

New Global Patent Issues: SEPs War of the 21st Century

Standards-Essential Patents: A Prolegomena

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Received 31 January 2014

A large variety of technology standards are encumbered by patents. Standard-setting organizations (SSOs) through their intellectual property policies require patent holders to disclose standards-essential patents (SEPs), along with a requirement to commit to Fair/Reasonable and Non-Discriminatory (FRAND) terms of licensing. However, the contractual and commercial aspects of FRAND are unclear at the time of formation of standards. An additional market demand may be created purely by virtue of the particular patented product being declared as a SEP leading to a certain kind of opportunism by patent holders who demand ‘unreasonable’ royalties, or alternatively, engage in patent hold-ups. Primarily, the disagreement on what FRAND actually means does not only pertain to the issue of fixation of royalties alone; there is strong disagreement over the very nature of a contractual FRAND commitment, and whether or not FRAND operates as a waiver for injunctive relief. Competition/antitrust authorities across jurisdictions have also launched investigations into possible abuses by patent holders in the SEP context. From a global economic law perspective, the World Trade Organization’s trade based regime (TRIPS and TBT Agreements) also have a role to play in providing long-term solutions to resolve issues concerning SEPs.

Keywords: Standards-essential patent, SEP, FRAND, licence, standard-setting organizations

Standards are ubiquitous.¹ Standard-setting is a form of collaborative venture where multiple private groups with diverse organizational structures and rules operate worldwide on a regular basis in different fields of technology.² The diversity of participants and beneficiaries of standard-setting is explained well by the nature of their businesses, where seeking product compatibility is the key.³ Most businesses across borders collaborate and work along with standard setting organizations (SSOs)⁴ to develop standards that all firms, irrespective of their status in the standard setting process, may implement through the development of various products and processes.⁵ Historically, technology standards were required to facilitate trade and thus specialized organizations-standards-setting/development organizations (SSOs/SDOs) -emerged to develop them.⁶ Complex and specialized areas of technology necessitated the formation of specialist SSOs. While standardization is inevitable in any field of technology, the need for standards is acute in the case of information and communication technology (ICT) based industries.

Standards, which routinely involve homogenization of the state of art technology, are usually encumbered by a large number of patents owned by several private firms/individuals. Hence certain patents “essential” to

the standards implicate standard-setting activity. Private exclusivity preserved by patents is essential for the development of new technologies, while standardization ensures homogeneity and introduces product compatibility. However, the interaction between them viz., patents- ‘private’ and ‘exclusive’ vs standards- ‘public’ and ‘non-exclusive’, is far from achieving coherence. Private proprietary interests that currently dominate the national, regional and international standard-setting environment can cause considerable global market distortion.

Most SSOs do have intellectual property (IP) licensing policies in place. However, SSOs do not engage in resolving commercial issues related to IP licensing since it may intrude with the freedom of contract of different parties. The activities of an SSO are largely concerned with the technical aspects of standards adoption and implementation. These SSO policies require “disclosure” or “essential” patents, along with a licensing commitment called FRAND (Fair/Reasonable and Non-Discriminatory).

Briefly, the problem as broadly perceived arising from SEPs (standards-essential patents) suggests that patent holders engage in ‘hold-ups’ or are able to extract ‘unfair’/‘unreasonable’ licensing terms from different market players practising standards across the globe. The essential conflict lies in the fact that the remedy system structured around patent-property

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rights (injunctive relief and damages) in different jurisdictions largely incentivizes such hold-up behaviour. The regulations that deal with these situations and the remedies that follow anti-competitive conduct involving SEPs are weak or even absent in some jurisdictions. The most important remedy involving SEPs are based on liability rules,⁷ where the patent holder is denied any injunctive relief and the value of patent holder's entitlement is determined by some form of third party intervention—usually by the courts or through regulation.

Standard setting organizations require FRAND licensing commitments from the patent holders in cases involving SEPs. However, interpretation of 'FRAND' has caused considerable concerns and there is significant inter-jurisdictional legal and policy conflict. Currently, litigation involving SEPs is pending in different jurisdictions, which may lead to potentially different outcomes. Antitrust authorities in the US and EU have opened investigations for violation of FRAND commitments leading to another possibility of significant divergence of antitrust remedies involving SEPs. Since standardization and technical regulations may function as barrier to international trade,⁸ the Agreement on Technical Barriers to Trade (TBT) concerns itself with obligations governing States in relation to standard setting.⁹ Notwithstanding its importance in global economy, the private proprietary nature of standards and standard-setting processes has been a subject of discussion only in the recent past from an international trade regulatory perspective.⁹

Befitting the title of this introductory column, the attempt here is only to provide an overview of issues involving SEPs. This column offers a brief elaboration of the meaning and process involved in standard-setting. It then proceeds to identify the different challenges involved in SEP litigation across different jurisdictions from a variety of legal perspectives involving patent law, contracts, competition law/policy and trade.

Standard-setting: Meaning and Process

While there are various definitions for the term "standard",¹⁰ in simple terms, a standard may be defined as a set of technical specifications that seek to provide a common design for a product or a process.¹¹ They refer to specifications approved by participants for products and processes that require repeated use in implementation. Standards when set in a market place

require firms to vigorously compete in a winner-take-all standards war to establish their own technology as the *de facto* standard.¹² *De jure* standards are typical of collaborative and conscious efforts among various stakeholders through formal and informal SSOs to arrive at technical specification in relation to a particular product or process in question. In that sense, a *de jure* standard may be seen to limit innovation in various complementary technology areas to create a platform for further innovation.¹³ Before the event of standardization, multiple technologies usually compete to be incorporated into a standard under consideration.¹⁴ Thus unlike in the case of *de facto* standards, the role of market forces is limited to the context of determining necessary outcomes concerning *de jure* standards since the choice of standard is done by firms at the same level of supply chain.⁶ Standard-setting process is driven by private interests since standards are based on state of art technologies produced by private firms. Some scholars have noted that the rise of private governance involving standards is due to the need for functional differentiation in the era of economic globalization.¹⁵

Although sharing of IP in a collaborative standard setting environment is the key, and that there is hardly any disagreement about sharing proprietary information that are embedded into standards, it does not necessarily bring the optimal outcome in achieving the desired objectives.¹⁶ Most SSOs do require certain contractual commitments from SEP holders. There are two major contractual elements that commonly flow through SSO policies. The first relates to the requirement of disclosure of "essential" patents, and the other pertains to licensing declarations of "essential" patents on certain specified terms. Disclosure of "essential" patents concerns itself with obligations that require patent holders' whose technology gets incorporated into the standard to disclose all relevant patents essential to the use and implementation of the standard, including those which are pending applications. In such cases, early disclosure of patents, i.e. *ex ante* disclosure is the purpose sought to be achieved to avoid the emergence of "essential" patents after the standardization event. Licensing declaration within the SSO frameworks casts an obligation on patent holders to declare the broad terms governing licensing, typically, in the form of royalty free (RF), FRAND, none or both.¹⁷ This requirement forms part of SSO policies since they can exercise caution during the standard setting

process or chose among alternative technologies for deciding on standards. However, SSOs do not themselves engage in deciding the terms of licence or disputes arising from FRAND commitments.

Patents by nature are private property rights, even while the information it protects may have some public good character in terms of non-rivalry and non-excludability in consumption. Conversely, the use, practice/implementation of standards as a pure public good, demands that standards be open and free for all. Hence the presence of free riding element is inherent to the practice of standards.¹⁷ But it has consistently been argued that having patents in standards for royalty free may have the potential to negate incentives and investments in future technologies.¹⁸ Moreover, some have also argued that without patent protection for technologies that are to be embedded into standards, firms may not be willing to participate in the standard setting process in the first place.¹⁹ Thus there are asymmetries in power relationships among standard participants largely due to the very nature of functions that two institutions perform viz., patents as property and standardization.²⁰ But it has largely been resolved that patents when embedded into standards can equally facilitate realization of functions of both institutions if all “essential”²¹ patents are disclosed and if patent owners agree to license their patents for RF or FRAND terms. On a general outlook, all formal and informal SSOs have put in place policies that require this outcome.²² However, formal SSOs have to sufficiently address the commercial incentives of patent owners, though not within the SSO framework. Thus the presumption that patent owners whose technology is embedded into standards must necessarily be compensated has remained a critical guiding principle within the formal SSO policy framework.²²

SEPs War: How Far Can We Go?

In case of SEPs, the problem as broadly perceived arises from the fact that patent holders engage in a kind of anti-competitive conduct within and outside SSOs (national and international) in the form of patent hold-ups, patent ambush, royalty staking, strategic injunctive reliefs, unilateral refusal to license and violation of FRAND contracts²³ One of the important guiding principles behind standards is that once they are approved, they are accepted and implemented everywhere.²⁴ Standards are seen as means by suppliers to both satisfy customer need and

as a potential road map to innovation through complementarities, interoperability and compatibility.²⁵ Thus standards can affect both innovation and technology diffusion since they form technical infrastructure that possess considerable public good content.²⁶ Further, once adopted, the use of standards essentially reflects a free rider phenomenon due to public good nature inherent in standards.²⁷ In other words, there is greater interest on behalf of the implementers of standards to have access to technology at lowest possible costs for arriving at benefits in manufacturing.

As succinctly noted by Karsten Meinhold of the European Telecommunications Standards Institute (ETSI) IPR Special Committee: “IPRs and Standards serve different purposes: IPRs are destined for private exclusive use, Standards are intended for public, collective use”.²⁸ Since standards are set internationally, regionally and nationally, but implemented across borders, they can be strategically used to downplay international trade and consumer welfare.²⁹ Correspondingly, patent rights are territorial grants governed by international common binding norms, and are seen to be drivers for technology innovation and when embedded into standards may strain the use and implementation of standards. As activities pertaining to collaborative standard setting have exponentially risen in the recent years, so have patent rights gained predominance in providing incentives to commercially exploit the invention.³⁰ Although the patents-innovation paradigm is increasingly under challenge, the augmented rate of patent rights in technology products and processes³¹ can be cited as the primary reason for exacerbated problems pertaining to patent disclosure and licensing issues in commercialization/implementation of standardized technologies.

Now popular as the “smart phone wars” of the early 21st century, a simple Wiki³²/Google search informs us about the sheer quantity of ongoing litigation and how different firms are engaged in patent hold-ups in different jurisdictions across the globe. It shows that firms are either unclear of the exact boundaries of patents and hence infringe on them, or that they willfully infringe since they consider it somehow “acceptable” to infringe SEPs offered on FRAND terms, albeit with disregard to patent holders rights. Firms across the globe are fighting over royalty terms involving SEPs and that an amicable resolution of FRAND contracts is not

easily forthcoming due to a kind of indeterminacy of the contract. While there are instances that some firms may resolve amicably by way of arbitration, others are willing to go ahead with judicial resolution of the dispute. Primarily, there is strong disagreement among scholars as to the exact contractual nature and legal consequences of a commitment to license on FRAND terms and if third parties can be beneficiaries of such a contractual commitment.³³ In such a situation certain primary questions need to be addressed. What are FRAND contracts? Are they binding contracts or do they imply an offer to license? What is the role of contract law in resolving FRAND related issues? What tools will courts generally use in determining FRAND from a contractual perspective? Finally, what are the legal consequences of entering into a FRAND licensing agreement?

Some instances of litigation around SEPs show that injunction (preliminary and permanent) is a potent weapon in the hands of SEP owners to exclude products from different markets across the globe. It means that there is less consumer choice in terms of availability of competing and compatible technology products if injunctions are routinely issued in case of infringement of SEPs. In some cases, the courts have used liability rules to intervene in the patent holders' power to exclude and to fix royalties.³⁴ However, there is no consistent judicial practice across different jurisdictions on the effect of FRAND contracts on injunctive relief (whether FRAND implies a waiver for injunctive relief). Even within the United States, there is no common position between the district court analyses of legal tests for injunctions *vis-à-vis* the US-ITC (United States- International Trade Commission) test for issuing exclusionary orders.³⁵ There are instances of how by overcoming the principle of "comity" between nations, courts in one jurisdiction can issue an order against enforcement of a foreign injunction in a foreign territory, if SEPs are granted on FRAND terms, until the final resolution of that court dispute in the country determining FRAND.³⁶ Thus certain fundamental questions are raised. How are injunctions structured in patent law from a property perspective? Should injunctions be available when patent holders sign in FRAND agreements? If not, what remains of the patent holder's property right to exclude? Can patent law remedies consider the benefits arising from standardization to off-set the possible implications of not awarding injunctions to patent holders? In the

alternative, if the patent holder is entitled for damages only (compensatory liability), how should FRAND royalties be calculated?

There is an also antitrust dimension involved in SEPs. The US-FTC (Federal Trade Commission) has since long been concerned over issues of SEP abuse. The FTC DOJ Report on IP and Antitrust (2007) states:

A holder of IP incorporated into a standard can exploit its position if it is costly for users of the standard to switch to a different technology after the standard is set. Making such a change would require abandoning that standard and developing a new one, but developing an alternative standard could be costly and may delay the introduction of a new product. The profits lost by such a delay may represent a significant portion of the cost of developing the alternative standard. In addition, to implement an alternative standard for an existing product that requires compatibility and interoperability, the SSO members might incur switching costs in redesigning components that had been based on the old standard and might have to subsidize consumers' migration from a standard based on one technology to a standard based on another technology.³⁷

Notwithstanding the fact that several jurisdictions have opened antitrust investigations on the issue of SEP related abuses, it is yet unclear if competition law can effectively be used to prohibit patent holders from charging royalties that they consider arising out of FRAND. The counterfactual argument by patent holders is that SSOs choosing an alternative are rare since in many cases no alternative technology exists or that their technology is chosen as the best among several alternatives.³⁸ The argument is that if substitutes were to exist, "fundamental economics maintains that firms with a unique product or IP will be in a stronger position than those with products or IP for which alternatives exist", consequently suggesting that market power pre-exists in situations where there are no substitutes and implementing them into standards does not grant patent owners additional market power. However, other commentators hold the view that market power conveyed by patents is "considerably higher" after the standardization, especially in a network based market, since patent holders can ensure incompatibility, thereby leading to a situation where the market may be tipped in favour of a single network.³⁹ Since competitors are absent

ex post, a patent holder has the ability to use and may indeed use the higher market power that he has gained through adoption to the patent protected standard.⁴⁰

It is thus essential in the standard-setting context that antitrust analysis takes into account the values generated by standardization and that the relationship between patents in standards must be analysed from the perspective of price constraints on the patent holders. While some have argued for patents to be priced according to “incremental value” rule (where licensing fees should be restricted to the value the patent adds when compared to licences of next best alternatives), other have emphasized that such an approach does not consider dynamic implications of the innovation process.⁴¹ The argument is that incremental value rule, which although has an “intuitive appeal”, is based on *ex post* reasoning since it relies on presumption that all needed innovations have already been developed, but fails to account for the dynamic implications on firm’s decisions to invest in R&D and to further participate in the standard-setting process.⁴² Others have called for antitrust investigations into FRAND violations based on an objective evaluation of the royalties that the patent holder could have charged, if the standard did not increase its market power.⁴³

How SEP related abuse is understood within the confines of competition/antitrust law would require intensive examination of the interaction between patents and competition policy. It will be important to discuss the role of competition law in preventing patent holders from hold-ups and royalty staking. How have different competition authorities examined the issue, notwithstanding the divergence of legal approaches in competition law and policy enforcement across jurisdictions will provide a comparative perspective of the issue.

The regulations promulgated by different countries in support of homegrown standards suggests that countries (and their firms) in order to enhance strategic and economic welfare are not willing to pay, what they see as “unreasonable royalties”, to foreign patent holders. Currently, the Competition Commission of India is investigating a complaint by Micromax (an Indian firm) against global telecom giant Ericsson’s alleged abuse of dominance by overcharging Micromax in relation to several SEPs.⁴⁴ The jury is still out. In this context, it will be interesting to examine how developing countries have perceived the SEPs issue? China has been actively

involved in various global forums and has vociferously argued for finding global solutions. Although India is a late entrant in this debate, recent litigation involving SEPs in India have raised certain pertinent issues of FRAND interpretation, injunctive relief and competition policy. It will be noteworthy to study how India and China have responded to the challenges posed by SEPs from a comparative perspective.

The above reflects the global nature of the SEPs problem since it has garnered attention of developing countries that are open to a global solution within the WTO’s (World Trade Organization) trade based framework.⁴⁵ It also shows that there are different layers of economic and strategic interests at play in the trade involving SEPs and that a common solution may be necessary to harmonize conflicting legal propositions in comparative jurisdictions. There are concerns among certain group of countries that the WTO’s endorsement of the current standard-setting environment driven by private proprietary interests is in need of reforms. Both the TRIPS and TBT agreements concern themselves with the interface of regulating the global trade and regulatory aspect involving SEPs. Although the TBT Agreement provides for a code of conduct for SSO, does the TBT agreement provide long term solutions towards a regulatory framework that harmonizes diversity of solutions involving SEPs? Does the legal framework of the TRIPS agreement sufficiently allow WTO members to respond to the SEPs crises by allowing flexible liability norms? Do they give rise to any normative challenges? The answer to all these questions underscores the need and attention for global economic law to intervene at some level and contain the anti-competitive and exclusionary effects created by SEPs across several jurisdictions in order to avoid global market distortion. It will foster greater economic integration by creating a more stable and predictable global business environment for both the developed and the developing countries.

Conclusion

This introductory column has some modest objectives. It attempts to show that SEPs pose several fundamental questions about the interaction between patent law and various other branches of business laws, including but not limited to contracts, competition law/policy, and trade regulation. These issues will be examined in analysed in the next five forthcoming issues. This note has opened the debate

on several legal and regulatory aspects of SEPs. It has shown that there is a problem at a very fundamental level where SSOs fail to intervene on *ex ante* basis to determine FRAND commitments, which raises several challenges from a perspective of interpretation of indeterminate contracts. Furthermore, the fundamental disagreement over the meaning of FRAND, calculation of FRAND royalties and whether or not injunctive relief should ensue for FRAND encumbered SEPs is open-ended. What value the courts attribute to standardization when in conflict with private property rights may have several teleological implications including their impact of dynamic competition (innovation) and trade. This problem has proliferated in the recent years inasmuch as developing countries have now attempted to articulate their stakes. Perhaps, how the global trade and regulatory regime within and outside the framework of the WTO will play out to resolve new global patent issues involving SEPs may fundamentally redefine patent law and policy across the globe in the years to come.

References

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- 2 See generally, Lemley M, Intellectual property rights and standard setting organizations, *California Law Review*, 90 (2002) 1889, 1904-06. Standard setting organizations generally referred to as SSOs, present a variety of nomenclatures among them. They may be referred to as standards development organizations (SDOs), joint ventures, special interest groups, promoters groups or industry consortia and may vary broadly in their operation, scope, size, formality and rules. For the purposes of this paper, SSOs refer to all the groups above mentioned in consideration of the fact that such SSOs may vary broadly in their operation, scope, subject matter, size, formality and rules.
- 3 Geradin Damien & Layne-Farrar Anne, The logic and limits of ex ante competition in a standard-setting environment, *Competition Policy International*, 3 (1) (2007) 83. The diversity of interests involved in the outcome of standardization is characterized by asymmetries in behaviour of SSO participants that include upstream firms purely involved in research, downstream firms involved in pure manufacturing, vertically integrated firms that are engaged in both innovation and manufacturing, and firms that neither innovate nor manufacture but rely on both.
- 4 Generally, two categories of SSOs, viz., formal and informal are involved in standard setting activities. Formal SSOs are generally statutory, quasi statutory or derive competence therefrom. For example, International Organization for Standardization (ISO), International Telecommunications Union (ITU) and International Electrotechnical Commission (IEC) are international standards organizations formed under banner of World Standard Organization. There are others that derive competence from national or regional laws. For instance, ANSI, CEN, CENELEC, ETSI etc. Informal SSOs typically include the industry consortia like W3C, IETF, and OASIS, etc.
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- 7 See generally, Calabresi Guido and Melamed Douglas A, Property rules, liability rules, and inalienability: One view of the cathedral (1972), *Faculty Scholarship Series Paper* 1983, http://digitalcommons.law.yale.edu/fss_papers/1983 (20 January 2014).
- 8 John David, Standardization: National strategies- Global market, in *The Standards Edge: The Golden Mean*, edited by S Bolin (Bolin Communications, MI), 2007, p. 15.
- 9 The WTO Trade Report of 2005 notes that “[t]he case in favour of international standards is likely to be much stronger in the context of compatibility standards (network externalities)...However, oversight of some sort may still be needed because of possible anti-competitive effects if a *de facto* standard is proprietary”, http://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report05_e.pdf (20 January 2014).
- 10 See for example, variations in definitions provided by formal international, national and informal SSOs. The difference in definitions for the purposes of this paper is marginal since the core aspect of standards runs through the thread of all definitions.
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- 12 Report on Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition (2007), US FTC-DOJ, p. 34, <http://www.ftc.gov/reports/innovation/P040101PromotingInnovationandCompetitionrpt0704.pdf> (20 January 2014); Shapiro C & Varian Hal R, The art of standards war, *California Management Review*, 41 (2) (1999) 8. These reports and opinions highlight that typical “standards war” that arise is a case of *de facto* standard, where substitute products with incompatible designs are introduced into a market, and users’ purchase decisions ultimately establishes one design as the dominant design or *de facto* standard. This can effectively be termed as winner-take-all competition. And unlike the *de jure* standard set through collaborative standard setting, market forces dominantly play a role in shaping the standard and outcomes in terms of IP licensing. In this paper we concern ourselves with *de jure* standards since it is not the intention to examine IP issues in standards where markets decide upon the value of the technologies embedded in standards. In such cases, the

- potential for a legal conflict is overshadowed by market forces and consumer behaviour in accepting a particular standard.
- 13 Gingell Rob, Standards as economic ecology: A system in tension, in *The Standards Edge: Dynamic Tension*, edited by S Bolin (Bolin Communications, MI), 2004, p. 10. It may delineate a point of homogeneity and enable heterogeneity, change and unbridled innovation in other means, thus allowing us to benefit from the economic efficiencies maximized through changes that the standards make.
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 - 20 Geradin Damien & Layne-Farrar Anne, The logic and limits of ex ante competition in a standard-setting environment, *Competition Policy International*, 3 (1) (2007) 83. As per the authors, e.g., pure innovators (upstream firms) may place high reliance on incentives generated through licensing of IPRs- they also have more incentives in getting proprietary knowledge standardized. Pure manufacturers (downstream firms) have high incentives when royalties are free or less. They would prefer less cumbersome licensing schemes and would rely more on free ride. Vertically integrated firms that undertake both innovation and manufacturing may have mixed incentives- since they have to both license and get licences- they would normally place greater reliance on cross licensing. Buyers of products will have same incentives as manufacturers since they always look for consumer surplus earned through payment of less royalties consequently leading to lower prices.
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 - 22 See generally, ISO-IEC-ITU common policy on patents that require patent owners to license patents either RF or RAND. Similarly W3C has policies that demand RF treatment of licences. Also see licensing and disclosure policies of IEFT, ESTO, ANSI, etc.
 - 23 For a general understanding of problems raised by patenting standards, see generally, Mueller Janice, Patenting industry standards, *John Marshall Law Review*, 34 (2001) 897; Lemley M, Intellectual property rights and standard setting organizations, *California Law Review*, 90 (2002) 1889, 1904-06; Swanson D & Baumol W, Reasonable and Nondiscriminatory (RAND) royalties, standards selection, and control of market power, *Antitrust Law Journal*, 73 (1) (2005) 1-58; Farrell J *et. al.*, Standard-setting, patents and holdup, *Antitrust Law Journal*, 74 (2007) 603.
 - 24 Marks R and Hebner R, Government/ industry interactions in the global standards system, in *The Standards Edge: Dynamic Tensions*, edited by S Bolin (Bolin Communications, MI), 2004, p. 105. However, it need not necessarily bring such an outcome. Standards that are set by international SSOs are not binding on national SSO (which are quasi administrative in nature). The effect of voluntary standards recommended by international standards is persuasive and hence may be subject to modifications by national SSOs. In globally integrated technology markets characterized by network effects, compatibility or interoperability that standards try to promote cannot be achieved in isolation. Thus competing standards at national levels are a strong choice. Also see, Hazucha Branislav, International technical standards and essential patents: From international harmonization to competition of technologies, Society of International Economic Law (SIEL), Second Biennial Global Conference, University of Barcelona, 8-10 July 2010, p. 30, <http://ssrn.com/abstract=1632567>.
 - 25 Gingell Rob, Standards as economic ecology: A system in tension, in *The Standards Edge: Dynamic Tension*, edited by S Bolin (Bolin Communications, MI), 2004, p. 9. The outcome of a standard need not necessarily involve an end product or process, but it may specify key elements that enable parts of different products and processes to work together in cohesion. This dimension highlights the importance of compatibility and interoperability in standard setting.
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 - 32 http://en.wikipedia.org/wiki/Smartphone_wars#2012.

- 33 Mueller Florian, Motions for judgment on the pleadings denied in Microsoft-Google FRAND breach case, <http://www.fosspatents.com/2013/09/motions-for-judgment-on-pleadings.html> (22 January 2014).
- 34 *Microsoft v Motorola* (District Court, Seattle 2013).
- 35 Chien Colleen *et al.*, RAND patents and exclusion orders: Submission of 19 economics and law professors to the International Trade Commission, Santa Clara University Legal Studies Research Paper No. 07-12, 9 July 2012; UC Berkeley Public Law Research Paper No. 2102865, <http://ssrn.com/abstract=2102865>. In June 2012, nineteen professors in economics and law requested the United States International Trade Commission to maintain caution in issuing exclusion orders over patent infringing imported goods where SEPs have been licensed on FRAND terms. The petition advocated for a “position that ITC exclusion orders generally should not be granted under § 1337(d)(1) on the basis of patents subject to obligations to license on “reasonable and non-discriminatory” (RAND) terms. Doing so would undermine the significant pro-competitive and pro-consumer benefits that RAND promises produce and the investments they enable. A possible exception may arise if district court jurisdiction is lacking, the patent is valid and infringed, and the public interest favors issuing an exclusion order”.
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- 42 Layne-Farrar Anne, Llobet Gerard, and Padilla Jorge, Increments and incentives: The dynamic implications of licensing patents under and incremental value rule, in *Competition Policy and Patent Law under Uncertainty*, edited by Geoffrey A Manne & Joshua D Wright (Cambridge University Press, UK), 2011, p. 455 and 457.
- 43 Marineillo Mario, Fair, reasonable and non-discriminatory (FRAND) terms: A challenge for competition authorities, *Journal of Competition Law and Economics*, 7 (3) (2011) 523. The author prescribes a four pronged threshold test to assess whether antitrust authorities should intervene for a FRAND violation, viz., (a) ex-ante, a credible alternative to the adopted technology exists; (b) ex-ante, prospective licensees cannot reasonably anticipate the licensor’s ex-post requests; (c) ex-post, the licensor requests worse licensing conditions than ex-ante; and (d) ex-post, the licensee is locked into the technology.
- 44 <http://infojustice.org/wp-content/uploads/2013/12/CCI-Case-no-50-2013.pdf> (22 January 2014).
- 45 For an overview of global issues involving SEPs, see generally, Gibson Christopher S, Globalization and the technology standards game: Balancing concerns of protectionism and intellectual property in international standards, *Berkeley Technology and Law Journal*, 22 (2007) 1403.