

The Antitrust Division's Devaluation of Standard-Essential Patents

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The Institute of Electrical and Electronics Engineers (IEEE) is a standard-setting organization (SSO) whose standards incorporate technologies owned by many different holders of standard-essential patents (SEPs). The IEEE's patent policy specifies the conditions under which an SEP holder voluntarily commits to license its SEPs on fair, reasonable, and nondiscriminatory (FRAND) terms. In February 2015, the IEEE became the first SSO to regulate the calculation of FRAND royalties. The IEEE made that transformative change with the encouragement and blessing of the Antitrust Division of the U.S. Department of Justice. The amendments purport to mitigate the risk of patent holdup and royalty stacking—theoretically and empirically disputed conjectures, which postulate that SEP holders routinely extract supracompetitive royalties from the implementers of a standard. In fact, the amendments broaden the binding provisions of the IEEE's FRAND commitment, diminish the SEP holder's ability to enforce its patent rights, and unambiguously lower the royalties that the SEP holder may charge a licensee. In its business review letter, the Antitrust Division commended the bylaw amendments for addressing the risk of patent holdup and royalty stacking without any analysis of whether those harms actually occur in the implementation of the IEEE's standards (let alone occur so often as to raise a legitimate policy concern). At the same time, the Antitrust Division ignored the obvious, countervailing concern that the bylaw amendments facilitate collusion among implementers to suppress the royalties they pay for SEPs. The Antitrust Division exists not to orchestrate or cheerlead the coordinated action of buyers in a market to suppress prices. It exists to ensure that firms obey the antitrust laws. That duty required the Division to assess, with skepticism and scrupulous impartiality, the competitive implications of the coordinated action of a subset of members of the IEEE that would benefit from

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the SSO's adoption of bylaw amendments having the purpose and effect of suppressing the FRAND royalties that this subset of members would pay to license standard-essential patents. The Division failed to discharge that duty.

INTRODUCTION

The Institute of Electrical and Electronics Engineers (IEEE) is a standard-setting organization (SSO). Its 802.11 Wi-Fi standard, universally used in cellphones and other mobile devices, incorporates technologies owned by many different holders of standard-essential patents (SEPs). The IEEE's patent policy specifies the conditions under which an SEP holder voluntarily commits to license its SEPs on fair, reasonable, and nondiscriminatory (FRAND) terms. Before 2015, the IEEE (like other SSOs) took no position on how to calculate a FRAND royalty. In February 2015, the IEEE reversed its policy and became the first SSO to regulate the calculation of FRAND royalties.

The IEEE made that transformative change with the encouragement and subsequent blessing of the Antitrust Division of the U.S. Department of Justice, which several years earlier had begun urging SSOs to amend their bylaws to suppress the FRAND royalties that implementers pay to use SEPs. In a speech in October 2012 to another leading SSO for technologies used in mobile devices, the International Telecommunication Union (ITU), Deputy Assistant Attorney General Renata Hesse said that an SEP holder might "engag[e] in . . . patent hold-up, . . . obtaining an unjustifiably higher price for its invention than would have been possible before the standard was set."¹ She urged SSOs to adopt policies that she said would (1) identify SEPs that a patent holder has declined to commit to license on FRAND terms, (2) clarify the binding nature of the SSO's licensing commitments, (3) prohibit an SEP holder from demanding its licensee to cross-license implementation patents, (4) limit an SEP holder's right to seek an injunction against a potential licensee, (5) set guidelines for determining FRAND licensing terms, and (6) increase the certainty that pa-

1. Renata Hesse, Deputy Assistant Attorney Gen., U.S. Dep't of Justice, Six "Small" Proposals for SSOs Before Lunch: Remarks as Prepared for the ITU-T Patent Roundtable 5 (Oct. 10, 2012), *available at* <http://www.justice.gov/atr/public/speeches/287855.pdf>.

tents declared to be standard-essential are essential in fact.²

The Patent Committee of the IEEE's Standards Board embraced this advice. It appointed an *ad hoc* committee that drafted proposed amendments to the IEEE's bylaws that mirrored Ms. Hesse's recommendations.³ The stated purpose of the amendments was to reduce the risk of patent holdup and royalty stacking by "provid[ing] greater clarity on issues that have divided SEP owners and standards implementers in recent years."⁴ In substance, however, the amendments that the committee actually drafted, and thus the amendments that the IEEE ultimately ratified, transcended mere "clarification" of policy.⁵ The actual amendments broaden the binding provisions of the IEEE's FRAND commitment, diminish the SEP holder's ability to enforce its patent rights, and suppress the royalties that the SEP holder may charge a licensee.⁶ The amendments mandate, among other things, that a FRAND royalty exclude any value attributable to the standard, and they restrict an SEP holder's right to seek an injunction against an unlicensed implementer. Consequently, "clarity" and "clarification" are euphemisms for truncating the upper range of the distribution of bilaterally negotiated FRAND royalties for SEPs. Another term for this kind of clarification, accomplished through the coordinated action of buyers in a market, is price fixing.

Before ratifying these bylaw amendments, the IEEE sought, in Sep-

2. *Id.* at 9–10.

3. Letter from Michael A. Lindsay, Esq., Dorsey & Whitney, L.L.P., to Hon. William J. Baer, Assistant Attorney Gen., U.S. Dep't of Justice 13 (Sept. 30, 2014) [hereinafter IEEE Business Review Letter Request], available at <http://www.justice.gov/atr/public/busreview/request-letters/311483.pdf> (comments of Dina Kallay, Dir. for IP and Competition, Ericsson).

4. *Id.* at 15; *see id.* at 16–17 ("When a SEP owner can seek a Prohibitive Order [either an injunction from a court or an exclusion order from the U.S. International Trade Commission] without any limitation, the negotiation can become a negotiation over the cost to the implementer of being excluded from implementing the standard, rather than the value that the particular SEP contributes to the implementation.").

5. *See, e.g.*, IEEE-SA Standards Bd. Patent Comm., IEEE-SA Patent Policy: Draft Comments, Comment ID No. 37 (Mar. 4, 2014) [hereinafter IEEE-SA Patent Policy: Draft Comments, Second Round], available at http://grouper.ieee.org/groups/pp-dialog/drafts_comments/PatCom_sort_by_commentID_040314.pdf.

6. *See, e.g., id.*; Don Clark, *Patent Holders Fear Weaker Tech Role*, WALL ST. J. (Feb. 9, 2015, 1:26 PM), <http://www.wsj.com/articles/patent-holders-fear-weaker-tech-role-1423442219>; Ryan Davis, *Patent Owners Take Hit with Standard-Setting Body's Rules*, LAW360 (Feb. 9, 2015, 8:49 PM), http://www.law360.com/competition/articles/619687?utm_source=shared-articles&utm_medium=email&utm_campaign=shared-articles.

tember 2014, a business review letter from the Antitrust Division confirming that the amendments would “compl[y] with all applicable antitrust and competition laws.”⁷ The IEEE further sought assurance that the Division “would not bring action against IEEE under any antitrust theory.”⁸ Although the Division “is not authorized to give advisory opinions to private parties,”⁹ it is “willing in certain circumstances to review proposed business conduct and state its enforcement intentions.”¹⁰ A party requesting a business review letter has “an affirmative obligation to make full and true disclosure with respect to the business conduct for which review is requested.”¹¹ The IEEE’s Standards Board recommended that the IEEE’s Board of Governors approve the amendments contingent on obtaining a “favorable Business Review Letter.”¹² In its request to the Antitrust Division, the IEEE said that it was seeking a business review letter because some of the IEEE’s stakeholders had expressed antitrust concerns over the proposed amendments and other stakeholders had asked the IEEE to seek such a letter.¹³

In a letter to Ms. Hesse on January 28, 2015, I expressed concern that the IEEE’s proposed bylaw amendments posed a serious risk of violating section 1 of the Sherman Act¹⁴ by facilitating tacit or explicit collusion among implementers to suppress the royalties they pay for SEPs.¹⁵ I explained that the amendments would weaken patent rights, reduce incentives to invest in standard-essential technology, and thereby harm innovation and long-term consumer welfare.¹⁶ On Monday morning, February 2,

7. IEEE Business Review Letter Request, *supra* note 3, at 17.

8. *Id.* at 19.

9. 28 C.F.R. § 50.6.

10. *Id.*

11. *Id.* § 50.6(5).

12. IEEE Business Review Letter Request, *supra* note 3, at 14–15.

13. *Id.* at 17–18. Strictly speaking, “the issuance of such a letter is not to be represented to mean that the Division believes that there are no anticompetitive consequences warranting agency consideration.” 28 C.F.R. § 50.6(7)(a).

14. 15 U.S.C. § 1 (2012).

15. Letter from J. Gregory Sidak, Chairman, Criterion Economics, L.L.C., to Hon. Renata Hesse, Deputy Assistant Attorney Gen., U.S. Dep’t of Justice (Jan. 28, 2015) [hereinafter Sidak’s Letter to Hesse], *available at* <http://www.criterioneconomics.com/proposed-ieee-bylaw-amendments-affecting-stand-licensing-of-seps.html>.

16. *Id.* Two months earlier, the founder of Qualcomm had expressed similar concerns to the IEEE’s president. See Letter from Irwin M. Jacobs, Chairman & CEO, Qualcomm, to Dr. Roberto Boisson de Marca, President & CEO, IEEE (Nov. 19, 2014), *available at* <http://www.advancingengineering.org/irwin-jacobs>.

2015, a patent law blog posted a letter dated January 30, 2015 that executives from Apple, Cisco, Intel, Microsoft, and other companies reportedly sent to the IEEE's leadership, endorsing the proposed amendments.¹⁷ Although six professors—including Mark Lemley and two former chief economists of the Antitrust Division—also signed the letter,¹⁸ these scholars said nothing about how the proposed amendments, by effecting collective action among buyers, would facilitate their potential suppression of the prices they pay for technology inputs.

Later on February 2, 2015, the Antitrust Division released its business review letter, signed by Ms. Hesse, declining to challenge the IEEE's proposed amendments to its bylaws.¹⁹ Ms. Hesse said that the amendments had “the potential to benefit competition and consumers” and were likely to “facilitat[e] licensing negotiations, mitigat[e] [patent] hold up and royalty stacking, and promot[e] competition among technologies for inclusion in standards.”²⁰ Further, the Antitrust Division did not find the amendments likely to result in anticompetitive harm because, in Ms. Hesse's assessment, “licensing rates . . . are [still] determined through bilateral negotiations, the [amendments] are not out of step with the direction of current U.S. law interpreting [F]RAND commitments[,] . . . and patent holders

17. Letter from Ira Blumberg, Vice President of Intellectual Prop., Lenovo Grp. Ltd., et al. to Howard E. Michel, President & CEO, IEEE, and Bruce Kraemer, President, IEEE-SA & Dir., IEEE (Jan. 30, 2015), *available at* <http://comparativepatentremedies.blogspot.com/2015/02/letter-in-support-of-proposed-ieee-sa.html>. The companies signing the letter were Apple, Cisco Systems, Dell, Hewlett-Packard Española, Intel, Juniper Networks, Kingston Technology, Lenovo, Microsoft, Samsung, Sceptre, and Verizon. Professor Thomas Cotter posted the letter on his blog, Comparative Patent Remedies, at 10:50 AM, presumably central time, because he is at the University of Minnesota.

18. *Id.* (economists Richard Gilbert and Fiona Scott Morton, and lawyers Michael Carrier, Jorge Contreras, Mark Lemley, and Daryl Lim).

19. Business Review Letter from Hon. Renata B. Hesse, Acting Assistant Attorney Gen., U.S. Dep't of Justice, to Michael A. Lindsay, Esq., Dorsey & Whitney, L.L.P. (Feb. 2, 2015) [hereinafter 2015 IEEE Business Review Letter], *available at* http://www.justice.gov/sites/default/files/opa/press-releases/attachments/2015/02/02/ieee_business_review_letter.pdf. Bloomberg posted its story on the Antitrust Division's decision at 12:46 PM EST. *See* Susan Decker & Ian King, *Wi-Fi Inventors' Cut of iPhone 6 Sales to Shrink in Vote*, BLOOMBERG (Feb. 2, 2015, 12:46 PM), *available at* <http://www.bloomberg.com/news/articles/2015-02-02/wi-fi-inventors-cut-of-iphone-6-sales-to-shrink-in-patent-vote>. Ms. Hesse signed the business review letter in her capacity as Acting Assistant Attorney General because Assistant Attorney General William J. Baer had recused himself from the matter.

20. 2015 IEEE Business Review Letter, *supra* note 19, at 16.

can avoid” the amendments by refusing to submit a Letter of Assurance (LOA) or “can depart to other SSOs.”²¹ The Antitrust Division said that, even if the amendments did generate anticompetitive repercussions, the “potential procompetitive benefits” of the bylaw amendments would “likely outweigh those harms.”²² Six days after receiving Ms. Hesse’s positive business review letter, the IEEE’s Board of Directors ratified the bylaw amendments.²³

In the following pages, I refer to the “patent-holdup conjecture” and the “royalty-stacking conjecture” in the strict Popperian sense of an *a priori* hypothesis that must survive rigorous attempts at falsification (both theoretical and empirical) before it can be accepted as plausibly true (that is, before it can be regarded as having what Sir Karl Popper called verisimilitude or “truthlikeness”).²⁴ Strictly speaking, Popper believed that we never really confirm a conjecture; we only fail to refute it. But in the course of repeatedly failing to refute a conjecture, we become more confident that it is true. Popper called the information in which we have such confidence “objective knowledge.” The Supreme Court had this epistemological framework of conjecture and refutation in mind when, in *Daubert*, it cited Popper to describe the essence of admissible scientific evidence under the Federal Rules of Evidence.²⁵ I am not aware of any binding legal principle that requires an Executive Branch official who has sworn to faithfully execute a highly technical body of law to act solely on the basis of objective knowledge. Yet, as a prudential matter, it is hardly asking too much that the official inform her exercise of prosecutorial discretion with

21. *Id.* at 8.

22. *Id.* at 16. Lest anyone get the wrong impression, Ms. Hesse said in her letter that “the U.S. government does not dictate patent policy choices to private SSOs,” *id.* at 10, and that “it is not the [Antitrust Division’s] role to assess whether the IEEE’s policy choices are right for IEEE as a[n] [SSO],” *id.* at 1.

23. Press Release, IEEE, IEEE Statement Regarding Updating of Its Standards-Related Patent Policy (Feb. 8, 2015), http://www.ieee.org/about/news/2015/8_february_2015.html?WT.mc_id=std_8feb.

24. See KARL R. POPPER, CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE (1963); KARL R. POPPER, OBJECTIVE KNOWLEDGE: AN EVOLUTIONARY APPROACH (1972).

25. See *Daubert v. Merrill Dow Pharm., Inc.*, 509 U.S. 579, 593 (1993) (quoting KARL R. POPPER, CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE 37 (5th ed. 1989) (“The criterion of the scientific status of a theory is its falsifiability, or refutability, or testability.”) (emphasis omitted)); see also J. Gregory Sidak, *Court-Appointed Neutral Economic Experts*, 9 J. COMPETITION L. & ECON. 359, 384–86 (2013) (analyzing the epistemological foundation of *Daubert* and its progeny).

no less intellectual rigor than what, on any day of the week, a federal court demands of an expert witness in the same technical area of law. The Antitrust Division's decision to prosecute or not to prosecute collaborative price setting by buyers or sellers in a market is one example of where an understanding of the difference between fact and conjecture matters if a statute's purpose is to be advanced.

The patent-holdup and royalty-stacking conjectures have created a gulf too wide to bridge. On one side are SEP holders and the scholars who regard these conjectures as theoretically flawed and empirically unsubstantiated (if not by now refuted). On the other side are the Antitrust Division, the companies that make products practicing SEPs, and the scholars who believe that patent holdup and royalty stacking are real phenomena that occur often enough to justify changing the governance of SSOs to deter such phenomena. Technologically dynamic markets generate vast amounts of economic surplus. Much of that value becomes consumer surplus, which is why antitrust policy concerning dynamic competition is vastly more important than antitrust policy concerning static competition.²⁶ The tug-of-war over how to divide the remaining surplus pitches sophisticated sellers of technology (companies like Ericsson, Nokia, and Qualcomm) against equally sophisticated buyers of technology (companies like Apple, Cisco, and Intel). Anyone who witnessed similar battles combining law, economics, and technology—such as the mandatory unbundling of telecommunications networks, the Microsoft antitrust case, the network neutrality debate—understands that the opposing sides in the current debate over patent holdup and royalty stacking will never agree. Ms. Hesse told a public conference in Washington in March 2015: “Patent holders come in and say, ‘Holdup? What you are talking about it is not a problem—has never been a problem.’ That’s not true, and they should stop saying that.”²⁷

So the Antitrust Division has decreed that the patent-holdup conjecture is true, and the authorities will not be bothered with further evidence of the conjecture's falsification. This contempt for the process of acquiring ob-

26. See generally J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPETITION L. & ECON. 581 (2009).

27. Michael Macagnone, *SEP License Fees Are Getting Out Of Hand, Officials Say*, LAW360 (Mar. 16, 2015, 8:26 PM), <http://www.law360.com/articles/631607/sep-license-fees-are-getting-out-of-hand-officials-say> (quoting Deputy Assistant Attorney Gen. Renata Hesse).

jective knowledge deserves Churchill's retort: "[The] truth is incontrovertible. Panic may resent it, malice may attack it, ignorance may deride it, but there it is."²⁸ Ms. Hesse's message of intellectual expediency confirmed what her business review letter to the IEEE had earlier telegraphed: The Antitrust Division requires no proof that there exists a problem for which the IEEE bylaw amendments are the promised solution. Merely to posit a market failure suffices.

But Ms. Hesse did not merely assume the existence of benefits on one side of the scale. She also assumed the absence of costs on the other side. Though Ms. Hesse's letter ran sixteen single-spaced pages, the extent of her analysis of the danger of tacit or explicit collusion among buyers of standard-essential technology consisted of, at most, one sentence: "The Department has analyzed whether the Update's provisions . . . will harm competition by anticompetitively reducing royalties and thereby diminishing incentives to innovate."²⁹ Despite having discussed the patent-holdup and royalty-stacking conjectures at length, Ms. Hesse declined to identify the methods or principles that the Antitrust Division applied to the facts of the IEEE's bylaw amendments to reach the conclusion that the coordinated suppression of FRAND royalties was "unlikely."³⁰ To have concluded with such exiguity that the IEEE bylaw amendments presented no potential violation of antitrust law was facile to the point of silliness. If the IEEE's proposed bylaw amendments had the potential to generate only benefits to economic welfare, then why would the IEEE have thought it necessary to get the Antitrust Division to represent that it "would not bring action against IEEE under any antitrust theory"?³¹ Why would the IEEE's Standards Board have urged the IEEE's Board of Governors to make its approval of the bylaw amendments conditional on receipt of an accommodating business review letter? These questions were too obvious for the Antitrust Division to ignore. Remarkably for someone entrusted with enforcing the antitrust laws, Ms. Hesse never provides a sustained explanation of what costs might offset the claimed benefits from suppressing the royalties for SEPs.

In Part I of this article, I analyze the IEEE's bylaw amendments in detail. I explain the multiple ways in which they now impair an SEP holder's

28. 82 PARL. DEB., H.C. (5th ser.) (1916) 1578 (U.K.).

29. 2015 IEEE Business Review Letter, *supra* note 19, at 8.

30. *Id.*

31. IEEE Business Review Letter Request, *supra* note 3, at 19.

ability to enforce its patent rights. In Part II, I explain how the Antitrust Division, in its business review letter, exaggerated the benefits of the IEEE's bylaw amendments as a remedy for patent holdup and royalty stacking without first establishing, both theoretically and empirically, that patent holdup and royalty stacking occur in the implementation of the IEEE's standards—and that they occur with such frequency as to create a market failure justifying the coordinated actions of buyers within a market. In Part III, I examine the Antitrust Division's stunning failure to assess the collusive implications of the IEEE's bylaw amendments. The Antitrust Division averted its eyes from those obvious implications and in so doing abdicated its duty to faithfully execute the antitrust laws.

I. THE IEEE'S BYLAW AMENDMENTS

The amendments to section 6 of the IEEE Standard Board Bylaws (known as the IEEE's Patent Policy) do more than merely clarify the IEEE's policy. These amendments will fundamentally alter the negotiations between licensors and licensees regarding the interpretation and determination of a reasonable royalty for an implementer's use of a standard-essential technology. The amended bylaws prohibit the SEP holder from seeking an injunction, regulate the determination of reasonable rates for SEPs, and contradict industry norms regarding the licensing of standard-essential technology.

The amended bylaws define the new term "Prohibitive Order" as "an interim or permanent injunction, exclusion order, or similar adjudicative directive that limits or prevents making, having made, using, selling, offering to sell, or importing a Compliant Implementation."³² The significance of the definition of a Prohibitive Order becomes clear when one examines how the IEEE then defines another new term, "Reasonable Rate," as

appropriate compensation to the patent holder for the practice of an Essential Patent Claim excluding the value, if any, re-

32. IEEE-SA, Draft 39 IEEE Standards Board Bylaws § 6.1, at 1 (2014) [hereinafter IEEE Standards Board Bylaws], *available at* http://grouper.ieee.org/groups/pp-dialog/drafts_comments/SBBylaws_100614_redline_current.pdf; *see also* IEEE-SA, Draft IEEE-SA Patent Policy FAQs: Understanding Patent Issues During IEEE Standards Development, Draft 14 ¶ 47, at 13–14 (Dec. 3, 2014) [hereinafter Draft IEEE-SA Patent Policy FAQs], *available at* http://grouper.ieee.org/groups/pp-dialog/drafts_comments/Patent_Policy_FAQ_031214_redline.pdf.

sulting from the inclusion of that Essential Patent Claim's technology in the IEEE Standard. In addition, determination of such Reasonable Rates should include, but need not be limited to, the consideration of:

- The value that the functionality of the claimed invention or inventive feature within the Essential Patent Claim contributes to the value of the relevant functionality of the smallest saleable Compliant Implementation that practices the Essential Patent Claim.
- The value that the Essential Patent Claim contributes to the smallest saleable Compliant Implementation that practices that claim, in light of the value contributed by all Essential Patent Claims for the same IEEE Standard practiced in that Compliant Implementation.
- Existing licenses covering use of the Essential Patent Claim, *where such licenses were not obtained under the explicit or implicit threat of a Prohibitive Order*, and where the circumstances and resulting licenses are otherwise sufficiently comparable to the circumstances of the contemplated license.³³

Before the IEEE adopts a patent holder's technology into a standard, the IEEE requires that the patent holder furnish an accepted Letter of Assurance (LOA). Under the IEEE's amended bylaws, the patent holder must also waive its right to seek an injunction against an infringer. The patent holder's licensing assurance contains either a general waiver of enforcement or

[a] statement that the Submitter will make available a license for Essential Patent Claims to an unrestricted number of Applicants on a worldwide basis without compensation or under Reasonable Rates, with other reasonable terms and conditions that are demonstrably free of any unfair discrimination to make, have made, use, sell, offer to sell, or import any Compliant Implementation that practices the Essential Patent Claims for use in conforming with the IEEE Standard. An Accepted LOA that contains such a statement signifies that *reasonable terms and conditions, including without compensation*

33. Draft 39 IEEE Standards Board Bylaws, *supra* note 32, § 6.1, at 2 (emphasis added).

*or under Reasonable Rates, are sufficient compensation for a license to use those Essential Patent Claims and precludes seeking, or seeking to enforce, a Prohibitive Order except as provided in this policy.*³⁴

In informal accompanying documents, the IEEE purports to describe the SEP holder's forced waiver of its right to an injunction as a voluntary act: "An Accepted Letter of Assurance defines the circumstances in which the Submitter has *voluntarily agreed not to seek or seek to enforce a Prohibitive Order*, even if otherwise permitted in a specific jurisdiction."³⁵ The IEEE deems a patent holder's request for an injunction an "explicit threat," and it considers even the mention of the availability of an injunction during negotiations an "implicit threat":

A patent holder's request that a court issue a Prohibitive Order against an implementer, who does not have a license, would be an example of an *explicit threat*. A patent holder's reminder to an implementer that a Prohibitive Order might be available if the implementer does not agree to the requested rate would be an example of an *implicit threat*.³⁶

The IEEE's amended bylaws permit an SEP holder to seek an injunction only after it has successfully litigated claims against the unlicensed implementer to conclusion in a court of appeals, which could take years.³⁷

34. *Id.* § 6.2, at 3 (emphasis added).

35. Draft IEEE-SA Patent Policy FAQs, *supra* note 32, ¶ 56, at 15 (emphasis added).

36. *Id.* ¶ 47, at 13–14 (emphasis added).

37. The IEEE amended its statement of policy to provide:

The Submitter of an Accepted LOA who has committed to make available a license for one or more Essential Patent Claims agrees that it shall *neither seek nor seek to enforce a Prohibitive Order* based on such Essential Patent Claim(s) in a jurisdiction *unless the implementer fails to participate in, or to comply with the outcome of, an adjudication, including an affirming first-level appellate review*, if sought by any party within applicable deadlines, in that jurisdiction by one or more courts that have the authority to: determine Reasonable Rates and other reasonable terms and conditions; adjudicate patent validity, enforceability, essentiality, and infringement; award monetary damages; and resolve any defenses and counterclaims.

Draft 39 IEEE Standards Board Bylaws, *supra* note 32, § 6.2, at 4 (emphasis added).

The IEEE directly connects the patent holder's forced waiver of the right to an injunction to the determination of "appropriate compensation" for SEPs—a phrase notable for embodying a different touchstone than a fair, reasonable, and nondiscriminatory royalty—because, in the calculation of such rates, "the policy recommends consideration of license agreements obtained *without explicit or implicit threat of a Prohibitive Order*."³⁸ In other words, analysis of comparable licenses for purposes of determining a FRAND royalty "should" consider only licenses for which the SEP holder had relinquished the right to seek and enforce an injunction against an unlicensed implementer.³⁹ Since no such licenses are likely to have existed before the IEEE's bylaw amendments in February 2015, the practical import of this provision is that, for several years after February 2015, no SEP holder can attempt to set a FRAND royalty on the basis of terms contained in comparable licenses.

The IEEE's amended bylaws also depart from real-world licensing practices by recommending that a reasonable rate for an SEP be derived from the value of the "smallest saleable Compliant Implementation that practices an Essential Patent Claim."⁴⁰ This concept seems to embody the Federal Circuit's concept of the smallest salable patent-practicing component (SSPPC).⁴¹ A "Compliant Implementation" comprises a "component, sub-assembly, or end-product" that incorporates technology essential to the IEEE standards.⁴² For example, a Wi-Fi chip and a smartphone are both compliant implementations of the IEEE 802.11 standard. The IEEE advocates calculating a reasonable rate as a percentage of the price of the component, such as a Wi-Fi chip. However, most privately negotiated licenses specify a reasonable rate as a percentage of the price of a downstream product, such as a smartphone.⁴³ The IEEE's departure from this established licensing practice may cause a disparity between market-

38. Draft IEEE-SA Patent Policy FAQs, *supra* note 32, ¶ 48, at 14 (emphasis added).

39. Draft 39 IEEE Standards Board Bylaws, *supra* note 32, § 6.1, at 2 (emphasis added).

40. *Id.*; Draft IEEE-SA Patent Policy FAQs, *supra* note 32, ¶¶ 44–45, at 12–13.

41. See, e.g., J. Gregory Sidak, *The Proper Royalty Base for Patent Damages*, 10 J. COMPETITION L. & ECON. 989 (2014).

42. Draft 39 IEEE Standards Board Bylaws, *supra* note 32, § 6.1, at 1.

43. See, e.g., Sidak, *supra* note 41, at 996 ("Voluntary licenses negotiated for patented technologies implemented in multi-component products typically use the entire market value of the downstream product as a royalty base.") (citing RESEARCH IN MOTION, RESPONSE CONCERNING CALL FOR EVIDENCE BY THE INDEPENDENT REVIEW OF INTELLECTUAL PROPERTY AND GROWTH 6 (2011)).

disciplined royalties and royalties calculated according to the IEEE's recommendations.

II. THE ANTITRUST DIVISION'S CREDULOUS ASSESSMENT OF PATENT HOLDUP AND ROYALTY STACKING

In her business review letter to the IEEE, Ms. Hesse praised the IEEE's bylaw amendments for protecting implementers and consumers from the risk of patent holdup and royalty stacking.⁴⁴ The letter, which selectively surveys outdated literature and case law that subscribe to the patent-holdup and royalty-stacking conjectures, ignores any of the more recent literature and case law that refute (or even so much as question) those conjectures. Ms. Hesse accepts, without the level of skeptical inquiry one would expect of the acting head of the Antitrust Division, the premise that patent holdup and royalty stacking harm the implementation of the IEEE's standards. Her letter overlooks the existing prophylactic mechanisms and the evidence that refute this premise. In short, Ms. Hesse facilitates the fixing of an unbroken system. She posits the existence of an unsubstantiated market failure, for which the proportionate response, she agrees, is conduct that ordinarily would arouse the Antitrust Division's suspicion about horizontal collusion.

Ms. Hesse assumes, incorrectly, that the theoretical and empirical underpinnings of the patent-holdup and royalty-stacking conjectures are robust, and her letter's analysis relies on an outdated account of those conjectures. Referencing an article from 2007 by lawyer Mark Lemley of Stanford and economist Carl Shapiro of Berkeley that introduced the patent-holdup and royalty-stacking conjectures, Ms. Hesse states that "[t]he economic bargaining model underlying claims of hold up has been studied extensively and applied to the standard-setting context."⁴⁵ Ms. Hesse neglects to say that the Lemley-Shapiro article was funded by companies that were the major proponents of the IEEE's 2015 bylaw amendments—Apple, Cisco, Intel, and Microsoft⁴⁶—and she ignores the many articles, which first started to appear in 2007, that have refuted the Lemley-Shapiro

44. 2015 IEEE Business Review Letter, *supra* note 19, at 16.

45. *Id.* at 6 n.28 (citing Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007)).

46. Lemley & Shapiro, *supra* note 45, at 1991 n.*. The other corporate funders were Micron Technology and SAP. *Id.*

model on both theoretical and empirical grounds.⁴⁷ For the same reason, the 2007 report of the Department of Justice and the Federal Trade Commission that Ms. Hesse cites is also unreliable evidence in 2015 of the plausibility of the patent-holdup conjecture.⁴⁸ By early 2015, more than two dozen economists and lawyers had disproved or disputed the numerous assumptions and predictions of the patent-holdup and royalty-stacking conjectures.⁴⁹ Ms. Hesse's letter ignores all of that scholarship.⁵⁰ Her let-

47. For the earliest rebuttals, see John M. Golden, "Patent Trolls" and Patent Remedies, 85 TEX. L. REV. 2111 (2007) (criticizing the method and data that Lemley and Shapiro use to show that patent holders are systematically overcompensated); J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714 (2008) (explaining methodological flaws in the Lemley-Shapiro model and assessing the factors that bias their results); see also Damien Geradin, Anne Layne-Farrar & A. Jorge Padilla, *Royalty Stacking in High Tech Industries: Separating Myth from Reality* 3–4 (CEMFI, Working Paper No. 0701, 2007).

48. 2015 IEEE Business Review Letter, *supra* note 19, at 6 n.28 (citing U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 36–37 (2007)).

49. See, e.g., Roger G. Brooks, *SSO Rules, Standardization, and SEP Licensing: Economic Questions from the Trenches*, 9 J. COMPETITION L. & ECON. 859 (2013); Einer R. Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMPETITION L. & ECON. 535 (2008); Richard A. Epstein, F. Scott Kieff, & Daniel F. Spulber, *The FTC, IP, and SSOs: Government Hold-Up Replacing Private Coordination*, 8 J. COMPETITION L. & ECON. 1 (2012); Luke Froeb, Bernhard Ganglmair & Gregory J. Werden, *Patent Hold-Up and Antitrust: How a Well-Intentioned Rule Could Retard Innovation*, 60 J. INDUS. ECON. 249 (2012); Alexander Galetovic, Stephen Haber & Ross Levine, *An Empirical Examination of Patent Hold-Up* 11 J. COMPETITION L. & ECON. (forthcoming 2015), available at <http://hooverip2.org/working-paper/wp15010>; Damien Geradin & Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101 (2007); Damien Geradin, Anne Layne-Farrar & Jorge Padilla, *Competing Away Market Power? An Economic Assessment of Ex Ante Auctions in Standard Setting*, 4 EUR. COMPETITION J. 443 (2008); Damien Geradin, Anne Layne-Farrar & Jorge Padilla, *The Complements Problem Within Standard Setting: Assessing the Evidence on Royalty Stacking*, 14 B.U. J. SCI. & TECH. L. 144 (2008); Kirti Gupta, *The Patent Policy Debate in the High-Tech World*, 9 J. COMPETITION L. & ECON. 827 (2013); Sir Robin Jacob, *Competition Authorities Support Grasshoppers: Competition Law as a Threat to Innovation*, 9 COMPETITION POL'Y INT'L 15 (2013); Bruce H. Kobayashi & Joshua D. Wright, *Federalism, Substantive Preemption, and Limits on Antitrust: An Application to Patent Holdup*, 5 J. COMPETITION L. & ECON. 469 (2009); Gregor Langus, Vilen Lipatov & Damien Neven, *Standard-Essential Patents: Who Is Really Holding Up (and When)?*, 9 J. COMPETITION L. & ECON. 253 (2013); Mario Mariniello, *Fair, Reasonable and Non-Discriminatory (FRAND) Terms: A Challenge for Competition Authorities*, 7 J. COMPETITION L. & ECON. 523 (2011); James Ratliff & Daniel L. Rubinfeld, *The Use and Threat of Injunctions in the RAND Context*, 9 J. COMPETITION L.

ter even ignores concessions made by the leading proponents of the patent-holdup and royalty-stacking conjectures concerning the unavailability of injunctions to SEP holders and the infrequency with which licensor opportunism actually occurs. In 2014, Carl Shapiro and Fiona Scott-Morton, who previously served as chief economists at the Antitrust Division, said that “the risk of injunctions appears to be quite low” and that “[m]any holders of SEPs *do license at FRAND rates*, perhaps due to concerns about reputation or retaliatory conduct by others.”⁵¹ Some scholars are skeptical of whether patent holdup and royalty stacking have *ever* occurred in the implementation of a standard. In 2013, Commissioner Joshua Wright of the Federal Trade Commission (FTC) emphasized that, “[d]espite the amount of attention patent hold-up has drawn from policymakers and academics, there have been relatively few instances of litigated patent hold-up among the thousands of standards adopted.”⁵² In 2014, Alexander Galetovic, Stephen Haber, and Ross Levin found that, “over

& ECON. 1 (2013); J. Gregory Sidak, *Mandating Final-Offer Arbitration of FRAND Royalties for Standard-Essential Patents*, 18 STAN. TECH. L. REV. 1 (2015); J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. COMPETITION L. & ECON. 931 (2013); J. Gregory Sidak, *The Meaning of FRAND, Part II: Injunctions*, 11 J. COMPETITION L. & ECON. 201, 231–34 (2015); Richard S. Taffet & Hill B. Wellford, *Questioning the FTC’s Incremental Value Test and Claims of Widespread Hold-Up in Technology Standards*, 57 ANTITRUST BULL. 161 (2012); David J. Teece & Edward F. Sherry, *Standard Setting and Antitrust*, 87 MINN. L. REV. 1913 (2003); Joshua D. Wright & Aubrey N. Stuempfle, *Patent Holdup, Antitrust, and Innovation: Harness or Noose?*, 61 ALA. L. REV. 559 (2010); Kirti Gupta & Mark Snyder, *Smart Phone Litigation and Standard Essential Patents* (Hoover Inst. Working Grp. on Intellectual Prop., Innovation & Prosperity, Stanford Univ., Working Paper No. 14006, 2014).

50. As further evidence of the existence of patent holdup, Ms. Hesse, 2015 IEEE Business Review Letter, *supra* note 19, at 7 n.28, cites Joseph Kattan & Chris Wood, *Standard-Essential Patents and the Problem of Hold-Up*, in WILLIAM E. KOVACIC: AN ANTITRUST TRIBUTE—LIBER AMICORUM 409 (Nicolas Charbit & Elisa Ramundo eds., 2014). This book chapter from 2014 addresses only a small fraction of the scholarly articles since 2007 that dispute the patent-holdup and royalty-stacking conjectures. It appears to be the only source that Ms. Hesse cites in her letter that acknowledges any of the legal or economic scholarship since 2007 that disputes the patent-holdup and royalty-stacking conjectures. However, in the 2015 IEEE business review letter itself, Ms. Hesse does not acknowledge the existence of any of that subsequent scholarship.

51. Fiona M. Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, 79 ANTITRUST L.J. 463, 473, 475 (2014) (emphasis added).

52. Joshua D. Wright, Comm’r, Fed. Trade Comm’n, Remarks at the Center for the Protection of Intellectual Property Inaugural Academic Conference: The Commercial Function of Patents in Today’s Innovation Economy 20 (Sept. 12, 2013), available at http://www.ftc.gov/sites/default/files/documents/public_statements/ssos-frand-and-antitrust-lessons-economicsincomplete-contracts/130912cpip.pdf.

long periods[,] SEP industries tend to show better performance than most other industries,” and that innovation appears to grow fastest in SEP industries.⁵³ In 2015, Galetovic, Haber, and Levin also empirically refuted the classic hypothesis of the patent-holdup conjecture—that “hold-up will harm downstream consumers in the form of slower price declines and slower improvements in product quality and variety”—by showing that the quality-adjusted prices for products in SEP industries decline faster than quality-adjusted prices for products in non-SEP industries.⁵⁴ All of these empirical and theoretical challenges to the patent-holdup and royalty-stacking conjectures are conspicuously absent from Ms. Hesse’s letter. Instead, she warns parties not to say that patent holdup and royalty stacking are nonexistent problems.⁵⁵

Ms. Hesse might consider talking to more federal judges. Apart from incorrectly representing the current state of scholarly research on patent holdup and royalty stacking, Ms. Hesse incorrectly represents the current state of patent law. Her reliance on the Federal Circuit’s December 2014 decision in *Ericsson, Inc. v. D-Link Systems, Inc.*⁵⁶ is misplaced. To substantiate a claim that royalty stacking “may hamper implementation of a standard,” Ms. Hesse cites the Federal Circuit’s discussion in *Ericsson v. D-Link* of royalty stacking’s theoretical harms.⁵⁷ However, Ms. Hesse neglects to mention the Federal Circuit’s actual holding concerning jury instructions on patent holdup and royalty stacking. The Federal Circuit upheld Chief Judge Leonard Davis’ reasoning not to instruct the jury about the theoretical risk of patent holdup and royalty stacking because, he concluded, the accused infringers had presented no empirical evidence that patent holdup or royalty stacking had ever occurred.⁵⁸ Chief Judge Davis found that, “given the opportunity to present evidence of an *actual* stack[,]

53. Alexander Galetovic, Stephen Haber & Ross Levine, *Patent Holdup: Do Patent Holders Holdup Innovation?* 19 (Hoover Inst. Working Grp. on Intellectual Prop., Innovation & Prosperity, Stanford Univ., Working Paper No. 14011, 2014).

54. Galetovic, Haber & Levine, *supra* note 49, manuscript at 2.

55. See *supra* note 27 and accompanying text.

56. 773 F.3d 1201 (Fed. Cir. 2014).

57. 2015 IEEE Business Review Letter, *supra* note 19, at 13 n.47 (citing *Ericsson*, 773 F.3d at 1209).

58. *Ericsson*, 773 F.3d at 1233–34; *Ericsson Inc. v. D-Link Sys., Inc.*, 6:10-cv-00473, 2013 WL 4046225, at *18 (E.D. Tex. Aug. 6, 2013).

. . . [the] Defendants came up empty.”⁵⁹ Observing that “[a]ll of [the] Defendants’ concerns about royalty stacking were just that—concerns,”⁶⁰ Chief Judge Davis declined to instruct the jury that there existed any risk of royalty stacking.⁶¹ The Federal Circuit affirmed Chief Judge Davis’ decision and emphasized that, “[i]n deciding whether to instruct the jury on patent hold-up and royalty stacking[,] . . . the district court must consider the evidence on the record before it.”⁶² The accused infringer must show “something more than a general argument that these phenomena are possibilities.”⁶³ The Federal Circuit said that “[t]he district court need not instruct the jury on hold-up or stacking unless the accused infringer presents actual evidence of hold-up or stacking” in the case at issue.⁶⁴

Setting aside Ms. Hesse’s incomplete assessment of the theoretical and empirical foundations upon which the patent-holdup and royalty-stacking conjectures stand, she fails to examine the extent to which patent holdup and royalty stacking actually jeopardize the implementation of the IEEE’s standards and thus demand revision of the IEEE’s patent policy. The IEEE itself has emphasized the need to produce empirical evidence of this harm. In November 2014, the Board of Directors of IEEE-USA (a U.S. affiliate of the IEEE) approved a statement requesting “evidence (if any) that IEEE or IEEE-SA is harmed, or is threatened to be harmed, on account of its current patent policy.”⁶⁵ The Board of Directors also requested “factual evidence” of “specific problems being addressed by the [amended by-laws].”⁶⁶ However, in its business review request, the IEEE does not identify a single incident of harm to its standardization process. Similarly, Ms. Hesse’s assessment of this harm is devoid of any credible examples.

59. *Ericsson*, 2013 WL 4046225, at *18 (emphasis in original). Chief Judge Davis’ patent decisions, and the appeals from those decisions, are especially informative, as he has personally presided over 1,700 intellectual property matters in the most active district court for patent litigation in the United States. See *Biography—Judge Leonard Davis, Eastern District of Texas*, U.S. DIST. COURT FOR THE E. DIST. OF TEX. (Jan. 15, 2015), http://www.txed.uscourts.gov/cgi-bin/view_document.cgi?document=2388.

60. *Ericsson*, 2013 WL 4046225 at *26.

61. *Id.* at *18.

62. *Ericsson*, 773 F.3d at 1234.

63. *Id.*

64. *Id.*

65. IEEE-USA, Motion Approved by the IEEE-USA Board of Directors (Nov. 21, 2014), available at <http://www.ieeeusa.org/volunteers/committees/IPC/IEEEUSAPatentPolicyMotionNov14.pdf>.

66. *Id.*

Ms. Hesse further inflates the benefits of the IEEE's amended bylaws by dismissing less restrictive alternatives—namely, current legal mechanisms and developments that have significantly reduced the probability that an SEP holder can successfully engage in an opportunistic licensing practice. Ms. Hesse claims that the recent decisions in *Microsoft Corp. v. Motorola, Inc.*⁶⁷ and *Innovatio IP Ventures*⁶⁸ “demonstrate the *potential* for hold up when owners of RAND-encumbered standard-essential patents make royalty demands significantly above the adjudicated RAND rate.”⁶⁹ However, Ms. Hesse imputes a more extravagant meaning to these two decisions than the IEEE does in its request for a business review letter: “[I]n two cases relating to IEEE’s 802.11 standard, the patent holder and the implementer were several orders of magnitude apart in their respective valuations of the reasonable rate The breadth of these differing valuations suggests that IEEE-SA *has not provided sufficient clarity in its patent policy.*”⁷⁰ A large initial bid-ask spread in a negotiation due to a lack of clarity of the pricing rule does not prove the existence of, or even the potential for, patent holdup.

The greater problem with Ms. Hesse’s argument is that *Microsoft v. Motorola* and *Innovatio* both demonstrate not the potential for patent holdup, but rather the implausibility of patent holdup. Although the judge in each case ultimately set a royalty rate well below the licensor’s initial asking price, it does not follow from anything in those opinions or in Ms. Hesse’s letter that the adjudicated rates were necessarily high enough to be FRAND. The methodologies used to determine the final rates in those two decisions contained significant economic flaws.⁷¹ Moreover, even if one assumes for the sake of argument that the SEP holder’s initial asking price in each case was too high to be FRAND, the court’s rejection of that rate attests to the effectiveness of existing legal mechanisms for preventing patent holdup. Dennis Carlton and Allan Shampine observe that patent

67. No. C10-1823JLR, 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013).

68. No. 11 C 9308, 2013 WL 5593609 (N.D. Ill. Oct. 3, 2013).

69. 2015 IEEE Business Review Letter, *supra* note 19, at 7 n.28 (emphasis added) (citing *Innovatio*, 2013 WL 5593609, at *43; *Microsoft v. Motorola*, 2013 WL 2111217, at *100).

70. IEEE Business Review Letter Request, *supra* note 3, at 10–11 (emphasis added) (citing *Innovatio*, 2013 WL 5593609, at *12; *Microsoft v. Motorola*, 2013 WL 2111217, at *10, *87, *99).

71. See, e.g., Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 49, at 979–86, 1009–14.

holdup is particularly unlikely when the implementer has the legal right to challenge the SEP holder's offered licensing terms in court if it believes that the licensing terms are not FRAND.⁷² The implementer's ability to go to court affects the royalty negotiation and safeguards the implementer against unreasonable terms.⁷³

Ms. Hesse herself concedes the implausibility of patent holdup when she analyzes the IEEE's provision to restrict an SEP holder's right to seek an injunction. Ms. Hesse begins by depicting the threat of an injunction as a "powerful weapon" that enables an SEP holder "to engage in patent hold up,"⁷⁴ but she then defends the IEEE's new provision on the grounds that such a ban "will not be significantly more restrictive than current U.S. case law."⁷⁵ Confirming the latter proposition, Kirti Gupta and Mark Snyder of Qualcomm have found that, from 2003 to 2013, courts denied every request for an injunction in SEP infringement litigation.⁷⁶ Judge Douglas Ginsburg (a former Assistant Attorney General of the Antitrust Division) and coauthors Taylor Owings and FTC Commissioner Joshua Wright similarly report that, "despite all the handwringing over the prospect of SEP holders using injunctions and exclusion orders[,] . . . we have not found even one injunction or exclusion order that actually kept a product off the shelf because it infringed an SEP."⁷⁷ Thus, it is misleading and contrary to fact for Ms. Hesse in 2015 to characterize the SEP holder's threat of an injunction as a "powerful weapon." Once powerful perhaps, but certainly powerful no longer. If injunctions are rarely, if ever, available to SEP holders, then there is no serious risk that a SEP holder could use an injunction—much less the mere threat of an injunction—to hold up an implementer of the standard.

In sum, Ms. Hesse's depiction of the benefits of the IEEE's bylaw amendments is a string of false or implausible propositions leading to a fallacious conclusion. First, she assumes the theoretical and empirical validity of the patent-holdup and royalty-stacking conjectures. Second, she

72. Dennis W. Carlton & Allan Shampine, *Identifying Benchmarks for Applying Non-Discrimination in FRAND*, 8 COMPETITION POL'Y INT'L 1, 5 (2014).

73. *Id.*

74. 2015 IEEE Business Review Letter, *supra* note 19, at 9.

75. *Id.* at 10.

76. Gupta & Snyder, *supra* note 49, at 23.

77. Douglas H. Ginsburg, Taylor M. Owings & Joshua D. Wright, *Enjoining Injunctions: The Case Against Antitrust Liability for Standard Essential Patent Holders Who Seek Injunctions*, 14 ANTITRUST SOURCE, no. 1, Oct. 2014, at 4.

exaggerates the risk of patent holdup and royalty stacking. Third, she asserts that the IEEE's new policy mitigates that risk. Fourth, she mischaracterizes the current ability of a SEP holder to use, or threaten to use, an injunction to deny an implementer's access to the SEP holder's technology.

III. THE ANTITRUST DIVISION'S STUDIED INDIFFERENCE TO THE COORDINATED SUPPRESSION OF FRAND ROYALTIES FOR SEPS

Not only does Ms. Hesse exaggerate the benefits of the IEEE's amended bylaws, she also incorrectly dismisses their potential anticompetitive costs. If certain antitrust concerns compelled the IEEE to request a business review letter, and if a perceived need for clarification of the Antitrust Division's present enforcement intentions regarding those concerns motivated Ms. Hesse to answer, then why does her letter analyze none of those concerns? Ms. Hesse's failure to address the collusive implications of the IEEE's bylaw amendments is baffling, given the serious nature of such concerns and the Antitrust Division's record of prosecuting buyer cartels.

The Antitrust Division has worried that the functioning of an SSO is conducive to collusion.⁷⁸ The proponents of the patent-holdup and royalty-stacking conjectures have themselves observed that “[c]ooperative standard setting often involves horizontal competitors agreeing on certain specifications of the products they plan to market, implicating core antitrust issues regarding the boundary between cooperation and collusion.”⁷⁹ In addition to the general risk of collusion among all participants of an SSO, standard setting may facilitate collusion within smaller groups of participants, notably implementers of an industry standard. SEPs are essential inputs in the production of their products, and implementers, particularly those having weak or nonexistent SEP portfolios, share an incentive to suppress royalties for SEPs. Implementers could suppress SEP royalties directly, by collectively agreeing to lower the royalties that they will pay a specific SEP holder. Or implementers could suppress SEP royalties indirectly, by collectively lobbying SSOs to adopt rules that would make the enforcement of SEPs particularly onerous or that would prescribe particu-

78. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *supra* note 48, at 34–35.

79. Joseph Farrell, John Hayes, Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents, and Holdup*, 74 ANTITRUST L.J. 603, 603 (2007).

lar rate-setting methodologies guaranteed to produce lower royalties than would eventuate from bilateral negotiations undertaken in the absence of such coordinated modifications of SSO rules. Coordinated action to devalue SEPs can only harm long-run consumer welfare. A price for an SEP that buyers have suppressed through their coordinated action would diminish the SEP holder's incentives to continue contributing valuable technology to the SSO in question. By April 2015, Nokia, Ericsson, and Qualcomm each had reportedly stated publicly their unwillingness to license their technologies essential to the IEEE's 802.11 standard under the new rules of the IEEE patent policy, and InterDigital had directly informed the IEEE-SA by letter of its unwillingness to do so.⁸⁰ When the current price that implementers pay for a standard-essential technology is low, an innovator will pursue only easily attainable technologies, because low-cost technologies will be the only investments for which the firm can expect to earn a positive return. In the long run, the coordinated suppression of SEP royalties will retard innovation, curtail investment in those technologies that firms remain willing to contribute to a standard, and diminish long-run consumer welfare.

My letter to Ms. Hesse on January 28, 2015 explained that the IEEE's amended bylaws could facilitate buyer collusion.⁸¹ It is remarkable that Ms. Hesse's business review letter failed to explain her analysis of that danger. Companies that are major contributors of technology to the IEEE's standards expressed similar concerns. Ericsson told the IEEE that the proposed amendments "constitute[] the collective establishment of mandatory, uniform licensing terms . . . akin to a buyer's-side cartel."⁸² Other major holders of patents essential to IEEE standards, including Qualcomm and Nokia, echoed Ericsson's concern.⁸³ On January 14, 2015,

80. See, e.g., Susan Decker & Ian King, *Qualcomm Says It Won't Follow New Wi-Fi Rules on Patents*, Bloomberg (Feb. 11, 2015, 11:23 AM), <http://www.bloomberg.com/news/articles/2015-02-11/qualcomm-says-new-wi-fi-standard-rules-unfair-may-not-take-part>; Richard Lloyd, *Ericsson and Nokia the Latest To Confirm That They Will Not License Under the New IEEE Patent Policy*, IAM (Apr. 10, 2015), <http://www.iam-media.com/blog/detail.aspx?g=d07d0bde-ebd6-495a-aa72-4eeeb9dac67d>; Letter from Lawrence F. Shay, Exec. Vice President of Intellectual Prop., InterDigital, Inc., to David Law, Patent Comm. Chair, IEEE-SA Standards Bd. (Mar. 24, 2015), available at <http://wpupload.s.interdigital.com.s3.amazonaws.com/uploads/2015/03/Letter-to-IEEE-SA-PatCom.pdf>.

81. See Sidak's Letter to Hesse, *supra* note 15.

82. IEEE-SA Patent Policy: Draft Comments, Second Round, *supra* note 5, at Comment ID No. 39 (comments of Dina Kallay, Dir. for IP and Competition, Ericsson).

83. *Id.* at Comment ID Nos. 13, 38, 61.

Senator Christopher Coons of Delaware wrote a letter to Attorney General Eric Holder and Assistant Attorney General William Baer to say that the IEEE's amendments could "undermine the rights and competitiveness of U.S. inventors."⁸⁴ Even the IEEE's outside counsel—which in requesting a business review letter bore a duty of "full and true disclosure" to the Antitrust Division⁸⁵—mentioned the concerns of certain IEEE members that that the bylaw amendments could amount to "buyer-side price-fixing."⁸⁶ On these concerns about buyer collusion Ms. Hesse was mute.

Horizontal collusion has always been antitrust's gravest concern,⁸⁷ no less when buyers rather than sellers collude.⁸⁸ The Antitrust Division for that reason has repeatedly prosecuted buyer cartels under a theory of *per se* illegality.⁸⁹ It should treat buyer collusion within SSOs no differently. Yet, without explanation, Ms. Hesse applies a laxer standard to the risk of collusion over the prices that buyers will pay for SEPs than the Antitrust Division has applied to the risk of collusion over the prices that the very same buyers will pay for other kinds of essential inputs.

In 2010, the Antitrust Division prosecuted a buyer cartel of technology companies in Silicon Valley that had colluded to suppress the price of an essential input: highly skilled employees. In *United States v. Adobe Systems, Inc.*, the Division sued Adobe, Apple, Google, Intel, Intuit, and Pixar for engaging in "facially anticompetitive" collusion by enacting "no cold

84. Letter from Sen. Christopher A. Coons, U.S. Senate, to Hon. Eric Holder, Attorney Gen., U.S. Dep't of Justice, and Hon. William J. Baer, Assistant Attorney Gen., U.S. Dep't of Justice (Jan. 14, 2015), *available at* <http://ipwatchdog.com/materials/1-14-2015-Coons-IEEE.pdf>.

85. *See supra* note 11 and accompanying text.

86. IEEE Business Review Letter Request, *supra* note 3, at 18 (internal quotation marks omitted).

87. *See, e.g.*, RICHARD A. POSNER, ANTITRUST LAW 35 (2d ed. 2001) ("[B]y 1898 the Supreme Court had established the principle, *immensely important to the development of a sound antitrust policy*, that cartels and other price-fixing agreements were illegal regardless of the 'reasonableness' of the price fixed.") (citing *United States v. Joint Traffic Ass'n*, 171 U.S. 505 (1898); *United States v. Trans-Missouri Freight Ass'n*, 166 U.S. 290 (1897)).

88. *See, e.g.*, *Mandeville Island Farms v. Am. Crystal Sugar Co.*, 337 U.S. 219 (1948); *Todd v. Exxon Corp.*, 275 F.3d 191 (2d Cir. 2001); *Omnicare, Inc. v. UnitedHealth Grp., Inc.*, 524 F. Supp. 2d 1031 (N.D. Ill. 2007).

89. *See, e.g.*, Competitive Impact Statement at 1, *United States v. Omnipoint Corp.*, No. 1:98-cv-02750 (D.D.C. Nov. 10, 1998), ECF No. 1. The Antitrust Division and thirteen state attorneys general challenged a merger in October 2008 on the grounds that it would promote monopsony. *See Amended Complaint, United States v. JBS S.A.*, No. 1:08-cv-05992 (Nov. 7, 2008), ECF No. 48.

call agreements” in which they agreed not to hire away skilled employees from one another.⁹⁰ The Antitrust Division said that the “concerted behavior” of these companies “both reduced their ability to compete for employees and disrupted the normal price-setting mechanisms that apply in the labor setting.”⁹¹ The Division stressed that the “antitrust analysis of downstream, customer-related restraints is equally applicable to upstream monopsony restraints” because anticompetitive collusion “in both input and output markets create[s] allocative inefficiencies.”⁹² The U.S. District Court for the District of Columbia found the Silicon Valley buyer cartel to be *per se* illegal and permanently enjoined the defendants from engaging in their coordinated behavior.⁹³ In a subsequent class-action lawsuit alleging the same violation of section 1 of the Sherman Act by four of the prior defendants (Apple, Google, Adobe, and Intel), Judge Lucy Koh of the Northern District of California approved a \$415 million settlement in March 2015.⁹⁴

Given the Antitrust Division’s prosecution of the Silicon Valley buyer cartel in *Adobe*, why did the Division so credulously accept the asserted need for collective action in the IEEE’s proposed bylaw amendments and so thoroughly disregard, as undeserving of sustained discussion, the potential for those amendments to facilitate buyer collusion? In both cases, horizontal competitors coordinated their actions as buyers for the common purpose of suppressing the price they would need to pay for an essential input. The IEEE bylaw amendments even make the desired suppression of prices for SEPs explicit. Yet, the two cases elicited contradictory responses from the Antitrust Division. In the case of the Silicon Valley buyer cartel, the Division condemned the coordinated devaluation of an essential input (highly skilled labor) as *per se* illegal. In its review of the IEEE’s amended bylaws, the Division applauded the coordinated devaluation of

90. Complaint ¶ 2, at 2, *United States v. Adobe Sys., Inc.*, No. 1:10-cv-01629 (D.C.C. Sept. 24, 2010), ECF No. 1.

91. Competitive Impact Statement at 10, *United States v. Adobe Sys., Inc.*, No. 1:10-cv-01629 (D.C.C. Sept. 24, 2010), ECF No. 2.

92. *Id.* at 7–8.

93. Final Judgment § 4, *United States v. Adobe Sys., Inc.*, No. 1:10-cv-01629 (D.C.C. Mar. 18, 2011), ECF No. 17.

94. Order Granting Plaintiffs’ Motion for Preliminary Approval of Class Action Settlement with Defendants Adobe Sys., Inc., Apple, Inc., Google Inc., and Intel Corp., Approving Form and Manner of Notice, and Scheduling Final Approval Hearing, *In re High-Tech Emp. Antitrust Litig.*, No. 1:11-cv-02509 (N.D. Cal. Mar. 3, 2015), ECF No. 1054.

another essential input (intellectual property) as an unambiguous benefit to society. In the past, the Antitrust Division used a principle of symmetry to guide its antitrust scrutiny of conduct involving intellectual property and conduct involving other forms of property.⁹⁵ Even Ms. Hesse professed as recently as 2013 that “the Antitrust Division applies the same general antitrust principles to . . . matters involving intellectual property that it applies to any other type of property.”⁹⁶ She can no longer make that claim. An obvious *asymmetry* now characterizes the Antitrust Division’s evaluation of the collusive conduct alleged in *Adobe* and Ms. Hesse’s evaluation of the conduct of certain IEEE members in amending its bylaws.

There is an important economic distinction between an SEP input and a labor input. A suppression of the price of skilled labor will reduce the quantity of labor supplied, both in the short run and the long run. All other things being equal, as the quantity of labor supplied decreases, total output will decrease as well. Consequently, buyer collusion in the input market will generate an immediate deadweight loss in the output market.⁹⁷ In contrast, the suppression of the price of SEPs will reduce the output of SEPs *only* in the long run. Because the marginal cost to the licensor of each additional license is close to zero, it is unlikely that suppressing the FRAND royalty will decrease the number of licenses that the SEP holder grants in the short run.⁹⁸ Once a standard-essential technology has been developed, it is in the SEP holder’s interest to license its technology to a large number of licensees because some licensing revenue is better than none. Nonethe-

95. Commissioner Joshua Wright and Judge Douglas Ginsburg analyze this “principle of symmetry” and the U.S. antitrust authorities’ recent departure from it in cases involving SEPs. Joshua D. Wright & Douglas H. Ginsburg, *Whither Symmetry? Antitrust Analysis of Intellectual Property Rights at the FTC and DOJ*, 9 COMPETITION POL’Y INT’L 13, 15 (2013) (“A good deal of recent antitrust scholarship calls for more interventionist antitrust policy regarding IPRs—sometimes even expressly challenging the symmetry principle and calling instead for IP-specific antitrust treatment.”).

96. Renata Hesse, Deputy Assistant Attorney Gen., U.S. Dep’t of Justice, IP, Antitrust and Looking Back on the Last Four Years, Remarks Presented at the Global Competition Review 2nd Annual Antitrust Law Leaders Forum (Feb. 8, 2013), available at <http://www.justice.gov/atr/public/speeches/292573.pdf>.

97. See James M. Dowd, *Oligopsony Power: Antitrust Injury and Collusive Buyer Practices in Input Markets*, 76 B.U. L. REV. 1075, 1084 (1996).

98. See, e.g., Richard A. Posner, *Intellectual Property: The Law and Economics Approach*, 19 J. ECON. PERSP., Spring 2005, at 57, 58 (“Intellectual Property is often very costly to create, but the costs of creation, being invariant to output, are fixed costs once incurred. In contrast, the costs that vary with output, which is to say the costs incurred in actually providing the intellectual property to consumers, often are very low.”).

less, even if a buyer cartel can successfully suppress the prices of SEPs in the short run without causing the SEP holder to reduce output, that coordinated price suppression will still reduce the SEP holder's output in the long run.⁹⁹ Whatever static benefits might flow to consumers from lower SEP prices for downstream manufacturers would be offset by forgone consumer surplus in future periods because of reduced innovation and diminished dynamic efficiency.¹⁰⁰ The Antitrust Division's conclusion that the potential anticompetitive costs of the IEEE's bylaw amendments will not exceed their asserted benefits is illusory as soon as one views consumer welfare over a longer horizon, as is proper to do when addressing a technologically dynamic market.

Public choice considerations suggest that it is unrealistic to expect the Antitrust Division ever to take dynamic efficiency seriously. The electoral cycle drives the political process that installs the Division's top officials into positions of ephemeral authority. That cycle is short, which suggests that those officials have a high discount rate when assessing the long-run harm to consumer welfare from discouraging private investment in innovative activity. Someone else will be running the Antitrust Division by the time the adverse consequences of forsaking dynamic efficiency manifest themselves. Conversely, the Antitrust Division's current leadership will not receive accolades for long-run gains in consumer surplus that accrue, because of sustained investment in innovation, only after the current political cycle has ended and those leaders have left. This relationship between the political cycle and the discount rate of antitrust enforcers might explain why the federal judges, who notably have lifetime tenure, tend to credit arguments about dynamic efficiency in the debate over SEPs more than Ms. Hesse's business review letter to the IEEE suggests that the Antitrust Division does.

99. See J. Gregory Sidak, *Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations*, 5 J. COMPETITION L. & ECON. 123, 158–59 (2009); see also Posner, *supra* note 98, at 58 (“Marginal-cost pricing would maximize access to existing intellectual property and deter or expel inefficient entrants, but it would reduce, indeed often eliminate, the incentive to create the property in the first place.”).

100. See generally Sidak & Teece, *supra* note 26.

CONCLUSION

The Antitrust Division exists not to orchestrate or cheerlead the coordinated action of buyers in a market to suppress prices. It exists to ensure that firms obey the antitrust laws. That duty required the Division to assess, with skepticism and scrupulous impartiality, the competitive implications of the coordinated action of a subset of members of the IEEE that would benefit from the SSO's adoption of bylaw amendments having the purpose and effect of suppressing the FRAND royalties that this subset of members would pay to license standard-essential patents. The Division failed to discharge that duty. Its 2015 business review letter found that the IEEE's bylaw amendments would benefit economic welfare by mitigating patent holdup and royalty stacking. That conclusion was unsupported. The Division ignored the academic literature refuting the patent-holdup and royalty-stacking conjectures, and it did not cite any empirical evidence that patent holdup and royalty stacking have impaired implementation of the IEEE's standards. In a word, the benefits that the Division credited to the IEEE's amendments were fictitious. With respect to the competitive harm from the IEEE's bylaw amendments, the Antitrust Division ignored the obvious.