “may often be the cleanest, cheapest, and most effective way to lock assets into a joint enterprise.” Lynn A. Stout, *On the Nature of Corporations*, 2005 *U. ILL. L. REV.* 253, 258.

142. Blair & Stout, *Team Production*, *supra* note 141, at 249-50, 265.

143. Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 *AM. ECON. REV.* 777, 779 (1972); see also Blair & Stout, *Team Production*, *supra* note 141, at 265 (quoting this same source).

144. Blair & Stout, *Anomalies*, *supra* note 137, at 17.

of the surplus generated by corporate activity.”¹⁴⁵ It is difficult to configure the participants’ incentives to encourage the needed specific investments. If participants agree in advance to a fixed sharing formula, individuals may shirk; after all, by hypothesis, it is difficult to value each individual’s contribution to the result.¹⁴⁶ “On the other hand, if the team members have no fixed sharing rule but simply agree to allocate rewards after the fact,” they risk “squandering time and effort haggling” as each “tr[ies] to grab a larger share of the total output.”¹⁴⁷

Blair and Stout, adapting a formal economic model from the team production literature,¹⁴⁸ conclude that the creation of a new separate entity, the public corporation, allows the venture participants to establish the right incentives to make venture-specific investments in relative confidence.¹⁴⁹ The key is that the corporation is a separate legal person, directed by an independent corporate board, that owns the participants’ contributions to the venture and the venture’s output. “The board enjoys ultimate decisionmaking authority to select future corporate officers and directors, to determine the use of corporate assets, and to serve as an internal ‘court of appeals’ to resolve disputes that may arise among the team members.”¹⁵⁰ In other words, participants “agree not to specific terms or outcomes (as in a traditional ‘contract’), but to participation in a process of internal goal setting and dispute resolution.”¹⁵¹ By yielding control of their property to the new entity, co-venturers greatly reduce the threat of later opportunism.

2. *Patent Pools and Locking in Access.*—When two different firms own patents on complementary technologies and each can thus block the other from entering the market for an item embodying the technology, they can clear the block by cross-licensing one another.¹⁵² When the number of firms and patents

145. *Id.*

146. Alchian & Demsetz, *supra* note 143, at 779-80; Blair & Stout, *Team Production*, *supra* note 141, at 266.

147. Blair & Stout, *Team Production*, *supra* note 141, at 266.

148. See Raghuram G. Rajan & Luigi Zingales, *Power in a Theory of the Firm*, 113 Q.J. ECON. 387 (1998).

149. See Blair & Stout, *Team Production*, *supra* note 141, at 271-76 (discussing Rajan & Zingales).

150. *Id.* at 276-77.

151. *Id.* at 278. In more recent work, Professor Blair canvasses the historical evidence for the proposition “that demand for the corporate form surged in the mid-nineteenth century United States because this form uniquely facilitated the establishment of lasting enterprises that could accumulate substantial enterprise-specific physical assets, and form extensive specialized organizational structures.” Margaret M. Blair, *Locking in Capital: What Corporate Law Achieved for Business Organizers in the Nineteenth Century*, 51 UCLA L. REV. 387, 413 (2003). As people became interested in organizing increasingly complex, collaborative, long-term business ventures, “they discovered that incorporating and investing through a separate entity made it easier for them to make credible commitments to each other, and eventually to elicit ongoing investment” from both specialized managers and financiers. *Id.* at 427.

152. See U.S. DEP’T OF JUSTICE, FED. TRADE COMM’N, ANTITRUST GUIDELINES FOR THE

grows, the simple cross-license morphs into the more complex arrangement known as a “patent pool.”¹⁵³ “A patent pool is an arrangement by which two or more patent owners put their patents together and receive in return a license to use them.”¹⁵⁴ Moreover, “[i]t is generally accepted that in cases of blocking patents or complementary patents, cross-licensing arrangements or patent pooling arrangements benefit competition,” by opening a market where none could succeed before.¹⁵⁵ Given the risk of anticompetitive conduct such pools have raised historically,¹⁵⁶ however, much of the modern literature on patent pools focuses on the antitrust analysis of these arrangements.¹⁵⁷

The goal here is not to recapitulate the antitrust analysis of patent pools. Instead, the goal is to focus on a structural feature that pervades the modern patent pool—namely, the central corporate entity that licenses the pool’s patent assets. This central licensing entity, an example of the corporate form as an access lock-in governance mechanism, highlights the utility of the property rights approach to preventing opportunism in the specific domain of access to patent rights. The RAND promise, properly understood, is a simplified variant of the licensing entity mechanism.

Patent pools have, from the outset, been about making a way out of no way. Consider, for example, the sewing machine patent pool. In the 1850s, patent litigation between Elias Howe and Isaac Singer, and among sewing machine makers generally, consumed a large share of these firms’ resources.¹⁵⁸ Indeed,

LICENSING OF INTELLECTUAL PROPERTY § 5.5 (1995) (“[Cross-licensing] may provide procompetitive benefits by *integrating complementary technologies*, reducing transaction costs, *clearing blocking positions*, and avoiding costly infringement litigation.” (emphasis added)). On blocking patents generally, Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 79-80 (1994); Gilbert Goller, *Competing, Complementary and Blocking Patents: Their Role in Determining Antitrust Violations in the Areas of Cross-Licensing, Patent Pooling and Package Licensing*, 50 J. PAT. OFF. SOC’Y 723, 723-27 (1968).

153. See 2 HERBERT HOVENKAMP ET AL., *IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW* § 34.2b (2002); Merges, *Contracting*, *supra* note 47, at 1347.

154. FLOYD L. VAUGHAN, *THE UNITED STATES PATENT SYSTEM: LEGAL AND ECONOMIC CONFLICTS IN AMERICAN PATENT HISTORY* 39-40 (1956).

155. HOVENKAMP ET AL., *supra* note 153, § 34.2c at 34-7; see also WARD S. BOWMAN, JR., *PATENT & ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL* 202 (1973).

156. See HOVENKAMP ET AL., *supra* note 153, § 34.3c at 34-15 (noting the Supreme Court’s concern “over the potential for patent pools to serve as a framework for the implementation of collective output restraints or price-fixing schemes”); VAUGHAN, *supra* note 154, at 43-61 (discussing case examples of anticompetitive conduct).

157. See, e.g., HOVENKAMP ET AL., *supra* note 153, § 34.4; David A. Balto & Andrew M. Wolman, *Intellectual Property and Antitrust: General Principles*, 43 IDEA 395, 445-53 (2003); Steven C. Carlson, Note, *Patent Pools and the Antitrust Dilemma*, 16 YALE J. ON REG. 359, 373-99 (1999).

158. See RUTH BRANDON, *A CAPITALIST ROMANCE: SINGER AND THE SEWING MACHINE* 88-99

newspapers at the time called it the “Sewing Machine War.”¹⁵⁹ In October 1856, on the eve of an infringement trial in Albany, New York, Orlando Potter—a lawyer, and the president of one of the feuding firms—proposed a way for the competitors to get past their mutually blocking patent positions¹⁶⁰ and compete in the market for sewing machines: the three companies in question “owned, between them, almost all the patents worth owning. Why not pool their interests instead of wasting time and money conducting these interminable fights?”¹⁶¹ Thus was born the first U.S. patent pool, “the Sewing Machine Combination,” and they persuaded Howe to join as well.¹⁶² Each agreed to pay a fixed fee for every machine sold, in return for a license to all the patents in the pool. “Part of this money was to be reserved to fight infringers, and the rest would be divided between them.”¹⁶³ Two subsequent, industry-wide pools also helped to resolve pending or threatened litigation—the automobile patents pool established in 1915, known as the Automobile Manufacturers Association, and airplane patents pool established in 1917, known as the Manufacturers Aircraft Association (“MAA”).¹⁶⁴ All followed the same basic pattern—a pool of patents licensed to all, in exchange for a share of royalty revenue.

The MAA also contained the germ of the modern pool’s central patent holding company. Patent litigation plagued the airplane business from 1909, when Orville and Wilbur Wright sued Glenn Curtiss.¹⁶⁵ “With the formal entry of the United States into World War I imminent, however, a solution to the patent litigation was sought by the government[,]” and, “[f]ollowing the U.S. declaration of war in April 1917, the National Advisory Committee for Aeronautics proposed a cross-licensing agreement.”¹⁶⁶ The resulting pool was submitted to the U.S. Attorney General, Thomas Watt Gregory, for his opinion about whether it ran afoul of the antitrust laws. In his October 1917 opinion clearing the pool,¹⁶⁷ General Gregory summarized its terms. First, the pool entailed the creation of the MAA as a New York corporation; the stockholders were the companies contributing patents to the pool and receiving licenses in return.¹⁶⁸ Second, under the license agreement between MAA and its

(1977) (describing this infringement litigation).

159. *Id.* at 89.

160. *Id.* at 97-98.

161. *Id.* at 98.

162. *Id.*

163. *Id.*

164. See VAUGHAN, *supra* note 154, at 62-67 (describing the auto and airplane pools). The interested reader can learn more about the details of the automobile patents pool in WILLIAM GREENLEAF, *MONOPOLY ON WHEELS: HENRY FORD AND THE SELDEN AUTOMOBILE PATENT* 244-47 (1961).

165. See George Bittlingmayer, *Property Rights, Progress, and the Aircraft Patent Agreement*, 31 J.L. & ECON. 227, 231 (1988).

166. *Id.* at 231-32.

167. See Manufacturers Aircraft Association—Antitrust Laws, 31 Op. Att’y Gen. 166 (1917).

168. *Id.* at 166-67.

stockholders, the stockholders “grant[ed] to each other licenses under all airplane patents of the United States[,]” and “appoint[ed] the Association (Inc.) their agent with full power to grant the nonexclusive licenses provided for in the agreement.”¹⁶⁹ The contributing airplane patentees, by creating the MAA as a licensing arm, helped ensure all licensees long-term access to patents in the pool. Indeed, the pool lasted until 1975, when its antitrust problems became insuperable.¹⁷⁰

The patent-holding, central licensing entity is the hallmark of the modern patent pool. As Professor Merges describes it, “[m]ultiple patent holders assign or license their individual rights to a central entity, which in turn exploits the collective rights by licensing, manufacturing, or both.”¹⁷¹ Put another way, “[p]atent pools function according to liability rules[,]” rather than injunction-driven property rules.¹⁷² This is because all four large-scale pools that have been the subject of an Antitrust Division business review letter,¹⁷³ beginning with the MPEG pool in 1997, place licensing rights in the hands of a central licensing entity. In the MPEG pool, the founding patentees established MPEG LA, a Delaware limited liability company, as the central license administrator and licensed their respective MPEG patents to MPEG LA for sublicensing to others.¹⁷⁴ In the Philips DVD pool, the founding patentees granted Philips patent licensing rights, and Philips agreed to combine those rights with its own and license them as a portfolio to all interested third parties.¹⁷⁵ Similarly, in the Toshiba DVD pool, the founding patentees granted Toshiba patent licensing rights, and Toshiba agreed to combine those rights with its own and license them as a portfolio to all interested third parties.¹⁷⁶ Finally, in the 3G wireless pool,

169. *Id.* at 168. MAA, for its part, “accept[ed] the appointment as agent of its subscribers, for granting and enforcing the license provided for in the agreement, and for enforcing the other obligations of the subscribers under the agreement.” *Id.* at 169.

170. *See* Bittlingmayer, *supra* note 165, at 234-35.

171. Merges, *Institutions*, *supra* note 47, at 133; *see also* HOVENKAMP ET AL., *supra* note 153, at 34-35 (“Alternatively, when two or more patent owners form a separate entity, and assign or license specified patent rights to the entity, the resulting arrangement is usually referred to as a patent pool.”); VAUGHAN, *supra* note 154, at 40 (“By means of assignment the control of the patents is usually vested in an individual or a corporation . . .”). According to Professor Merges, even relatively small-scale pools “consolidate property rights in a central entity (*i.e.*, the contract).” Merges, *Institutions*, *supra* note 47, at 140.

172. Merges, *Contracting*, *supra* note 47, at 1341.

173. *See* 28 C.F.R. § 50.6 (2006) (establishing business review letter process).

174. Letter from Joel I. Klein, Acting Assistant Attorney General, Antitrust Division, U.S. Dep’t of Justice, to Gerrard R. Beeney, Esq., Sullivan & Cromwell 2-3 (June 26, 1997), <http://www.usdoj.gov/atr/public/busreview/215742.pdf>.

175. Letter from Joel I. Klein, Assistant Attorney General, Antitrust Division, U.S. Dep’t of Justice, to Garrard R. Beeney, Esq., Sullivan & Cromwell 2-6 (Dec. 16, 1998), <http://www.usdoj.gov/atr/public/busreview/2121.pdf>.

176. Letter from Joel I. Klein, Assistant Attorney General, Antitrust Division, U.S. Dep’t of Justice, to Carey R. Ramos, Esq., of Paul Weiss Rifkind Wharton & Garrison 2-3, 6 (June 10,

the founding patentees established “five separate and independent Platform Companies . . . , one for each of the five 3G radio interface technologies [involved], with a separate Licensing Administrator . . . and a separate board of directors for each PlatformCo.”¹⁷⁷ Participating patentees make themselves “subject to th[e pertinent] PlatformCo’s licensing obligations” to interested third parties.¹⁷⁸ In all four instances, then, the pool founders locked in long-term access to the pool’s patents by transferring licensing rights to an independent central entity. The Antitrust Division, for its part, concluded that the pools presented no antitrust problems.

The modern pool’s central corporate entity has the right to license the patents in the pool. It locks in access for the contributing adopters, distributing revenue according to an established licensing formula. Pool founders establish the arrangement to take advantage of their well-identified stake in the market as patentees. By contrast, when SSOs meet to establish anticipatory standards, participants do not know whether they will, in the end, be patentees or licensees or both. A formal pooling arrangement is not yet appropriate. The RAND promise, however, locks in access to essential patents in a manner that takes account of the prospective nature of the standard setting process. This is done for much the same reason—to prevent opportunistic haggling over specific investments in building to the collaboratively established standard.

C. The RAND Promise and Access Lock-In

The RAND promise, like the licensing company at the center of a patent pool, locks in adopters’ access. It does so by granting adopters an irrevocable right to use the patented technology to build to the standard, in exchange for a reasonable royalty and other reasonable terms. Although the RAND promise is a far less elaborate, formalized structure than a patent pool’s central licensing company, or a corporation, it is functionally equivalent to these entities as a governance structure aimed at preventing opportunism.

The scope of the access grant to adopters embodied in the RAND promise makes sense, given the circumstances common to anticipatory standard setting. On the one hand, because the long-term right to practice the patented invention is essential for adopters, it is insufficient to grant a routine, revocable license that permits a patent owner to get an injunction and thereby shut out an adopter. However, given that the same patented technology may have multiple uses as yet unknown (after all, standard setting takes place early in the technology life cycle), outright assignment of the patent (or the full right to license it) to an independent licensing corporation is too much to ask of a patentee. Such an assignment would needlessly complicate, or perhaps preclude, the patentee from

1999), <http://www.usdoj.gov/atr/public/busreview/2485.pdf>.

177. Letter from Charles A. James, Assistant Attorney General, Antitrust Division, U.S. Dep’t of Justice, to Ky P. Ewing, Esq., Vinson & Elkins 4 (Nov. 12, 2002), <http://www.usdoj.gov/atr/public/busreview/200455.pdf>.

178. *Id.* at 5.

effectively exploiting the patented technology outside the standard context. A grant that both eliminates the prospect of injunctive relief, ensuring adopters long-term access, and otherwise leaves the patent rights in the owner's hands, allowing for exploitation in other contexts, is best tailored to the circumstances. This is precisely the grant that the RAND promise embodies.

One technical problem with this construction is that, without more, it might systematically permit licensees to force a less-than-reasonable royalty by refusing to pay (or pay enough) unless sued. Specifically, under the U.S. attorney fee rule, each litigation party generally pays its own way.¹⁷⁹ An adopter might use this fact to force a royalty discount just less than the best estimate of the patentee's attorney fees in an infringement suit to establish reasonable license terms. The RAND promise should not be a shield for this forced discount, and there is a patent law mechanism to prevent it. The Patent Act's fee-shifting rule in favor of the prevailing party is targeted at "exceptional cases."¹⁸⁰ Although the provision has not been used in such a way before, a court could readily use it to shift fees in a patentee's favor in cases where the reasonable license terms the court sets are not materially different from those the patentee had been willing to accept before the litigation. Such an approach is a fair analogy to existing fee awards in favor of prevailing patentees, which can be based on an accused infringer's maintaining the litigation in bad faith.¹⁸¹ Professors Cowie and Lavelle make a similar suggestion.¹⁸²

D. New Challenges for Improving RAND Promise Implementation

The bedrock meaning of the RAND promise is clear. It locks in adopters' access to patents on technology that participants have contributed to the standard. Two additional licensing issues merit brief mention: post-standardization patent transfers and the likely utility of arbitration for resolving disputes over particular RAND license terms.

1. *Licensing a Patent After an SSO Participant Sells It to a Nonparticipant.*—What is a court to do in the case where, after a standard is set and adopters are marketing standard-compliant items, a new patent owner who did not participate in the standard setting process, and thus did not make the RAND promise, sues to exclude an adopter from access to the patent? Does the

179. See *Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 533 (1994) (“[W]e are mindful that Congress legislates against the strong background of the American Rule. Unlike Britain where counsel fees are regularly awarded to the prevailing party, it is the general rule in this country that unless Congress provides otherwise, parties are to bear their own attorney’s fees.”).

180. 35 U.S.C. § 285 (2000) (“The court in exceptional cases may award reasonable attorney fees to the prevailing party.”).

181. See, e.g., *Imonex Servs., Inc. v. W.H. Munzprufer Dietmar Trenner GmbH*, 408 F.3d 1374, 1378 (Fed. Cir. 2005) (upholding an award of attorney fees in prevailing patentee’s favor).

182. Cowie & Lavelle, *supra* note 12, at 149 (“A court could find that . . . the defendant who refuses to accept a reasonable offer and forces the patentee to litigate is liable for the patent holder’s attorneys’ fees under Section 285.”).

original patentee's promise to license on RAND terms bind the patent's next owner? RAND policies do not include a detailed statement on this point, although one major ICT SSO—the IEEE Standards Association—is considering amending its policy to include such a statement.¹⁸³ The point is not a trivial one, for we know such post-standardization disputes can arise.¹⁸⁴

It is clear, from the foregoing analysis, that adopters' need for access to the technology does not diminish merely because the patent changes hands. For the RAND promise to serve its opportunism-prevention function effectively, the promise cannot be defeated by the simple expedient of transferring the patent to one who did not make the RAND promise.¹⁸⁵ If interpretation is to follow function, then, the next owner takes the patent subject to the access rights already locked in. Much like a servitude, the access grant that the RAND promise embodies continues to burden the patent, even when it is sold to another party. Of course, SSOs can help ensure the courts will not err in this context by making explicit that the RAND promise follows the patent if it is transferred.

2. *Arbitrating License Disputes to Streamline Technology Adoption.*—Even with the improved understanding that this Article and others offer those who use the standard setting process, there may be more uncertainty about patent enforcement and licensing terms than is healthy for increasingly prevalent

183. See Fromm & Skitol, *supra* note 73, at 78 (“Submitted [letters of assurance] would be irrevocable and also binding on subsidiaries, affiliates, successors, and assignees.”).

184. See *ESS Tech., Inc. v. PC-Tel, Inc.*, No. C-99-20292 RMW, 1999 WL 33520483, at *1 (N.D. Cal. Nov. 4, 1999) (“Before [adopter ESS] and [original patentee] GDC could resolve all their differences, defendant PC-TEL acquired GDC toward the end of 1998. [ESS] alleges that [PC-TEL] then reversed course and started demanding increasingly unreasonable and discriminatory terms for licensing the V.34 and V.90 patents.”). This issue came to the fore in December 2004 when, as part of a bankruptcy proceeding, Commerce One auctioned off a portfolio of seven patents and thirty-two pending applications for \$15.5 million. The portfolio “cover[ed] a broad spectrum of electronic communication and web service technologies and standards.” David G. Barker, *Troll or No Troll? Policing Patent Usage With an Open Post-Grant Review*, 2005 DUKE L. & TECH. REV. 9, 9 (2005). Novell Corporation, which purchased the portfolio anonymously through a shell named “JGR Acquisitions,” has since stated that it “acquired the patents for defensive reasons and did not plan to seek licensing revenue from them.” John Markoff, *Secretive Buyer of Some E-Commerce Patents Turns Out to be Novell*, N.Y. TIMES, May 2, 2005, at C3. Such scenarios will likely become more common in view of the fact that “a secondary market is emerging for intellectual property acquired by individuals and corporations not involved in the original inventions.” *Id.*

185. Professor Lemley makes an argument along these lines in urging that an SSO participant's licensing obligation continues even after the participant leaves the SSO. See Lemley, *supra* note 7, at 1912 (“A member that has agreed to license its IP rights covering a standard on reasonable and nondiscriminatory terms has presumably committed to an ongoing license, not a temporary one. For that member to be able to revoke a license already granted for an existing standard when it leaves the SSO would leave users of existing standards with debilitating uncertainty. It would also encourage strategic behavior by firms that promise to license their patents, only to revoke that promise once the standard was widely adopted.”).

standard setting activities in the ICT sectors. In addition, as more varied firms participate in SSOs, the firms' different norms and expectations may clash more with one another and with an SSO's existing norms and traditions; in other words, as shared norms play a diminishing role in restraining opportunism, the need for still more elaborate contractual safeguards may increase.

To the extent that SSO participants conclude that existing uncertainty is undesirable, they can elaborate on the meaning of the RAND promise, along the lines discussed above.¹⁸⁶ Most important, they can augment their IP policies to provide that one who undertakes the RAND promise also agrees to submit disputes with adopters about license terms to binding arbitration. Admittedly, this suggestion has been made before: both longtime standard-setting expert Ken Krechmer and Professor Lemley have discussed the wisdom of developing arbitration mechanisms for resolving RAND licensing disputes.¹⁸⁷ Few SSOs appear to include such an arbitration provision, suggesting that participants do not feel arbitration offers benefits worth the trouble of drafting the provision.

Perhaps SSOs hesitate to require an agreement to arbitrate RAND license term disputes out of the same fear of antitrust liability that has chilled *ex ante* discussion of license terms.¹⁸⁸ It is possible, however, to frame an arbitration requirement that does not involve the SSO itself in the merits of any particular arbitration to resolve a bilateral license dispute between a participant patentee and adopter. For example, an SSO could require that, when a participant patentee promises to license essential patents to adopters on RAND terms, the patentee thereby also promises to arbitrate any license term dispute with an adopter under the American Arbitration Association's *Supplementary Rules for the Resolution of Patent Disputes*.¹⁸⁹ The American Arbitration Association¹⁹⁰ maintains, under these rules, a "National Panel of Patent Arbitrators" with

186. See *supra* note 111 and accompanying text.

187. Ken Krechmer, *The Meaning of Open Standards* (Hawaii Int'l Conf. on Sys. Sci. Jan. 2005) ("approach #2 (RAND—the manner of operation of most formal SSOs currently) might be more acceptable to implementers if an IPR arbitration function existed when IPR is identified during the creation/modification of a standard"), <http://www.csrstds.com/openstds.html>; Ken Krechmer, *Communications Studies and Patent Rights: Conflict or Coordination* (The Econ. of the Software and Internet Indus. Jan. 2005) ("Patents have become an increasing part of standards development and could be addressed in an open process separate and parallel to the technical standards work. One approach could be to have WIPO or some similar organization provide the necessary legal and arbitration services to implement the function of a patent clearing house for patent holders identified in the SDO committees."), <http://www.csrstds.com/star.html>; Lemley, *supra* note 7, at 1966 ("SSOs might set up some means of dispute resolution within the organization to help resolve royalty disagreements. Resolving reasonable royalty disputes within the SSO will almost certainly be quicker and cheaper than resorting to the courts. It may also permit the disputants to take advantage of the industry expertise that many SSOs have." (footnotes omitted)).

188. See *supra* note 69 and accompanying text.

189. See American Arbitration Association, *Supplementary Rules for the Resolution of Patent Disputes* (Jan. 1, 2006), <http://www.adr.org/sp.asp?id=27417> [hereinafter *Supplementary Rules*].

190. See <http://www.adr.org/>.

“experience in patent law and/or special technical expertise.”¹⁹¹ This is just an example; numerous arbitration service providers have IP expertise.¹⁹² Because the linchpin of a RAND license dispute is essentially factual—what term is reasonable and nondiscriminatory, under the circumstances?—arbitration by someone with technical or licensing knowledge is especially fitting.¹⁹³ If SSOs signal to the arbitration services market that particular types of expertise are needed, providers will likely strive to meet that demand.¹⁹⁴ SSOs could doubtless benefit from considering the question of arbitration mechanisms in their next IP policy revisions.

CONCLUSION

The typical RAND promise is short, but it is not vague or uncertain. Its core function dictates its meaning. SSO participants, by freely choosing to make the RAND promise before helping to formulate a standard that may include their technologies, remove the possibility of a post-adoption holdup and thereby foster the trust that fuels the standards process in the first place. The participants eliminate holdups because the RAND promise itself transfers to the adopter community an irrevocable access right to the technology that standard-essential patents cover. This transfer to adopters takes patent law’s default injunction rules off the negotiating table.

The RAND promise thus creates a fundamentally new framework for all future discussions of royalty rates and other license terms. It is, in other words, a governance mechanism. It is the one that firms in the ICT sector have most often used to help set the stage for the long-term, complex project of cooperatively building a competitive market atop a common interface standard. As a governance mechanism, the RAND promise is as traditional as it is clear, drawing on more than 150 years of experience with, and more than 60 years of theorizing about, the governance structures of business firms. SSO participants and the courts can draw on this history to give full effect to the RAND licensing promises they have made.

191. *Supplementary Rules*, *supra* note 189, ¶ 2.

192. “Among the many agencies offering rules to decide IP disputes via arbitration are the AAA, the CPR International Institute for Conflict Prevention and Resolution, the National Arbitration Forum, and the International Chamber of Commerce.” Kevin R. Casey, *The Suitability of Arbitration for Intellectual Property Disputes*, 71 PAT. TRADEMARK & COPYRIGHT J. (BNA) 143, ¶ E.4 (Dec. 2, 2005).

193. *Id.* ¶ C.2.

194. See Edward Brunet, *Replacing Folklore Arbitration with a Contract Model of Arbitration*, 74 TUL. L. REV. 39, 52-53 (1999) (describing how arbitration providers compete to meet perceived service demands). For background information on arbitration, see EDWARD BRUNET & CHARLES B. CRAVER, *ALTERNATIVE DISPUTE RESOLUTION: THE ADVOCATE’S PERSPECTIVE* 315-18, 324-32 (2d ed. 2001).

APPENDIX

IETF's patent policy is set forth in Scott Bradner, *Intellectual Property Rights in IETF Technology*.¹⁹⁵ The policy makes clear that "[i]n general, IETF working groups prefer technologies with no known IPR claims or, for technologies with claims against them, an offer of royalty-free licensing."¹⁹⁶ Like ANSI-accredited bodies, however, "IETF working groups have the discretion to adopt a technology with a commitment of fair and non-discriminatory terms, or even with no licensing commitment, if they feel that this technology is superior enough to alternatives with fewer IPR claims or free licensing to outweigh the potential cost of the license."¹⁹⁷

The policy operates similarly to the ANSI policy, i.e., disclosure of a pertinent patent claim triggers a request for a written licensing commitment from the standard-setting participant. Specifically,

Where Intellectual Property Rights have been disclosed for IETF Documents as provided in Section 6 of this document, the IETF Executive Director shall request from the discloser of such IPR, a written assurance that upon approval by the IESG for publication as RFCs of the relevant IETF specification(s), all persons will be able to obtain the right to implement, use, distribute and exercise other rights with respect to Implementing Technology under one of the licensing options specified in Section 6.5 below unless such a statement has already been submitted.¹⁹⁸

The licensing options, in turn, provide the RAND promise as one of two options. According to the "IPR Disclosures" rules in § 6,

Since IPR disclosures will be used by IETF working groups during their evaluation of alternative technical solutions, it is helpful if an IPR disclosure includes information about licensing of the IPR in case Implementing Technologies require a license. Specifically, it is helpful to indicate whether, upon approval by the IESG for publication as RFCs of the relevant IETF specification(s), all persons will be able to obtain the right to implement, use, distribute and exercise other rights with respect to an Implementing Technology a) under a royalty-free and otherwise reasonable and non-discriminatory license, or b) under a license that contains reasonable and non-discriminatory terms and conditions, including a reasonable royalty or other payment, or c) without the need to obtain a license from the IPR holder.

The inclusion of licensing information in IPR disclosures is not

195. Scott Bradner, *Intellectual Property Rights in IETF Technology*, Request For Comment #3979 (Mar. 2005), available at <http://www.ietf.org/rfc/rfc3979.txt>.

196. *Id.* § 8.

197. *Id.*

198. *Id.* § 4(C).

mandatory but it is encouraged so that the working groups will have as much information as they can during their deliberations. If the inclusion of licensing information in an IPR disclosure would significantly delay its submission it is quite reasonable to submit a disclosure without licensing information and then submit a new disclosure when the licensing information becomes available.¹⁹⁹

199. *Id.* § 6.5.