

**LITERATURE REVIEW:
RECENT SCHOLARSHIP FOCUSED ON TECHNOLOGY STANDARDS
(JAN. 2005 – JUL. 2009)**

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[added internal links, fixed typos]

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About this document: This is a rudimentary literature review aimed at documenting scholarly works focused on legal aspects of information and communication technology (ICT) standards. It was produced primarily via searches of SSRN and Lexis, and *includes only material produced after 2005*. The abstracts for each article are those provided to SSRN or Lexis by the article author, except in a few cases where there was no abstract I selected a paragraph from the article to serve as a summary. I organized the articles into the categories below, recognizing that the distinctions are arbitrary or potentially unhelpful in some cases (e.g., many “antitrust” articles also address “patent” issues, and the “public policy” and “regulation” categories cover similar ground). The categories do enable drawing one conclusion: while standards-related patent and antitrust issues have received a good deal of attention, the other areas identified below remain under-explored. Within each category the articles are listed in essentially random order.

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ANTITRUST / COMPETITION

Leveque, Francois and Ménière, Yann, Technology Standards, Patents and Antitrust. Competition and Regulation in Network Industries, Vol. 9, No. 1, 2008. Available at SSRN:
<http://ssrn.com/abstract=1133834>

Abstract:

From the perspective of antitrust authorities, the multiplication of patents embodied in technology

standards is a source of concerns. Certainly it is necessary and efficient that patents owners derive a revenue from the use of the standard. Yet by their function - ensuring compatibility between different products by promoting a common technology platform in a particular industry - standards generate potential for market power far beyond the legal protection conferred by patents. Patent holders may thus be tempted to leverage their position to make illegal profits. Such concerns arise in two different cases that have fueled antitrust debates and economic research during the last decade. On the one hand, patent owners may be tempted to collude by coordinating their licensing policies. The difficulty here is that some coordination between them within a patent pool may actually be pro-competitive. After a brief introduction, we explain in the first part why, and on what conditions, patent pools should be accepted by antitrust authorities. On the other hand, patent owners may be tempted to manipulate the standard setting process by waiting for the wide adoption of the standard before charging excessive royalties to its users. We present this hold-up problem in the second part, and show how appropriate rules for standard setting processes can help mitigate it.

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Yann Ménière

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Weiser, Phil, Making the World Safe for Standard Setting (July 27, 2007). U of Colorado Law Legal Studies Research Paper No. 08-06. Available at SSRN: <http://ssrn.com/abstract=1003432>

Abstract:

The stance of antitrust oversight of standard setting activities remains a work-in-progress. Over time, antitrust authorities have grown increasingly hospitable to cooperative standard setting efforts whereby jointly developed standards will facilitate the development of new products or services. In the information industries, such standards are ubiquitous and, moreover, are set by international standard setting organizations (SSOs) like the Internet Engineering Task Force (IETF). To be successful, SSOs must develop strategies to prevent firms from patenting technologies used in official standards and charging exorbitant royalties once a standard is adopted. In particular, SSOs face a range of options in terms of policies that govern the use of patents in official standards - even within the popular strategy of mandating reasonable and non-discriminatory (RAND) access to patents necessary to practice a standard. With multi-jurisdictional oversight of SSOs, the role of antitrust law - if inconsistent and overly aggressive - could be counterproductive.

This paper argues that international antitrust authorities should be humble about second guessing policies of standard setting bodies related to patent policies or playing an aggressive enforcement role. By so doing, antitrust authorities will signal to standard setting bodies that they must rely fundamentally on their own strategies for ensuring compliance with their own policies. Such policies, for example, could include a mandate that firms disclose the relevant licensing terms and conditions before the body decides to endorse a particular technology as part of a standard. To be sure, there is still a role for antitrust authorities to sanction egregious abuses of the standard setting process, such as the Federal Trade Commission's action in Rambus, but such actions should be exceptional and not viewed

as an alternative to a standard setting body's safeguards against abuses by firms that obtain patents on technologies necessary to practice the standard.

Phil Weiser
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Kobayashi, Bruce H. and Wright, Joshua D., Federalism, Substantive Preemption, and Limits on Antitrust: An Application to Patent Holdup (June 1, 2008). *Journal of Competition Law and Economics*, Forthcoming; George Mason Law & Economics Research Paper No. 08-32. Available at SSRN: <http://ssrn.com/abstract=1143602>

Abstract:

In *Credit Suisse v. Billing*, the Court held that the securities law implicitly precludes the application of the antitrust laws to the conduct alleged in that case. The Court considered several factors, including the availability and competence of other laws to regulate unwanted behavior, and the potential that application of the antitrust laws would result in unusually serious mistakes. This paper examines whether similar considerations suggest restraint when applying the antitrust laws to conduct that is normally regulated by state and other federal laws. In particular, we examine the use of the antitrust laws to regulate the problem of patent hold up of members of standard setting organizations. While some have suggested that this conduct illustrates a gap in the current enforcement of the antitrust laws, our analysis finds that such conduct would be better evaluated under the federal patent laws and state contract laws.

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Geradin, Damien and Rato, Miguel P.L., Article 82, IP Rights and Industry Standards: In Reply (December 7, 2006). Available at SSRN: <http://ssrn.com/abstract=950215>

Abstract:

In a recently published article ("Article 82: Excessive pricing - An outline of the legal principles relating to excessive pricing and their future application in the field of IP rights and industry standards", *Competition Law Insight*, 4 July 2006, p. 3), Marcus Glader and Sune Chabert Larsen ("the authors") briefly reviewed the current legal standards for excessive pricing under article 82 EC. The authors then proposed a perfunctory framework under which those principles should be applied in the complex field of IP rights incorporated into industry standards. We disagree with the positions put forward by the authors, not least because they rest on several faulty premises regarding the economics of technology licensing, as well as on misunderstandings concerning the notion of licensing under Fair, Reasonable and Non-Discriminatory ("FRAND") terms in the standards development context, and its

connection - if any - with Article 82 EC.

We show that, contrary to the authors' view, FRAND commitments cannot constitute the basis for an excessive pricing test and are not an adequate, relevant or useful instrument for the application of Article 82 EC. We also show that patent counting is an inappropriate benchmark for measuring royalty levels which finds no support in EC competition law (or US antitrust law for that matter). Should it ever be adopted, it would be a serious disincentive to innovation.

Damien Geradin

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James E. Abell III*, 75 U. Chi. L. Rev. 1601 (2008), Comment: Setting the Standard: A Fraud-based Approach to Antitrust Pleading in Standard Development Organization Cases

This Comment argues that the heightened pleading standards of Rule 9(b) are applicable to SDO deception claims. Yet it may be appropriate for courts to modify the traditional elements of common law fraud in cases where an enforcement agency is seeking prospective relief. Part I provides background information on the pleading standards under the Federal Rules as well as an overview of the elements of common law and regulatory fraud. Part II begins with a description of the antitrust law regime and how SDO claims fit into its framework. Part II then analyzes the special pleading issues that have arisen in antitrust cases as a result of the recent Supreme Court decision of *Bell Atlantic Corp v Twombly*. Part III assesses the basic features of two types of SDO claims. Part IV examines a two-prong test for applying heightened pleading standards that courts have developed in the context of inequitable conduct before the US Patent and Trademark Office (PTO), and in the context of fraud claims under *Walker Process Equipment, Inc v Food Machinery & Chemical Corp*, which addressed allegations that a patent was obtained through fraudulent activity. Part V argues that this two-prong approach is applicable to SDO deception claims, thereby making heightened pleading standards appropriate for these claims.

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Victoria Poulton*, 53 Vill. L. Rev. 717 (2008), ISSUES IN THE THIRD CIRCUIT: ALL'S FAIR IN LOVE AND ... STANDARD-SETTING?! THE THIRD CIRCUIT SAYS "NO" TO DECEPTION AND "YES" TO ANTITRUST ACTIONS IN *BROADCOM CORP. v. QUALCOMM, INC.*

In recent years, antitrust claims have been brought successfully against companies engaged in deceptive conduct toward SSOs regarding the status of the companies' IPRs. In *Broadcom Corp. v. Qualcomm, Inc.*, the Third Circuit, building on existing federal precedent, tackled a new, though related, issue. In *Broadcom*, the Third Circuit held that (1) if a patent holder falsely promises in the consensus-driven environment of an SSO that it will license its proprietary technology on fair, reasonable and non-discriminatory (FRAND) terms, (2) the SSO then relies on that promise when

including that firm's technology in the standard and (3) the patent holder subsequently breaches that promise, then that patent holder's breached promise is anticompetitive conduct upon which a claim can be based. With its holding, the Third Circuit logically extended existing precedent established mainly by the Federal Trade Commission (FTC). In so doing, the court emphasized that the focus in antitrust cases involving SSOs should be on the actual process of standard-setting, rather than on the effects of those standards once set. In taking on companies' promises to license technology on FRAND terms, however, the Third Circuit introduced a problematic new area of what is now known as "standard-setting jurisprudence."

This Casebrief discusses the growing area of law dealing with deception in the standard-setting process as a basis for antitrust claims, and serves as a guide to practitioners facing these and similar issues. Section II discusses the general requirements of a claim under Section 2 of the Sherman Act. It will also discuss the procompetitive benefits derived from SSOs and the anticompetitive risks associated with them - most importantly the threats posed by "patent hold-up." Section III focuses on the facts and claims of Broadcom and the district court's and Third Circuit's analysis. Section IV critically analyzes the decision and argues that Broadcom properly follows and extends existing federal precedent and correctly focuses the analysis of antitrust claims on the standard-setting process. Section V concludes by discussing ambiguities arising out of the Third Circuit's decision.

* No affiliation given for Victoria Poulton

HERBERT HOVENKAMP*, January 2007, 47 B.C. L. Rev 87, STANDARDS OWNERSHIP AND COMPETITION POLICY

Abstract: Antitrust law is a blunt instrument for dealing with many claims of anticompetitive standard setting. Antitrust factfinders lack the sophistication to pass judgment on the substantive merits of a standard. In any event, antitrust is not a roving mandate to question bad standards. It requires an injury to competition, and whether the minimum conditions for competitive harm are present often can be determined without examining the substance of the standard itself. When government involvement in standard setting is substantial, antitrust challenges generally should be rejected. The petitioning process in a democratic system protects even bad legislative judgments from collateral attack. In any event, antitrust's purpose is to correct private markets. It is not a general corrective for political processes that have gone awry. The best case for antitrust liability occurs when the government somehow has been deceived into adopting a standard that it would not have adopted had it known the true facts. Even then, nonantitrust remedies such as equitable estoppel are probably a superior solution.

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George S. Cary,* Larry C. Work-Dembowski** and Paul S. Hayes***, August, 2008, 15 Geo. Mason L. Rev. 1241, 11TH ANNUAL ANTITRUST SYMPOSIUM OCTOBER 31, 2007: ESSAY: ANTITRUST IMPLICATIONS OF ABUSE OF STANDARD-SETTING

This Article discusses the antitrust issues that can arise when a company gains the inclusion of its intellectual property as an essential element of a standard by avoiding the restraints built into the

intellectual property policies of standard-setting bodies and then seeks to extract monopoly royalties or licensing terms for that intellectual property after the standard has been adopted. Part I begins the discussion with a description of the history of the antitrust treatment of standard-setting and deception and the legal framework within which the courts and enforcement agencies analyze standard-setting abuses. Part II then discusses a number of issues related specifically to the antitrust implications of a company's making deceptive commitments to license its technology and then failing to abide by those commitments once the technology is part of a standard. Part III addresses how standard-setting bodies and courts have dealt with these issues by acting to prevent such deceptive conduct. This Article finishes with some concluding remarks.

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Jonathan L. Rubin*, 38 Rutgers L. J. 509, Winter, 2007, SYMPOSIUM: THE IP GRAB: THE STRUGGLE BETWEEN INTELLECTUAL PROPERTY RIGHTS AND ANTITRUST: PATENTS, ANTITRUST, AND RIVALRY IN STANDARD-SETTING

[...] The standard-setting process depends on incentives that both patent and antitrust law can easily subvert. Thus, an overly expansive view of the entitlement created by the grant of a patent and a failure to recognize the importance of competition policy issues will impede standard-setting and, as a result, innovation. But while the patent laws cannot adopt a mantle of absolutism, neither can adjustments to existing legal doctrine be allowed to dilute the incentive to innovate. By the same token, application of the antitrust laws must reflect the unique nature of standard-setting. Unless viewed within a larger competitive environment, antitrust law risks steering standard-setters away from reaching procompetitive outcomes.

The rest of the Article proceeds as follows. The next section introduces standard-setting as a unique activity. The discussion begins with the federal statutory treatment of voluntary consensus standard-setting, and then a description of the interaction between patents and standard-setting. Next will be a discussion of the meaning of competition in the standard-setting context followed by a description of the quality of "ex post openness" as a useful principle through which to analyze the challenges of existing practices.

Section III turns to the perspective of patent law, addressing the hold-up problem first. The focus is on the incompatibility of the patentee's right to exclude with the purposes and aspirations of standard-setting. The section concludes with a discussion of the patent policies of standard-setting organizations that takes a critical view of the widespread use of "RAND" commitments, a promise by a patent holder to license on "reasonable and non-discriminatory terms" once a standard is adopted that necessitates infringing the patent.

Section IV focuses on standard-setting under the antitrust laws, beginning with several cases that have analyzed the liability of patent holders for conduct leading to hold-up. The discussion then moves to patent policies and looks at recent progress in exorcising "the antitrust ghost in the standard-setting machine," the specter of antitrust liability that frightens participants in standard-setting organizations engaged in ex ante licensing activities, i.e., exchanging information about the terms of an eventual patent license before (and as a condition of) the adoption of a standard. While antitrust analysis of standard-setting has become more nuanced over the past few years, certain antitrust-inspired restrictions continue to constrain its procompetitive potential.

The Article concludes with some brief observations on the challenge of encompassing standard-setting within the legal confines of existing law and simultaneously protecting innovation, competition, and standard-setting.

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Matthew N. Kriegel*, 84 Wash. U. L. Rev. 211, 2006, NOTE: WOULD YOU GO TO WORK IF YOU WEREN'T PAID? THE PROBLEM OF INCENTIVES FOR PARTICIPANTS IN STANDARDS DEVELOPMENT ORGANIZATIONS

This Note examines SDOs through the lens of the most recent developments in Congress and the Federal Trade Commission (FTC). First, in Part I, it discusses the form and function of the typical private-sector SDO and illustrates the various types of standards that such organizations develop. Drawing on the underlying policies behind our patent system and the nuts and bolts of our antitrust laws, it highlights the dangers to competition and the significant potential disincentives for innovation that the adoption of standards carries with it. Part II, employing the tools laid out in the previous section, illustrates what I call the "problem of incentives." To this end, the FTC's recent Union Oil Co. of California (Unocal) decision and its pending Rambus action are discussed in some detail. Part III of this Note explores a possible alternative to the too-frequent use of private SDOs. This alternative suggests that the use of SDOs in industries that do not require standards-setting (those characterized by strong network effects) should be eliminated through firm application of the antitrust laws. Where a standard will likely be reached without consensus standards development, forbearance is a better solution. Outside of such contexts, however, and particularly in the realm of safety standards, the great utility of the SDO concept is measured in lives saved; forbearance could scarcely be considered an alternative. The "problem of incentives" remains, but the potential human costs that may attend a failure to adopt adequate safety standards leads to a potential compromise: legislatures could depute already extant SDOs to do the heavy lifting of standards development. While there would arguably be an economic price tag on doing so, such action may lend SDOs the quasi-legislative status required to make the Noerr-Pennington Doctrine applicable to lobbyists before them. The Noerr-Pennington Doctrine provides certain immunities from the antitrust laws for actions taken by competitors to seek advantage through legislative processes. Allowing open competition would certainly increase the investigative burden placed upon the quasi-legislative SDO in determining a "best" standard, but it offers the prospect of an economic incentive for innovation. Finally, in Part IV, this Note briefly revisits Unocal and Rambus, concluding with a discussion of the obstacles that lie in the path to a system, similar to the one here suggested, in which innovation is properly rewarded.

* J.D. (2006), Washington University School of Law.

Tyler R.T. Wolf*, 65 Wash & Lee L. Rev. 807, Spring, 2008, NOTE: Existing in a Legal Limbo: The Precarious Legal Position of Standards- Development Organizations

This Note will explore Congress's response to the continuing need for standardization-the National Technology Transfer and Advancement Act of 1995 (NTTAA). As of 1995, private standards-development organizations (SDOs) set almost half of the standards in the United States. The NTTAA requires all federal agencies to "use technical standards that are developed or adopted by voluntary consensus standards bodies . . . as a means to carry out policy objectives or activities." It also requires that agencies "participate with such bodies in the development of technical standards" when "such participation is in the public interest and is compatible with agency and departmental missions, authorities, priorities, and budget resources." Congress's scheme, however, has created organizations that can persist, on the one hand, unfettered by the constitutional restraints on state actors and, on the other hand, with immunity from the laws that punish the anticompetitive behavior of private actors. This Note argues that the NTTAA, by closely allying agencies with SDOs, has placed SDOs in a legal no-man's-land, drifting between the law controlling private organizations and the law controlling government agencies. This situation cannot continue.

* Candidate for J.D., Washington and Lee University School of Law, May 2008

Matthew Topic, 12 J. Tech. L. & Pol'y 45, June, 2007, ARTICLE: THE STANDARDS DEVELOPMENT ORGANIZATION ADVANCEMENT ACT OF 2004: A VICTORY FOR CONSUMER CHOICE?

Abstract:

In 2004, Congress passed the Standards Development Organization Advancement Act (SDOAA). The SDOAA, in short, permits standard-setting organizations to register their activities with the Federal Trade Commission and Department of Justice in exchange for a "detrubling" of damages in any private suit arising out of the disclosed activities. The SDOAA's protections have been widely utilized by organizations that have registered under its provisions, but the SDOAA has been virtually ignored in antitrust scholarship, despite its potential for illuminating the debate on how antitrust should regulate standards in the high-tech era.

This Article examines the SDOAA in detail, and asserts that Congress intended that standard-setting organizations seeking the SDOAA's protection must include consumer representation in the standard-setting process. This should be understood as a victory for consumer-based antitrust theory, and should be taken seriously by courts and enforcement agencies going forward.

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Cunningham, Lawrence A., Private Standards in Public Law: Copyright, Lawmaking and the Case of Accounting. Michigan Law Review, Vol. 104, pp. 2-54, November 2005; Boston College Law School Research Paper No. 60. Available at SSRN: <http://ssrn.com/abstract=677647>

Abstract:

Government increasingly leverages its regulatory function by embodying in law standards that are promulgated and copyrighted by non-governmental organizations. Departures from such standards expose citizens to criminal, civil and administrative sanctions, yet private actors generate, control and limit access to them. Despite governmental ambitions, no one is responsible for evaluating the legitimacy of this approach and no framework exists to facilitate analysis. This Article contributes an analytical framework and, for the federal government, nominates the Director of the Federal Register to implement it.

Analysis is animated using among the oldest and broadest examples of this pervasive but stealthy phenomenon: embodiment by Congress and the Securities and Exchange Commission of privately-promulgated accounting standards in public law. With accounting standards as a case study, the framework delineates three routes through which private standards are embodied in public law - denominated as strong, weak and semi-strong - and articulates associated copyright and lawmaking consequences.

As to copyright, the framework mediates conflicts between public access to legal materials and private incentives to produce standards. It addresses the effect of copyright protection that biases standard setters to focus on quantity instead of quality and prevents third parties from improving standards through derivative works. As to lawmaking, the Article explains alternative governmental strategies to achieve regulatory leverage while adhering to private non-delegation doctrines and publication requirements.

The Article appeals to scholars of administrative law, theorists concerned with intellectual property law and its broader political and public policy contexts, and those interested in informational and standard-setting aspects of accounting. Contributions will be of practical use to governmental officials who look to private standards in their regulatory functions, standard-setters in developing standards to aid those officials, and judges in resolving disputes involving citizens subject to or using these standards. While driving new avenues in three specific legal areas (copyright law, administrative law and securities regulation), the Article's inquiry into contemporary lawmaking is of general significance.

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Samuelson, Pamela, Questioning Copyright in Standards. Boston College Law Review, Vol. 48, 2007;

UC Berkeley Public Law Research Paper No. 925044. Available at SSRN:
<http://ssrn.com/abstract=925044>

Abstract:

The rise of the information economy has caused copyright law to become a new actor in the intellectual property rights and standards debate because standard-setting organizations (SSOs) increasingly claim copyrights in standards and charge substantial fees for access to and rights to use standards such as International Organization for Standardization (ISO) country, currency, and language codes and standard medical and dental procedure codes promulgated by the American Medical Association (AMA) and the American Dental Association (ADA).

This article will consider whether standards such as these, especially those whose use is mandated by government rules, should be eligible for copyright protection as a matter of U.S. copyright law. Part I reviews several lawsuits that have challenged copyrights in numbering systems devised to enable efficient communication and will argue that the decisions upholding copyrights in the AMA and ADA codes were incorrectly decided in light of past and subsequent caselaw, the statutory exclusion of systems from copyright, and various policy considerations. Part II considers copyright caselaw and policies that have persuaded courts to exclude standards from the scope of copyright protection under the scenes a faire and merger of idea and expression doctrines. It also considers whether government mandates to use certain standards should affect the ability to claim copyright in those standards. Part III assesses whether SSOs need copyright incentives to develop and maintain industry standards they promulgate and whether arguments based on incentives should prevail over other considerations. It will also identify some competition and other public policy concerns about allowing private entities to own standards, particularly those whose use is required by law.

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STANDARDS DEVELOPMENT PROCESSES / STRATEGIES

Mitra, Prasenjit, Puro, Sandeep, Bagby, John W., Umapathy, Karthikeyan and Paul, Sharoda, An Empirical Analysis of Development Processes for Anticipatory Standards (October 2005). NET Institute Working Paper No. 05-18. Available at SSRN: <http://ssrn.com/abstract=850524>

Abstract:

There is an evolution in the process used by standards-development organizations (SDOs) and this is changing the prevailing standards development activity (SDA) for information and communications technology (ICT). The process is progressing from traditional SDA modes, typically involving the selection from many candidate, existing alternative components, into the crafting of standards that include a substantial design component (SSDC), or "anticipatory" standards. SSDC require increasingly important roles from organizational players as well as SDOs. Few theoretical frameworks exist to understand these emerging processes. This project conducted archival analysis of SDO

documents for a selected subset of web-services (WS) standards taken from publicly available sources including minutes of meetings, proposals, drafts and recommendations. This working paper provides a deeper understanding of SDAs, the roles played by different organizational participants and the compliance with SDO due process requirements emerging from public policy constraints, recent legislation and standards accreditation requirements. This research is influenced by a recent theoretical framework that suggests viewing the new standards-setting processes as a complex interplay among three forces: sense-making, design, and negotiation (DSN). The DSN model provides the framework for measuring SDO progress and therefore understanding future generations of standards development processes. The empirically grounded results are useful foundation for other SDO modeling efforts.

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Duane, Matthew John, For the People and by the People: A New Proposal for Defining Industry Standards in Computer Software. Wake Forest Intellectual Property Law Journal, Vol. 7, No. 1, 2006-2007. Available at SSRN: <http://ssrn.com/abstract=1018011>

Abstract:

My note, titled For the People and by the People: A New Proposal for Defining Industry Standards in Computer Software, focuses on the increasingly contentious world of standard setting organizations (SSOs) in the software and hardware industries, where industry leaders and upstarts alike jostle for acceptance of their products while (at least perfunctory) working together in these groups to adopt the best technologies. Obviously, this dichotomy between commercial and societal concerns sometimes act at odds with each other, leading to cries of patent misuse, anti-trust violations, and various other abuses. All the while, government SSOs such as the NIST tend to remain on the sidelines, waiting for the market participants to remedy internal squabbles and accepting the end result. My paper proposes a more proactive approach by the federal government and, in particular, its own SSOs to spur on standards' adoption in America. Through governmental support and moderation, both large and small companies will be able to take part in a far more democratic and true standards adoption process, be able to voice concerns and seek protection from abuses long before they enter the courtroom, and in effect standardize the standardization process.

Matthew John Duane
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Simcoe, Timothy S., Standard Setting Committees (December 1, 2008). Available at SSRN:
<http://ssrn.com/abstract=899595>

Abstract:

Voluntary Standard Setting Organizations (SSOs) use a consensus process to create new compatibility standards. Practitioners have suggested that SSOs are increasingly "politicized" and perhaps incapable of producing timely standards. This paper develops a simple model of standard setting committees and tests its predictions using data from the Internet Engineering Task Force, an SSO that produces many of the standards used to run the Internet. The results show that an observed slowdown in standards production between 1993 and 2003 can be linked to distributional conflicts created by the rapid commercialization of the Internet.

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DeLacey, Brian J., Herman, Kerry, Kiron, David J. and Lerner, Josh, Strategic Behavior in Standard-Setting Organizations (May 18, 2006). Harvard NOM Working Paper No. 903214. Available at SSRN:
<http://ssrn.com/abstract=903214>

Abstract:

This paper seeks to better understand the competitive behavior of firms in standard-setting organizations by examining two case studies. We examine the development of mobile Internet standards by the Institute of Electrical and Electronics Engineers (IEEE); and the development of DSL standards. The case studies highlight that standard-setting bodies play critical roles in these industries. Because innovations are typically not promulgated by a single firm, but rather draw together technologies developed in multiple firms, the coordination role played by these organizations is critical. And certainly in some cases, particularly where parties commit in advance to a formal process (such as the xDSL one), the standardization process can lead to a dispassionate selection of a superior technology as a standard.

But as the IEEE 802.11 case suggests, the situation is often more complex. For in many cases, the selection of a technological standard has very substantial economic implications for the firms participating in the process. As a result, the standardization process can become side-tracked as warring factions seek to promote their own agenda. The process can be very much delayed as a result. Rules of standard-setting bodies that were originally intended to insure a fair process can be manipulated by firms to promote their own agenda or even to delay the project indefinitely. As a result, firms may be tempted to by-pass formal standards development organizations, and instead reach a private agreement

with like-minded peers.

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Chiao, Benjamin, Tirole, Jean and Lerner, Josh, The Rules of Standard Setting Organizations: An Empirical Analysis (February 2005). Harvard NOM Working Paper No. 05-05. Available at SSRN: <http://ssrn.com/abstract=664643>

Abstract:

This paper empirically explores the procedures employed by standard-setting organizations. Consistent with Lerner-Tirole (2004), we find (a) a negative relationship between the extent to which an SSO is oriented to technology sponsors and the concession level required of sponsors and (b) a positive correlation between the sponsor-friendliness of the selected SSO and the quality of the standard. We also develop and test two extensions of the earlier model: the presence of provisions mandating royalty-free licensing is negatively associated with disclosure requirements, and when there are only a limited number of SSOs, the relationship between concessions and user friendliness is weaker.

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National Bureau of Economic Research (NBER)

GLOBALIZATION / TRADE

Whalley, John, Zhou, Weimin and An, Xiaopeng, Chinese Experience with Global 3G Standard-Setting (February 2009). CESifo Working Paper Series No. 2537. Available at SSRN: <http://ssrn.com/abstract=1340383>

Abstract:

China's growth strategy as set out in the 11th 5-year plan in 2005 called for upgrading of product quality, the development of an innovation society, and reduced reliance on foreign intellectual property with high license fees. Consistent with this policy, China has been involved in recent years with the development of a Chinese standard in third generation (3G) mobile phone technology, both in negotiating the standard and seeing it through to commercialization. This is the first case of a developing country both originating and successfully negotiating a telecommunications standard and this experience raises issues for China's future development strategy based on product and process upgrading in manufacturing. We argue that while precedent setting from an international negotiating point of view, the experience has thus far is unproven commercially. But the lessons learned will benefit future related efforts in follow-on technologies if similar Chinese efforts are made.

This paper documents Chinese standard-setting efforts from proposal submission to ITU to the current large-scale trial network deployment in China and overseas trial networks deployment. We discuss the underlying objectives for this initiative, evaluate its effectiveness, and assess its broader implications for Chinese development policy.

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Winn, Jane K., Globalization and Standards: The Logic of Two-Level Games (June 6, 2009). I/S: Journal of Law and Policy for the Information Society, 2009. Available at SSRN: <http://ssrn.com/abstract=1415424>

Abstract:

The emergence of a global information architecture has fueled regulatory competition among nations and regions to set information and communication technology (ICT) standards. Such regulatory competition can be thought of as a two level game: level one is competition to set ICT standards within a nation or region; level two is competition to set the global ICT standards with reference to local standards. The United States and the European Union are global leaders in setting ICT standards, and compete to set global ICT standards based on different local regulatory cultures: the U.S. is a "liberal

market economy” (LME) within which informal standard developing processes are perceived as legitimate, while formal standard developing processes are perceived as legitimate within the “coordinated market economies” (CME) that tend to dominate EU regulation. In recent decades, informal ICT standard setting organizations (SDOs) known as consortia, which are more narrowly focused and less transparent than traditional SDOs have emerged in the U.S. and have come to dominate global ICT regulatory competition. Standards for Radio Frequency Identifiers (RFID) provide an example that illustrates this trend. EU regulators now are considering what changes may be needed in the EU system of harmonizing standards and EU regulation in order to reverse this trend. If EU regulators succeed in engaging with selected ICT standards consortia, this might permit CME regulation to prevail over LME regulation in competition to set global ICT standards.

Jane K. Winn
University of Washington - School of Law

Gibson, Christopher S., Globalization and the Technology Standards Game: Balancing Concerns of Protectionism and Intellectual Property in International Standards. Berkeley Technology Law Journal, Vol. 22, p. 1401; Suffolk University Law School Legal Studies Research Paper No. 07-39. Available at SSRN: <http://ssrn.com/abstract=1010125>

Abstract:

Standards for technology have become a significant factor in international trade. Intellectual property ("IP") is central to the development of standards, particularly in the information and communication technologies ("ICT") industries. This article explores the relationship between standards, IP and international trade. I focus, as a test-case, on China's development of a proprietary encryption standard for wireless communications - the WLAN Authentication and Privacy Infrastructure ("WAPI") standard. In May 2003, China approved the WAPI standard and decreed that by December of that year, all wireless devices sold or imported into China would be required to incorporate this technology. This mandatory approach would have fractured the world market for wireless products, raising trade law concerns. Under pressure from the U.S., China later suspended its mandate.

An uneasy tension arises from obligations in the WTO's Agreement on Technical Barriers to Trade ("TBT Agreement") to use relevant international standards, and the possibility that their adoption will entail payment of royalties to foreign IP owners. The claim against China has been that it is focusing on home-grown standards, to the detriment of existing international standards. China has responded that the mandatory adoption of international standards does not come without cost, particularly for developing countries. It has complained of unfair treatment when seeking to participate in the international standards system, contending that IP rights create obstacles to trade.

The WAPI case illustrates standards' indeterminate nature as trade facilitators and indispensable elements of the ICT industry, on the one hand, or potential measures of protectionism when applied inappropriately, on the other. It also highlights the IP dimension to international standards, identifying a source of friction within the system. How do we balance the rights of IP owners to receive compensation against the interests of those seeking to achieve harmonization by implementing international standards? My claim is that to balance and achieve these objectives, the framework of the

TBT Agreement should be extended so that IP rights are properly addressed in the standards development process. In particular, two basic principles - early disclosure of IP rights and declaration of position concerning licensing of those rights - should be integrated into the TBT Agreement as part of its guidelines for international standards. A balanced policy governing IP rights will strengthen international standards and promote harmonization, while supporting the rights of IP owners to receive reasonable compensation.

Christopher Gibson
Suffolk University Law School

Charnovitz, Steve, International Standards and the WTO (March 29, 2005). GWU Law School, Legal Studies Research Paper No. 133. Available at SSRN: <http://ssrn.com/abstract=694346>

Abstract:

This study provides an overview of how the World Trade Organization rules relate to international standards, that is, standards propounded by some international entity. The topic of standards is a cross-cutting issue in the WTO because rules regarding international standards appear in several of the covered WTO agreements. The paper contains several parts. Part I of the paper explores the meaning of the term international standard and adopts a broad definition for analytical purposes. Part II introduces a typology for international standards. Part III discusses why international standards are important to economic development. Part IV examines some of the key WTO provisions regarding international standards. Part V looks at how WTO intergovernmental committees and bodies have implemented these provisions during the first several years of the WTO. Part VI describes some of the key standard-setting organizations that directly affect the WTO.

Steve Charnovitz
George Washington University - Law School

Lu, Xiaomeng, Standards-Related Barriers to Trade in Chinese ICT Market (September 20, 2008). Available at SSRN: <http://ssrn.com/abstract=1271343>

Abstract:

Do Standards and Conformity Assessment Constitute Barriers to Trade in General?

Although the low response rate of OECD survey is insufficient to answer this question, in most cases, there is no doubt that in the global market, standards and conformity assessment can pose barriers to trade.

How Standards and Conformity Assessment Constitute Barriers to Trade in Chinese ICT market? And How Much They Would Cost?

When it comes to the economic analysis, in China's ICT market, some facts are: preliminary

development stage of Chinese ICT industry, fast growing value of ICT market, challenges such as unevenness of ICT penetration, price and promotion competition, perceived regulatory risk, and low quality of higher education with inadequate relevancy to market needs. At the same time, standards and conformity assessment schemes are gradually being established to fulfill China's WTO accession commitment. In terms of the importance of this issue in ICT imports and exports, once erected, Chinese mandatory ICT standards and conformity assessment may result in significant barriers to trade in terms of economic value.

To further understand the major stakeholder in China's ICT market - Chinese government - the policy analysis demonstrates that the focus of national development has shifted from quantitative economic growth to qualitative improvement such as the development of countryside, energy efficiency, and environmental enhancement. ICT policy highlighted by the "Indigenous Innovation" strategy intend to build the bridge between investment in technology research and development and technology innovation, which could be matched with the completed and on-going Chinese ICT standards initiatives. Under this circumstance, ICT standards could be perceived as a tool to protect domestic industry and to promote innovation in ICT sector, thus act as a trade barrier to foreign ICT companies.

How to Deal with this Issue from Legal and Institutional Perspective?

The key legal document this issue can refer to is the WTO TBT Agreement. The TBT Agreement was supposed to lay down the rules for preparation, adoption and application of technical regulations, standards, and conformity assessment procedures. After the analysis of the legal provisions, the number of cases brought into the dispute resolution, and concerns addressed in the TBT committee, it is obvious that the TBT Agreement was not designed to provide stringent check on the distortive use of conformity assessment with technical regulation. When it comes to the institutional and legal analysis in China, though a lot of progresses have been made in reviewing the Standardization Law, improving transparency in the standardization process, reforming the conformity assessment regulatory bodies and cumbersome conformity assessment procedures (such as CCC mark and CPCS regulatory system), China's laws and regulations on the issue are not yet mature enough to be instrumental in addressing the possible standards-related barriers to trade.

Thus, in the fast growing ICT market in China, led by the indigenous innovation strategy, there is a growing risk in the ICT market that Chinese leadership will adopt mandatory Chinese IPR based-standards and over-stringent conformity assessment procedures, which may erect barriers to international trade and raise costs for foreign ICT companies.

How to Address This Issue from US Government's Stand Point?

Essentially, this issue is deeply rooted in business community and can be more effectively addressed by American companies rather than US government or WTO legal system. Consequently, this research suggests that US government should encourage and enhance the integration between American and Chinese ICT business communities by strengthening the linkage between American ICT companies and Chinese subsidiaries and contractors; bring more advanced ICT products and research to the Chinese market; engage Chinese academic institutes into their research and development projects. US government should also expand the scope of current training and exchanging programs to Chinese officials and industry in the ICT standards-related field in order to change the top-down mental and institutional structure of China's ICT policy. In addition, it is helpful to expand the cross-culture

training to American standards officials and encourage the education of standards issue in higher education system. Other suggestions include establish more embassy presences and standards offices China and expand MDCP.

Xiaomeng Lu

[Capstone Project Prepared for the MAITP Degree at the Monterey Institute of International Studies]

Gibson, Christopher S., Technology Standards - New Technical Barriers to Trade?. THE STANDARDS EDGE: GOLDEN MEAN, Sherrie Bolin, ed., 2007. Available at SSRN:
<http://ssrn.com/abstract=960059>

Abstract:

At a time when the high-tech industry has increasingly demanded harmonized standards, China has signaled its intention to follow a different direction. China's recent actions seeking to set its own unique standards instead of adopting international standards shifts focus to the impact on international trade and the corresponding legal framework defining responsibilities for State members of the World Trade Organization. While trade barriers of the past - high tariffs and quotas imposed on imports - have been greatly reduced, less obvious impediments normally referred to as non-tariff barriers (NTBs) have in many cases replaced them. One area ripe for the incursion of NTBs concerns technology standards. The WTO's Agreement on Technical Barriers to Trade recognizes the important contribution that international standards can make by improving efficiency of production and facilitating the conduct of international trade, but also cautions that standards should not be used to create NTBs. China's WAPI standard provides a test-case for ICT standards and their relationship to the international trade regime. It serves to illustrate standards' dual nature as trade facilitators and indispensable elements of the ICT industry, on the one hand, and as potential measures of protectionism when applied inappropriately, on the other hand. As China's economic power grows and it becomes more adept at playing the standards game, it may find new means for pressing its own concerns in relation to international standards and trade-related issues.

Christopher Gibson
Suffolk University Law School

PATENTS

Brian Kahin, "Common and Uncommon Knowledge: Reducing Conflict between Standards and Patents," revised version, Laura DeNardis, ed., Opening Standards: The Global Politics of Interoperability (The MIT Press, Forthcoming 2010)

ABSTRACT: As standards have become critical for advancing technology and new markets, patents have become easier to obtain, more potent, and readily available for software and business methods. A low threshold of inventiveness and the growing opacity of the patent system has made inadvertent infringement commonplace, dramatically increasing opportunities for "patent trolls" to threaten

information technology (IT) standards. Because IT standards have much the same investment rationale as most forms of intellectual property, standards that meet minimum requirements should be accorded protection from patent predators. Patent holders should assert their rights promptly or waive the opportunity to sue those who merely practice a public standard.

Brian Kahin is Senior Fellow at the Computer & Communications Industry Association in Washington, DC. He is also Research Investigator and Adjunct Professor at the University of Michigan School of Information.

Stanley M. Besen and Robert J. Levinson*, 10 N.C. J.L. & Tech. 233, Spring, 2009, Article: Standards, Intellectual Property Disclosure, and Patent Royalties After Rambus

The U.S. Federal Trade Commission found that Rambus, a developer of computer memory technologies, failed to disclose information about its intellectual property holdings to other participants in the Joint Electron Device Engineering Council (JEDEC), a private standard-setting organization, during the period in which JEDEC was developing Dynamic Random Access Memory (DRAM) standards. According to the Commission, this failure prevented JEDEC from considering the patent royalties that Rambus would charge in determining whether to incorporate its technology into the standard. The Commission also found that Rambus, once its technology had been selected and users were "locked-in" to that standard, exploited its market power by demanding high license fees. The Commission concluded that lock-in might have been prevented if all technology sponsors, including Rambus, had disclosed their intellectual property holdings and negotiated license fees before the adoption of the standard. In the wake of the FTC's decision, the U.S. Department of Justice (DOJ) issued Business Review Letters in which it attempted to clarify the manner in which standard-setting organizations (SSOs) could take patent license fees into account in setting standards without incurring antitrust liability. Subsequently, however, the Court of Appeals for the D.C. Circuit struck down the FTC's decision on the grounds that JEDEC's disclosure rules were unclear, and that the FTC had failed to show that JEDEC would not have included the Rambus technology in its standard even if Rambus had disclosed its patent holdings. The U.S. Supreme Court recently denied the FTC's petition for review of the D.C. Circuit's decision. This article examines the logic of both the FTC's and the D.C. Circuit's decisions. It also explains why collective negotiations may be necessary to exploit fully ex ante competition among technology sponsors, explores the complications posed for collective negotiations by heterogeneity among technology users, and analyzes the effects of collective negotiations on the incentives of sponsors to develop technologies for inclusion in future standards. Finally, it examines the implications of the decision by the D.C. Circuit for the future behavior of participants in SSOs and for patent royalties for technologies that are included in standards.

* Besen is a Senior Consultant and Levinson is a Vice President in the Competition Practice of Charles River Associates.

MARK A. LEMLEY*, January 2007, 47 B.C. L. Rev 149, ARTICLE: TEN THINGS TO DO ABOUT PATENT HOLDUP OF STANDARDS (AND ONE NOT TO)

Abstract: A central fact about the information technology sector is the multiplicity of patents that innovators must deal with. Indeed, hundreds of thousands of patents cover semiconductor, software, telecommunications, and Internet inventions. Because of the nature of information technology, innovation often requires the combination of a number of different patents. Currently, various features of the patent system facilitate holdup, particularly in the standard-setting context. These features include insufficient discounting in damages for patent infringement and the resultant inflated demands for royalties, the low standard of proof for willful infringement, which allows patentees to recover treble damages, and the threat of injunctive relief. Frequently, innovators make irreversible investments in their development of new technology, only to have those investments used against them as a bargaining chip by existing patent holders. This Article suggests five steps that standard setting organizations may take to reduce the problem of patent holdup and five ways the law should change to deal with the problem.

* William H. Neukom Professor of Law, Stanford Law School; Of Counsel, Kecker & Van Nest LLP.

Mark A. Lemley* & Carl Shapiro**, June 2007, 85 Tex. L. Rev. 1991, SYMPOSIUM: Frontiers of Intellectual Property: Patent Holdup and Royalty Stacking

Abstract:

We study several interconnected problems that arise under the current U.S. patent system when a patent covers one component or feature of a complex product. This situation is common in the information technology sector of the economy. Our analysis applies to cases involving reasonable royalties but not lost profits. First, we show using bargaining theory that the threat to obtain a permanent injunction greatly enhances the patent holder's negotiating power, leading to royalty rates that exceed a natural benchmark range based on the value of the patented technology and the strength of the patent. Such royalty overcharges are especially great for weak patents covering a minor feature of a product with a sizeable price/cost margin, including products sold by firms that themselves have made substantial research and development investments. These royalty overcharges do not disappear even if the allegedly infringing firm is fully aware of the patent when it initially designs its product. However, the holdup problems caused by the threat of injunctions are reduced if courts regularly grant stays to permanent injunctions to give defendants time to redesign their products to avoid infringement when this is possible. Second, we show how holdup problems are magnified in the presence of royalty stacking, i.e., when multiple patents read on a single product. Third, using third-generation cellular telephones and Wi-Fi as leading examples, we illustrate that royalty stacking can become a very serious problem, especially in the standard-setting context where hundreds or even thousands of patents can read on a single product standard. Fourth, we discuss the use of "reasonable royalties" to award damages in patent infringement cases. We report empirical results regarding the measurement of reasonable royalties by the courts and identify various practical problems that tend to lead courts to overestimate reasonable royalties in the presence of royalty stacking. Finally, we make suggestions for patent reform based on our theoretical and empirical findings.

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Consultant, CRA International.

Dewatripont, Mathias and Legros, Patrick, 'Essential' Patents, FRAND Royalties and Technological Standards (July 2008). CEPR Discussion Paper No. DP6925. Available at SSRN: <http://ssrn.com/abstract=1307515>

Abstract:

In this paper we abandon the usual assumption that patents bring known benefits to the industry or that their benefits are known to all parties. When royalty payments are increasing in one's patent portfolio, private information about the quality of patents leads to a variety of distortions, in particular the incentives of firms to 'pad' by contributing weak patents. Three main results that emerge from the analysis are that: (i) the threat of court disputes reduces incentives to pad but at the cost of lower production of strong patents; (ii) mitigating this undesirable side-effect calls for a simultaneous increase in the cost of padding, that is, a better filtering of patent applications; (iii) upstream firms have more incentives to pad than vertically-integrated firms which internalize the fact that patent proliferation raises the share of profits going to the upstream segment of the industry but at the expense of its downstream segment. This seems consistent with recent evidence concerning padding.

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Patrick Legros

Free University of Brussels (VUB/ULB) - European Center for Advanced Research in Economics and Statistics (ECARES); Centre for Economic Policy Research (CEPR)

Valimaki, Mikko, A Flexible Approach to RAND Licensing (March 31, 2008). Available at SSRN: <http://ssrn.com/abstract=1261642>

Abstract:

This article discusses the meaning of reasonable and non-discriminatory (RAND) licensing terms in standards from European competition law perspective. Building on the Microsoft case, the article argues that the competition law assessment of RAND must take into account the licensing environment where the standard is used. The proposed flexible case-by-case approach to RAND would be also economically justified.

Mikko Valimaki

Helsinki University of Technology; University of Eastern Piedmont - A. Avogadro; Swedish School of Economics and Business Administration

Merges, Robert P. and Kuhn, Jeffrey M., An Estoppel Doctrine for Patented Standards (March 2008).

Abstract:

Technical standards, such as interface protocols or file formats, are extremely important in the network industries that add so much value to the world economy today. Under some circumstances, the assertion of patent rights against established industry standards can seriously disrupt these network industries. We have in mind two particularly disruptive tactics: (1) the snake in the grass, whereby a patentee intentionally keeps a patent quiet while a standard is being designed or adopted, and then later, after the standard is entrenched, asserts the patent widely in an attempt to capitalize on its popularity; (2) the bait and switch ploy where a patentee encourages adoption by offering royalty-free use of standard-related patents, and then, after the standard has gone into widespread use, begins to enforce its patents against adopters of the standard. We propose to counteract these tactics with a simple solution: over time, adopters of a standard ought to build up a reliance interest in the standard. Under our approach - which we call standards estoppel - non-assertion of a patent right in the presence of widespread adoption should create immunity from patent infringement. The fundamental idea behind this doctrine is to prevent strategic assertions of patents that exploit the logic of network lock-in. As we explain, though this is a simple doctrine based on deeply held common law principles, various gaps in the current doctrinal structure make this a necessary addition to the contemporary legal arsenal. In particular, standards estoppel plugs some dangerous conceptual holes in current rules relating to laches, waiver, estoppel, implied licensing, and patent misuse/antitrust. With this modest addition to the doctrinal fabric, patent law can more effectively guard against the risk of illegitimate leverage, thus more effectively fostering innovation in network industries.

Robert P. Merges
University of California, Berkeley - School of Law

Jeffrey M. Kuhn
U.C. Berkeley School of Law, Class of 2008

Geradin, Damien and Rato, Miguel P.L., Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND (April 2006). Available at SSRN: <http://ssrn.com/abstract=946792>

Abstract:

Standard-setting activities, which aim to achieve device interoperability and product compatibility, play a fundamental role in fostering innovation and competition in a variety of markets. Such activities, typically carried out by armies of engineers, would generally not be expected to fascinate lawyers and economists. But they do - and they have recently received much attention as a result of high-profile cases, complaints lodged with competition authorities, and attempts by members of Standard-Setting Organizations ("SSOs") to have their rules and procedures modified to prevent allegedly anti-competitive outcomes. There seems to be a growing perception, largely fed by certain interest groups, that current standard-setting procedures generally based on the so-called FRAND licensing regime unduly allow opportunistic holders of Intellectual Property ("IP") embedded in a standard to extract

excessive royalties from their licensees.

Against this background, the objective of this paper is to demonstrate that the existing FRAND regime works. Ongoing proposals to alter it by tilting the bargaining position of licensors, in particular that of pure innovators, in favour of licensees are not only unnecessary, being based on false premises, but would also prove detrimental to investment and innovation. Fortunately, these attempts, and in particular those to amend the rules and procedures of SSOs', have so far been unsuccessful. They remain nevertheless a constant threat.

This paper is divided in seven parts. Part II describes the main features of standard-setting processes, their significance and the strategic battles that may affect them. Part III focuses on the FRAND licensing regime traditionally prevalent in SSOs. Under this regime, owners of IPR that are essential to the standard typically commit to license such patents on "fair, reasonable and non-discriminatory terms". This Part begins by describing the scope of FRAND commitments. It then reviews the various meanings that have been attributed to the concept of FRAND and argues that a "FRAND royalty" cannot be determined in the abstract. Finally, the argument is made that, contrary to what has been suggested by a number of authors, by giving a FRAND commitment an owner of essential IPR cannot be deemed to have waived its fundamental right to seek injunctive relief in case its rights are infringed. Part IV reviews a number of academic studies which argue that the current FRAND regime has proved inadequate to prevent the emergence of a raft of perceived problems: anti-commons, patent thickets, patent hold-up, patent hold-outs, royalty stacking. It is shown that these studies have been seriously challenged and are subject to significant limitations. Moreover, it is argued that they fail to provide any empirical evidence of the problems denounced. Part V examines various proposals that have been made to reshape the FRAND regime. It shows that these proposals, most of which endorse - in one way or another - a compulsory regime of ex ante licensing, would create insurmountable practical difficulties and could raise serious competition law concerns. Part VI considers the applicability of Article 82 of the EC Treaty to claims of excessive-pricing in the IP and standard-setting context. It shows that, should they be pursued, such claims would raise numerous conceptual and practical difficulties. Determining the competitive price of a tangible good is a notoriously complex undertaking, hence the European Commission's understandable reluctance to pursue excessive pricing cases except in a narrow set of circumstances. The potential for error will only be compounded when one deals with intangible assets. For these reasons, determination of appropriate royalty levels for valuable IP should be left to the market. Finally, Part VII contains a short conclusion.

Damien Geradin

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Miguel Rato

Howrey LLP

Simcoe, Timothy Simcoe S., Graham, Stuart J. H. and Feldman, Maryann P., *Competing on Standards? Entrepreneurship, Intellectual Property and Platform Technologies* (April 28, 2009). Available at SSRN: <http://ssrn.com/abstract=1396318>

Abstract:

Entrepreneurs often rely on intellectual property (IP) to earn a return on their innovations, and also compatibility standards, which allow them to supply specialized components for a shared technology platform. This paper compares the IP strategies of small entrepreneurs and large incumbents that disclose patents at thirteen voluntary Standard Setting Organizations (SSOs). These patents have a relatively high litigation rate. For small private firms, the probability of filing a lawsuit increases after disclosure to the SSO. For large public firms, the filing rate is unchanged. While forward citations increase after disclosure for all firms, the size of this effect is the same for entrepreneurs and incumbents. These results suggest that standards increase the difference between large and small firms' incentives to litigate, rather than the relative value of their patents. We conclude that because specialized technology providers cannot seek rents in complementary markets, they defend IP more aggressively once it has been incorporated into an open platform.

Timothy Simcoe

Boston University - School of Management; University of Toronto - Joseph L. Rotman School of Management

Stuart J. H. Graham

Georgia Institute of Technology - College of Management; University of California, Berkeley School of Law - BCLT

Maryann P. Feldman

University of North Carolina at Chapel Hill - Department of City and Regional Planning

Schmidt, Klaus M., Complementary Patents and Market Structure (September 30, 2008). Available at SSRN: <http://ssrn.com/abstract=1277948>

Abstract:

Many high technology goods are based on standards that require access to several patents that are owned by different IP holders. We investigate the royalties chosen by IP holders under different market structures. Vertical integration of an IP holder and a downstream producer solves the double mark-up problem between these firms. Nevertheless, it may raise royalty rates and reduce output as compared to non-integration. Horizontal integration of IP holders (or a patent pool) solves the complements problem but not the double mark-up problem. Vertical integration discourages entry and reduces innovation incentives, while horizontal integration always encourages entry and innovation.

Ludwig Maximilians University of Munich - Faculty of Economics; CESifo (Center for Economic Studies and Ifo Institute for Economic Research); Centre for Economic Policy Research (CEPR)

Simcoe, Timothy S., Explaining the Increase in Intellectual Property Disclosure (December 1, 2005). Available at SSRN: <http://ssrn.com/abstract=1396332>

Abstract:

This paper documents a large and rather sudden increase in intellectual property disclosure at nine standard setting organizations during the early 1990s. It also examines the specificity of disclosure statements, the significance of disclosed patents, and the differences among disclosing firms. After considering several possible explanations for the increase in disclosure, the paper concludes with a discussion of its policy implications.

Boston University - School of Management; University of Toronto - Joseph L. Rotman School of Management

Winston, Tor, Innovation and Ex Ante Consideration of Licensing Terms in Standard Setting (March 2006). Available at SSRN: <http://ssrn.com/abstract=1015059>

Abstract:

In an effort to produce interoperable products, firms frequently participate in Standard Setting Organizations (SSOs) to collaboratively set technical standards for products used by networks of consumers. Some SSO members say they suffer from a type of holdup: after they sink technology-specific investments in developing and implementing a standard using a particular patented technology the patent owner can set licensing terms that exploit those investments. These members have called on SSOs to enhance competition between patent owners by soliciting and considering licensing terms for competing technologies ex ante, before anointing one as "the standard." However, more competitive licensing terms may dampen incentives to innovate. This paper analyzes the balance between the welfare benefits of the added competition and the welfare costs of reduced innovation. The model of R&D investment and standard setting predicts that both total welfare and consumer welfare are higher when an SSO considered licensing terms ex ante as long as the cost of innovation is not "high." The model also predicts that the welfare benefits of ex ante consideration of licensing terms grow as the costs of innovation falls. However, when the cost of innovation is "high" the negative welfare effects are always small.

Tor Winston
U.S. Department of Justice - Antitrust Division

Layne-Farrar, Anne, Innovative or Indefensible? An Empirical Assessment of Patenting within Standard Setting (September 29, 2008). Available at SSRN: <http://ssrn.com/abstract=1275968>

Abstract:

Much has been written - especially in recent years - regarding the perceived problem of "over patenting" within cooperative standard setting. Because standards are thought to frequently convey market power to those firms whose patented technologies are included in the standard, the concern is that "strategic" patenting, driven not by innovation but by rent seeking, will enable some firms to license their patents in an anticompetitive fashion. In particular, concerns have been raised over patenting that takes place after the first versions of a standard are published, as these patents may be

opportunistic and aimed at the unwarranted acquisition or enhancement of market power. While this is a reasonable concern, another possibility may be likely as well: that at least some portion of ex post patenting is driven by genuine innovation. The question then becomes, which is more prevalent? To test the opportunistic patenting theory, I empirically assess the patenting that occurs within a standard setting organization. On the basis of this analysis, I reject the hypothesis that all patenting that takes place after a standard has been published must be opportunistic. Some may be, but an assessment of the available data suggests that much is not. This analysis is necessarily preliminary, but on the basis of the empirical assessments developed here, I conclude that ex post patenting is most likely a mixed bag of truly (albeit incremental) innovative contributions along with some highly skeptical ones. The bottom line, then, is that any policy prescriptions should proceed with much caution so that the good is not eliminated with the bad.

Anne Layne-Farrar

Law and Economics Consulting Group (LECG), LLC - Chicago, IL Office

Lemley, Mark A., Intellectual Property Rights and Standard-Setting Organizations (April 2002)*. California Law Review, Vol. 90, p. 1889, 2002. Available at SSRN: <http://ssrn.com/abstract=310122>

Abstract:

The role of institutions in mediating the use of intellectual property rights has long been neglected in debates over the economics of intellectual property. In a path-breaking work, Rob Merges studied what he calls "collective rights organizations," industry groups that collect intellectual property rights from owners and license them as a package. Merges finds that these organizations ease some of the tensions created by strong intellectual property rights by allowing industries to bargain from a property rule into a liability rule. Collective rights organizations thus play a valuable role in facilitating transactions in intellectual property rights.

There is another sort of organization that mediates between intellectual property owners and users, however. Standard-setting organizations (SSOs) regularly encounter situations in which one or more companies claim to own proprietary rights that cover a proposed industry standard. The industry cannot adopt the standard without the permission of the intellectual property owner (or owners).

How SSOs respond to those who assert intellectual property rights is critically important. Whether or not private companies retain intellectual property rights in group standards will determine whether a standard is "open" or "closed." It will determine who can sell compliant products, and it may well influence whether the standard adopted in the market is one chosen by a group or one offered by a single company. SSO rules governing intellectual property rights will also affect how standards change as technology improves.

Given the importance of SSO rules governing intellectual property rights, there has been surprisingly little treatment of SSO intellectual property rules in the legal literature. My aim in this article is to fill that void. To do so, I have studied the intellectual property policies of dozens of SSOs, primarily but not exclusively in the computer networking and telecommunications industries. This is no accident; interface standards are much more prevalent in those industries than in other fields. In Part I, I provide

some background on SSOs themselves, and discuss the value of group standard setting in network markets. In Part II, I discuss my empirical research, which demonstrates a remarkable diversity among SSOs even within a given industry in how they treat intellectual property. In Part III, I analyze a host of unresolved contract and intellectual property law issues relating to the applicability and enforcement of such intellectual property policies. In Part IV, I consider the constraints the antitrust laws place on SSOs in general, and on their adoption of intellectual property policies in particular. Part V offers a theory of SSO intellectual property rules as a sort of messy private ordering, allowing companies to bargain in the shadow of patent law in those industries in which it is most important that they do so. Finally, in Part VI I offer ideas for how the law can improve the efficiency of this private ordering process.

In the end, I hope to convince the reader of four things. First, SSO rules governing intellectual property fundamentally change the way in which we must approach the study of intellectual property. It is not enough to consider IP rights in a vacuum; we must consider them as they are actually used in practice. And that means considering how SSO rules affect IP incentives in different industries. Second, there is a remarkable diversity among SSOs in how they treat IP rights. This diversity is largely accidental, and does not reflect conscious competition between different policies. Third, the law is not well designed to take account of the modern role of SSOs. Antitrust rules may unduly restrict SSOs even when those organizations are serving procompetitive ends. And enforcement of SSO IP rules presents a number of important but unresolved problems of contract and intellectual property law, issues that will need to be resolved if SSO IP rules are to fulfill their promise of solving patent holdup problems.

My fourth conclusion is an optimistic one. SSOs are a species of private ordering that may help solve one of the fundamental dilemmas of intellectual property law: the fact that intellectual property rights seem to promote innovation in some industries but harm innovation in others. SSOs may serve to ameliorate the problems of overlapping intellectual property rights in those industries in which IP is most problematic for innovation, particularly in the semiconductor, software, and telecommunications fields. The best thing the government can do is to enforce these private ordering agreements and avoid unduly restricting SSOs by overzealous antitrust scrutiny.

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Stanford Law School

* Pre-2005, but included anyway because of role as seminal standards article

Lichtman, Douglas Gary, Patent Holdouts and the Standard-Setting Process (May 16, 2006). U Chicago Law and Economics, Olin Working Paper No. 292. Available at SSRN:
<http://ssrn.com/abstract=902646>

Abstract:

A patent holder whose patent is made public only after the relevant technology has been widely adopted can demand not only a royalty that reflects the intrinsic value of that technology but also a royalty that reflects the value of each infringing firm's technology-specific investments. This is the familiar patent holdout problem, and it particularly plagues the standard-setting process. Importantly,

and the insight missed both in practice and in the literature today, the greater the number of patent holders in this holdout position, the less each can expect to earn from this tactic. That is, if fifteen patent holders can credibly threaten to shut an infringer for six months while that firm redesigns its products and services, the value associated with avoiding six months of disruption must be split fifteen ways. If three hundred patent holders can credibly make that threat, the pro rata share drops by a factor of twenty. More patents means less money per patent holder. Less money, in turn, means less of an incentive for a firm to strategically delay in the hopes of being a patent holdout, and less of an incentive for an accidental patent holdout to actually bring suit. In this eight-page magazine-style piece, I examine this dynamic and argue that firms can harness it as a way of protecting themselves from patent holdouts. If I am right here, my analysis has not only a practical payoff for firms hoping to implement patented technologies, but also some theoretical punch. After all, the conventional literature on the tragedy of the anti-commons asserts that resources will be inefficiently under-used in the face of too many overlapping patent rights. My point here is that some resources actually come into efficient use precisely because there are so many patent holders who each can plausibly veto a particular party's use.

Douglas Lichtman
University of California, Los Angeles - School of Law

Sidak, J. Gregory, Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations (February 7, 2009). *Journal of Competition Law and Economics*, Vol. 5, No. 1, 2009. Available at SSRN: <http://ssrn.com/abstract=1081997>

Abstract:

Current controversies over patent policy place standard-setting organizations (SSOs) on a collision course with antitrust law. Recent theoretical research conjectures that, in an SSO, patent owners can "hold up" patent users in the sense of demanding high royalties for a patented input after the SSO has adopted the patented technology as an industry standard and manufacturers within the SSO have incurred sunk costs to design end products that incorporate that standard. Consistent with this conjecture, actual SSOs have recently sought no-action letters from the Antitrust Division for a variety of amendments to SSO rules that would require or request, at the time a standard is under consideration, the ex ante disclosure by the patent owner of the maximum royalty that the patent owner would charge under the regime of fair, reasonable, and nondiscriminatory (FRAND) licensing. This price information—which is characterized as the "cost" of the patented input—would, under at least one recent SSO rule modification, be a permissible topic for potential users of the patent to discuss when deciding whether to select it in lieu of some alternative standard. This exchange of information among horizontal competitors would occur ostensibly because the cost of the patented technology had been characterized as simply one more technical attribute of the standard to be set, albeit an important technical attribute. The Antitrust Division and the Federal Trade Commission have jointly stated that such discussion, by prospective buyers who are competitors in the downstream market, of the price of a patented invention that might become part of an industry standard should be subject to antitrust scrutiny under the rule of reason rather than the rule of per se illegality. The rationale that the antitrust agencies offer for applying the rule of reason to such conduct is that such horizontal collaboration might avert patent holdup. The Antitrust Modernization Commission (AMC) similarly endorsed the view that rule-of-reason analysis is appropriate for ex ante discussion of royalty terms by competing

buyers of patented technology. This rule-of-reason approach, however, is problematic because it conflicts with both the body of economic research on bidder collusion and with the antitrust jurisprudence on information exchange and facilitation of collusion. Put differently, because of their concern over the possibility of patent holdup, the U.S. antitrust agencies and the AMC in effect have indicated that they may be willing in at least some circumstances to forgo enforcement actions against practices that facilitate oligopsonistic collusion by encouraging the ex ante exchange of information among competitors concerning the price to be paid for a patented input as an implicit condition of those competitors' endorsement of that particular patented technology for adoption in the industry standard. However, neither the proponents of these SSO policies nor the antitrust agencies and the AMC have offered any theoretical or empirical foundation for their implicit assumption that the expected social cost of patent holdup exceeds the expected social cost of oligopsonistic collusion. This conclusion does not change even if one conjectures that such collusion will benefit consumers by enabling licensees to pass through royalty reductions in their pricing of the downstream product incorporating the patented technology. Proper economic evaluation of the plausibility of the pass-through conjecture will require information about the calculation of royalty payments; the demand and supply elasticities facing the licensees; and the structure of any industries further downstream between the manufacturer and the final consumer. Consequently, the magnitude of this effect will likely be a matter of empirical dispute in every case. Moreover, such a justification for tolerating horizontal price fixing finds no support in antitrust jurisprudence. Given the analytical and factual uncertainty over whether patent holdup is a serious problem, it is foreseeable that antitrust questions of first impression will arise and affect a wide range of high-technology industries that rely on SSOs. However, there is no indication that scholars and policy makers have seriously considered whether oligopsonistic collusion in SSOs is a larger problem than patent holdup.

J. Gregory Sidak

Tilburg University - Faculty of Law; Criterion Economics, L.L.C.; The Coase Foundation for Law & Economics

Crane, Daniel A., Patent Pools, RAND Commitments, and the Problematics of Price Discrimination (April 1, 2008). Cardozo Legal Studies Research Paper No. 232. Available at SSRN: <http://ssrn.com/abstract=1120071>

Abstract:

This is a book chapter forthcoming in *Working Within the Boundaries of Intellectual Property Law* (Harry First, Rochelle Dreyfuss, and Diane Zimmerman, eds., Oxford University Press), which will collect papers from the NYU Engelberg Center's 2007 conference at La Pietra, Florence. The paper highlights the complexities and potential abuses that arise when patent pools are used to implement standards created by standard setting organizations (SSOs). It summarizes the antitrust fixes that have been proposed by the patentees and generally approved by the antitrust agencies. The paper then explores the meaning of the chief antitrust fix - the patentees' commitment to license their patents on reasonable and nondiscriminatory (RAND) terms. The paper concludes by arguing that at least three conditions must be satisfied for RAND commitments to be effective fixes: (1) understanding the RAND commitment as a contract enforceable by third parties; (2) placing the burden of justifying the proffered licensing terms on the patent pool; and (3) allowing for meaningful judicial review of

licensing decisions by private arbitrators.

Daniel A. Crane
Yeshiva University - Benjamin N. Cardozo School of Law

Lee, Nari, Patented Standards and the Tragedy of Anti-Commons. Teollisoikeudellisia Kirjoituksia, 2006. Available at SSRN: <http://ssrn.com/abstract=881702>

Abstract:

Arguments that intellectual property is becoming more and more like tangible property have been heard. Reflecting this is the propertization debates on intellectual property. Propertization debates start from the very question how similar or how different IP rights are, and should be, treated differently from property rights on tangibles both in theory and in practice. In the context of propertization debate, this article approaches the question of private ordering that is enabled by newly patent eligible subject matter, computer programs, and evaluate the application of strands of property theory that have been influential in the IP law and economics literature. In particular, this paper assesses two applications of property theories to IP, in the context of patented standards in ICT industry, and argues that while it is important to note that IP as a legal construct that connects physical property to intangible ideas and information, solely emphasizing its continuity may disregard some of the more fundamental aspect of the IP institution.

Nari Lee
University of Joensuu - Faculty of Law; Hokkaido University-Law

Rysman, Marc and Simcoe, Timothy S., Patents and the Performance of Voluntary Standard Setting Organizations (October 11, 2005). NET Institute Working Paper No. 05-22. Available at SSRN: <http://ssrn.com/abstract=851245>

Abstract:

This paper measures the technological significance of voluntary standard setting organizations (SSOs) by examining citations to patents disclosed in the standard setting process. We find that SSO patents are cited far more frequently than a set of control patents, and that SSO patents receive citations for a much longer period of time. Furthermore, we find a significant correlation between citation and the disclosure of a patent to an SSO, which may imply a marginal impact of disclosure. These results provide the first empirical look at patents disclosed to SSOs, and show that these organizations not only select important technologies, but may also play a role in establishing their significance.

Marc Rysman
Boston University - Department of Economics

Timothy Simcoe

Layne-Farrar, Anne, Llobet, Gerard and Padilla, A. Jorge, Preventing Patent Hold Up: An Economic Assessment of Ex Ante Licensing Negotiations in Standard Setting (May 5, 2008). Available at SSRN: <http://ssrn.com/abstract=1129551>

Abstract:

The quote in the title refers to a recurring principle in the Antitrust Guidelines for the Licensing of Intellectual Property, issued jointly by the US Department of Justice and the Federal Trade Commission in 1995. That report states that The Agencies' general approach in analyzing a licensing restraint under the rule of reason is to inquire whether the restraint is likely to have anticompetitive effects and, if so, whether the restraint is reasonably necessary to achieve procompetitive benefits that outweigh those anticompetitive effects. We apply this standard of evaluation to recent proposals for joint licensing negotiations in standard setting contexts, which have been offered as a solution to the problem of opportunistic licensing and patent hold up. We find that, to the contrary, joint negotiations are not reasonably necessary to prevent hold up. Instead, other more moderate policy solutions that take advantage of existing institutional features within standard setting bodies have a greater likelihood of preventing hold up without running the risk of anticompetitive licensee collusion that is present with joint negotiations. In particular, we posit that standard setting bodies should set voting rules to obtain majority support in the selection of technologies for a standard and should consider means of encouraging ex ante bilateral negotiations. In addition, competition authorities could focus on the enforcement of non-discriminatory licensing as a means of preventing anticompetitive opportunistic hold up.

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A. Jorge Padilla
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Geradin, Damien, Pricing Abuses by Essential Patent Holders in a Standard-Setting Context: A View from Europe (July 2008). Available at SSRN: <http://ssrn.com/abstract=1174922>

Abstract:

Intellectual property rights (hereafter, "IPR") are legitimate exclusive rights, which confer upon their owners two basic prerogatives: the right to prevent any third party from applying or using the subject-matter of the IPR and, correlatively, the right to set the conditions of a licence in consideration for use

of the IPR and as a reward for the innovative contribution contained therein. These exclusive rights are recognized in all patent laws as well as in the TRIPS agreement. Relying on the EC Treaty rule on abuse of a dominant position (Article 82 EC), the European Court of Justice (hereafter, the "ECJ") indicated in Magill and IMS that in certain exceptional circumstances IPR holders may be forced to grant a licence to other firms. The European Commission (hereafter, the "Commission") relied on this line of case law to mandate Microsoft in its March 2004 Decision to license its interoperability information to its competitors on the downstream market for work-group servers. This decision of the Commission was recently confirmed by the Court of First Instance of the EC (hereafter, the "CFI"), hence signaling that the first prerogative attached to the holding of an IPR, i.e. the right to exclude, could be subject to limitations under EC competition rules. More recently, the European Commission has taken an interest in the level of royalties that are charged by IP holders. The Commission adopted in February 2008 a decision imposing a fine of 899 million euros on Microsoft for non-compliance with its obligation to license its downstream competitors under its March 2004 Decision. This decision required Microsoft to license its interoperability information on reasonable and non-discriminatory terms. This aspect of the decision effectively placed limits on the second prerogative attached to the possession of an IPR, i.e. the right to set the conditions attached to the granting of a licence. The bone of contention between the Commission and Microsoft related to the royalties Microsoft wanted to charge its competitors for the licence in question. The Commission rejected Microsoft's initial demand of a royalty rate of 3.87% of a licensee's product revenues for a patent licence and of 2.98% for a licence giving access to the secret interoperability information. Under the pressure of periodic penalty payments for non-compliance, Microsoft eventually agreed to provide a licence giving access to the interoperability information for a flat fee of 10,000 euros and an optional worldwide patent licence for a reduced royalty rate of 0.4% of licensees' product revenues.

Yet, Microsoft has not been the only high-technology firm targeted by Commission investigations. In August 2007, the European Commission sent a Statement of Objections to Rambus on the ground that it infringed Article 82 EC by claiming unreasonable royalties for the licensing of certain patents for "Dynamic Random Access Memory" chips (DRAMs) subsequent to a so-called "patent ambush". In October 2007, the European Commission also decided to open formal antitrust proceedings against Qualcomm following complaints lodged by Ericsson, Nokia, Texas Instruments, Broadcom, NEC and Panasonic, alleging that Qualcomm's licensing terms and conditions are not Fair, Reasonable and Non-Discriminatory ("FRAND") and, therefore, may breach EC competition rules. These last cases are particularly important as they are linked to the way in which firms seek to fund their research and development ("R&D") efforts and, in particular, to the funding of innovation through technology licensing. In the last two decades, the reliance upon "licensing" strategies as a source of revenue for IPR holders has seen a dramatic increase. Put simply, in return for an adequate remuneration (typically a royalty, but there may be other forms of consideration), innovators (licensors) grant to other firms (licensees) the right to use their proprietary technology to manufacture products for sale in downstream markets. IPR licensing strategies are not only pursued by organizations without manufacturing capabilities (e.g., university research centers). IPR holders active in downstream product markets (hereafter, "vertically-integrated firms") may be licensing their technologies to reap additional profits from their R&D expenditures, but also to obtain access to other firms' technologies through cross-licensing agreements.

Licensing agreements are widely seen as pro-competitive. They typically benefit both licensors and licensees. The licensee gains access to new technologies, which it can use to improve its manufacturing operations or embed in its products to increase their functionalities. The licensor accrues revenues from

his initial R&D expenditures that can be invested in the development of new technologies, which will in turn lead to additional revenues, hence creating a virtuous circle of innovation. Licensing agreements are generally heavily negotiated between licensors and licensees, which in the vast majority of the cases reach mutually satisfactory agreements. Yet, tensions may arise between licensors and licensees over the terms of their IPR licensing deals. Such tensions are particularly likely to arise when licensing agreements have the potential to be worth hundreds of millions of Euros and small variations in terms and conditions can be financially significant for both parties. Against this background, the objective of this paper is not to offer a comprehensive discussion of the complex relationship between IPR and competition law or even of the application of competition rules to licensing arrangements. Instead, it seeks to address what seems to be a growing reliance on competition rules to control the level of royalties IPR owners are entitled to charge their licensees. In order to keep the discussion brief, this paper's focus will be relatively narrow. First, this paper focuses on the application of EC competition rules, and in particular Article 82 EC, to IPR licensing agreements. Cases decided or investigations launched under Section 2 of the Sherman Act or other US antitrust law provisions are not reviewed. Second, this paper focuses on competition law issues arising from the licensing of IPR that are essential to an industry standard.

This paper is divided into five parts. Following this introduction, Part II briefly explains the importance of standardization and the so-called FRAND regime, which applies to licensing agreements covering patents that are essential to a given industry standard. Then, Part III addresses the issues of market definition and the assessment of dominance in high-technology industries, which raise a number of complex issues that need to be considered carefully. Part IV analyses various licensing practices that may allegedly amount to abuses of a dominant position with a specific focus on price discrimination and what EC law refers to as "excessive" pricing. Finally, Part V contains a brief conclusion in which it is argued that technology markets are particularly complex and competition rules must thus be applied cautiously in such sectors as the risks of false positives are high and the impact of such risks on innovation can be large. Thus, in the absence of exclusionary practices - either at the upstream or downstream levels - competition law has little or no role to play when it comes to assessing the level of royalties agreed between licensors and licensees.

Damien Geradin

Howrey LLP; Tilburg University - Tilburg Law and Economics Center (TILEC)

Layne-Farrar, Anne, Padilla, A. Jorge and Schmalensee, Richard, Pricing Patents for Licensing in Standard Setting Organisations: Making Sense of FRAND Commitments (October 2006). Available at SSRN: <http://ssrn.com/abstract=937930>

Abstract:

We explore two distinct methods for assessing whether licensing terms for intellectual property declared essential within a standard setting organization can be considered fair, reasonable, and non-discriminatory (FRAND). The first method - the efficient component-pricing rule (ECPR) - is based on the economic concept of market competition. The second - the Shapley value method - is based on cooperative game theory models and social concepts for a fair division of rents. Interestingly, these two distinct methods suggest a similar benchmark for evaluating FRAND licenses. We find that under both

approaches, patents covering "essential" technologies with a greater contribution to the value of the standard and without close substitutes before the standard gets adopted should receive higher royalty payments after the adoption of the standard.

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Richard Schmalensee

Massachusetts Institute of Technology (MIT) - Sloan School of Management; National Bureau of Economic Research (NBER)

Wallace, Joel M., *Rambus v. F.T.C. in the Context of Standard-Setting Organizations, Antitrust, and the Patent Hold-Up Problem* (March 13, 2009). *Berkley Technology Law Journal*, Vol. 24, p. 649, March 2009. Available at SSRN: <http://ssrn.com/abstract=1364116>

Abstract:

This article examines the patent hold-up problem through the lens of recent litigation involving alleged abuses within standard-setting organizations (SSOs). In *Rambus v. Federal Trade Commission*, a case addressing antitrust liability for failing to disclose relevant patents to an SSO, the D.C. Circuit held that an SSO member should not face liability unless there is affirmative proof that the SSO would have certainly chosen another standard absent deception. This article argues that the D.C. Circuit's analysis was incompatible with its prior en banc ruling in *United States v. Microsoft*. Next, this article explores measures SSOs may take to avoid the patent hold-up problem. Finally, this article examines the possibility of expanding the use of equitable defenses by defendants sued by firms that attempt to engage in hold-up.

Joel M. Wallace

Berkeley Center for Law & Technology

Miller, Joseph Scott, *Standard Setting, Patents, and Access Lock-In: Rand Licensing and the Theory of the Firm*. *Indiana Law Review*, Vol. 40, 2006; *Lewis & Clark Law School Legal Studies Research Paper No. 2007-6*. Available at SSRN: <http://ssrn.com/abstract=924883>

Abstract:

Many leading voluntary standard-setting organizations (SSOs) have adopted intellectual property (IP) policies under which participants must promise to license any patents on technology that they

contribute to a standard, and to do so on reasonable and nondiscriminatory terms (RAND). The standard setting literature includes a substantial focus on the widespread use of this RAND promise. A common refrain in these analyses of the RAND promise is that its meaning is dysfunctionally uncertain. We know more about the RAND promise, however, than the existing literature suggests. I show that we already know the RAND promise's core meaning, and why it remains attractive to SSOs. Specifically, I demonstrate that, although framed by reference to patent rights, the RAND promise's core function is to achieve a business organization goal that all SSOs confront - namely, removing the threat of post-adoption hold-up, thus inducing group production of a viable standards-based technology platform. One can solve the organizational problem by transferring a property right from threatener to threatenee(s). Corporate law scholars have shown that the corporate form enables group production of complex goods by giving contributors a way to lock in their capital to a separate property-holding entity, precluding both subsequent withdrawal and hold-ups from threatened withdrawal. In the IP domain, for example, patent pools usually form new companies to hold patent licensing rights centrally. Similarly, in the standards context, SSOs enable production of a standards-based technology platform by conditioning contributors' participation on making the RAND promise, i.e., on granting the whole of the adopter community a property-like access right to contributors' patented contributions to the standard. This access lock-in, whereby participants cast themselves into a common venture, makes possible post-standardization, mutually-beneficial bargaining over patent license terms by precluding both subsequent patent-based shutouts and holdups from threatened shutouts. In other words, every participating patent owner has, by making the RAND licensing promise, irrevocably waived its right to seek that most traditional of intellectual property law remedies, a court injunction against unauthorized access. The only relief a frustrated patent owner can seek against an adopter thereafter is the reasonable royalty expressly contemplated. Moreover, the RAND promise must run with the patent if the patent is sold to another party; only in this way does the RAND promise ensure that the standard can flourish without hold-up for as long as the market supports the technology.

Joseph Scott Miller
Lewis & Clark Law School

Devlin, Alan James, Standard-Setting Organizations and the Failure of Price Competition (July, 04 2009). New York University Annual Survey of American Law, Forthcoming. Available at SSRN: <http://ssrn.com/abstract=1429843>

Abstract:

Standard-setting organizations (SSOs) play a role of immense importance in high technology markets. The interoperability facilitated by these entities produces scale efficiencies, bypasses the wasteful competition associated with 'winner takes all' markets, allows the introduction of open standards free from proprietary control, and charts a navigable path through the infamous patent thicket. Yet, for all these benefits, SSOs display a dearth of ex ante royalty competition between purveyors of competing technologies.

Given the threat of ex post hold-up by intellectual property holders, the loss of price competition that would yield binding ex ante contractual commitments is a serious one. The cost, however, is not inevitable. SSOs could spur rivalry between holders of substitute technologies in numerous ways, many

of which would readily capture the efficiencies of open market price competition. Nevertheless, such entities invariably prohibit their members from discussing royalties in any way. The cause: An unlikely villain in the form of antitrust. Fearing liability for discussing price, SSOs instead require royalty-free (RF) or reasonable and non-discriminatory (RAND) licensing by its members. The idea, of course, is that a binding ex ante commitment to license others at no more than a 'reasonable' royalty rate will temper the ensuing market power bestowed on an IP-holder whose rights are infringed by a chosen standard. Thus, one would expect RAND licensing to serve a critical function in the SSO process.

Unfortunately, the RAND concept is defunct, illusory, lacking in any semblance of objectivity, and emasculated in part by its lack of enforceability. In short, RAND is an inefficacious substitute for ex ante royalty-specific constraints. Given that the majority of IP-holders will require some compensation for the infringement of their rights by a collectively established standard - thus rendering RF licensing ill-suited to many situations - the failure of RAND to impose a meaningful constraint on ex post monopoly lock-in is a serious shortcoming.

This Article contrasts the SSO with alternative standard setting processes, examines the importance of price competition in network effect driven markets, and asks how intellectual property and antitrust policy should seek to address the critical failure of RAND licensing. In particular, there is a pressing need for reduced antitrust oversight with regard to royalty negotiation. Having established this normative foundation, the Article traces recent steps taken by the legislative, judicial, and executive branches to remedy the problem and compares these measures with the social optimum. Ultimately, it concludes that RAND licensing should be discarded as an SSO practice. In this regard, the 2008 decision of the D.C. Circuit in *Rambus, Inc. v. FTC* is highly notable, certainly for its undermining of the Third Circuit's 2007 holding in *Qualcomm*, but more fundamentally for its status as a squandered opportunity.

Alan Devlin
Government of the United States of America - Courts of Appeals

Schmalensee, Richard, Standard-Setting, Innovation Specialists, and Competition Policy (April 30, 2009). Available at SSRN: <http://ssrn.com/abstract=1219784>

Abstract:

Using a simple model of patent licensing followed by product-market competition, this paper investigates several competition policy questions related to standard-setting organizations (SSOs). It concludes that competition policy should not favor patent-holders who practice their patents against innovation specialists who do not, that SSOs should not be required to conduct auctions among patent-holders before standards are set in order to determine post-standard royalty rates (though less formal ex ante competition should be encouraged), and that antitrust policy should not allow or encourage collective negotiation of patent royalty rates. Some recent policy developments in this area are discussed.

Richard Schmalensee
Massachusetts Institute of Technology (MIT) - Sloan School of Management; National Bureau of

Lee, Nari, Standardization and Patent Law - Is Standardization a Concern for Patent Law? (October 2004). Available at SSRN: <http://ssrn.com/abstract=610901>

Abstract:

Technical standards that facilitate interoperability are believed to be crucial in the growth and development of the network and computer industry. In a modular and globalized economy, it is believed that the development of compatibility standards benefit from being widely accessible. On the other hand, as intellectual property is based on the idea of exclusion and creates incentives for the right holder to arbitrarily discriminate the access to the protected information, it seems to be inherently incompatible with the efficient development of public, non-discriminatory and well-understood compatibility standards. Literature studying standardization invariably discuss this problem from various angles. However the relationship of standardization and intellectual property from the point of law has only been started to be of concern, as some of the more onerous business practices, such as hold-up or industry standard capture problem began to surface, in a anticipatory standardization. Most of these comments focus on the strategic use and abuse of intellectual property prior to, during and after the setting of the standards, either by an organisation or by a dominant firm, suggesting solutions mainly from contractual, or antitrust or competition law perspective. This paper argues that intellectual property law based solution should accompany these, with the example of patent law, and attempts to identify the aspects of patent law where the solutions to these problems could be based on. This is because often patent law includes specific tools of regulating uses beyond the grants of patents. As the problems are caused by some of expansionary shifts in the doctrines within patent law discipline, it is possible to devise the solution within the discipline of patent law. In sum, standards and standardization should be a concern for patent law.

Nari Lee

University of Joensuu - Faculty of Law; Hokkaido University-Law

Geradin, Damien, Standardization and Technological Innovation: Some Reflections on Ex-ante Licensing, FRAND, and the Proper Means to Reward Innovators (June 2006). Available at SSRN: <http://ssrn.com/abstract=909011>

Abstract:

In today's technology-driven world, industry standardization, component interoperability, and product-compatibility have become critical to promoting innovation and competition. Standards are typically created by voluntary organizations (generally referred to as standard-setting organizations (SSOs)) composed of participants from a given market or industry (electronic components, communications, etc.). They meet to discuss, analyze, refine, and ultimately adopt mutually acceptable standards, which ensure competing and complementary products and components are compatible and can interoperate with one another. SSOs have thus gained importance over the years in technology-driven sectors.

Damien Geradin
Howrey LLP; Tilburg University - Tilburg Law and Economics Center (TILEC)

Geradin, Damien, Layne-Farrar, Anne and Padilla, A. Jorge, The Complements Problem within Standard Setting: Assessing the Evidence on Royalty Stacking (January 8, 2008). Boston University Journal of Science and Technology Law, Vol. 14, No. 2, 2008. Available at SSRN:
<http://ssrn.com/abstract=949599>

Abstract:

Royalty stacking, the most recent incarnation of the complements problem identified in the early 1800s by French engineer Augustine Cournot, has received considerable attention. The potential for royalty stacking within standard setting efforts arises from the fact that downstream manufacturing companies can face multiple upstream gatekeepers, each of whom must grant a license to their "essential" patents before the downstream firms can legally commercialize the standard. Some authors have claimed that in high-tech industries - which are frequently characterized by cumulative innovation, dispersed ownership of patents, and cooperative standard setting efforts - the cost of obtaining all necessary licenses is too high, such that innovation has been thwarted and consumers have been harmed. In this paper, we assess the case for royalty stacking within standards and find the evidentiary support weak at best. We note that the relevant question is not whether royalty stacking is possible, as the theoretical arguments behind it have withstood the test of time, but whether it is common enough and costly enough in actuality to warrant policy changes. The available evidence suggests not, implying that any policy changes aimed at solving royalty stacking are likely to cause more (unintended) harm than they cure.

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Layne-Farrar, Anne, Geradin, Damien and Padilla, A. Jorge, The Ex Ante Auction Model for the Control of Market Power in Standard Setting Organizations (April 2007). Available at SSRN:
<http://ssrn.com/abstract=979393>

Abstract:

RAND commitments -- i.e., promises to license on reasonable and non-discriminatory terms -- play a key role in standard setting processes. However, the usefulness of those commitments has recently been

questioned. The problem allegedly lies in the absence of a generally agreed test to determine whether a particular license satisfies a RAND commitment. Swanson and Baumol have suggested that the concept of a 'reasonable' royalty for purposes of RAND licensing must be defined and implemented by reference to ex ante competition. In their opinion, a royalty should be deemed reasonable when it approximates the outcome of an ex ante auction process where IP owners submit RAND commitments coupled with licensing terms and selection to the standard is based on both technological merit and licensing terms. In this paper we investigate whether the ex ante auction approach proposed by Swanson and Baumol is likely to deliver efficient outcomes, both from static and dynamic standpoints. We find that given the peculiar characteristics of some of the industries where standardization takes place, in particular the many different business models adopted by innovating companies in those industries, the ex ante auction approach proposed by Swanson and Baumol may not always deliver the right outcomes from a social welfare viewpoint.

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Law and Economics Consulting Group (LECG), LLC - Chicago, IL Office

Damien Geradin

Howrey LLP; Tilburg University - Tilburg Law and Economics Center (TILEC)

Leveque, Francois and Ménière, Yann, Vagueness in RAND Licensing Obligations is Unreasonable for Patent Owners (July 29, 2009). CERNA Working paper. Available at SSRN:

<http://ssrn.com/abstract=1030520>

Abstract:

Recent evolutions have called into question the traditional practices of standard-setting organizations (SSOs), especially as regards the licensing of essential patents. In the trail of recent antitrust cases, doubts have been cast in particular on the effectiveness of the current IP policies requiring that essential patent owners commit to licensing their IP on RAND terms, the latter commitments being now perceived as too vague. Against this background, the purpose of this paper is twofold. We first highlight the rationale of the old RAND regime, as well as its effects when it becomes ineffective to mitigate the holdup problem. We then discuss the advantages of requiring more precise commitments. We especially analyze and compare the effects of two new IP policies currently experimented in some SSO: requiring that patent owners commit on a royalty cap as experimented by VITA, and allowing patent owners to choose freely whether to commit on a cap or an exact royalty, as experimented with IEEE-SA.

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Ecole des Mines de Paris - Centre d'Économie Industrielle (CERNA)

Yann Ménière

Mines ParisTech

Geradin, Damien, What's Wrong with Royalties in High Technology Industries? (May 2008). TILEC Discussion Paper Series. Available at SSRN: <http://ssrn.com/abstract=1104315>

Abstract:

Over the past few years, there has been an unprecedented degree of interest among competition authorities, scholars, Standard-Setting Organizations (hereafter, SSOs) and trade associations with respect to the level of royalties that are charged by holders of intellectual property rights (IPRs). For instance, in the past two years, the US Department of Justice (DoJ) granted business letter clearance to two SSOs - VITA and IEEE - to implement new IPR policies designed to control the IPR costs. In April 2007, the DoJ and the Federal Trade Commission (FTC) jointly released a report on Antitrust Enforcement and Intellectual Property Rights. But the interest is not limited to the United States. The European Commission is currently investigating the compatibility of certain licensing regimes and conduct within SSOs against EC competition law. Reflecting the debate at the policy level, scholars have produced a large body of legal and economic literature on IPR and standardization issues, including patent hold-up (where the patent holder exploits ill-gotten market power in excessive licensing fees) and royalty stacking (where multiple patents must be licensed and thus the royalty rates stack up to excessive amounts).

Against this background, this paper addresses the issue of whether something has gone wrong with royalties in high technology industries. This paper seeks to answer this question first by looking at a number of concrete scenarios where firms holding IPRs seek to obtain a return on their patent portfolios by licensing them. As will be seen, the behaviour of these firms essentially depends on whether they are vertically-integrated or non vertically-integrated. Vertically-integrated firms engage in research and development activities, patenting at least some of their inventions, and also manufacturing products based on their own innovations and the innovations produced by others. Non vertically-integrated firms, in contrast specialize in one or the other layers of production. Pure upstream firms conduct research and development activities and patent their innovations, but they do not engage in manufacturing. Downstream firms specialize in manufacturing, but do not engage in R&D.

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PATENT POOLS

Philip B. Nelson *, 38 Rutgers L. J. 539, Winter, 2007, SYMPOSIUM: THE IP GRAB: THE STRUGGLE BETWEEN INTELLECTUAL PROPERTY RIGHTS AND ANTITRUST: PATENT POOLS: AN ECONOMIC ASSESSMENT OF CURRENT LAW AND POLICY

While there are sound, efficiency-based reasons for patent pools, patent pools can also support anticompetitive behavior. A common antitrust concern is the possibility that patent pools will facilitate collusion (either among owners of competing intellectual property or among firms that manufacture products using the patented technology). A second concern is that a patent pool, particularly a patent

pool that is associated with the establishment of an industry standard, may foreclose competition relative to an alternative patent pool that allows access to needed patents at lower, less discriminatory royalty rates. For example, a higher patent pool royalty rate that discriminates against non-pool members may be supported by a vertically integrated competitor that is a member of the patent pool to raise rivals' costs, reducing competition in downstream markets and leading to higher prices in those markets. A third concern is that the owners of patents that are essential to the practicing of a particular standardized technology may use a patent pool to extend their market power by tying the use of non-essential patents that they also own to the licensing of the essential patents, leveraging the firms' market power into areas that go beyond the rights attributable to the essential patents.

As is true of antitrust policy generally, the antitrust analysis of patent pools has evolved over time with new case precedent, new antitrust agency guidelines, and business review letters. While the relevant agency guidance has remained relatively stable for a decade, recent cases have clarified some open issues, but highlighted that other issues remain unresolved. Three recent cases deserve particular attention: (1) Rambus Inc.; (2) Broadcom Corp. v. Qualcomm Inc.; and (3) U.S. Philips Corp. v. International Trade Commission. Given this recent activity, there is good reason to provide an assessment of current patent pool policy and to identify the economic issues that are likely to be important in the ongoing evolution of this area of the law.

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Michael A. Lavine*, Spring, 2008, 4 N.Y.U. J. L. & Bus. 605, STUDENT NOTE: RIPPLES IN THE PATENT POOL: THE IMPACT AND IMPLICATIONS OF THE EVOLVING ESSENTIALITY ANALYSIS

Abstract:

Over the past several decades, the U.S. approach to patent pool licensing has evolved from a very strict and cautious analysis to a more supportive proclamation of the pro-competitive potential of patent pool licensing arrangements. This current enthusiasm is also reflected by the European Commission's Guidelines on Technology Transfer Agreements, which are patterned after U.S. policy and regulations on intellectual property and competition. In addressing competition issues related to patent pools, U.S. courts and antitrust agencies such as the Department of Justice (DOJ) and the Federal Trade Commission (FTC) focus heavily on the essentiality of the patents involved in the licensing arrangement. In fact, case law and administrative opinions suggest that the essentiality analysis is often the "thumb on the scale" when the competitive harm and benefits of a patent pool licensing arrangement are being assessed. In general, the inclusion of "non-essential" patents in patent pool arrangements tends to raise anti-competition concerns, while the dominant presence of "essential" patents is viewed as pro-competitive.

However, some "pool-watchers" argue that there is an emerging trend whereby U.S. courts and agencies are relaxing the essentiality standard, and are now more likely to broadly allow non-essential, potentially competing patents to be included in patent licensing packages and patent pool arrangements. If true, this could signal a significant change in the U.S. perception of competition in patent pools, and thus a departure from the approach of the European Commission (EC) guidelines, which currently view

the inclusion of non-essential patents with a much more suspicious eye. Since this suspected change could lead to anti-competitive effects such as increased price-fixing and monopolies, the pool-watchers' concerns raise several questions: Is the U.S. possibly coming full circle to re-embrace its past perception of patent pools as "untouchable," or are pool-watchers simply reading recent Federal Circuit decisions too broadly; should courts and antitrust agencies be more conservative when applying the essentiality standard? Clearly, globalization has created a demand for technologies which meet international standards and are equally available in both the U.S. and Europe. Seeking to capitalize on this global demand and protect their inventions, many inventors and patent owners patent and market their technologies in both Europe and the U.S. Since the alleged change mentioned above could thus affect patent and technology competition on an international scale, this brings us to the final question raised by pool-watcher concerns: Could the alleged change in the U.S. legal and economic approach to patent pool licensing spark a similar development in the E.U.?

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David W. Van Etten*, 22 Berkeley Tech. L.J. 241 (2007), Note: Everyone in the Patent Pool: U.S. Philips Corp. v. International Trade Commission

In *U.S. Philips Corp. v. International Trade Commission*, the United States Court of Appeals for the Federal Circuit reviewed an opinion by the International Trade Commission (ITC), which held a package license unenforceable due to patent misuse. The ITC held the package license to be patent misuse under a per se standard of review because the package license included "non-essential" patents. On appeal, the Federal Circuit confronted two legal issues surrounding package licenses: first, whether the ITC erred applying a per se standard rather than a rule of reason standard of review; and second, whether the ITC correctly distinguished between "essential" and "non-essential" patents when reviewing the package license. First, the Federal Circuit rejected the ITC's use of a per se standard, holding that the rule of reason was the appropriate standard for reviewing package licenses, regardless of whether the package license included "non-essential" patents. Second, the Federal Circuit rejected the ITC's determination of "non-essential" patents. Accordingly, the Federal Circuit reversed the ITC ruling and remanded for further proceedings.

This Note examines the implications of *Philips*, a decision that serves to restrict patent misuse doctrine and encourage patent pools. Part I frames the *Philips* discussion by outlining the legal background of package licenses and patent misuse doctrine. Part II reports the facts and procedural history of *Philips* and details the Federal Circuit's holdings and reasoning. Part III analyzes the subtler implications of the Federal Circuit's holdings: (1) how *Philips* implicitly holds that package licenses are inherently pro-competitive for purposes of the rule of reason analysis; (2) how *Philips* implicitly holds that "essentiality" is determined at the time of transaction, not at the time of litigation; (3) how *Philips* implicitly endorses the DOJ's patent-expert mechanism; and (4) how *Philips* creates a heavy burden for licensees who argue the anticompetitive harms of a package license. Ultimately, this Note concludes that *Philips* creates a presumption that heavily favors the creation of, participation in, and enforcement of package licenses.

* no affiliation given

Schiff, Aaron and Aoki, Reiko, Differentiated Standards and Patent Pools (September 14, 2007). Available at SSRN: <http://ssrn.com/abstract=1004427>

Abstract:

We consider patent pool formation by owners of essential patents for differentiated standards that may be complements or substitutes in use. Pooling improves coordination in terms of royalty setting within a standard but provokes a strategic response from licensors in the competing standard. We characterise the incentives to form and defect from pools within standards and show how pool formation and stability depend on competition between standards. We also examine strategic patent pool formation by consortium standards and show that policies promoting compatibility of standards may increase or decrease welfare depending on the effects on the incentives to form pools.

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Reiko Aoki
Hitotsubashi University; University of Auckland

Leveque, Francois and Ménière, Yann, Early Commitments Help Patent Pool Formation (April 15, 2008). Available at SSRN: <http://ssrn.com/abstract=1121256>

Abstract:

This paper explores in what circumstances patent owners can be expected to join unilaterally a patent pool. We develop a simple model in which owners of patents reading on a standard grant licences to competing manufacturers. Manufacturers must sink a fixed cost to enter the market for standard compliant products, and are thus exposed to hold up when royalties are set after their entry. We show that the formation of non-cooperative patent pools nearly always fails if it takes place once manufacturers have incurred fixed costs - as is usually the case. By contrast, allowing the formation of patent pools ex ante facilitates the emergence of stable non-cooperative patent pools. Such ex ante pools yield lower prices and higher licensing profits than ex post patent pools would. We discuss the policy implications of these results concerning the credibility of licensing commitments required by standard setting bodies.

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Yann Ménière
Mines ParisTech

Layne-Farrar, Anne and Lerner, Josh, To Join or Not to Join: Examining Patent Pool Participation and

Rent Sharing Rules (January 7, 2008). Available at SSRN: <http://ssrn.com/abstract=945189>

Abstract:

The theoretical analyses of patent pools almost exclusively assume that participation is automatic - any firm with a relevant patent and an option to join a patent pool is assumed to do so. But allowing firms to opt out of patent pools is a far more realistic assumption since all modern patent pools are voluntary. In this paper, we present empirical evidence on participation rates and the factors that drive the decision to join a pool. We also summarize the various profit sharing rules found in modern patent pools, and explore the consequences of the rule chosen. We find that vertically integrated firms are more likely to join a patent pool and among those firms that do join, those with relatively symmetric patent contributions to a standard appear more likely to accept numeric patent share rules for dividing royalty earnings.

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PUBLIC POLICY / ROLE OF GOVERNMENT

Gasser, Urs and Palfrey, John G., Breaking Down Digital Barriers: When and How ICT Interoperability Drives Innovation. Berkman Center Research Publication No. 2007-8. Available at SSRN: <http://ssrn.com/abstract=1033226>

Abstract:

Interoperability, like openness, is something that we generally think of as a good thing in the context of information and communications technologies (ICTs). One of the reasons why we tend to like interoperability is that we believe it leads to innovation, as well as other positive things like consumer choice, ease of use, and competition.

In this study, we have done a deep-dive on three cases - DRM-protected music, Digital ID, and Mashups in the Web services context - as well as cursory reviews of other narratives with a goal of understanding a range of views on how interoperability comes to pass, what is optimal in terms of interoperability, how interoperability relates to innovation, and how we ought to approach achieving greater interoperability.

Our research suggests that these inclinations about interoperability are on the mark in a general sense, but that the picture is filled with nuance. Interoperability does not mean the same thing in every context. Interoperability is not always good for everyone all the time. And the relationship between interoperability and innovation, while it likely exists in most cases, is extremely hard to prove.

There is no one-size-fits-all way to achieve interoperability in the ICT context. There are a range of approaches that have relative merits depending upon the circumstances: efforts within a single firm to interconnect products or within firms; collaboration between or among two or more firms; standards processes, including open fora and ad hoc cooperation; and a wide range of roles for governments, most of which are ex post rather than ex ante modes of regulation. In various contexts, one or more of these approaches may be the best suited to accomplishing the goal of interoperability and the relevant subsidiary goals (Not surprisingly, European attitudes toward the mode of accomplishing interoperability are quite different from American inclinations).

Our conclusion is that interoperability generally supports innovation in the ICT context, but that the relationship between the two is highly complex and fact-specific. We conclude also that the best path to interoperability depends greatly upon context and which subsidiary goals matter most, such as prompting further innovation, providing consumer choice or ease of use, and the spurring of competition in the field. We conclude further that the private sector generally ought to lead efforts in interoperability, with the public sector ready either to lend a supportive hand or to determine after the fact whether the market has failed in a way such that state action is the best means of rectifying the problem. In many instances, a blended approach - involving one or more approaches concurrently - may be optimal. We recommend a process solution for considering which approach or approaches makes the most sense in a given context.

We also highlight the issue that sustaining interoperability - not just establishing it in the first instance - is a key place to focus attention. Our case study of mashups points to the concern that the most informal arrangements in the context of Web 2.0 functioning as a kind of operating system may lead to problems in the future if not stabilized in some fashion.

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John G. Palfrey Jr.
Harvard Law School

Toivanen, Otto, Choosing Standards (October 2004). HECER Discussion Paper No. 28. Available at SSRN: <http://ssrn.com/abstract=613882>

Abstract:

In many industries, including telecommunications, a government decision on a standard is needed for the society to reap the benefits from the diffusion of new goods. Delays induced by regulatory bodies either in standard choice or its implementation can be extremely costly. I study governments' choice of first generation (1G) mobile telephony standards using an international dataset. Larger and richer countries are faster to adopt. Countries take indirect network effects into account in their timing decisions. Political institutions systematically affect the speed of adoption: Democracies give telecom human capital and indirect network effects more weight.

Baird, Stacy, Government at the Standard Bazaar(April 17, 2007). Stanford Law & Policy Review, Vol. 18, No. 35, 2007. Available at SSRN: <http://ssrn.com/abstract=1365707>

Abstract:

In recent years, there has been heightened interest in having government intervene in what has become primarily a market activity to mandate information technology standards. This article will provide an analytical framework by which government can consider such actions. I premise my proposal on the conclusion that government should be reluctant to intervene in the setting of information technology standards (and particularly, to mandate a particular standard that has not been developed and/or widely adopted by the market) because: (1) the relevant industries are sophisticated in regard to standards setting and have many well-developed types of standards, and forums in which to develop standards; (2) the U. S. government has a strong preference for market-developed information technology standards and promotes this preference as a matter of both domestic law and policy and foreign trade policy; (3) international trade agreements limit the degree to which participating governments can mandate standards; and (4) in contrast to the sophistication of the marketplace, government is rarely as informed, sophisticated in its understanding of the market, or nimble enough to respond to market conditions; therefore, the risk of government failure is significant, and indeed greatest where the market is young and dynamic, as is the case with regard to the current market affected by information technology standards.

Based on these premises, this article proposes the following test, which appears as a flow chart in the Appendix. First, the government should identify which of three categories describe the instant circumstances: (1) clear cases for intervention, those where there is a government responsibility to meet a critical public interest objective and the standard is essential for the government to meet that objective; (2) "gray area" cases, where the standard is relevant to either (a) meeting a public interest objective arising in the context of a noncritical issue in the area of national security, defense, public safety, health or welfare, or (b) providing an essential but non-critical government service; and (3) cases that are clearly not circumstances for government intervention. As to determining whether to intervene in a case arising within the first category, where a critical public interest objective is at stake and a standard is essential to meet the objective, the government should take all necessary measures to address the objective. That said, pursuant to clear government policy, even in these cases government should be predisposed to implement market-developed standards and may apply the same test as described for "gray area" cases. In a "gray area" case, there must be a significant and substantial market failure to develop a standard to meet the important public interest objective before the government should consider mandating a particular standard. "Significant and substantial" means the market failure has proved to be a barrier to government action to address the important public interest objective. The government should further consider mitigating factors, such as whether the market has had a reasonable time, relative to the circumstances, to develop, approve, and implement the standard and whether there is cohesiveness among the stakeholders (i.e., whether stakeholders have adequate forums in which to act in the specific situation). The government and industry should support credible and informed non-governmental public interest (e.g., consumer-oriented) representation to potentially obviate the need for

direct government action later on.

Where a government decides to intervene, intervention should be reasonably tailored to rectify the identified market failure and to achieve the particular public interest objective. The government should limit the scope of intervention and define objectives. In order to assure the most narrowly tailored intervention, government should clearly articulate: (a) the specifics of the important public interest objective in the establishment of a particular information technology standard; (b) the purpose and scope of the government intervention; and (c) defined objectives for government intervention to achieve. The government should proceed incrementally with intervention. The first step should be to encourage market behavior through incentives. As a second step, the government should use its leverage as a major market participant and potential regulator to influence market behavior; however, the government should behave as a rational consumer, and it should consider not only the public interest objective at issue, but also the general public good. At each stage of intervention, the government should consider how best to mitigate the risk of harm of "non-market failure." To this end, where the government does intervene, intervention should reflect the market norms and market behaviors to the greatest extent possible.

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DeLacey, Brian J., Herman, Kerry, Kiron, David J., Lerner, Josh and Lo, Wai-Shun, Government Intervention in Standardization: The Case of WAPI (September 2006). Available at SSRN: <http://ssrn.com/abstract=930930>

Abstract:

Government bodies have been playing an active and frequently controversial role in many standards competitions in recent decades. The growing literature on standards by economists has largely neglected this role. This paper seeks to take an initial step in addressing this gap in the literature, by examining the experience of one current, and quite contentious, public effort to promote a standard: the Chinese efforts to promote a wireless networking standard and the ensuing interactions with the efforts to create a standard in Europe and the United States.

We highlight several observations from this case, which are particularly striking when we contrast this with the experience of the 802.11 technology - which also facilitates wireless computer networking - developed in the West. First, the role of the public sector was quite different. The development of the 802.11 standards in the Institute of Electrical and Electronics Engineers was driven by major technology firms, both within the standardization body and through the non-profit Wi-Fi Alliance, which played a more aggressive promotional role. Much of the success of the firms in promoting technologies that they had sponsored seemed to be driven by their size and market power. The WAPI process, on the other hand, was almost completely driven by the public sector. There was no significant investment by any major technology firm.

Unlike the WAPI process - where the initial technology did not mature in the market, but was almost immediately sponsored by the national standardization body - the 802.11 standard was developed over time. Various companies brought forward technologies that they had developed, and in many cases refined in the marketplace and sought to obtain super-majority approvals from the IEEE. The standardization process was transparent and open for all who wished to participate. By way of contrast, substantial ambiguities surrounded the WAPI program. For instance, the objectives of the national standardization body sponsoring the project was a mystery. Some speculated that there were two factions (with more and less pro-market views) that were fighting over how and whether WAPI should be made into an international standard.

The treatment of intellectual property was quite different as well. The IEEE standardization included requirements that firms make their intellectual property available on reasonable and non-discriminatory terms. At the same time, at least some ambiguities appear to have surrounded the nature of the commitments to make intellectual property available: the IEEE required disclosure, but the terms of disclosure were not entirely clear. With WAPI, on the other hand, there were considerable ambiguities surrounding the technology, with no access to relevant intellectual property. The only way to build to the technology was to partner with one of 24 firms involved in the promulgating the standard, but the nature of these partnerships was unclear, and outside firms worried about revealing related intellectual property in exchange.

The disparities in the strategies adopted by Western and Chinese governments correspond to the typologies developed in the theoretical literature. At the same time, the realities of the two cases raise a variety of questions that have not been explicitly considered by economists, such as the appropriate strategy in settings where less developed nations are competing with established countries. It is hard to conclude that either the bottom up approach of IEEE or the top-down national approach of China was necessarily superior: each may have been appropriate given the different circumstances of the nations.

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DeNardis, Laura and Tam, Eric, Open Documents and Democracy: A Political Basis for Open Document Standards (November 1, 2007). Available at SSRN: <http://ssrn.com/abstract=1028073>

Abstract:

The modern information society depends upon an enormous variety of electronic devices in order to function on a day-to-day basis. Information and communication technology (ICT) devices are able to exchange information only if they adhere to common communication protocols, technical interfaces, and information formats. ICT standards are the blueprints enabling users to access, create, and exchange information regardless of their hardware or software choices. Increasingly, governments are establishing policies to use ICT products based on standards that adhere to principles of openness and interoperability. For example, Japan instituted a policy that government agencies and ministries should procure software products that support internationally accepted open standards. The Brazilian federal government issued an interoperability architecture establishing the adoption of open standards, such as Open Document Format (ODF), for technology used within the executive branch of the federal government. Similarly, Belgium's federal Council of Ministers approved a proposal to adopt open document standards for creating and exchanging office documents such as text files, spreadsheets, and presentations.

Academic analyses of open standards policies usually address economic and technical concerns. But technological design is also political. Technologies both embody values and, once developed, have political consequences. Rationales for government procurement policies based on principles of openness and interoperability should not be viewed exclusively through an economic or a technical lens, but through the prism of the principles that provide democratic governments with their legitimacy. This paper employs democratic theory as a method of political and ethical inquiry into the implications of openness in information and communication standards. Our account describes four ways in which standards can have political implications:

1. Standards can have implications for other democratic processes;
2. Standards can affect the broader social conditions relevant to democracy;
3. The content and material implications of standards can themselves constitute substantive political issues; and
4. The internal processes of standards-setting can be viewed politically.

After providing examples of each of these political implications, we examine various conceptions of openness in standards and describe maximal and minimal definitions of openness as conceptual poles that anchor each end of the spectrum of potential standards policy options. We then develop some guidelines as to the specific contexts in which democratic values require a greater degree of openness in both the substance of technical standards and their development, and consider these imperatives in the political context of electronic public documents. Finally, we describe some selected cases of government ICT procurement policies based on standards that adhere to principles of openness. Our overarching conclusion, emanating from both the theoretical and descriptive portions of this study, suggests that movements toward open standards, particularly in the context of electronic public documents, are highly beneficial for citizens who value democratic principles.

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Gifford, Raymond, Standards in the Digital Age(March 31, 2005). Progress & Freedom Foundation Progress on Point Paper No. 12.2. Available at SSRN: <http://ssrn.com/abstract=987307>

Abstract:

Policymakers should proceed with a great deal of caution when considering standards mandates, where procurement policies and other government actions may distort a marketplace filled with competing standards and levels of interoperability.

Because there are undeniable trade-offs from any standard-setting decision, governments should: a) be wary of thinking they have sufficient foresight to make proper standard-setting decisions; and b) be deferential to private attempts at standard setting.

Varying models of open and closed standards with differing levels of interoperability will emerge and compete, with the market determining winners.

There are numerous standards, from the open, non-proprietary TCP/IP standard that forms the basis for the entire packet structure of the Internet, to the relatively more closed and proprietary standards of Apple Computer and its companion the iPod. There are also numerous standards-setting bodies at work in the digital space. No one approach is the right choice, but instead each has strengths and weaknesses, and involves inevitable trade-offs.

A key taxonomic distinction also lies between open source and open standards. Open source, which should be considered open and proprietary, is one way to achieve an openness of a sort. But open source should not obscure other attempts to achieve open standards through private ad hoc consortia or formal standard setting bodies. One cannot say with any metaphysical certainty that any one approach is superior. And to be sure, we should leave other parties with the liberty and freedom to work within alternate models - to achieve openness, interoperability and consumer benefits.

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The Progress & Freedom Foundation

REGULATION / CONSUMER PROTECTION

Winn, Jane K., Standard Developing Organizations as a Form of Self-Regulation (July 25, 2006). Available at SSRN: <http://ssrn.com/abstract=924008>

Abstract:

Standard developing organizations (SDOs) can help unify uncoordinated economic activities and conflicting business interests by supporting the growth of viable systems of self-regulation. This paper

considers three organizations that have successfully combined the roles of SDO and self-regulatory organization: the National Automated Clearing House Association (NACHA), which manages an electronic funds transfer network; the Electronic Benefits and Services Council (EBSC), which manages a system for clearing electronic food stamps; and the Federation for Identity and Cross-Credentialing Systems (FIXs), which manages a system for authenticating government employees and contractors entering defense facilities. The operation of each organization is examined in light of criteria for effective self-regulation, and of market adoption rates for the standards each organization produces. The paper shows how differences in market conditions and the maturity of the technologies being standardized have resulted in varying degrees of success among the three organizations.

Jane K. Winn
University of Washington - School of Law

Jane Winn, "Information Technology Standards as a Form of Consumer Protection Law," *Consumer Protection in the Age of the Information Economy* (2006). Available at <http://www.law.washington.edu/Directory/Profile.aspx?ID=103&vw=pubs>

In the U.S., the work of developing product standards to protect consumers is often seen as one best left to private standards organizations, such as the Underwriters Laboratories, or private consumer advocacy organizations, rather than as a responsibility of the government. Outside the U.S., however, the idea that government should play a role in the development and implementation of consumer safety standards is more widely accepted. This chapter will explore how information technology (IT) standards differ from industrial product standards and how governments might intervene in the development of IT standards to protect consumer interests. Three case studies involving mobile phone, electronic signature standards, and information privacy will be considered in order to illustrate the costs and benefits of government intervention in the development and adoption of IT standards as a strategy for protecting consumer interests.

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Winn, Jane K. and Jondet, Nicolas, A 'New Deal' for End Users? Lessons from a French Innovation in the Regulation of Interoperability (June 14, 2009). Available at SSRN: <http://ssrn.com/abstract=1419750>

Abstract:

In 2007, France created the Regulatory Authority for Technical Measures (l'Autorité de Régulation des Mesures Techniques or ARMT), an independent regulatory agency charged with promoting the interoperability of digital media distributed subject to "technical protection measures" (TPM) (also known as "digital rights management" technologies (DRM)), and used by French consumers. ARMT was established in part to rectify what French lawmakers perceived as an imbalance in the rights of copyright owners and end users created when the European Copyright Directive ("EUCD") was

transposed into French law as the "Loi sur le Droit d'Auteur et les Droits Voisins dans la Société de l'Information" (DADVSI). ARMT is both a traditional independent regulatory agency and a novel attempt to develop a new governance structure at the national level to address global information economy challenges. The fear that other national governments might follow suit seems to have helped to cool enthusiasm for TPM among some businesses. This paper notes parallels between the limitations imposed on ARMT and those imposed on the first modern independent regulatory agencies that emerged in the United States in the late 19th and early 20th centuries. Using that history as a guide, it is not surprising that the ARMT's exercise of authority has been limited during its early years; it remains possible that ARMT may become a model for legislation in other countries. It took decades before the first American independent regulatory agencies exercised real authority, and their legitimacy was not established beyond question until Roosevelt's "New Deal." Even though information society institutions now evolve at a faster pace, national governments are sure to require more time to develop effective, legitimate ways to insure that global information and communication technology (ICT) standards conform to their national social policies.

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University of Edinburgh

Jondet, Nicolas and Winn, Jane K., Better Regulation for Consumers: Integrating ICT Standards and Consumer Protection (December 4, 2008). Available at SSRN: <http://ssrn.com/abstract=1303061>

Abstract:

National consumer protection laws, some of which date back to the 19th century and many of which date back to the 1960s and 1970s, often fail to address any of the new problems facing consumers as a result of rapid technological innovation and the rapid expansion of ICT product markets. In order to meet these challenges, new consumer protection laws that differ not merely in substance but in form may be required. One such new form might result from the formal, explicit harmonization of ICT standards developed by private parties responding to global market forces with national consumer protection laws. The conflict of interests between copyright owners in using "digital rights management" or "technical protection measures" to prevent unauthorized copying by end users and the interest of consumers in enjoying the full benefits of limitations on the rights of copyright owners (such as "fair use" under US copyright laws) is one area where such a new form of consumer protection law might be introduced. An analysis of the 2006 French law "Loi sur le Droit d'Auteur et les Droits Voisins dans la Société de l'Information" (DADVSI) suggests what the costs and benefits of such an approach might be.

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Jane K. Winn
University of Washington - School of Law

Winn, Jane K., Technical Standards as Data Protection Regulation (2008). Available at SSRN: <http://ssrn.com/abstract=1118542>

Abstract:

Two important features of European integration have been a deepening commitment to information privacy as a fundamental human right, and the successful integration of technical standards into the regulatory framework to support the growth of the internal market. This paper will explore the costs and benefits of trying to integrate technical standards into European data protection laws as a possible strategy to enhance compliance and enforcement efforts. Adapting the successful "New Approach" model for harmonizing industrial standards to the dynamic and volatile ICT markets will be difficult, however. While product standards are commonly used to achieve social regulation goals, it is unclear whether ICT standards can be used in a similar manner. Accepting the discipline imposed by "better regulation" principles, and adopting new perspectives on the legitimacy of regulatory bodies, might increase the chances that ICT standards can be harmonized with data protection laws, which in turn might increase the practical impact of those laws.

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ANALYSIS OF PARTICULAR SDOs

Camp, L. Jean and Vincent, Charles, Setting Standards: Looking to the Internet for Models of Governance (November 2, 2004). Available at SSRN: <http://ssrn.com/abstract=615201>

Abstract:

If code is law then standards bodies are governments. This flawed but powerful metaphor suggests the need to examine more closely those standards bodies that are defining standards for the Internet. In this paper we examine the International Telecommunications Union, the Institute for Electrical and Electronics Engineers Standards Association, the Internet Engineering Task Force, and the World Wide Web Consortium. We compare the organizations on the basis of participation, transparency, authority, openness, security and interoperability. We conclude that the IETF and the W3C are becoming increasingly similar. We also conclude that the classical distinction between standards and implementations is decreasingly useful as standards are embodied in code - itself a form of speech or documentation. recent Internet standards bodies have flourished in part by discarding or modifying the implementation/standards distinction.

We illustrate that no single model is superior on all dimensions. The IETF is not effectively scaling, struggling with its explosive growth with the creation of thousands of working groups. The IETF coordinating body, the Internet Society, addressed growth by reorganization that removed democratic oversight. The W3C, initially the most closed, is becoming responsive to criticism and now includes open code participants. The IEEE SA and ITU have institutional controls appropriate for hardware but

too constraining for code. Each organization has much to learn from the others.

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Ryan, Patrick S., The Future of the ITU and its Standard-Setting Functions in Spectrum Management. STANDARDS EDGE: FUTURE GENERATION, Sherrie Bolin, ed., p. 341, Sheridan Books, 2005. Available at SSRN: <http://ssrn.com/abstract=855225>

Abstract:

One of the most important standard-setting organizations in the world is the International Telecommunications Union (ITU), an arm of the United Nations based in Geneva, Switzerland. This chapter will discuss the role of and process for standardization in the ITU with respect to spectrum and satellite management - two aspects that will become increasingly important for the Future Generation of Information and Communications Technology. In particular, we will focus on the ITU-R, the ITU organization that deals with radio and spectrum management. We will consider the role of the ITU in broader terms through its increasingly prominent role in the standardization of spectrum management matters related to satellites. In conclusion, we will see the ITU's role in spectrum management has been quite effective with regards to satellite and space law. However, we will also see that ITU's future ability to be effective in this area will depend on: (1) the organization's willingness to distance itself from the centralized planning notions that arise from its command-and-control approach to spectrum allocation and allotment and (2) an ensuing increased commitment by the United States to the ITU's processes.

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