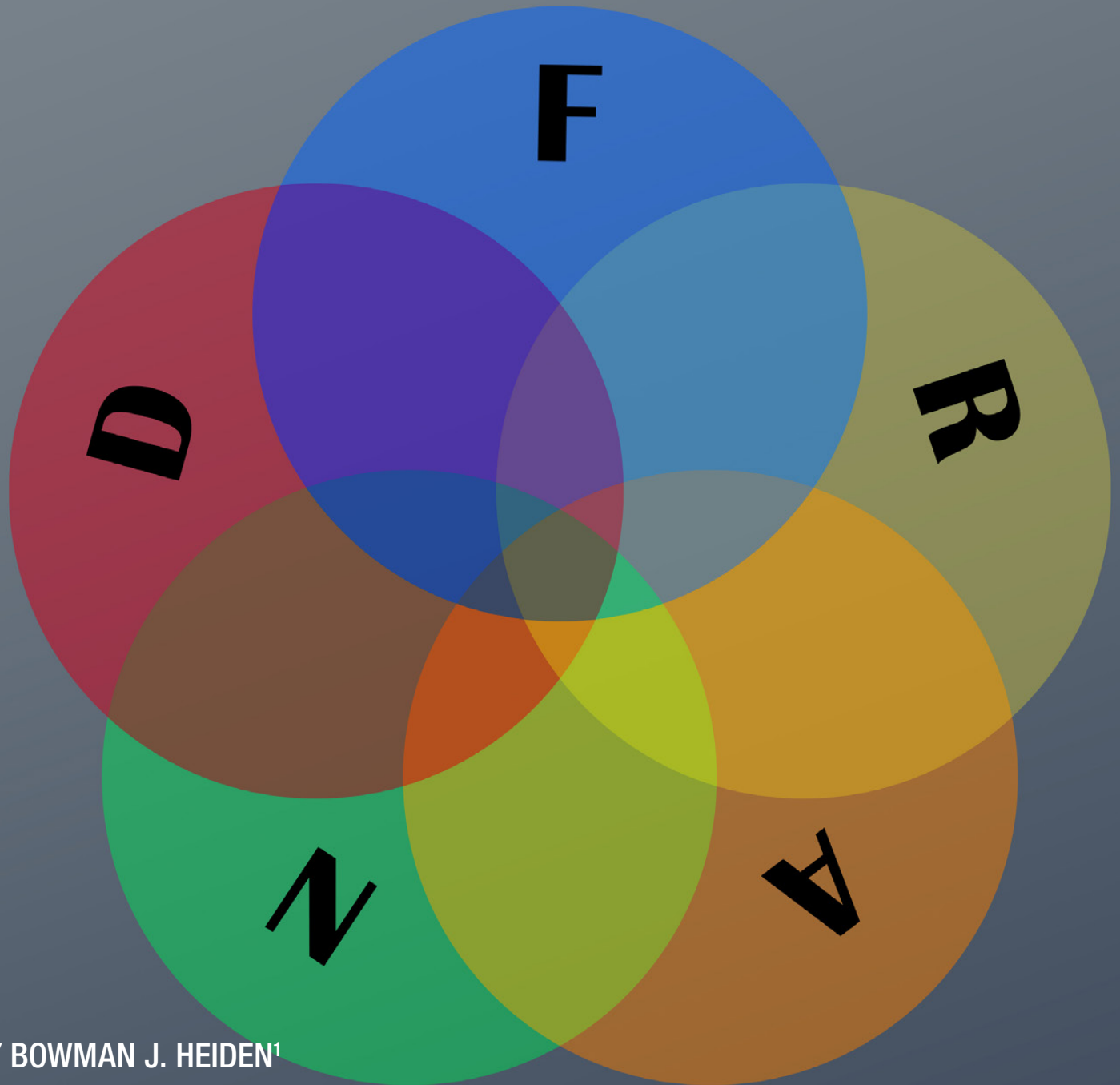


IPR POLICY AS STRATEGY – THE BATTLE TO DEFINE THE MEANING OF FRAND



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I. INTRODUCTION

This article illustrates the battle among market actors to define the meaning of FRAND through policy interventions that seek to change the rules of the game in alignment with their strategic interests. While many scholars have discussed the concept of FRAND, there has not yet been a holistic study of the political processes behind the construction of its meaning.² This article takes a first step towards building an operative model by defining the self-assertive interests, key normative concepts and claims, and legitimizing arenas where the meaning of FRAND is actively being socially constructed. The primary goal at this stage is not to be exhaustive across all actors, arenas, and geographies, but to start to unveil the normative game whereby actors seek to define reality from the perspective of their own self-interest, whether economic or ideological, so as to facilitate more objective research and more effective decision-making.

II. SEP VALUE AS A HIERARCHY OF NORMS

The value of SEPs is ambiguous due to the fact that the institutional tools (i.e. rules and norms) that define reasonable royalties for SEPs in FRAND circumstances (i.e. blocks) are not reified – see figure 1 below.³

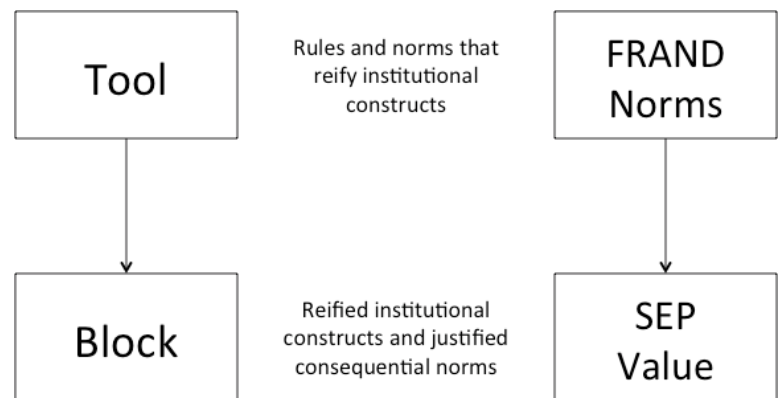


Figure 1: SEP value as a hierarchy of norms⁴

This ambiguity gives rise to opportunism, which in turn leads to litigation where courts attempt to better define the institutional rules and norms that allow for business strategies and investments to be made with more

² Political processes are construed broadly to encompass all activities outside of the private marketplace that impacts the meaning of FRAND, including legislative, judicial, and other regulatory actors as well as SSOs.

³ This would seem to be true for patent damages in general. Landers, A. L. (2005), “Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law,” *Santa Clara L. Rev.*, 46, 307 at 328 states that “under the courts’ elastic and somewhat uncertain standards, the potential forms of evidence that might be presented to a jury are inestimable.”

⁴ This framework is adapted from Petrusson, U. (2004), *Intellectual Property & Entrepreneurship: Creating Wealth in an Intellectual Value Chain*, Center for Intellectual Property Studies (CIP).

certainty. In the period of ambiguity, lobbying efforts primarily by industry, through politicians and even academics, intensifies with the goal of influencing legislators, regulators, and courts to accept their view of reality. Typically, normative agendas are put forward as “facts,” requiring both the self-interests as well as the arguments put forward by different actors to be deconstructed and separated for analysis. This discussion explores the foundations of a social constructionist model of FRAND built on the deconstruction of the heterogeneity of interests in the telecommunication value chain, the typification of FRAND, and the reification of FRAND on legitimizing arenas.

III. HETEROGENEITY OF INTERESTS IN THE TELECOMMUNICATION VALUE CHAIN

Figure 2 below shows the creation of a new industrial dynamic within the telecommunications sector, which has resulted in greater division of labor, including innovation specialists and implementation specialists together with integrated firms, who all compete in the same value chain with very different strategies and incentives.⁵ These actors interpret the patent system and anti-trust regulations towards the standardization process in very different ways in their search to maximize economic performance. In particular, the division of innovative labor, represented by Firm B in figure 2, illustrates the full transition from a traditional material value chain (“MVC”) to an intellectual value chain (“IVC”) logic, while many integrated firms have increasingly developed strong licensing programs in the IVC to complement their MVC offerings.⁶ When all market actors are integrated firms, cross-licensing and patent pools can often be used to facilitate freedom-to-operate and competition on the product market.⁷ However, it is easy to understand why a fragmented value chain creates different perceptions of the value of SEPs, as implementation specialists use standards to develop markets where they can sell their products while innovation specialists look for a return on investment for the technology in the standard itself. For implementation specialists, SEPs are viewed as an added cost to their end product, while for innovation specialists, the standard *is* their product, and SEPs are the means to benefit from their R&D investment.⁸

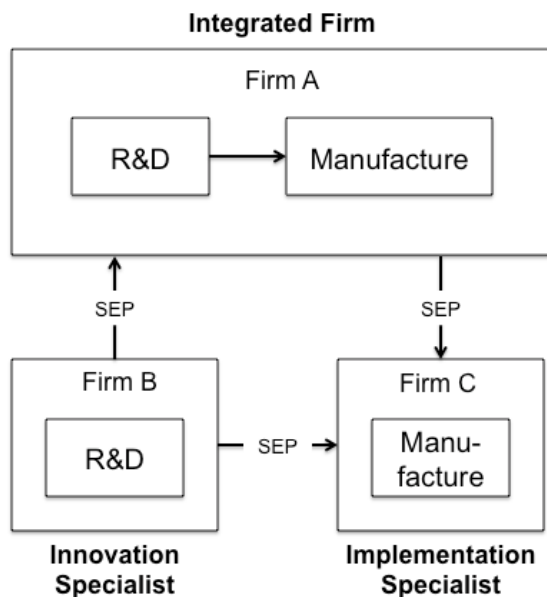


Figure 2: SEPs and the new division of labor in the telecommunication value chain

5 See Geradin, D., & Rato, M. (2007), “Can standard-setting lead to exploitative abuse? A dissonant view on patent hold-up, royalty stacking and the meaning of FRAND,” *European Competition Journal*, 3(1), 101-161 and Schmalensee, R. (2009), “Standard-setting, innovation specialists and competition policy,” *The Journal of Industrial Economics*, 57(3), 526-552. Innovation in this context is focused on the development of the standard, not the products that incorporate the standard.

6 Simply stated, the MVC is the traditional flow of physical goods in a traditional industrial market, while the IVC represents the flow of intangible goods, in particular, intellectual property that is traded as a separate value proposition (i.e. not embedded in physical products). For a deeper discussion, see Heiden, B., & Andreasson, J. (2016), “Reevaluating Patent Damages in the Knowledge Economy: The Intellectual Value Chain and the Royalty Base for Standard-Essential Patents,” *Criterion J. on Innovation*, 1, 229.

7 See Shapiro, C. (2000), “Navigating the patent thicket: Cross licenses, patent pools, and standard setting,” *Innovation policy and the economy*, 1, 119-150. Grindley, P. C., & Teece, D. J. (1997), “Managing intellectual capital: licensing and cross-licensing in semiconductors and electronics,” *California management review*, 39(2), 8-41 describe how the historical role of patents in the electronics industry has been strongly associated with the use of cross-licensing agreements between competing manufacturers, which has been a norm in the industry since the very beginning.

8 The fragmentation of the value chain provides a good illustration of the alienation of the value of knowledge in traditional, integrated industrial firms. A division of innovative labor forces a separate accounting of value for the knowledge contribution and the manufacturing contribution (i.e. the intellectual and the material value chain), which was previously hidden in the end product price in vertically integrated firms. The transformation from a hierarchical relationship to a market transaction forces the value of knowledge to be unveiled.

From a standardization perspective, firms operating in this new division of innovative labor (i.e. innovation specialists) are completely dependent on having their patented technology included in the open standards under terms that allow for them to receive a return on their R&D investment.⁹ This changes the traditional pre-competitive nature of standards development focused on product market competition into a high-stakes game of poker on the technology market. In this new IVC logic, the inclusion of a firm's technology in the standard creates a competitive bargaining position against rival product firms operating downstream and a significant opportunity for royalties for upstream technology firms. Hybrid firms with both strong patent positions and product manufacturing benefit with lower costs on the product side and additional income from royalties from product actors with smaller patent positions in the standard. In the context of standards, patents have taken on the role of allowing for a new division of innovative labor by providing upstream actors a claim on their R&D contributions outside of the sale of products as well as offering a means for all actors to receive a return on their investment for their innovative efforts.¹⁰ Thus SEPs, based on FRAND commitments, have facilitated the development of an intellectual value chain, where value is distributed through license transactions to the owners of the underlying technology in parallel to the material value chain for the manufacture and distribution of physical products. While patents and standards have traditionally been depicted at odds with one another, it could be said that an increased dynamic use of patents and division of innovative labor in the knowledge economy makes patents essential (excuse the pun) to the development of most standards, as many knowledge-based firms increasingly compete in the upstream technology market, not only the downstream product market.¹¹

The discussion above illustrates why the distinction between the MVC and IVC is likely better than practicing entities ("PE") and non-practicing entities ("NPEs"). Based on the transformation of the telecommunication value chain, the concept of the NPE as the only actor possessing an asymmetric patent bargaining power is not tenable. The main distinction is not whether a firm is a practicing entity or not but instead the strength of the bargaining position based on the relative positions of market actors in the intellectual value chain (e.g. based on the relative strength of their SEP portfolios and product liability). Thus, two practicing entities can experience the same SEP-based bargaining asymmetry as a non-practicing and practicing entity, from an SEP perspective. Thus, the IVC offers bargaining power to actors that complements and competes with bargaining power traditionally reserved to implementing firms in the MVC. However, when the property dimension of patents is reduced through the weakening of injunctive relief, bargaining power can swing back in favor of implementing firms in the MVC through patent holdout/trespass.¹²

IV. THE TYPIIFICATION OF FRAND

FRAND is an example of a purposefully incomplete contract negotiated by sophisticated actors to provide a framework for private ordering in the public interest.¹³ While incomplete contracts may be considered efficient and desirable, the intrinsically ambiguous nature of 'reasonable and non-discriminatory' makes FRAND susceptible to (re)interpretation and regulatory capture as changes in their meaning can have a large financial impact. Figure 3 below maps the key constitutive concepts of FRAND that have been the focus of contention among stakeholders in the telecommunication value chain.¹⁴

9 Firms operating under this division of labor are often labeled as non-practicing entities ("NPEs") to distinguish them from actors that produce goods and services. This distinction is tenuous given the fact that many firms traditionally viewed as practicing have outsourced most of their manufacturing and have developed extensive patent and technology licensing programs.

10 This is particularly true for NPEs. For operating companies, the inclusion of in-house technology in the standard could also provide manufacturing advantages as the contributing company has more tacit knowledge related to their own technology. This discussion does not include non-SEPs, which represent innovative, valuable solutions outside of the implementation of the standard. See Merges, R. P. (1999), "Intellectual property rights, input markets, and the value of intangible assets," *Input Markets, and the Value of Intangible Assets (February 1, 1999)* and Hall, B. H., & Ziedonis, R. H. (2001), "The patent paradox revisited: an empirical study of patenting in the US semiconductor industry, 1979-1995," *RAND Journal of Economics*, 101-128.

11 It should be noted that the concepts of "upstream" and "downstream" as well as "vertical" and "horizontal" arise from a material value chain logic and are not directly transferable to an intellectual value chain, which operates under a different logic. However, these concepts can be useful when describing the intellectual value chain in relation to the material value chain in an integrated value chain/network.

12 Heiden, B., & Petit, N. (2017), "Patent Trespass and the Royalty Gap: Exploring the Nature and Impact of Patent Holdout," *Santa Clara High Tech. LJ*, 34, 179.

13 From a transaction cost perspective, contracts can be argued to be necessarily incomplete because of the costs of identifying all possible contingencies. Wright, J. D. (2013), "SSOs, FRAND, and Antitrust: Lessons from the Economics of Incomplete Contracts," *Geo. Mason L. Rev.*, 21, 791.

14 Other FRAND issues exist such as 3rd party rights and transference of FRAND commitments through a greater consensus and less contention exists in these areas.

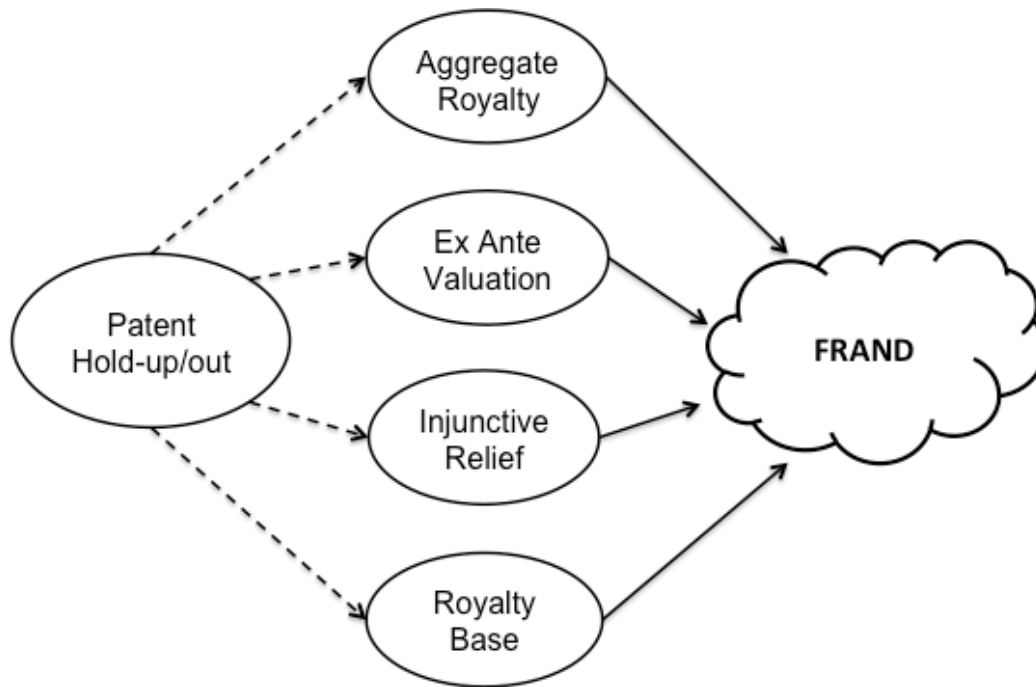


Figure 3: Key constituent concepts defining the meaning of FRAND

Multiple efforts to define these key concepts on the tool level through legal, economic, and business argumentation have been put forward due to the possibility of enacting a systemic effect. Below is a short description of each concept:

A. Patent Hold-up/out

Patent hold-up/out is the core concept at the epicenter of the FRAND debate. It arises from the interaction of the exclusivity of patents and the lock-in of standards in combination with the heterogeneity of business models discussed in section 2. The term “holdup” has a specific negative connotation in transaction cost economics based on the exploitation of opportunism.¹⁵ The contemporary meaning of holdup/out in the context of patents is typically understood as the opportunity of one party to expropriate value from another party through the following:

- SEP holders charging excessive FRAND royalties to implementing firms (i.e. supra-FRAND rates) that capture the non-SEP related investments
- Implementing firms delaying or refusing to pay FRAND royalties to SEP holders (i.e. sub-FRAND rates) that capture SEP-related R&D investments

The impact of patent hold-up/out can be deemed as having both distributional and welfare effects where the former is related to rent-shifting and the latter with economic efficiency and the need for potential policy remedies.

B. Aggregate Royalty

The issue of aggregate royalty is not an issue of the sheer number of SEPs but of the distributed ownership of SEPs among numerous owners. Patent hold-up/out is deemed to occur through the following:

- Royalty stack – when multiple SEP holders charge supra-FRAND rates to implementing firms
- Royalty gap – when SEP holders receive sub-FRAND rates from multiple implementing firms

¹⁵ The theoretical link between patent holdup and the concept of holdup in transaction cost economics has been questioned. See Galetovic, A., & Haber, S. (2017), “The Fallacies of Patent-Holdup Theory,” *Journal of Competition Law & Economics*, 13(1), 1-44 and Heiden & Petit, *supra* note 12.

The royalty stack/gap is a systematic issue that, in theory, results from a widespread over/underpayment of FRAND royalties by implementing firms deploying standard-enabled products and services. Preliminary empirical data shows the lack of evidence for a systematic royalty-stacking problem in relation to mobile telecommunication standards.¹⁶ A potential emerging royalty gap is observed but has not reached a systemic impact in the technology market.¹⁷

C. *Ex Ante* Valuation

The concept of *ex ante* valuation is related to the time period in which courts should base their determination of patent damages in the context of FRAND royalties.¹⁸ The traditional use of Georgia-Pacific factor 15 sets the timing at the point before the infringement took place. However, the following competing two FRAND-based valuation timeframes have been posited:

- SSO timeframe – this theory states that the value of SEPs needs to be discounted in relation to their marginal benefit over the comparable technologies under consideration by the SSOs.¹⁹
- R&D timeframe – this theory states that the SSO timeframe is not *ex ante* enough and should be placed at the time of the R&D decision of the contributing firm.²⁰

Despite the fact that Teece & Sherry (2002)²¹ describe that the practical, counterfactual determination of what the standard would look like if another technology had been adopted is difficult to determine *ex post*, the SSO timeframe model has been applied in U.S. court decisions on FRAND royalties.²²

D. *Injunctive Relief*

Injunctive relief in the context of FRAND is associated with the blocking of import and sale of infringed products and services. As patent hold-up/out requires the compulsion to accept supra/sub-FRAND rates (i.e. an act cannot be opportunistic if there is no compulsion to accept the act), the exclusivity provided by injunctive relief is a core legal tool in the debate through the following theories:

- Patent Holdup – by threatening the removal of the entire product or service from the market, injunctive relief provides the SEP holder an asymmetric bargaining position that can potentially produce a systematic impact on implementing firms and a systemic impact on social welfare (primarily static efficiency).
- Patent Holdout – by removing the threat of injunctive relief, implementing firms have no incentive to make FRAND payments, providing SEP implementers an asymmetric bargaining position that can potentially produce a systematic impact on SEP holders and a systemic impact on social welfare (primarily dynamic efficiency).

16 See Galetovic, A., Haber, S., & Zaretski, L. (2018), "An estimate of the average cumulative royalty yield in the world mobile phone industry: Theory, measurement and results," *Telecommunications Policy*, 42(3), 263-276; Mallinson, K. (2015), "Cumulative mobile-SEP royalty payments no more than around 5% of mobile handset revenues," *IP finance*, 19; Sidak, J. G. (2016), "What aggregate royalty do manufacturers of mobile phones pay to license standard-essential patents," *Criterion J. on Innovation*, 1, 701.

17 See Heiden & Petit, *supra* note 12.

18 See Teece, D. J., & Sherry, E. F. (2016), "The IEEE's new IPR policy: did the IEEE shoot itself in the foot and harm innovation," *Tusher Center for the Management of Intellectual Capital*, who state the recent inclusion of *ex ante* valuation of SEPs in the new IEEE IPR policy "essentially amounts to the proposition that *all* of the gains from standardization should flow to implementers and/or consumers, and none (except via the volume effect) to patent holders whose technology is incorporated into the standard." See also Lee, W. F., & Melamed, A. D. (2015), "Breaking the Vicious Cycle of Patent Damages," *Cornell L. Rev.*, 101, 385.

19 See Swanson, D. G., & Baumol, W. J. (2005), "Reasonable and nondiscriminatory (RAND) royalties, standards selection, and control of market power," *Antitrust LJ*, 73, 1.

20 See Sidak, J. G. (2013), "The meaning of frand, part I: Royalties," *Journal of Competition Law and Economics*, 9(4), 931-1055 and Heiden & Andreasson, *supra* note 6.

21 Teece, D. J., & Sherry, E. F. (2002), "Standards setting and antitrust," *Minn. L. Rev.*, 87, 1913.

22 See *Microsoft Corp. v. Motorola, Inc.*, No. 10-cv-1823 (W.D. Wash.) and *In re Innovatio IP Ventures LLC*, No. 11-cv-09308 (N.D. Illinois). For an analysis, see Heiden, B. (2015), "Valuing Standard Essential Patents in the Knowledge Economy: A Comparison of F/RAND Royalty Methodologies in US Courts," *International Journal of Standardization Research (IJSR)*, 13(1), 19-46.

The potential impact of injunctive relief in regard to patent holdup theory has been seen as an important issue by competition authorities, while the potential impact of patent holdout has not been seen as an antitrust issue even though it can affect competition and economic efficiency.²³

E. Royalty Base

A FRAND royalty is determined by the combination of the royalty rate and the royalty base applied to the infringing product (or service). Competing theories of the location of the royalty base in the value chain are as follows:

- Component level – proponents claim that smallest-saleable patent-practicing unit (“SSPPU”) should be used as the royalty base for FRAND determinations.
- Product level – proponents claim that the product price paid by the consumer represents the proper royalty base for FRAND determinations

The difference between calculating FRAND royalties using the component versus the product level is between 1-2 orders of magnitude depending on the product and standard, which has created very different results, based on divergent economic theories of SEP damages.²⁴

Table 1 below shows the main areas of contention in relation to a patent holdup versus holdout logic and their comparative, underlying theoretical arguments.

	Patent Holdup	Patent Holdout
Aggregate Royalty	Multiple, independent claims produce a royalty stack	Multiple, under/non-payment produces a royalty gap
Ex Ante Valuation	SSO timeframe allows for comparison of competing technology contributions	R&D timeframe allows for comparison of competing technology investments
Injunctive Relief	Availability of injunction facilitates capture of supra-FRAND royalties	Unavailability of injunction facilitates delay leading to sub-FRAND royalties
Royalty Base	Product level royalty base leads to over compensation of SEPs compared to SSPPU	Component level royalty base leads to under compensation of SEPs compared to market value

Table 1: FRAND conceptual areas of contention

V. THE REIFICATION OF FRAND ON LEGITIMIZING ARENAS

The reification of institutional tools and blocks is a process of communication and acceptance, which can be described as a period of normative openness ending in normative closure. During the period of openness, stakeholders make claims that are eventually either accepted (possibly in modified form) or rejected by the other stakeholders. However, communicative claims require structural legitimacy (i.e. reified platforms where institutional tools are defined and accepted). Communicative claims can thus be seen as a game that takes place among different actors across different arenas. These different actors vie to have their claims of social reality accepted on these key arenas through various means of persuasion.

Using the example of patents in the context of standards we can construct an extended model of five key arenas where FRAND as a tool and specific SEPs as building blocks are being communicatively claimed by influential stakeholders (see figure 4 below).²⁵

23 See for example the U.S. FTC Google Consent Order (2013) and the U.S. DOJ IEEE Business Review Letter (2015).

24 See Petit, N. (2016), “The IEEE-SA Revised Patent Policy and Its Definition of Reasonable Rates: A Transatlantic Antitrust Divide,” *Fordham Intell. Prop. Media & Ent. LJ*, 27, 211; Putnam, J. D. (2017), “Economic Determinations in Frand Rate-Setting: A Guide for the Perplexed,” *Fordham Int’l LJ*, 41, 953; Contreras, J. L., & Gilbert, R. J. (2015), “Unified Framework for RAND and Other Reasonable Royalties,” *Berkeley Tech. LJ*, 30, 1451.

25 Note that the model is focused on the U.S. perspective, but is also transferable to other countries (minus the ITC arena) and could be used to evaluate the global development of FRAND.

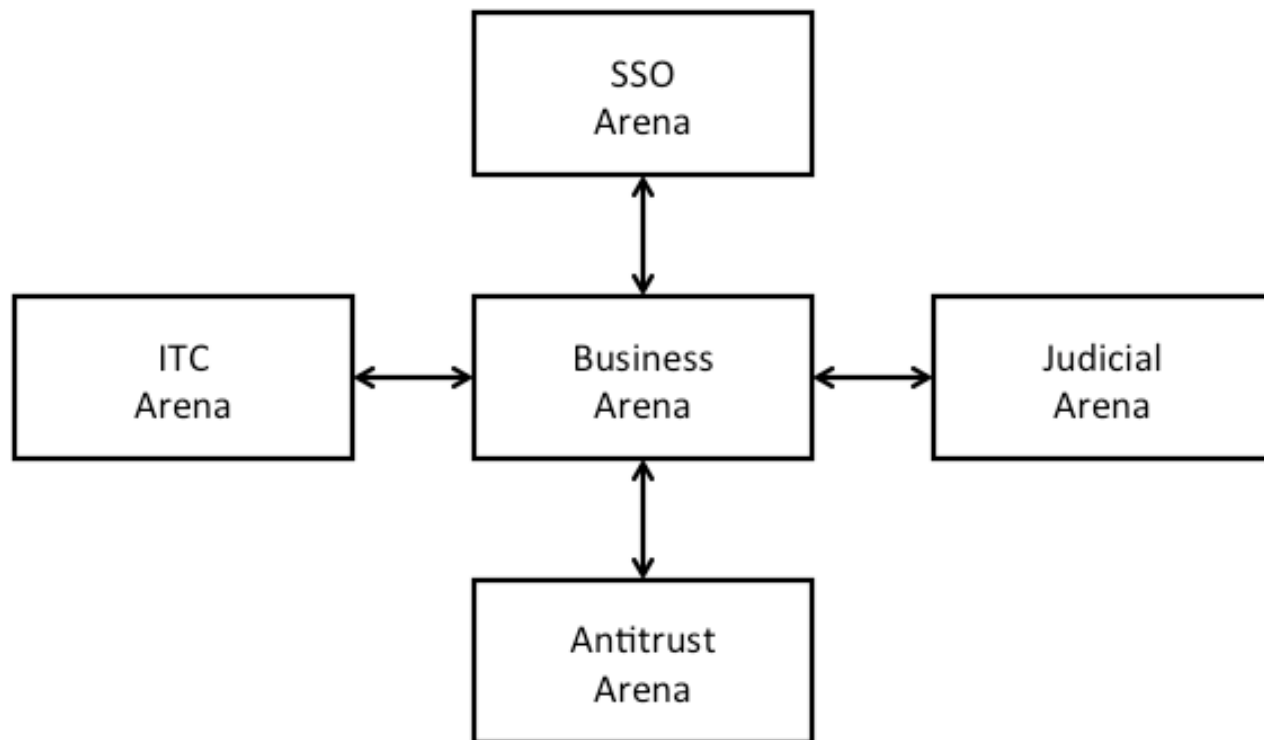


Figure 4: FRAND as a communicative game on five arenas²⁶

Below is a brief description of each of the arenas from a U.S. perspective:

A. Business Arena

This arena consists of commercial actors and associated market and financial institutions involved in the development and implementation of technology, products, and services in standards-enabled markets. It is placed in the middle because patent value is ultimately created and extracted in this arena through the influence and constraints of the other arenas.²⁷ Actors on this arena typically make communicative claims in their own economic interests (i.e. either short term or long term) and attempt to influence both the norms on the business arena (e.g. through new knowledge-based business models) as well as influence the development of norms in the other four arenas that collectively impact the meaning of FRAND. This is done through direct and indirect actions that affect specific SEPs, as well the general concept of FRAND (i.e. both on the block and tool level). Direct actions focused on specific technology contributions or SEPs include, for example, participation in the development of new standards through an SSO, filing patents and requesting reexaminations at the USPTO or other PTOs, participation as a litigant in a court or ITC proceeding, filing an antitrust complaint, and negotiation of FRAND licenses with other market actors. Indirect actions focused on redefining FRAND include, among others, lobbying for legislative change, filing *amicus* briefs to influence courts and regulatory actors, proposing changes to SSO IPR policies, and supporting academic and media channels. The business arena, in turn, is directly influenced by antitrust and SSO policies, legal norms and judicial rulings, and the competitive strategy of the different market actors. Firms operating in different parts of the value chain view FRAND and the value of SEPs differently, which creates a disequilibrium of interests that incentivizes and facilitates an environment for opportunistic behavior through direct and indirect means. While this has resulted in prolonged FRAND negotiations, increased litigation, and recently, the need for FRAND royalty rates to be determined by the courts, standards-enabled markets have historically shown signs of considerable success in general.²⁸

²⁶ See Petrusson, *supra* note 4.

²⁷ Note that most litigation is resolved outside of the courts, and even when court decisions are made, business actors often negotiate a settlement in the shadow of a potential appeal.

²⁸ See Galetovic, A., Haber, S., & Levine, R. (2015), "An empirical examination of patent holdup," *Journal of Competition Law & Economics*, 11(3), 549-578, which shows that SEP-reliant industries have the fastest quality-adjusted price declines in the U.S. economy.

B. Judicial Arena

This arena consists primarily of the federal district court system that adjudicates patent cases, including the Court of Appeals for the Federal Circuit (“CAFC”) and the Supreme Court. Courts are influenced directly by legislation, procedural law, expert testimony, and the argumentation of the litigants, and indirectly through *amicus* briefs submitted by concerned 3rd parties. Court decisions have a direct impact on specific SEP portfolios through the determination of patent validity, infringement, essentiality, damages, and ongoing FRAND royalties as well as through injunctive relief. In addition, court rulings also have a systemic effect on the meaning of SEPs and FRAND by creating new procedural law that impacts future courts and market expectations as discussed in all the appended papers. This includes, for example, the interpretation of Georgia-Pacific Factors, *ex ante* valuation, royalty stacking, royalty base, injunctive relief, and patent holdup from a FRAND perspective.

C. ITC Arena

In addition to the judicial arena there exists in the U.S. a quasi-judicial entity known as the International Trade Commission (“ITC”), which has the authority to block entry into the U.S. of imported goods that are deemed to infringe U.S. patents.²⁹ The ITC reports to Congress, POTUS, and the U.S. Trade Representative (“USTR”) and is influenced by changes in legislation and the veto power of the President and USTR. Recent shifts by U.S. district courts to a more stringent test for injunctive relief in combination with the fact that most telecommunication products are imported to the U.S. has generated increased caseload at the ITC based on its ability and perceived willingness by patent holders to grant exclusion orders.³⁰ Thus SEP holders have petitioned the ITC for exclusion orders against implementing firms that infringe their SEP portfolios. For example, in 2013 an exclusion order was granted by the ITC blocking certain Apple products for import in the U.S.-based on infringement of SEPs owned by Samsung. However, USTR through delegation from POTUS vetoed the order citing agreement with the guidelines with USDOJ-USPTO policy statement on FRAND remedies.³¹ Despite the previous veto, the ITC in 2015 issued an exclusion order against Nokia (now MMO) for the infringement of an SEP owned by Interdigital, providing in its decision the information requested in the previous USTR veto letter, in particular, the justification that MMO was practicing patent holdout as an unwilling licensee. This opens the door for ITC-based exclusion orders under the circumstance of refusal to license on FRAND terms.

D. Antitrust Arena

The key regulatory actors in the antitrust arena in the U.S. are the Federal Trade Commission (“FTC”) and the Antitrust Division of the Department of Justice (“DOJ”). The FTC is a quasi-judicial, independent organization charged with preventing anticompetitive business practices and protecting consumers.³² The Antitrust Division of the Department of Justice has a similar role of promoting competition and enforcing antitrust laws. Together, these actors have direct influence in determining the antitrust implications of IP transactions through, for example, evaluating mergers and acquisitions involving large SEP portfolios³³ and providing business review letters (“BRLs”) regarding cross-licensing, patent pool formation, and SSO IPR policies.³⁴ They also conduct investigations into the alleged anticompetitive use of FRAND-enabled SEPs by individual market actors.³⁵

29 See 19 U.S.C. § 1337.

30 See Chien, C. V., & Lemley, M. A. (2012), “Patent holdup, the ITC, and the public interest,” *Cornell L. Rev.*, 98, 1, who describe the rush to the ITC after the *eBay* decision.

31 See https://www.uspto.gov/about/offices/ogc/Final_DOJ-PTO_Policy_Statement_on_FRAND_SEPs_1-8-13.pdf.

32 See <https://www.ftc.gov>.

33 For example, see DOJ investigation of Google’s purchase of Motorola Mobility, and Rockstar consortium’s purchase of the Nortel patent portfolio.

34 For example, the DOJ has issued BRLs for 3G, MPEG-2, and DVD patent pools and for SSO IPR policies for IEEE and VITA – see <http://www.justice.gov/atr/business-reviews>.

35 For example, see FTC consent orders in the cases of *Unocal*, *Dell*, *Rambus*, *Google/MMI* <https://www.ftc.gov/enforcement/cases-proceedings/1210120/motorola-mobility-llc-google-inc-matter>; and Robert Bosch <https://www.ftc.gov/enforcement/cases-proceedings/1210081/bosch-robert-bosch-gmbh>.

E. Standard Setting Organization Arena

This arena consists of various national and international organizations whose primary role is to define technical standards and publish the associated technical specifications. There are a great number and variety of standard setting organizations (“SSOs”) with the role of facilitating the collaborative development of industry standards.³⁶ While SSOs are generally considered to be pro-competitive, collective participation by competing firms creates an environment for opportunistic behavior with potential anti-competitive effects.³⁷ Many SSOs are private, non-profit organizations governed by private members, either individual professionals as with IEEE (Institute of Electrical and Electronics Engineers) or organizations as with ETSI (European Telecommunications Standards Institute). In addition, countries can also be members as is the case with ITU (International Telecommunication Union), which is a UN agency. Given that the actors in the business arena can also be members in the SSOs, there is a potential conflict of interest in the development of objective technical standards that must be overcome. This is particularly challenging due to the asymmetric distribution of market power in SSOs with predominantly corporate members. The recent controversial change in IPR policy at IEEE illustrates how SSOs can be used as an important arena to define the meaning of FRAND.³⁸

Figure 5 below shows an influence diagram describing how market interests can impact the meaning of FRAND through the legitimizing arenas discussed above.

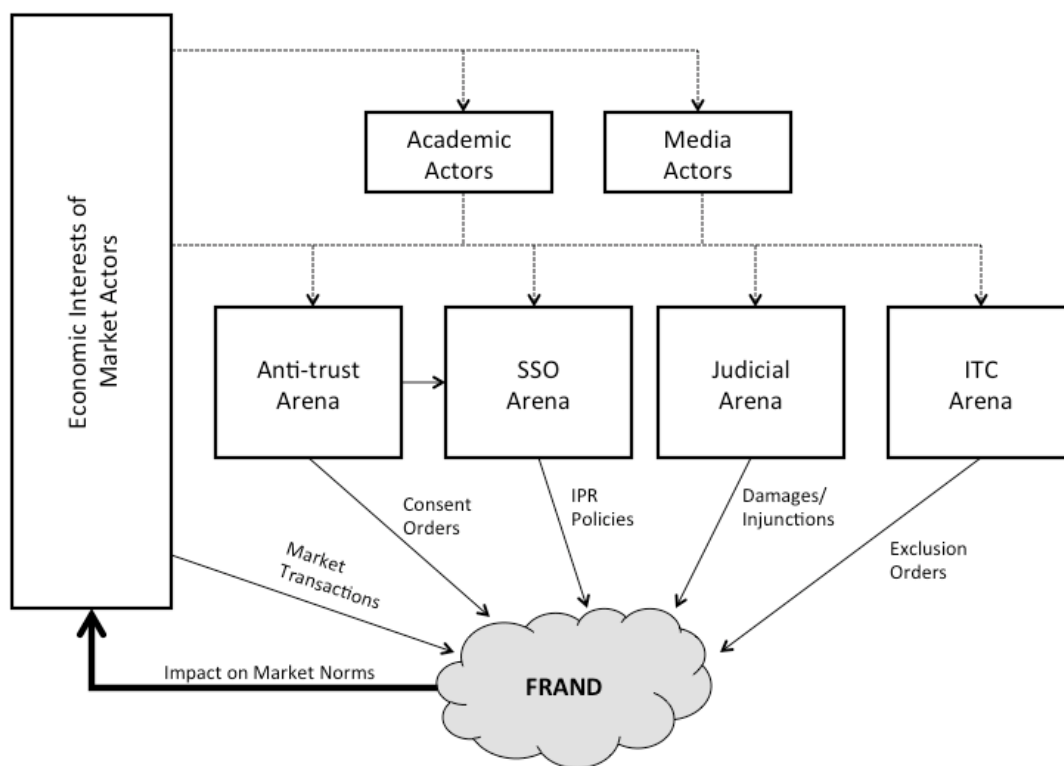


Figure 5: Influence diagram of legitimizing arenas defining the meaning of FRAND.

From the brief descriptions above, it is easy to see how different actors can play a communicative game on different arenas to try to enact their claims as a means to affect not only the validity of specific commercial building blocks but also the validity of the tools that are used to build them. While the different arenas have their own logic, they are also part of an interrelated system of design, development, validation, and enforcement. Additional arenas, such as legislative (i.e. Congress) and administrative (i.e. USPTO) could also be added to this communicative system defining the meaning of FRAND. Hopefully, this framework will lead to a better understanding of the institutional design process, in general, and the political economy of FRAND, in particular, for both market actors and policy-makers.

³⁶ See Bekkers, R., & Updegrove, A. (2013), “IPR policies and practices of a representative group of standards-setting organizations worldwide,” *Commissioned by the Committee on Intellectual Property Management in Standard-Setting Processes, National Research Council, Washington*, who identified over 840 SSOs in the ICT sector alone.

³⁷ See Anton, J. J., & Yao, D. A. (1995), “Standard-setting consortia, antitrust, and high-technology industries,” *Antitrust LJ*, 64, 247.

³⁸ See Sidak, J. G. (2016), “Testing for Bias to Suppress Royalties for Standard-Essential Patents,” *Criterion J. on Innovation*, 1, 301.

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