

A Competition Policy Perspective on Patent Law: The Federal Trade Commission's Report on the Evolving IP Marketplace

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It is well recognized that intellectual property and competition laws share the fundamental goals of promoting innovation and consumer welfare. Patents encourage innovation by preventing others from appropriating the value of the patent owner's investment. The antitrust laws preserve competition among new products and technologies, ensuring that consumers share in the gains from innovation. Both encourage firms to compete in the marketplace by investing in technologies that generate more efficient methods of production and new products and services for consumers.

Modern antitrust law has translated these broad goals into practice by examining the way the law is likely to affect incentives to innovate and compete. Attention to economic incentives began in earnest in the 1970s, with the rise of the Chicago School and its emphasis on the power of markets to drive efficient conduct and promote consumer welfare.¹ Economics has been especially influential in shaping the analysis of conduct involving the exercise of patent rights, leading, for example, to rule of reason treatment for most licensing arrangements.² Today, many economists advocate more nuanced approaches to antitrust that take into account the impact that imperfect information and complex business strategies can have on markets.³ But while economic tools and thinking have evolved, the effort to use economics to shape rules that discourage anticompetitive behavior and preserve incentives to innovate has remained the driving force behind antitrust law and policy for nearly forty years.

The Federal Trade Commission has long been a leading voice for adopting a similar economically grounded approach to patent law. The Commission issued its first major report on the patent system in 2003, focusing on the impact of patent quality on innovation and competition.⁴

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¹ See generally William E. Kovacic & Carl Shapiro, *Antitrust Policy: A Century of Economic and Legal Thinking*, 14 J. ECON. PERSP., Winter 2000, at 43; Daniel L. Rubinfeld, *On the Foundations of Antitrust Law and Economics*, in *HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST* 51, 54 (Robert Pitofsky ed., 2008).

² See Abbott B. Lipsky, *Current Antitrust Division Views on Patent Licensing Practices*, 50 ANTITRUST L.J. 515 (1981) (recognizing the pro-competitive benefits associated with licensing arrangements). In 1995, the Commission and the Department of Justice issued enforcement guidelines recognizing that licensing promotes more efficient arrangements for combining IP with other necessary inputs such as manufacturing expertise or complementary technologies. See U.S. Dep't of Justice & Fed. Trade Comm'n, *Antitrust Guidelines for the Licensing of Intellectual Property* (1995), available at <http://www.ftc.gov/bc/0558.pdf>. In 2007, the Commission and the Department of Justice jointly issued a report addressing a broader range of antitrust issues associated with the exercise of intellectual property rights that reflects many of these same economic principles. See U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION* (2007) [hereinafter 2007 Report], available at <http://www.ftc.gov/reports/innovation/P040101PromotingInnovationandCompetitionrpt0704.pdf>.

³ Kovacic & Shapiro, *supra* note 1, at 54–57; Rubinfeld, *supra* note 1, at 55–56.

⁴ U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY* (2003) [hereinafter 2003 Report], available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>.

Examining how trivial and overbroad patents undermine competition with no offsetting benefit to consumers, the Commission proposed reforming the patent examination process and the obviousness standards applied by courts. Some progress has been made in this area, with the Supreme Court tightening standards for obviousness⁵ and eliminating the presumption that had led to nearly automatic injunctive relief as an infringement remedy.⁶

In its latest study, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*,⁷ the Commission builds on its prior examination of the patent system by considering how patent notice and remedies affect innovation, competition, and consumer welfare in light of two important trends in technology markets: the growth of open innovation business strategies and the expansion of a secondary market for patents. Drawing on input from the business, legal, and academic communities, the Commission recommends changes to the rules on patent notice and remedies to encourage the efficient transfer of technology and limit the risks to innovation and competition that arise when patents are asserted after substantial investments are made to bring a product to market. By focusing on notice and remedies, the Commission addresses a number of the critical issues facing the IP marketplace today and continues the important dialogue on incorporating economic principles into the framework of patent law.

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Recent Developments in Technology Markets

Two broad trends in the technology marketplace are important to understanding the role the patent system currently plays in fostering innovation and competition. The first is the growth of open innovation business strategies. Manufacturing firms that traditionally developed technologies in-house now more often acquire technologies from specialized design firms or start-ups through technology transfer agreements and acquisitions.⁸ Technology transfer, which typically occurs “ex ante” or before the acquiring firm obtains the technology through other means or makes investments in development or commercialization, lowers barriers to entry for inventors who do not have access to the resources or capital necessary to bring a product to market. In addition to allowing for the efficient division of labor between inventors and manufacturers, there is also evidence that diverse research efforts increase the speed and likelihood of innovation.⁹

The patent system plays an important role in fostering open innovation by helping manufacturers identify promising technologies. By defining the scope of the rights at issue, patents can also make it easier for the parties to draft and enforce technology transfer agreements. This enables start-ups to attract funding more easily prior to licensing and encourages manufacturers to invest in development after acquiring those rights.¹⁰

⁵ KSR Int’l Co. v. Teleflex, Inc., 550 U.S. 398, 415 (2007) (rejecting the rigid “teaching, suggestion or method” test for obviousness and finding that a combination of known elements that is predictable to a person having ordinary skill in the art is obvious).

⁶ eBay v. MercExchange, 547 U.S. 338, 394 (2006). The Commission also recommended various legislative reforms, including the elimination of the presumption of patent validity. 2003 Report, *supra* note 4, ch. 5 at 28. The Supreme Court recently declined to adopt a more lenient standard for invalidating a patent—preponderance of the evidence—preserving instead the presumption of validity and clear and convincing standard for challenges. Noting the policy arguments advanced by the Commission and others, the Court held that the presumption was well embedded in the law and that any change in standard should be left to Congress. *Microsoft Corp. v. I4I Ltd. Partnership*, 131 S. Ct. 2238, 2252 n.11 (2011).

⁷ U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* (2011) [hereinafter 2011 Report], available at <http://www.ftc.gov/os/2011/03/110307patentreport.pdf>.

⁸ *Id.* at 34–36.

⁹ 2003 Report, *supra* note 4, ch. 2, at 9.

¹⁰ 2011 Report, *supra* note 7, at 40–43.

But in many instances patent licensing and sales take place “ex post,” after there has been an accusation of infringement, and, critically, after the accused firm has made a large irreversible investment in creating, developing, or commercializing the technology. Because patent infringement is a strict liability offense, the accused firm needs to avoid liability even if it invented the technology independently of the patent owner. The result can be “patent hold-up,” a situation in which the patentee can use the licensee’s sunk costs as leverage to negotiate a higher royalty than it would have been able to get ex ante. The increased uncertainty and higher costs resulting from ex post licensing and hold-up can in turn deter innovation and thereby harm consumers.

The risks associated with patent hold-up are particularly acute in light of another significant development in the IP marketplace—the growth of a secondary market for patents.¹¹ This development has led to the rise of firms, referred to in the Report as “patent assertion entities” (PAEs), that are in the business of buying and asserting patents. PAEs are middlemen that do not engage directly in research, development, or technology transfer but instead facilitate the ex post assertion of patents, often against manufacturers that have acquired the technology through independent means and made large investments in development and commercialization.¹²

Although PAEs share certain characteristics with other nonpracticing entities (NPEs), such as start-ups, design firms, and universities, their unique business model has generated considerable controversy. Infringement lawsuits, particularly in the information technology (IT) sector, have grown rapidly in the last decade, and some attribute that rise mainly to lawsuits filed by PAEs.¹³ The increased number of lawsuits, coupled with the rise in the number of landmark damage awards,¹⁴ have raised significant concerns about the potential adverse impact of PAE activities on innovation. PAEs claim they serve a vital role in the patent system, whether by compensating small inventors who might not otherwise have the resources to enforce their patents or reducing the investment risks associated with early stage technologies by acting as a ready buyer for the patents of failed start-ups. Detractors respond that the amounts paid to inventors and defunct start-ups are too small to affect investment incentives and that PAEs merely impose an inefficient tax on innovation.¹⁵

The rise of the PAE business model raises a number of important policy questions, as PAEs may exacerbate the risks associated with patent hold-up. However, it is also important to recognize that PAEs are largely a response to the incentives generated by the patent system, making them a symptom and not the disease. In fact, increasingly, manufacturers are themselves using patent portfolios to participate in the secondary market.¹⁶ And the line between PAEs and NPEs more

¹¹ *Id.* at 58–62.

¹² PAEs, derisively referred to as “patent trolls,” may take a variety of forms. They may buy and assert patents or engage in other activities that indirectly facilitate ex post patent assertions, such as funding litigation or acting as patent brokers. *Id.* at 62–66.

¹³ *Id.* at 58–60. There is little empirical evidence that looks specifically at litigation activity by PAEs. One study found that PAE initiated lawsuits accounted for 26 percent of the defendants sued for infringement of computer-related patents between 2000 and 2008. *Id.* at 62.

¹⁴ *Id.* at 161–62. While some of these damage awards have been reversed on appeal, the risk of an outsized payday encourages PAEs to acquire patents to either sell or license to manufacturers. Even aside from the potential exposure, IT sector representatives note that evaluating offers and defending litigation diverts attention and resources from more productive activities.

¹⁵ *Id.* at 52–53.

¹⁶ *Id.* at 64.

¹⁷ Innovating NPEs share at least one critical characteristic with PAEs: they are not typically vulnerable to a counterattack in a patent lawsuit. Thus, practicing entities cannot effectively protect themselves against patent hold-up by NPEs by holding defensive patent portfolios.

broadly often becomes blurred.¹⁷ For these reasons, the Commission does not make any recommendations directed uniquely to PAEs and instead proposes flexible reforms aimed at reducing the incentives to engage in patent hold-up for all participants in the IP marketplace.

Patents, Innovation, and Competition

These market developments have important implications for patent policy. Patents encourage investment in new technologies by enabling the patentee to appropriate the economic value of its innovation by either licensing its technology or selling a patented product.¹⁸ In some cases, a patent will confer monopoly power in a product or technology market. In most cases, however, the patented product or technology will compete with substitutes and generate a reward that reflects the competitive alternatives available to buyers.

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Innovation often proceeds as a cumulative process, with new technologies building on prior work. If an innovator is aware of a patent before making irreversible investments in a potentially infringing new technology, he can attempt to design around the patent, pursue a different business strategy, or negotiate a license before investing. However, if the innovator only learns about the patent after he invests, these alternatives can become costly relative to the status quo, a situation known as “lock in.” After lock in, a patentee can use his enhanced bargaining power to extract a royalty that reflects the value of the licensee’s sunk costs rather than the alternatives the licensee faced at the time the investments were made. This same dynamic applies where the infringer is a firm that invests in a complementary technology or makes irreversible investments in commercializing or manufacturing what it only later learns is an infringing product. This ex post shift in bargaining power can encourage inefficient strategic behavior by patentees and distort the incentives of firms to invest in follow-on technologies or the resources needed to bring a product to market. Moreover, the additional royalty payments may be passed along to consumers in the form of higher prices on final products.

Patent hold-up is a specific example of opportunism in the face of sunk costs, a problem that is well recognized in the economic literature.¹⁹ Because ex ante technology transfer agreements are negotiated before the licensee commits to a particular technological path, such agreements largely eliminate the opportunity for patent hold-up. But while ex ante licensing generates a number of positive benefits for innovation, it is unrealistic to assume that all licensing can occur at the ex ante stage. At the same time, blunt limits on a patentee’s ability to enforce its rights ex post degrade the value of the exclusive right conferred by the patent and risk harming incentives to innovate.

Recognizing the different incentives at stake, the Commission proposes reforms to the rules regarding patent notice and remedies to encourage ex ante licensing and reduce the negative effects that ex post licensing and patent hold-up can have on innovation and competition, without disrupting the central role that exclusivity plays in the patent system. Firms that have clear notice of the patent landscape at the time they invest in new technologies can take steps to shield

¹⁸ However, it is an overstatement to say that patents are necessary to appropriate the economic value of innovation in all cases. The extent to which firms rely on patents varies significantly by industry. For instance, patents play a more significant role in the pharmaceutical and biotechnology industries, where innovation is characterized by high fixed costs and easy imitation, than in the computer hardware and software sectors, where lead-time and trade secrecy have are more important. 2003 Report, *supra* note 4, ch. 3 at 14, 29, 43, 55–56.

¹⁹ 2007 Report, *supra* note 2, at 35 n.11; Carl Shapiro, *Patent Reform: Aligning Reward and Contribution*, in INNOVATION POLICY AND THE ECONOMY 111, 120 (Adam Jaffe et al. eds., 2007) (“The economics of opportunism are well understood and there is nothing at all exceptional about applying these ideas to patent licensing.”).

themselves from patent hold-up by designing around the patent or negotiating a license before committing to the patented technology.

Remedies also play a powerful role. To create efficient incentives to invest in innovation, patent law should seek to broadly align the reward from innovation with the incremental contribution a technology makes to economic value. Remedies that reflect the ex ante market value of a technology support these incentives while discouraging opportunistic efforts to exploit the hold-up value of a patent, including opportunistic behavior by PAEs.

It is worth noting that the Commission is not claiming that the ex ante market value will always reflect the full economic contribution of a patent. In certain cases, an important patent may disclose information that spurs invention falling outside the scope or duration of the patent.²⁰ Moreover, where innovation proceeds cumulatively, or many patented technologies contribute synergistically to the value of a product, it may not be feasible for each innovator to capture the full economic contribution of his technology. However, remedies that permit a patentee to capture the hold-up value of the patent do nothing to improve the alignment between economic value and reward in these situations because the hold-up value of the patent has nothing to do with the economic contribution of the patented technology and everything to do with the sunk costs of the infringer. Adopting the ex ante market value of a patent as the benchmark for infringement remedies thus improves incentives relative to the status quo.²¹

Because patent infringement is a strict liability offense, an uncertain or unpredictable patent landscape may cause firms to shy away from otherwise procompetitive investments that could give rise to an infringement claim.

The Challenge of Creating Effective Notice

For there to be effective notice, firms making investment decisions involving technology must be able to identify relevant patents and patent applications, as well as understand the scope of the claims. Because patent infringement is a strict liability offense, an uncertain or unpredictable patent landscape may cause firms to shy away from otherwise procompetitive investments that could give rise to an infringement claim. Poor notice also makes it more difficult for the parties that would benefit from a technology transfer arrangement to identify each other, and more difficult to reach agreement on the key terms if they do.

But the difficulty of obtaining effective notice varies considerably by industry. Those in the IT sector voice the greatest concern, noting that merely identifying the large number of patents that could be relevant to complicated, multi-component products is often cost-prohibitive. They also complain that even when they are able to identify relevant patents, claims are often too ambiguous to provide clear guidance.²² The patent prosecution process creates other problems. Even when applications are public, it is often difficult to predict from the specification the scope of claims that might ultimately issue.²³ Others identify fewer problems in each area. In the pharmaceutical and chemical industries, typically less than a few dozen patents may be relevant to a new compound.²⁴ And, while clearance efforts in the biotechnology and medical device sectors may

²⁰ Where these kinds of externalities exist, the patent system may under reward groundbreaking invention. *See, e.g.*, W. KIP VISCUSI, JOHN M. VERNON & JOSEPH E. HARRINGTON, *ECONOMICS OF REGULATION AND ANTITRUST* 800–14 (3d ed. 2000).

²¹ *See* Shapiro, *supra* note 19, at 123–25; *see also* Joseph Farrell, John Hayes, Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents and Hold-Up*, 74 *ANTITRUST L.J.* 603, 622–24 (2007).

²² 2011 Report, *supra* note 7, at 81–82.

²³ *Id.* at 87–89.

²⁴ *Id.* at 91.

potentially involve thousands of patents, a standardized vocabulary makes computerized searches relatively easy.²⁵

The Commission focuses on challenges in the following three areas that interfere with patent clearance: identifying and reviewing published patents and applications; understanding the boundaries of existing claims; and predicting claims that may issue from pending applications. It proposes reforms to the patent examination process and judicial standards governing claim interpretation and validity.

The U.S. Patent and Trade Office (PTO), for example, could improve the ease and accuracy of patent searches if it classified patents by industry, in addition to using its current internal classification system.²⁶ The Commission also recommends passage of legislation mandating public recordation of patent assignments and published patent applications.²⁷ Identifying patent assignees, including real parties in interest, would enable firms to navigate burdensome “patent thickets” by narrowing their searches to relevant patents owned by competitors.

The interpretation of existing claims is also a key challenge. Patent claims must describe the scope of patent rights with sufficient clarity that a person having ordinary skill in the art (PHOSITA) can reliably determine whether there is freedom to operate, but this often plays out poorly in practice. The Commission proposals to improve notice include use by the PTO of the *Miyazaki* test for indefiniteness to weed out ambiguous claims,²⁸ requiring patent applicants to define key terms and designate a dictionary for undefined terms, further encouraging patent examiners to build a prosecution history record that improves the clarity of claims, and judicial use of a fact-based PHOSITA standard that is better tailored to the technology at issue.²⁹

An effective clearance search also entails a review of pending applications. Requiring that the majority of applications be published within eighteen months of filing, irrespective of whether the applicant has also sought foreign protection, is one answer to the difficulties firms currently face from “submarine” patents.³⁰ Another is greater attention to notice problems resulting from the addition of new claims and claim amendments during the patent prosecution process. The Commission recommends more robust enforcement of the written description and enablement requirements, with a view toward ensuring that a PHOSITA is reasonably able to predict future claims from the specification.³¹

If implemented, the Commission’s proposals to improve notice should reduce the costs and uncertainty associated with patent clearance efforts in the biotechnology and pharmaceutical industries, where the current system appears to be manageable, albeit challenging. However, as the Report acknowledges, the recommendations are unlikely to remedy the problems in the IT industry, which faces unique and daunting notice issues. Foremost is the sheer volume of patents likely to be at issue. Products in the IT sector typically incorporate a large number of components,

²⁵ *Id.* at 92.

²⁶ *Id.* at 128.

²⁷ *Id.* at 130–31.

²⁸ In contrast to the Federal Circuit requirement that claims be “insolubly ambiguous” to be deemed invalid due to indefiniteness, see *Exxon Research & Eng’g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001), the PTO Board of Patent Appeals and Interferences in *Ex Parte Miyazaki* adopted a lower ambiguity threshold, holding that a claim may be indefinite if it is “amenable to two or more plausible claim constructions.” 89 U.S.P.Q. 2d 1207, 2008 Pat. App. LEXIS 26, at *13 (Bd. Pat. App. & Interf. Nov. 19, 2008).

²⁹ 2011 Report, *supra* note 7, at 101–02, 107–09, 112–16.

³⁰ *Id.* at 117–18.

³¹ *Id.* at 120–22.

each potentially covered by hundreds or even thousands of patents. IT firms operating in these patent thickets typically adopt strategies of “mutually assured destruction” to create a patent detente with other players in the industry.³² However, these defensive strategies are typically ineffective against PAEs that are not vulnerable to countersuit. And even this partial solution of mutually assured destruction has costs since the need to generate large defensive patent portfolios contributes to the problem of poor quality patents that may find their way into the secondary market.

In light of the overwhelming notice issues facing the IT sector, some commentators argue in favor of modifying the strict liability standard for inadvertent infringement. Proposals take a variety of forms, but recent attention has focused on an “independent invention” defense that would apply where invention is nearly simultaneous.³³ Under this proposal, an accused infringer would have a complete defense to infringement if it could prove it created the accused technology through independent means before the patent or patent application was public. There are mixed views on the wisdom of such a shift, which would be a dramatic departure from the current system. Some favor the defense, particularly in the IT arena, claiming that strict liability does little to deter infringement because most infringement is inadvertent.³⁴ Others argue that limits to strict liability would encourage firms to consciously disregard the patent landscape. Still others question the impact the defense would have on product development.³⁵ In the face of limited understanding of the possible impact of an independent invention defense, and concern about its merits outside of the IT industry, the Commission recommends further investigation into the costs and benefits of the various proposals. While the notice recommendations may not be a complete solution to the patent clearance issues facing the IT sector, the Commission’s recommendations on patent remedies, along with the recommendations to improve patent quality and tighten standards for obviousness proposed in the 2003 Report, would go a long way toward reducing the hold-up risks in the IT sector that are the corollary of poor notice.

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Getting the Incentives Right on Remedies

The principle that remedies should place the patentee in the position he would have been but for the infringement is well embedded in patent law and is largely consistent with efficient economic incentives. But courts applying the law do not always take into full account the likely competitive environment the patentee would have faced in the counterfactual world. A more nuanced application of this principle will better align economic contribution and reward in the patent system, encouraging more efficient investment in innovation and deterring opportunism.

Lost Profits and Reasonable Royalties. A patentee that competes with an infringer in a relevant market for the patented product may be able to recover lost profits for sales it would have made absent infringement.³⁶ To properly align reward with contribution, lost profits should reflect the competitive conditions the patentee would have faced absent infringement, including any competition from noninfringing alternatives. Some of the prevailing standards, however, leave courts

³² 2003 Report, *supra* note 4, ch. 2, at 30.

³³ 2011 Report, *supra* note 7, at 131–34.

³⁴ The evidence suggests that most litigated patent infringement claims are against inadvertent infringers. *Id.* at 131 n.337.

³⁵ Mark Lemley, *Should Patent Infringement Require Proof of Copying?*, 105 MICH. L. REV. 1525, 1531 (2007) (questioning the impact an independent invention defense would have on the pharmaceutical industry where it may be efficient for a single firm to make the investment necessary to take a compound from invention to market).

³⁶ *Rite-Hite Corp. v. Kelly Co.*, 56 F.3d 1538, 1545 (Fed. Cir. 1995).

little room for market facts. Under the four-factor *Panduit* test,³⁷ for example, courts deny lost profits to patentees facing competition from noninfringing substitutes, even if they could establish lost sales to an infringing competitor. The *Panduit* test thus risks undercompensating patentees that lost sales to an infringing competitor. The Commission recommends reconsideration of this rule to enable a patentee facing competition from noninfringing substitutes to show that its product was the next-best alternative for some customers that purchased the infringing product and recover lost profits on those sales.³⁸ Conversely, where the patented technology is one element in a multi-feature product, the “entire market value rule” permits the patentee to recover lost profits based on the value of all infringing sales, even where noninfringing substitutes for the patented feature were available. This mechanistic approach likely overcompensates patentees facing meaningful competition from noninfringing alternatives. Instead, the Commission recommends that patentees claiming lost profits based on infringement of a patented technology should be required to provide evidence of customer demand for the patented feature over noninfringing alternatives.³⁹

Patentees that cannot establish lost profits from infringement can recover reasonable royalties.⁴⁰ Royalties are the largest category of patent damages and the focal point in the current controversy surrounding the size of damage awards.⁴¹ Reasonable royalties that are based on the ex ante market value of the technology can discourage ex post infringement claims by patentees merely attempting to capitalize on the investments of others but will not discourage valid claims to protect patented technologies that an infringer would have valued over ex ante alternatives. To achieve these goals, royalty awards must place the patentee in the position he would have been in absent infringement.⁴² Courts direct litigants to reconstruct this but-for world by reference to a “hypothetical negotiation” between a willing licensee and a willing licensor at the time of the infringement under the seminal *Georgia-Pacific* framework.⁴³

Although courts recognize this framework in principle, they depart in practice in a number of crucial respects. In several cases, the Federal Circuit has allowed patentees to recover a reasonable royalty exceeding what a willing licensee and licensor would have negotiated on the grounds that additional damages are necessary to provide adequate compensation to the pat-

³⁷ *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978) (holding that to establish lost profits on a patented product, a patentee must show demand for the product, absence of noninfringing substitutes, the capability to exploit existing demand, and the amount of lost profits).

³⁸ 2011 Report, *supra* note 7, at 152.

³⁹ *Id.* at 156.

⁴⁰ *Rite-Hite*, 56 F.3d at 1554 (“A patentee is entitled to no less than a reasonable royalty on an infringer’s sales for which the patentee has not established entitlement to lost profits.”).

⁴¹ Many in the IT sector complain that excessive royalty awards for low quality patents depress innovation and encourage entry by PAEs. But others caution that systematically reducing damages would encourage infringement and undermine incentives to invest in risky but promising technologies. Representatives from the pharmaceutical and biotechnology industries also warn against reforms that would systematically reduce damages. Both sides dispute the meaning of the statistical evidence. 2011 Report, *supra* note 7, at 161–67.

⁴² *Id.* at 142.

⁴³ *Georgia-Pacific* delineates the governing standard for reasonable royalty awards, identifying fifteen factors that may be relevant to the factfinder’s determination of a reasonable royalty. *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970). Because the hypothetical negotiation is an exercise to determine the appropriate remedy for infringement, courts require that the negotiation occur under the assumption that the patent is valid and infringed. *Lucent Techs. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009).

entee or to punish infringement.⁴⁴ But excessive royalty awards that are a backdoor attempt to compensate patent owners for unproven lost profits or willful infringement allow patentees to capitalize on the hold-up value of the patent. The Commission urges against the use of reasonable royalty awards as a proxy for unproven lost profits and recommends instead that courts adopt a more flexible approach to lost profits to compensate patentees fully.

The Commission also warns against an overly expansive application of the *Georgia-Pacific* factors used to establish reasonable royalties. To align royalty awards with the market value of the technology, courts should adopt a hypothetical ex ante negotiation between the parties as the analytic framework for royalty calculations and treat the remaining *Georgia-Pacific* factors as nonexclusive categories of evidence that may be relevant to predicting the outcome of that negotiation. Most importantly, the outcome of a hypothetical negotiation should reflect competition from alternative technologies that may have existed prior to infringement. Royalty damages that exceed the additional value the patented technology creates for the licensee over the next best alternative, which is the maximum royalty rate a willing licensee would accept, should not be awarded. Moreover, courts should exercise their gatekeeping function more vigorously by excluding expert opinions that are based on facts or methods that have no bearing on the outcome of a hypothetical negotiation between the parties in the case.⁴⁵

[T]he Commission

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Injunctive Relief. The standards for awarding injunctive relief also provide courts with an opportunity to improve existing incentives. Where exclusive use is necessary to maintain the full value of the patented technology, injunctive relief can provide important incentives for innovation. But injunctive relief for minor technologies incorporated into multi-component products encourages opportunism by allowing the patentee to extract a settlement that far exceeds the value of its technology.

The Supreme Court's 2006 decision in *eBay v. MercExchange*,⁴⁶ which rejected a presumption in favor of injunctions, provides a flexible and useful framework for weighing these concerns. In applying the traditional equitable test for injunctions adopted in *eBay*, the Commission urges courts not to make unfounded assumptions about irreparable harm and the adequacy of money damages based solely on whether the infringer practices the invention. Where the patent covers a minor component in an infringing product facing competition from noninfringing alternatives, infringement is not likely to cause a practicing entity irreparable harm. In these instances, the ex ante value of the patented invention is likely to be small as compared to the potential hold-up costs relating to the product as a whole. Conversely, NPEs competing in technology markets may suffer irreparable harm if they are forced into licensing arrangements that undermine selective licensing strategies. By contrast, PAEs that license patents widely are unlikely to suffer irreparable harm if denied injunctive relief.⁴⁷

⁴⁴ 2011 Report, *supra* note 7, at 166–70. The Commission cites two problematic lines of cases: First, those in which the Federal Circuit expressly affirmed awards that included compensatory damages exceeding a reasonable royalty rate in order to provide the patentee with adequate compensation. *Id.* at 168 (citing *H.M. Stickle v. Heublein*, 716 F.2d 1550 (Fed. Cir. 1983), and *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098 (Fed. Cir. 1996)); and second, cases in which the award was plainly inconsistent with the willing licensee/willing licensor model because the royalty exceeded the cost of using a noninfringing alternative. *Id.* at 169 (citing *Monsanto v. McFarling*, 488 F.3d 973 (Fed. Cir. 2007), and *Monsanto v. Ralph*, 382 F.3d 1374 (Fed. Cir. 2004)).

⁴⁵ Until very recently, courts allowed expert opinions, relying on a rule of thumb that set reasonable royalty rates at 25 percent of expected profits for the infringing product. Expert opinion based on the so-called “25 percent rule” has now been held to be unreliable and inadmissible. *See Uniloc USA Inc. v. Microsoft*, 632 F.3d 1292, 1318 (Fed. Cir. 2011).

⁴⁶ 547 U.S. 338 (2006).

⁴⁷ 2011 Report, *supra* note 7, at 229.

Patent hold-up should also be considered when balancing the relative hardships between the parties and evaluating the impact of injunctive relief on the public interest. While injunctions should not be denied every time switching costs exceed the ex ante value of the patent, a denial is appropriate when the harm to innovation and consumers from patent hold-up swamps other concerns. This is likely to be the case if the infringer did not copy the technology, the patented technology covers a minor component in a complex product, and the patentee and infringer do not compete in a product or technology market.⁴⁸

A related issue concerns the standards for injunctive relief applied by the International Trade Commission, which has the authority to bar the entry of infringing products into the United States under Section 337 of the Tariff Act of 1930. Patent owners have in recent years increasingly turned to the ITC for relief, raising concerns that they may seek injunctions and exclusion orders from the ITC in situations where the possibility of obtaining an injunction in federal court is unlikely. In an effort to avoid inconsistent results, the Commission offers two suggestions. The first relates to Section 337's prerequisite that there be "an industry in the United States" relating to the patented invention. The Commission suggests that ex post licensing activity that is focused only on obtaining rents from existing products should not be deemed to satisfy this "domestic industry" requirement.⁴⁹ The Commission also recommends that the ITC consider the impact of hold-up under Section 337's public interest factor when deciding on the propriety of granting injunctive relief.⁵⁰ Doing so would help to reduce the potential for different results in ITC proceedings and federal courts.

Conclusion

Increasingly sophisticated business strategies based on exploiting the hold-up value of patents threaten to slow the pace of innovation and clog the patent system with inefficient litigation. The risks are greatest for the IT sector, where patents for minor technologies embedded in multicomponent products can be used to extract sizeable damage awards and settlements from firms that play a critical role in bringing these products to market. Because tailored reforms to notice may not be enough to solve the problems facing the IT sector, reforming the current approach to remedies is vital to ensure that patents promote rather than deter or impede innovation. Although not a complete solution to the many complex problems facing the patent system, the Commission's recommendations provide a roadmap for both current reform and further dialogue on the key challenges facing the IP marketplace today. ●

⁴⁸ In the standard-setting context, where an entire industry may be impacted, concerns about hold-up are magnified. These concerns, as well as whether there is a prior RAND commitment by the patent owner, should also be part of the injunction analysis. *Id.* at 234–35.

⁴⁹ *Id.* at 243.

⁵⁰ *Id.*